



# salt electrolysis + Cu/Ag ionization

## INSTALLATION GUIDE

**NEW MODEL 2016 FAN LESS**

from **3g SALT/L**

PORTABLE COLOR DISPLAY (TFT)

WORLDWIDE REMOTE CONTROL

WIFI and MODBUS

UPGRADE POSSIBLE

SELF CLEAN

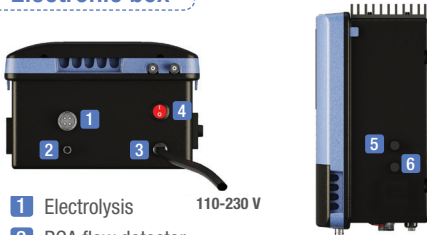
SEA WATER

### 1 DESCRIPTION

Water treatment system and a controller for swimming pools. This water treatment is a combination of salt water electrolysis and ionization. The salt water electrolysis produces chlorine on the bases of salt water of low salinity (more than 3 g salt per liter). The chlorine combats and eliminates bacteria, virus, pathogenic agents and oxidizes organic matter present in the water. The used chlorine reconverts into salt after a few hours. The copper/silver (Cu/Ag) ionization flocculates the suspended particles, achieving exceptionally clear and transparent water as a result. Aside from that, the ionization reinforces the elimination of bacteria and algae. The system controls centrally all the components of your pool, ensuring an efficient interaction.

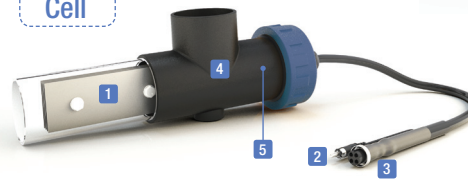


#### Electronic box



- 1 Electrolysis 110-230 V
- 2 RCA flow detector
- 3 Main connection 230 V
- 4 ON/OFF switch
- 5 Fuse for device and cell 4 A
- 6 Fuse relays 4 A

#### Cell



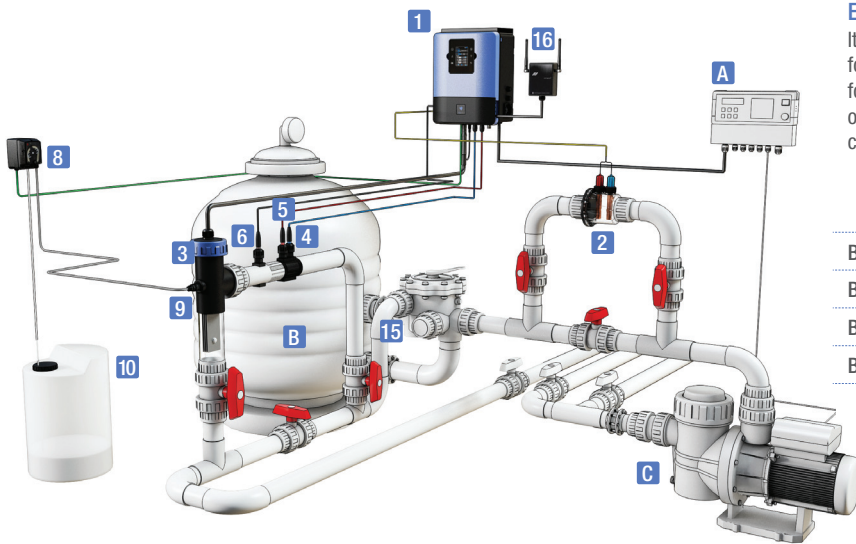
- 1 Electrolysis cell
- 2 RCA flow detector
- 3 Cell connector
- 4 Cell housing
- 5 Flow/gas detector (internal)

#### Ionization chamber



- 1 Ionization chamber (2 / 4 / 6 electrodes)
- 2 Copper/silver electrodes
- 3 Electrode nut
- 4 Electrode cable

### 2 SYSTEM INSTALLATION



- A Filtration pump timer
- B Silex / glass / diatom filter
- C Recirculation pump
- 1 Electronic box
- 2 Cu/Ag electrodes casing
- 3 Electrolysis cell (always in vertical position)
- 4 pH probe (optional - for models with pH control)
- 5 redoX probe (optional - for models with redoX control)
- 6 Conductivity probe (optional - for models with conductivity control)
- 8 Acid dosing pump (optional - for models with pH control)
- 9 Acid injector (optional - for models with pH control)
- 10 Hydrochloric acid container (optional, for models with pH control, not supplied with unit)
- 15 Other pool equipment
- 16 Module RF or RF/WIFI or WIFI

#### Electrical consumption

It's recommended to use a time delay circuit breaker of 25 A for domestic devices and a time delay circuit breaker of 40 A for industrial devices. In case of sharing the power supply with other devices please consult a technician in order to dimension a correct installation.

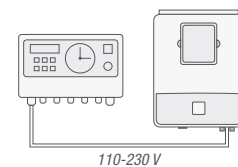
Product	Maximum consumption	gr Cl <sub>2</sub> /h	Product	Maximum consumption	gr Cl <sub>2</sub> /h
BIO 16	140 W	16	BIO 85	680 W	85
BIO 22	150 W	22	BIO 125	1000 W	125
BIO 33	175 W	33	BIO 175	1020 W	175
BIO 50	220 W	50	BIO 250	2880 W	250

Domestic devices

Industrial devices



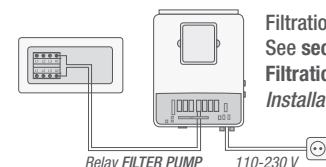
\* Filtration control by external timer



Filtration mode: "Manual/ON"



\* Filtration control by internal timer



Filtration mode: See section 5 - Filtration of the General Installation Guide

## 3 INITIAL WATER ADJUSTMENTS

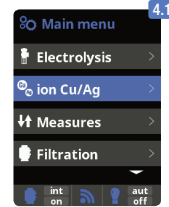
### Water adjustments

- 1 Alkalinity between 90 and 110 ppm's.
  - 2 pH between 7,2 and 7,5.
  - 3 Chlorine between 1 y 1,5 ppm's.
- If water comes from a well: Shock chlorination with trichloroisocyanuric acid (2 kg / 50 m<sup>3</sup> of water).

### Adding salt to the water

- 1 We recommend to add 5 grams of salt (without iodine) for each liter of water in your swimming pool (5 kg NaCl per m<sup>3</sup> water).
  - 2 Open the bottom valve of your swimming pool and add the salt directly to your swimming pool water. Let the circulation pump run during the first 24 hours.
- The system may operate while the salt is dissolving and will operate without problems with salt concentrations from 2,5 g/l to 50 g/l.
  - In pools with strong insolation, it's necessary to add 40 gr/m<sup>3</sup> of stabiliser (isocyanuric acid).

## 4 ION Cu/Ag



4.1 ion Cu/Ag:  
lonizer operating menu.



4.2 Intensity in mA:  
Recommended value  
within 20 to 50 mA.  
Recommended timer  
setting: Pr 10

## 5 MAINTENANCE

### First days of maintenance

During the first 10-15 days your pool system will require more attention and the following care:

- 1 During the use of the lonizer it is important not to exceed copper concentrations of more than 0,5 ppm in the water. For this reason it is mandatory to measure copper levels during the initial phase (first weeks) and to readjust copper production between 20 to 50 after establishing 0,5 ppm copper in the water. Furthermore the time limitation Pr 10 (see section "4.2 ion Cu/Ag") has to be initiated.
- 2 Make sure the pH remains on the ideal level (7,2 - 7,5). If the pH is unusually unstable and uses a lot of acid, check the alkalinity (recommended levels between 80 - 120 ppm).
- 3 The pool must be vacuumed and the skimmers cleaned whenever necessary to ensure perfect water conditions.

*REMEMBER that the system requires a certain amount of time to adapt to your swimming pool and will require additional chemicals during the first 3-5 days.*

### Cleaning the titanium cell

If necessary, carry out a monthly visual inspection. To clean the cell:

- 1 Remove the cell from its support (after turning off the filtration system and closing off the necessary valves).
- 2 Place the cell for no more than 10 minutes in 15% hydrochloric acid (1,5 l of acid for each 8,5 l of water).
- 3 Once the incrustations have softened remove with a hose to complete cleaning the cell.

**DO NOT USE METALIC OR SHARP OBJECTS TO REMOVE INCRUSTATIONS.** Scratching the edges or surface of the cell will make it vulnerable to chemicals, deteriorate the cell and cancel the guarantee.

### Fortnightly checks

FREE CHLORINE: 1,0 - 2,0 ppm  
pH: 7,2 - 7,5  
Cu CONCENTRATION: 0,3 - 0,5 ppm

### Monthly checks

TOTAL ALKALINITY (TAC) pH: 80 - 120 ppm  
SALT CONCENTRATION: 4.000 - 6.000 ppm

CYANURIC ACID: 30 - 50 ppm  
TITANIUM CELL: Visual inspection to detect incrustations.

### Mantenimiento general

- 1 The pool must be vacuumed as usual and the skimmers emptied whenever necessary.
- 2 **FILTER BACKWASHING:** The system requires only occasional filter backwashing; once every 20 days should be sufficient (providing the filter pressure does not exceed 1 bar, in which case a backwash may be necessary).  
*VERY IMPORTANT: Make sure the cell is off while cleaning the filter. If the system controls the filtration pump, use the option "filter cleaning" of the programmed filtration mode. See section 5- Filtration / Filter Cleaning of the General Installation Guide.*
- 3 **ADDING NEW WATER:** Always through the skimmers so that the new water passes through the system before entering the pool. Remember to add the necessary salt (5 gr) per added liter of water.
- 4 In winter changing the pool water is not recommendable. We recommend that the system runs 2-3 times per week (2-3 hours per day).
- 5 **DOSING PUMPS:** Check regularly to ensure that the container contains liquid to prevent the dosing pump of running dry. The dosing pump requires maintenance (SEE INSTRUCTIONS ON BOX).
- 6 **pH PROBES / redoX / CONDUCTIVITY:** Probes must be cleaned whenever necessary (check every 5-6 months). To clean the probe insert in distilled water (clear liquid). After each cleaning the probes must be calibrated. Also: the probes should never dry out and must be kept wet if stored (when emptying the pool for winterizing, make sure to store the measuring head in water).

## 6 TROUBLESHOOTING

### Blank display

- Check if ON/OFF switch is illuminated.
- Check the connection wire between display and motherboard.
- Check fuse of the device 3.15 A – it could have tripped due to overload.
- Check the power supply 110V/60Hz – 230V/50Hz.
- If problem persists contact TECHNICAL SERVICE

### Electrolysis does not reach maximum intensity

- Low water temperature.
- Check sodium bromide or common salt concentration in water.
- Check cell status (may be incrustated or calcified).
- Clean the cell according to the instructions in section 5.
- Clean the flow detector situated in the cell housing.
- Check titanium cell is not worn out (remember that the cell is guaranteed for 5.000 hours, approx. 2-3 years of summer usage).

### Free chlorine levels don't reach 0,2 ppm

- Increase filtration interval.
- Increase electrolysis level.
- Check levels of sodium bromide or common salt in the pool (5 gr NaCl/l).
- Check level of isocyanuric acid in pool (30-50 ppm), only if using common salt.
- Check if reactive agents in test kit are expired.
- Check if the temperature or amount of users has risen.
- If the water pH is above 7,8 it must be adjusted.

### Electrolysis display shows LOW

- Water lacks conductivity (see section 3 - Initial water adjustments).
- Check for incrustations on cell.
- See section 6 - Electrolysis does not reach maximum intensity.

### Electrolysis display shows FLOW

- Check flow detector cable.
- Clean incrustations of flow detector at the top of cell housing.
- Check if system is free of air (probe must be always submerged).

### Polarity 1 reaches maximum intensity, but polarity 2 (auto clean) does not reach maximum intensity

- If salt level is correct (5 kg/m<sup>3</sup>): Cell is reaching its end of life. As of this moment check intensity every 15-30 days.
- When polarity 2 does not reach medium intensity, we recommend substituting the cell for a new one if it happens during the summer period. If it happens during winter, change the cell before the next summer period.

### Excess of chlorine in the water

- Lower electrolysis cell intensity.
- If your system includes automatic redoX control, check redoX setpoint.
- Check redoX probe and calibrate it if necessary.

### Titanium cell incrustated in less than 1 month

- Very hard waters with a high pH and total alkalinity: balance water adjusting pH and total alkalinity.
- Check to ensure the system automatically changes polarity every 300 minutes approximately.
- Consult with our technical service to consider accelerating the polarity change (auto-cleaning). **WARNING:** Accelerating the polarity change decreases the cell life (5.000 hours) proportionally.

### Alarm AL3 and pH dosing pump stopped

- The maximum dosing time (standard 200 min.) is accomplished and the acid dosing pump stops in order to avoid the acidification of the water.
- To delete the message and to restart the metering press ESC (⊙). Do the following verifications in order to preclude errors on the device: Verify if the pH probe reading is correct (if not, calibrate the probe or substitute it with a new one); Verify if the acid/base deposit is full and if the dosing pump is working correctly; Verify the variable speed of the dosing pump.

### White flakes in the water

- The water is excessively hard and it is unbalanced.
- Balance the water and check the cell, proceeding to clean it if necessary.
- Put 1 small bag of flocculant in the skimmer and recirculate 24 hours.

### Rust on metallic components in the pool

- Metallic elements lack standardized earth connection. Contact an electrician to solve the problem.
- Rusted components are not stainless steel (minimum 304 – recommended 316).

### WARNING

Keep chemical levels in pool as instructed in this manual.

### CLEANING FILTER

Very Important: Make sure the cell is off while cleaning the filter. If the system controls the filtration pump, use the option "filter cleaning" of the programmed filtration mode. See section 5 – Filtration / Filter Cleaning of the General Installation Guide.

### VERY IMPORTANT

Remember that the system needs some time to adapt to your pool and that you will have to increase chemical levels for the first 5 days.

### EARTHING

All metallic components in the pool such as lamps, ladders, heat exchangers, drains or similar elements within 3 m from the pool (10 feet) must be connected to an earth below 37 Ohms. If using heat exchangers, we recommend them to be made of titanium.

### SECURITY

To avoid accidents, children should not handle this product unless supervised by an adult. Children should be supervised at all times when in or near a spa, pool or jacuzzi.

### HANDLING AND DOSING DANGEROUS CHEMICALS

Chemicals should be handled with extreme precaution. When preparing acid, always add acid to water, never add water to acid, because very dangerous gasses may be produced.

