aquascenic
INSTALLATION GUIDE

1g SALT/L

PORTABLE COLOR DISPLAY (TFT) | WORLDWIDE REMOTE CONTROL | WIFI and MODBUS

UPGRADE POSSIBLE | SELF CLEAN | FRESH WATER

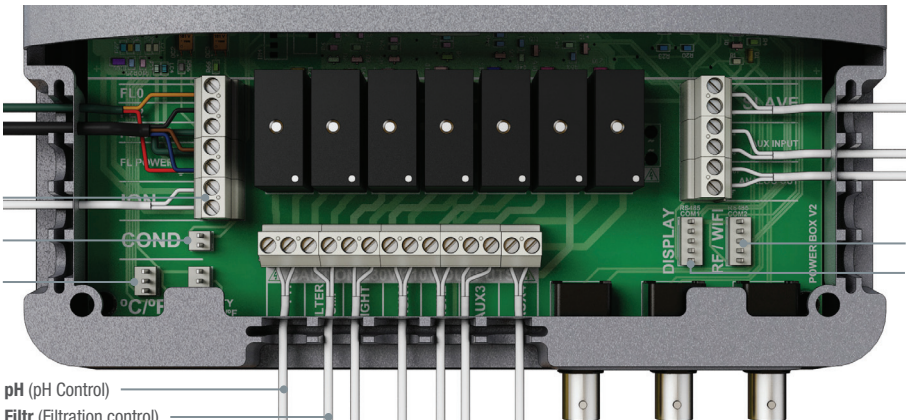
1 DESCRIPTION

With the hydrolysis system we produce active agents such as oxygen, hydrogen peroxide, OH and ozone from water (H_2O - with a minimum conductivity of 1000 mS). As the water passes through the hydrolysis cell these oxidizing agents are produced by breaking up the H_2O molecule into its components. Organic matter present in the water is oxidized and eliminated – the water is purified. As the water returns to the swimming pool the produced active agents reconvert into water.
This process is combined with a copper/silver ionization which provides a constant flocculation and an additional disinfectant, eliminating bacteria and algae. The result is exceptionally clear and transparent water.

Electronic box

1. Hydrolysis
2. RCA flow detector
3. Main connection 220 V
4. ON/OFF switch
5. 3.15 A fuse
6. 250 mA fuse
7. Fuse relays 3.15 A
8. Ventilation grid

Electrical connections of the electronic box



ATTENTION: 230 V Output

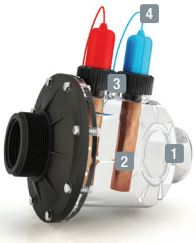
- **RELAY 1 - pH** (pH Control)
- **RELAY 2 - Filtr** (Filtration control)
- **RELAY 3 - Lighting** (Lighting control)
- **RELAY 4 - AUX 1** (Base)
- **RELAY 5 - AUX 2** (Chlorine / RedoX / Ozone)
- **RELAY 6 - AUX 3** (CD / UV)
- **RELAY 7 - AUX 4** (Heat pump)

Cell

1. Hydrolysis cell
2. RCA flow detector
3. Cell connection
4. Flow/gas detector
5. Cell housing

Ionization chamber

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



Optional automatic controls

pH control

Metering and control of the pH of the water.

redoX control

Metering and control of the redoX as check value of the free chlorine.

Free chlorine control

Metering and control in ppm of the free chlorine of the water.

Conductivity

Metering and control of the conductivity of the water in Msiemens.

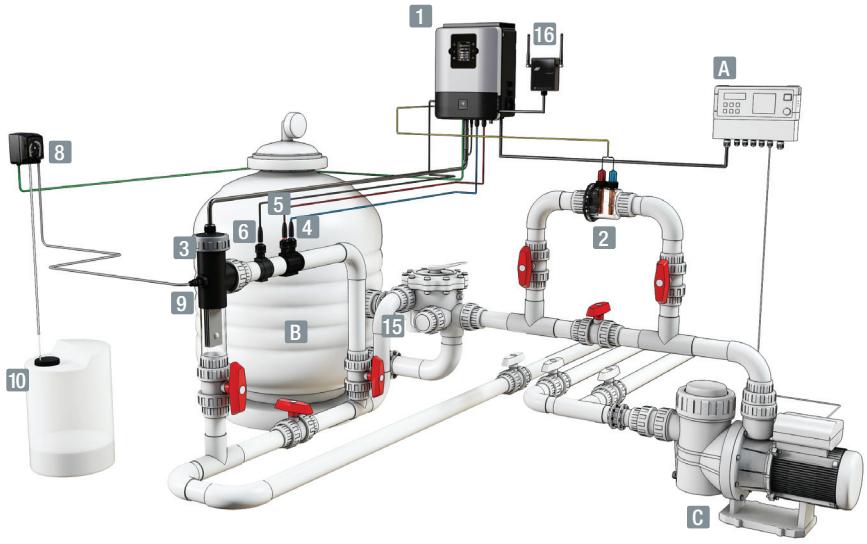
Temperature

Temperature probe 0 - 100° C necessary to activate the modes filtration / heating / intelligent / smart.

Flow detector

Input for mechanic security flow switch. Stops the hydrolysis due to lack of water flow.

2 SYSTEM INSTALLATION



Electrical consumption

Product	Maximum consumption	Recommended protection
HD 1	80 W	10 A
HD 2	120 W	10 A
HD 3	400 W	16 A
HD 4	680 W	16 A
HD 5	1000 W	25 A
HD 6	1020 W	25 A
HD 7	1500 W	25 A

- A Filtration pump timer
- B Sílex / glas / ditomen filter
- C Recirculation pump
- 1 Electronic box
- 2 Cu/Ag electrodes casing
- 3 Hydrolysis 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

Aquascenic synchronized with filtration
In case of using an **external clock** for filtration control, make sure that the system is synchronized with the filtration of the pool and stops if the water circulation comes to a halt. In case of using the **internal timers** of the device, the unit should permanently be connected to 230 V / 125 V (see guide for electrical connection).

Titanium cell connection overheating
Ensure all electrical connections are firmly fixed to avoid false contacts and subsequent overheating of system components (especially concerning the hydrolysis cell with usage above 400 W).

3 INITIAL WATER ADJUSTMENTS

Water adjustments

1. Adjust the alkalinity between 90 and 110 ppm's.
2. Adjust the pH between 7,2 y 7,5.
3. Adjust the chlorine between 1 y 1,5 ppm's.

- *In case the water is supplied from a well: Shock chlorination with trichloroisocyanuric acid (2 kg / 50 m³ of water).*

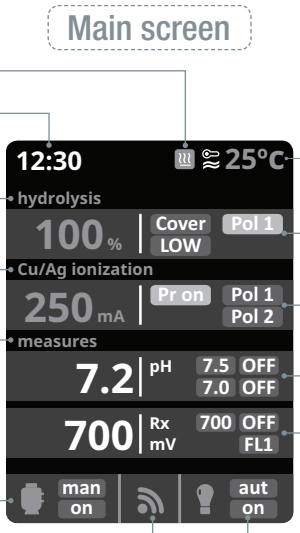
Conductivity adjustments

1. In poorly conductive waters **add 1 kg of sodium chloride** (NaCl) for every m³ of pool water.

- *In pools which receive large amounts of strong sunlight, it's necessary to add 30 gr/m³ of stabiliser (isocyanuric acid).*

4 FUNCTIONING OF THE SYSTEM

Main screen



- Heating ON/OFF
- Current time
- **Hydrolysis** — Intensity of the production in %
- **Cu/Ag ionization** — Intensity in mA
- **Automatic measurements** — pH / redoX / free chlorine / conductivity *(according to model)*
- **State filtration relay** *(see section 4.4 - Filtration)*
  - man Manual
  - aut Automatic
  - hea Heating
  - smt Smart
  - int Intelligent
- **Communications** — red Error communication
- **Water temperature**
- Cover — Production automatically reduced to the % selected *(see display 1.2)*
- Pol 1 / Pol 2 — Polarity 1 / Polarity 2
- --- Waiting time
- Flow — Filtration stopped due to lack of water flow
- LOW — Lack of conductivity or salt / scale on cell / exhausted cell *(check working hours)*
- Pr on — Ionizer timer
- Pol 1 / Pol 2 — Polarity 1 / Polarity 2
- 7.5 — Setpoint pH maximum (acid control)
- ON/OFF — Function of acid pump and base pump
- AL3 — Maximum dosing time exceeded (to reset the alarm)
- 7.0 — Setpoint pH minimum (base control)
- ON/OFF — Function of chlorine pump
- FL 1 / FL 2 — Flow alarm / Error rotameter Cl_2
- 700 — Setpoint redoX minimum
- **State relay lighting**
  - man Manual / aut Automatic

4.1 Hydrolysis

1.1 Hydrolysis: Programming of hydrolysis functions.
1.2 Level: Desired disinfection production (%).

1.2 Cover: Connection of automatic cover.
Reduction: % of reduction of disinfection production when cover is closed.

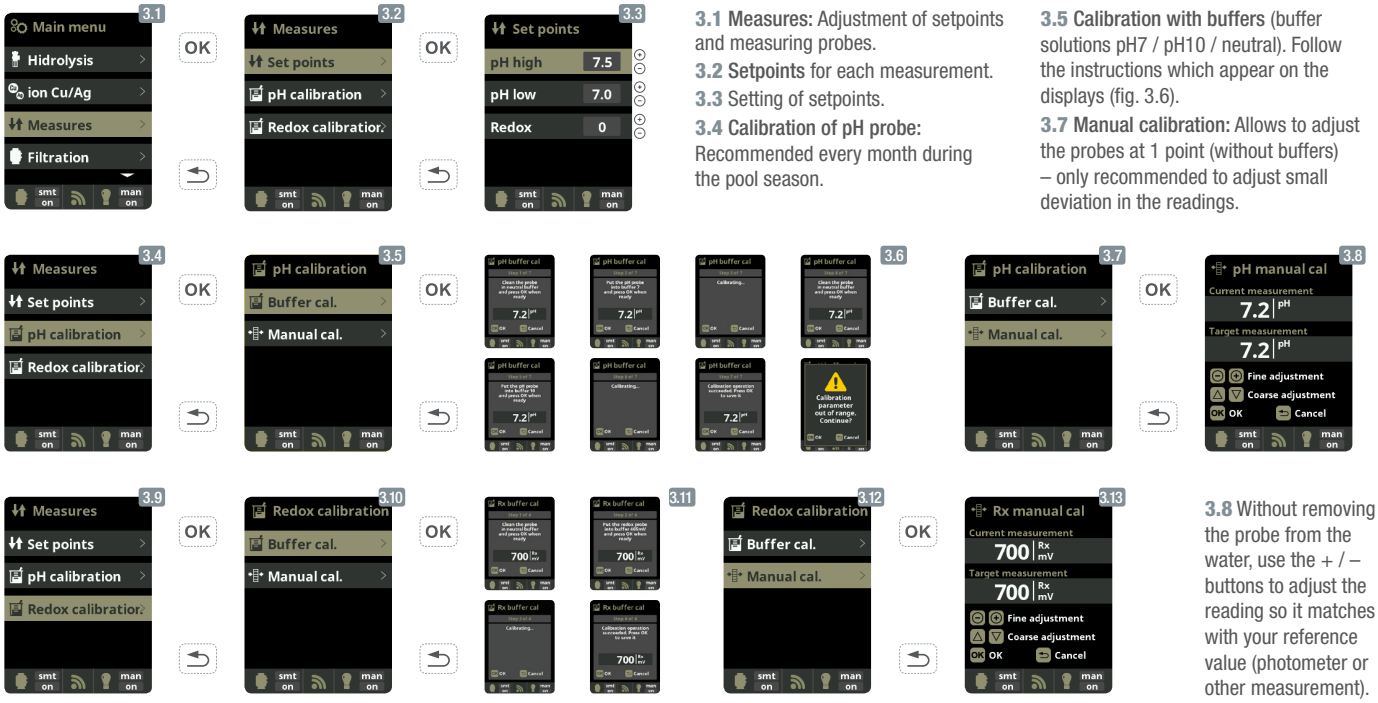
1.2 Shock: Continuous filtration during 24h at max intensity. Auto return to programmed filtration mode.
1.3 During the shock period the redoX control can be deactivated.

4.2 ion Cu/Ag

2.1 ion Cu/Ag: Ionizer operating menu.

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

4.3 Measures



3.1 Measures: Adjustment of setpoints and measuring probes.
3.2 Setpoints for each measurement.
3.3 Setting of setpoints.
3.4 Calibration of pH probe: Recommended every month during the pool season.

3.5 Calibration with buffers (buffer solutions pH7 / pH10 / neutral). Follow the instructions which appear on the displays (fig. 3.6).
3.7 Manual calibration: Allows to adjust the probes at 1 point (without buffers) – only recommended to adjust small deviation in the readings.

3.8 Without removing the probe from the water, use the + / – buttons to adjust the reading so it matches with your reference value (photometer or other measurement).

3.9 Calibration of the redoX probe: Recommended every 2 month during the pool season.

3.10 Calibration with buffer (buffer liquid 465 mV). Follow the instructions which appear on the displays (fig. 3.11).

3.12 Manual calibration: Allows to adjust the probes at 1 point (without buffers) – only recommended to adjust small deviation in the readings.

3.13 Without removing the probe from the water, use the + / – buttons to adjust the reading so it matches with your reference value (photometer or other measurement).

4.4 Filtration

4.1 Filtration modes.
4.2 Manual: Allow to switch ON and OFF the filtration process manually, without timer and additional functions.
4.3 Automatic (or with timer): In this mode the filtration switches on according to some timers which allow the adjustment of start and stop of the filtration. The timers always work on daily bases.
4.4 Smart*: This mode uses, as a basis, the automatic or timer mode, with its 3 intervals of filtration, but adjusting the filtration time in function of the temperature. For that reason 2 parameters of temperature are provided: The maximum temperature, from which on the filtration times will be the ones from the timer setting. The minimum temperature: below this value the filtration time will be reduced to 5 minutes, which is the minimum working time. Between these 2 temperatures the filtration times will climb linearly. There is an option to activate the antifreeze mode in which the filtration will start if the water temperature is below 2° C.
4.5 Timed heating with option of climatization*: This mode acts equally to the automatic mode, but besides it includes the option to work on a relay to control the temperature. The desired temperature is set in this menu and the system works with a hysteresis of 1 degree (example: the setting temperature is 23° C, the system will activate itself when the temperature goes below 22° C and will not stop before it passes 23° C).
Clima OFF: The heating only works within the set filtration periods.

›› (continues next page)

4.4 Filtration (continuation)

›› **Clima ON:** Keeps the filtration working when the filtration period is finished if the water temperature is below the setting temperature. When the setting temperature is reached the filtration and the heating will stop and will not switch on till the next programmed filtration period.

4.6 Intelligent*: In this mode the user has 2 working parameters: The desired water temperature and the minimum filtration time is selected (minimum value of 2 hours and maximum of 24 hours). The filtration will work for at least 10 minutes every 2 hours to check the temperature. The selected minimum filtration time is divided in 12 fragments and is added to the 10 minutes. **Example 1:** In 12 hours, the time is divided by 12 times per day when the filtration pump starts up to check the water temperature.

Example 2: (12 hours x 60 minutes) / 12 = 60 minutes every 2 hours. This is the filtration and heating time every 2 hours.

If the filtration time finishes, without the temperature reaching the desired level, the filtration/heating continues until the desired temperature is accomplished. In order to keep the filtration-electricity-cost to a minimum, this additional filtration time is subtracted from the following filtration periods of the day.

* **Note:** Modes only visible if the option to use temperature and/or heating probe is activated in INSTALLER´S menu.

4.5 Lighting

5.1 Lighting.

5.2 Manual mode (ON/OFF).

5.3 Automatic mode: Shuts lights ON/OFF according to a timer. The timers can be configured with a frequency: Daily; Every 2 days; Every 3 days; Every 4 days; Every 5 days; Weekly; Every 2 weeks; Every 3 weeks; Every 4 weeks.

4.6 Auxiliary relays

6.1 Auxiliary relays.

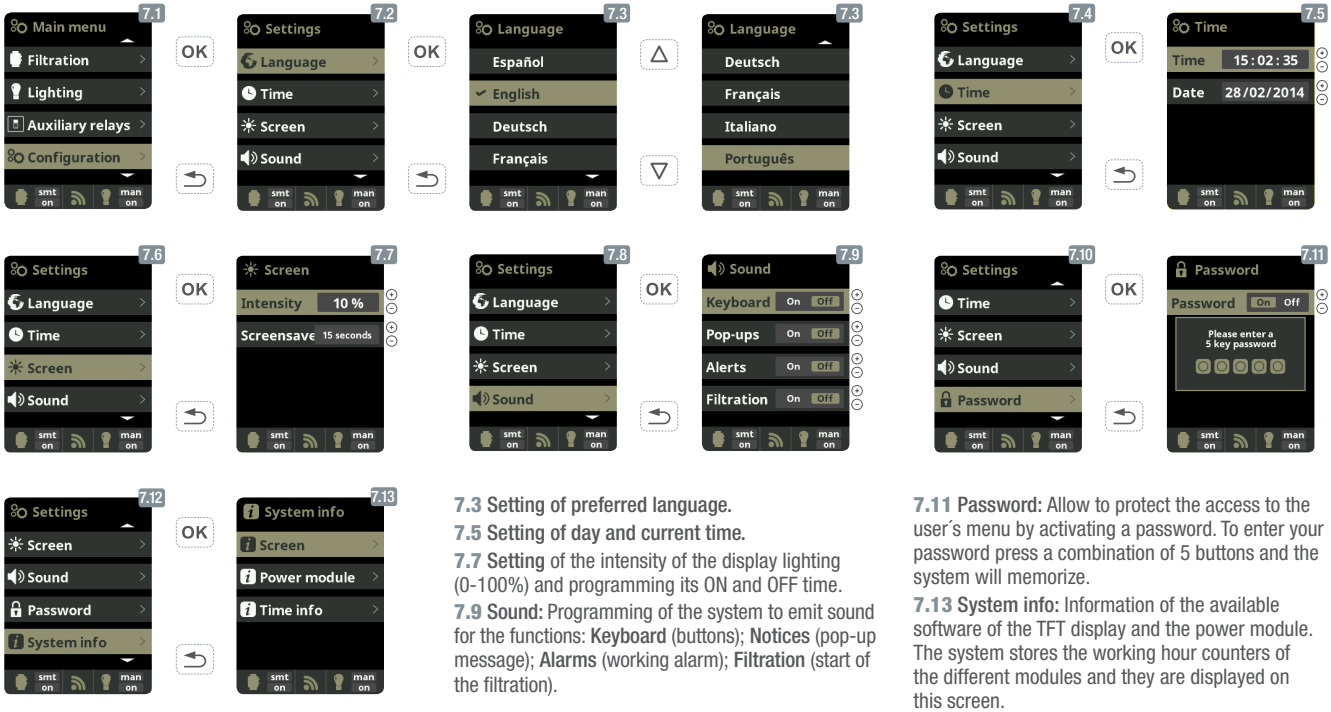
6.2 It is possible to control up to 4 extra auxiliary relays (water features, fountains, automatic irrigation systems, built-in cleaning systems, air pumps for spas, garden lighting, etc.). This menu displays the relays which are still available on your device and allow configuration.

6.3 Manual mode (ON/OFF).

6.4 Automatic mode: ON/Off according to a timer. The timers can be configured with a frequency: Daily; Every 2 days; Every 3 days; Every 4 days; Every 5 days; Weekly; Every 2 weeks; Every 3 weeks; Every 4 weeks.

6.5 Timer mode: Working time is programmed in minutes. Each time the selected button on the front panel is pressed, the relay will start up for the time programmed. This function is recommended for the timing of air pumps for spas.

4.7 Settings



7.3 Setting of preferred language.

7.5 Setting of day and current time.

7.7 Setting of the intensity of the display lighting (0-100%) and programming its ON and OFF time.

7.9 Sound: Programming of the system to emit sound for the functions: **Keyboard** (buttons); **Notices** (pop-up message); **Alarms** (working alarm); **Filtration** (start of the filtration).

7.11 Password: Allow to protect the access to the user´s menu by activating a password. To enter your password press a combination of 5 buttons and the system will memorize.

7.13 System info: Information of the available software of the TFT display and the power module. The system stores the working hour counters of the different modules and they are displayed on this screen.

5 SYSTEMS WITH redoX CONTROL

The redoX value advises us of the oxidation/reduction potential and is used to determine the level of water sterilization. The parameters or setpoints are the minimum/maximum accepted redoX levels before the titanium cell is connected/disconnected. Adjusting the ideal redoX level (setpoint) is the last step in the Aquascenic start up sequence. To find the optimum redoX levels for your pool follow these steps:

1. Connect the pool filtration system (the salt in the pool must be adequately dissolved).
2. Add chlorine to the pool till a level of 1-1,5 ppm is achieved (approx. 1-1,5 gr/ m^3 of water). pH levels should be between 7,2 - 7,5.
3. After 30 min. test the free chlorine levels in the pool (manual test kit DPD1) if the free chlorine level is between 0,8 - 1,0 ppm. Look at the redoX screen and memorize this level as the setpoint to CONNECT / DISCONNECT the hydrolysis cell.
4. The next day check free chlorine levels (manual test kit DPD1) and redoX. Raise / lower setpoint if necessary.
5. Remember to check the redoX set-point every 2-3 month and/or if the water parameters change (pH / temperature / conductivity).

6 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 Ionizer 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 - 125 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

Maintenance of the disinfection system (hydrolysis) consists of cleaning the cell every 2-3 months. 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: 7,1 - 7,5
Cu CONCENTRATION: 0,3 - 0,5 ppm

Monthly checks

TOTAL ALKALINITY (TAC) pH: 80 - 120 ppm
SALT CONCENTRATION: 800 - 1.500 ppm
CYANURIC ACID: 30 - 50 ppm
TITANIUM CELL: Visual inspection to detect incrustations.

General maintenance

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 backwashing the filter. If the system controls the filtration pump, disconnect the cell by unplugging the RCA flow detector while backwashing (see section Cell in the Description).
3. ADDING NEW WATER: Always through the skimmers so that the new water passes through the Aquascenic before entering the pool. Remember to add the necessary salt (1 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 must be kept wet (if stored).

7 TROUBLESHOOTING

Blank display

- *Check if ON/OFF switch is illuminated.*
- *Check the connection wire between display and motherboard.*
- *Check external 250 mA fuse has not blown.*
- *Check electric supply 210-230 V 50Hz.*
- *If problem persists contact TECHNICAL SERVICE*

Excess of chlorine in the water

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

Hydrolysis does not reach maximum intensity

- *Check sodium bromide or common salt concentration in water.*
- *Check cell status (may be incrusted or calcified).*
- *Clean electrode following instructions in section 6.6*
- *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).*

Titanium cell incrusted 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 (LED's alternate every 300 min. approx.).*
- *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.*

Free chlorine levels don't reach 0,2 ppm

- *Increase filtration interval.*
- *Increase hydrolysis level.*
- *Check levels of sodium bromide or common salt in the pool (1 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.*

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.*

Hydrolysis display shows LOW

- *Water lacks conductivity (see section 3 - Initial water adjustments).*
- *Check for incrustations on cell.*
- *See section 7 - Hydrolysis does not reach maximum intensity.*

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.*

Hydrolysis 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).*

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).*

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

- *If salt level is correct (1 kg/m³): 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.*

WARNING
Keep chemical levels in pool as instructed in this manual.

CLEANING FILTER
Make sure the cell unit is off while backwashing the filter. If the system controls the filtration pump, disconnect the cell unplugging the RCA flow detector (see section Cell in the Description).

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.