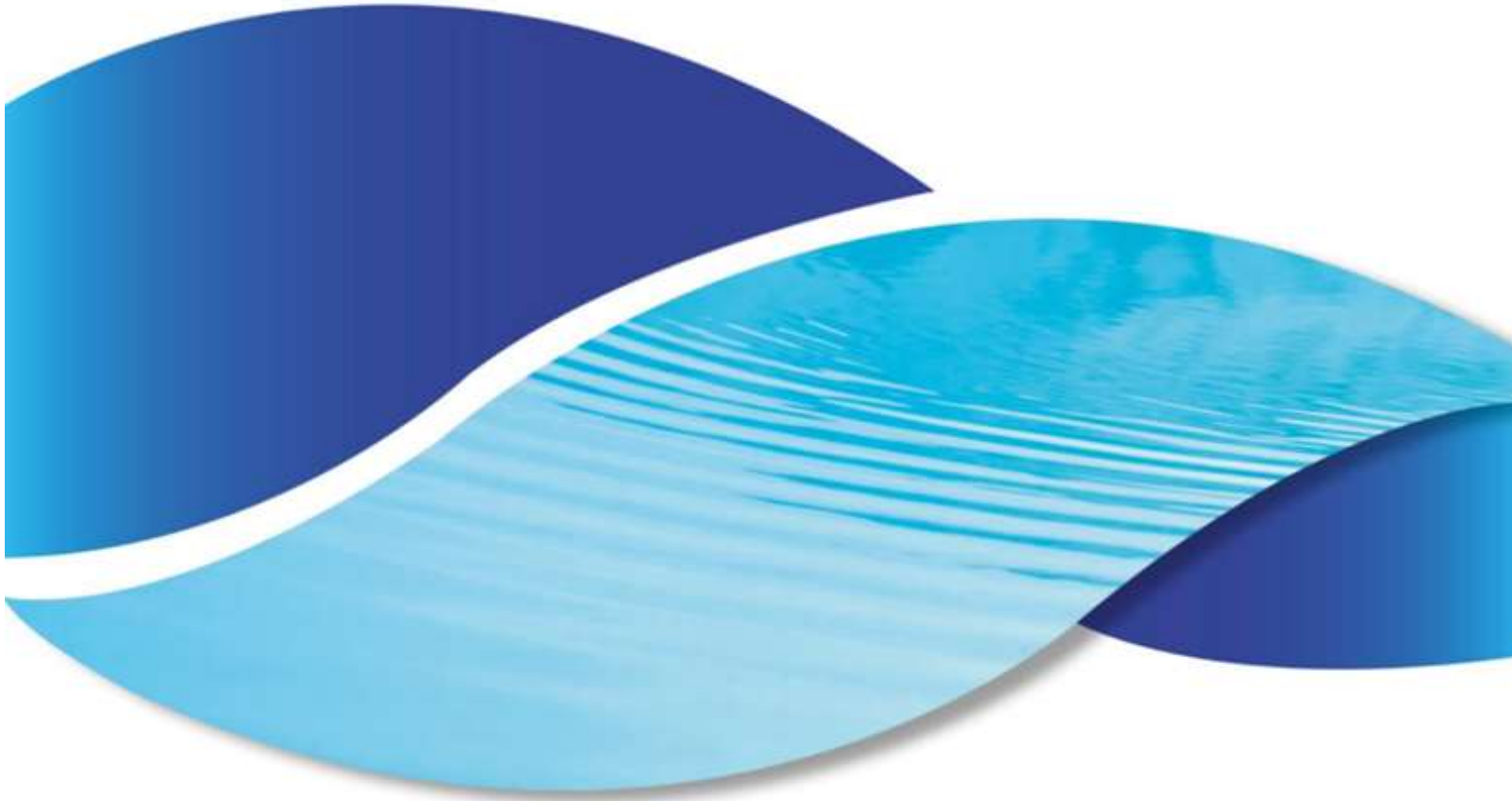




**BENIFERRO.eu**  
plug & play products



# WIFIPOOL DUO SQ DISPLAY COMPLETE MANUAL



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## INTRODUCTION

The “Wifipool DUO” is used to monitor and control pH, and Redox (chlorine), of your swimming pool. pH and redox (chlorine) are measured continuously. If pH is too high, or chlorine levels too low, it will automatically pump liquid pH- or Chlorine in the swimming pool. The Salt electrolysis will also measure the conductivity.

The equipment is designed to monitor and control the pH and redox content (chlorine) of your swimming pool. This guide provides information necessary for installation, troubleshooting, and maintenance. Please read the entire manual on [www.beniferro.eu](http://www.beniferro.eu) before installing and commissioning the product.

To install and use the measuring and control box, you need to follow a series of steps:

- 1 Installation
- 2 pH and RX calibration and automation of pH and RX adjustment
- 3 Leak testing



This manual contains all the necessary information for installation, troubleshooting and maintenance. Read the manual thoroughly before opening or using the unit. The manufacturer of this product will not be held responsible for any injury to and/or damage of the product resulting from improper installation or unnecessary/incorrect maintenance. It is essential that the instructions in this manual be always followed.

## SAFETY WARNINGS AND INSTRUCTIONS

To ensure optimal product usage and prevent accidents, please thoroughly review this manual before installing and using the product. It is imperative to strictly adhere to the instructions for your safety and proper operation of the salt chlorinator. Failure to heed safety warnings could result in severe consequences including serious injury, property damage, and even life-threatening situations.

### **General**

- Installation personnel must carefully review this manual before proceeding with installation. In case of any improper or mistaken operation, please contact your supplier.

- This appliance is not intended for use by individuals (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless supervised or instructed by a responsible person regarding its safe use.
- Improper installation can create an electrical or chemical hazard, which can result in serious injury.
- Always wear safety gloves and safety glasses when working on the installation.
- If you are not familiar with the pool filter system and dosing equipment:
  - Read the entire installation and operating instructions before using the dosing equipment.
  - Only a qualified installer, centre, individual or an authorized dealer can repair this product.
  - never modify anything without consulting your supplier, professional pool contractor.
  - In the event of damaged parts, only use original replacement parts. Failure to do so will void your warranty.
- Maintenance and operation should be performed according to the recommended time and frequency, as stated in the manual.
- Do not install the device in an area where the electronic components of the chlorinator may be damaged by moisture or rain.

### **Electrical**

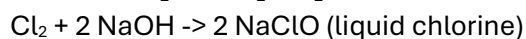
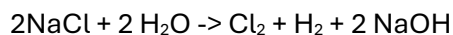
- It is recommended to install the water treatment system in a bypass configuration so that :
  - Salt electrolysis and acid pumps cannot work if the filter pump does not work. This can be done by purchasing a metering unit with a flow switch, adding a flow switch to the system, or using the same or shorter timer than the filter pump.
  - Salt electrolysis and acid pumps can be switched off manually. This can be done via the on/off switch on the bottom of the dosing pump or via the manual control of the app.
- The electronics or the device itself should never be connected to an output of a frequency converter or drive.
- If a AC drive is used, we recommend placing it at least 3 m away from the metering unit, using a separate circuit for the inverter and the salt electrolysis unit, and checking the interactions between the AC drive and the pH RX measurement (make sure that the pH and RX do not deviate when the inverter is switched on and off).
- All external power supplies and adapters for pool equipment must be connected to a power source with 30 mA residual current protection.
- Make sure all appliances and pool water are properly grounded. The pool hose is grounded via in-line grounding on an independent grounding pole.
  - Before performing any maintenance or operation, make sure that the peristaltic pump and/or salt electrolysis are disconnected/in the "OFF" position, all machines are turned off, and the power source is turned off.
- NEVER make adjustments inside the equipment
- Our devices do not have an audible alarm, only an alarm on the screen.

### **Chemical**

- In the event of a leak, ensure that no water or chemicals can drip onto the equipment
- Calibrate the pH and RX probes before first use and at least every 3 months thereafter. Check

the chlorine level and pH "regularly" with a staining method.

- The addition of pool chemicals should be done after the pool accessories such as water heater, UV lamp, filter and after the measuring probes
- Chlorine (made by salt electrolysis) and acid react with each other to form toxic chlorine gas. Make sure that the chemicals are placed outdoors or in a very well-ventilated area in a drip tray, that they cannot come into contact with each other and that they are kept out of the reach of children...
- Place tubs underneath the unit to catch leaks from peristaltic pumps and injection fittings.
- The chemicals used, have to be placed in a second security container, with a volume larger than the chemicals container.
- Repair leaking pipes immediately. Do not operate equipment with leaky pipes.
- Make sure that the machines you use are programmed in such a way that acid and salt electrolysis never work at the same time.
- The acid peristaltic pump should not be used with hydrochloric acid (HCl).
- Use a maximum of 14.99% sulfuric acid as the pH regulator. Only units with a black viton peristaltic tube are resistant to hydrochloric acid (HCl).
- Make clear markings on your equipment and on the chemicals.
- Do not allow children or unauthorized persons to access the chemicals.
- To ensure proper operation of peristaltic pump and salt electrolysis, check pumps weekly for leaks. • In case of leaks, repair immediately.
- The Redox of a salt electrolysis system can only be used using gold plated RX probes, as platinum coated probes are deactivated by reaction with hydrogen (H<sub>2</sub>) formed during the electrolysis process



## **Additional safety measures for the product "Box"**

In the "box" product, acid and chlorine (made by salt electrolysis), which can react and form chlorine gas, lie next to each other. Additional security measures must be taken:

- Attach the box to the ground in a place that is protected from possible physical impacts (e.g. from a ball) so that the box can never move.
- Lock the box with a padlock if children or people with reduced physical, sensory or mental abilities may have access to the facility (padlock not included)
- Make sure that acid drums are well sealed and have watertight pipe passages (level measurement, suction and ventilation). The exhaust air from the drum must be made outside the box (cable and bore included).
- Be careful, open and check the system regularly. Be careful when opening the box, as chemical gases and liquids can accumulate in the box.
- In case of leakage: Stop the installation immediately.
- Follow the installation plan included with the box

## SPECIFICATIONS

Internal code	Chlorine capacity – max pool volume	Mounting	Flow switch	Level switch	Salt Electrolysis
bwpX7075	125 m <sup>3</sup>	DIY	Yes	No	42 g/h
bwpX7076	125 m <sup>3</sup>	DIY	Yes	Yes	42 g/h

The capacity of a salt electrolysis is expressed as the grams of chlorine produced per hour.

The relationship between the g/h and the volume of pool for which the salt electrolysis can be used, is relative.

Beniferro defines that per 30m<sup>3</sup> of swimming pool volume, 10 g/h chlorine needs to be produced to be able to keep the pool clean and healthy with a water treatment operation time of 8 hours.

This assumption is correct for the average 28 °C swimming pool in Western Europe, provided the pool is covered when it is not being used.

Factors increasing the necessary chlorine capacity are – in order of importance:

- not covering the swimming pool.
- increased pool temperature or pool under an enclosure.
- increased exposure of the pool to direct sunlight.
- increased number of swimmers in the pool.

For outdoor pools, to reduce the loss of chlorine due to UV radiation on the water, it is necessary to maintain the level of Cyanuric Acid chlorine stabilizer between 30-50 ppm (mg/l).

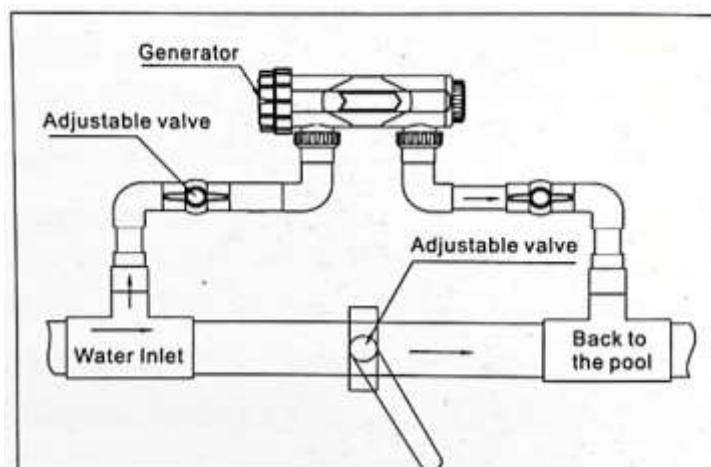
## INSTALLATION INSTRUCTIONS

### **General**

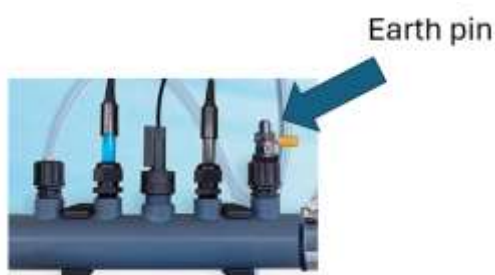
The factory supplies the water treatment unit electrically connected and, in some case, already mounted on a plate or in a box. Modification to the unit has to be made by trained personnel, knowledgeable about swimming pool technology and electrical systems. The attention points below must be respected.

Read the Safety instructions and warnings before proceeding with the installation

### **General installation recommendations**



- Fix the water treatment unit on a solid base or against the wall (always vertical).
- The product must be installed indoors in a dry, warm and well-ventilated area. If you want to do this outside, the unit will need to be sheltered from rain and direct sunshine.
- Install the water treatment after pump and filter, and after all accessories such as UV lamp, heating, ionization .... Equipment.
- Connect water inlet and water outlet, so that the water passes first along the Redox and pH measuring electrode and then along the salt electrolysis (or vice versa).
- To connect the pipes, use only line that is suitable for gluing PVC.
- Optionally you can add level switches to the installation. The level switches will stop dosing of the pH liquid, when the liquid level in the drum is “low”.
- Make sure the Water is earthed via a separate earth pin.

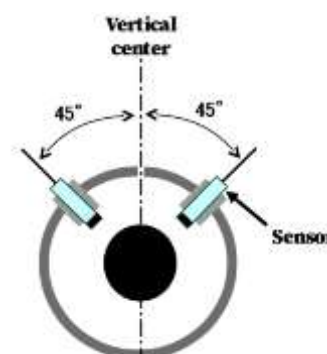


Install the different elements in the following order:

1. pH and RX measurement
2. pH and RX adjustment

Make sure following requirements are met:

- Always keep the product in an upright position. If the product is tilted or placed on its side, the electrodes or flow switch may not be able to measure correctly. Flow switch, pH and redox electrodes must be placed



vertically in a horizontal pipeline. The flow switch must be oriented in the direction of the arrow on the switch. The pH and Redox probes have to be in a horizontal line, at a maximum angle of 45°.

- For the measurement and distribution tube : make sure the flow direction is :
  1. Flow through measurement probes
  2. flow through dosing nipples
  3. Flow switch must be installed in the same line as the dosing nipples.

- Make sure pH / chlorine adjustment cannot work if there is no flow through the pH injection / chlorinator pipes. This can be done by using a flow switch and/or by connecting the electrical connections of the dosing pump / chlorinator to the same electrical line as the filter pump.

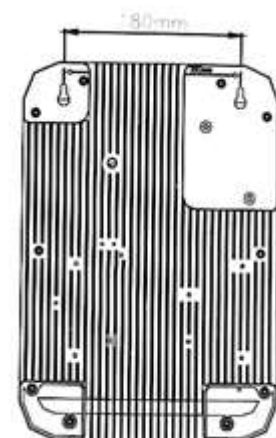


- If you live in a area with high water hardness, it is advisable to attach a 5-10cm long tube (use part of the peristaltic aspiration tube) to the injection nipple.

- For product supplied in a box, additional 2 inch and 32-38mm connectors are supplied to fit the typical intex / Bestway or other aboveground swimming pool connections.



- If you do not have a flow switch on the unit, adjust the electrical connections so that The chlorine and acid pumps cannot work if the filter pump does not work. The electrical 230V feed to the wifipool control box must lose power as soon as the filter pump switches off.



Installation hole position diagram

The chlorinator should be mounted in a well-ventilated, dry, and shady location, so it is not exposed to rain or direct sunlight. And the power pack should be mounted onto a post or wall 1.5 meters above the pool water, to ensure the gap surrounding no less than 100mm, with sufficient ventilation for its heat dissipated. The left side of power pack is for cooling exhaust, where should not be blocked or too close to other equipment to affect its heat dissipated. Using the template supplied in this Manual, mark two holes distant 180mm for fitting the Power pack to the wall, drill two holes for fixing 2 pieces M8 screws, align two holes of power pack backside and push it down for fix. HINT if fitting against a limestone wall, use a piece of wood as backing to prevent corrosion of the Power Pack bracket. Connect the 2 red and 1 black electrode contact to the two poles of the generator, 2 ( + ) pole tip and 1 ( - ) pole tip correspondingly; then connect the control box and the generator with the water level / temperature joint wire correspondingly. (see figure 2 / 3).

**Note: The chlorinator must be supplied by power supply with a leakage switch (AC220V-240V/50Hz, 16A), and supplied through a residual current device (RCD) with a rated residual operating current not exceeding 30mA.**

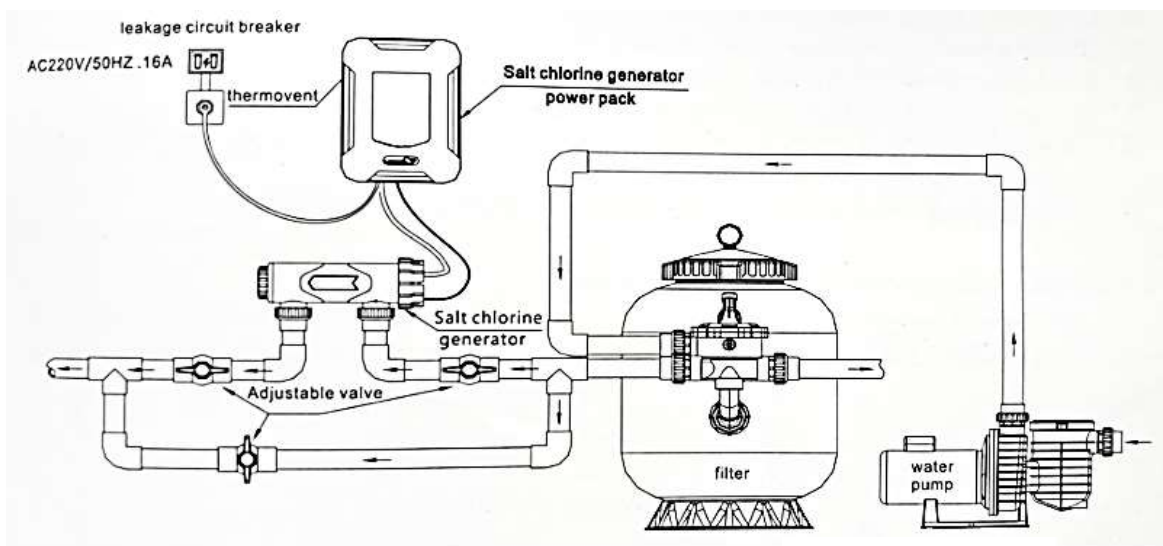


Figure 2

## OPERATING INSTRUCTIONS

### **General instructions**

After physical installation of the unit, we are ready to start calibrate, leak-test and start-up the unit.

- Before using the equipment, pH and RX probes have to be calibrated
- The measuring probes must always be kept moist during transport. A small box containing fluid is provided for this purpose, ensuring the integrity of the product. Prolonged exposure to dry conditions can lead to inconsistent measurements

and/or broken probes . For any maintenance and repair work, please ensure to keep probs moist.

- Use only city water, no rainwater or well water.

## **Calibration**

With the following steps, you will have calibrated the electrodes in no time:

There are 2 ways to calibrate:

### Calibration via calibration fluid

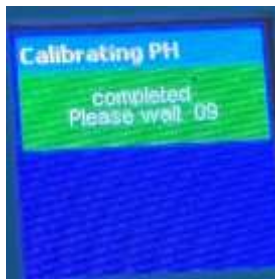
1. Immerse the measuring heads in the calibration fluids for pH (pH 7) and RX (465-468 mV) and wait 5 minutes to reach equilibrium before proceeding with the calibration procedure.

Press the pH or RX buttons (top and bottom buttons) separately for 10 seconds (top and bottom buttons)



As soon as the calibration starts, a screen is activated that shows what you are calibrating. You can calibrate only Ph or rx.





<- A timer stops after 120 seconds and indicates whether the calibration was successful



If the calibration is not successful, the following message is displayed  
->

Reasons for a failed calibration:

- Poor calibration (try again)
- The calibration fluid is contaminated (replace the liquid). Recalibrate
- Probe defective (replace the probe) and recalibrate.

If Ph and Rx are properly calibrated, the screens are automatically hidden

After, about 2 minutes, the lights go out and you can read the values on the screen. If the calibration is correct, the values are as follows:

- a) pH 7,0 + 0,1
- b) Redox 468 + -10 mV

If the values are not within the range described above, you can repeat the calibration using the pH and RX keys.

### Preparation of the pool water

Make sure that the pH value of the pool water is at least between 7.2 and 8.5 and as close as possible to 7.4

Make sure that the chlorine stabilizer content (cyanuric acid) of the pool water is between 20-40 ppm (20-40 g/ 10 m<sup>3</sup>)

### **Set parameters**

A number of parameters need to be set. Press the center button. You will see the following screen:

### **Language**



You can set a (different) language. Press the middle button again. Then use the top or bottom button to navigate to the languages Français, Castellano, Italian, English, German. You confirm your choice of language by pressing the middle button.

### **Dosing method: proportional or continuous**



Press the bottom button. The setting "Dosing method" is now checked. Press the center button to activate this setting. You will now see that the dosing method Prop (= proportional) is selected. Press the middle button again. The dosing method is now proportional.

### **Be careful!**

You should NOT choose the salt option for the addition of liquid chlorine.

#### Explanation of the dosing method proportional:

In the "Proportional" dosing method, the controller continuously goes through a cycle in which:

- pH and chlorine content are measured and stored for 40 seconds (no dosing is currently used).
- The chlorine (if necessary) is dosed for 2 minutes.
- The pH min (if necessary) is dosed for 2 minutes.

This dosing method (prop) is recommended for working with liquid chlorine and liquid pH

With this dosing method, pH and liquid chlorine are never dosed simultaneously

#### Explanation of the dosing method Cont:

- The pumps always run if pH and/or redox setpoint are not reached.

**- If you decide to use this dosing method, the injection point for pH and chlorine should be at least 2 metres apart.**

First, adjust the pH for at least 5 minutes.

- Wait for 30 seconds.
- If the pH has reached the desired level, then adjust the redox (for at least 5 minutes). If after 5 minutes the pH is off-target again, stop the redox adjustment and proceed with pH adjustment.

#### Additional Method: pH-Master

Another method that can be used is the pH-Master method. Originally developed for salt electrolysis, it can also be applied for liquid chlorine dosing.

When you choose pH-Master, chlorine is only produced without interruption once the set pH value is reached. If the pH value changes to a value out of specification, chlorine production stops, and the system first brings the pH value back to the desired level.

#### **PH+ of PH-**



Press the bottom button. The "PH+ or PH-" setting is now highlighted. Press the center button to activate this setting. On - sign appears. Press the middle button again. You have now turned on the power supply with PH-.

PH- should always be adjusted when salt electrolysis is used. When chlorine is produced by the salt electrolysis unit, PH+ (NaOH) is formed as a by-product.

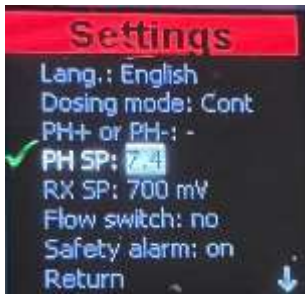
PH- should always be adjusted when liquid chlorine is used. After all, liquid chlorine already contains PH+, which is always added as a stabilizer.

PH- should always be adjusted when using the salt electrolysis. When chlorine is produced by the salt electrolysis unit, PH+ (NaOH) is produced as a by-product.

It is not possible to add PH+ AND PHOTO: PH or PH+, never both at the same time.

In other cases, PH plus can be adjusted.

#### **PH SP(SetPoint)**



Press the bottom button. The "PH SP" setting is now activated. Press the center button to activate this setting. You will now see a preset value. Now you can move the value up or down with the top or bottom key. Then confirm with the middle button. The value is now set according to your needs.

As a rule, the pH value is set to 7.4.

### **Rx SP (Redox SetPoint)**



The redox is a measure of the chlorine content.

During commissioning, we recommend setting the set point to 700 mV, as described above for the pH value. After the first commissioning, measure the chlorine content using a colour method. If necessary, adjust the redox setpoint (decrease if the chlorine content is too high, increase if the chlorine content is too low).

*Read carefully the chapter "Setting the Rx setpoint" in the manual*

### **Flow monitor no, and**

Here you can indicate whether the unit is equipped with a power switch. If you enter YES, the device assumes that a power switch is active.

If there is a water flow, the Ph and chlorine dosing pumps can function. When there is a water flow, the dosing pumps do not work

A flow switch is included in the ZWMX7525 version, but not in the ZWMX7520-P version.

### **Security alarm on or off or info**

The alarm function is prepared to ensure the safe operation of this device and the swimming pool.

**Alarm on:**

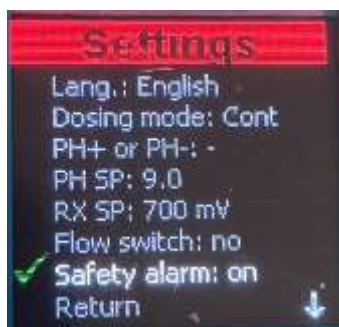
The alarm screen shows the following:



- pH too high (pH >8.5)
- pH too low (pH <5.5)
- pH setpoint not reached after 200 minutes of dosing



- Redox too low (<100)
- Rx Setpoint not reached make 400 minutes dosage



The alarm function is necessary to warn the user of abnormal behaviour of the unit and to prevent a very large dose of a pH liquid from being dosed or from dosing or generating too much chlorine.

The alarm message disappears when the middle menu button (reset) is pressed or after a power failure.

**Please note**

You might receive a warning even if your pH or RX appears to be at an optimal value. This is because the warning indicates the current pH or RX value, which could have been higher or lower than the optimal level earlier. The device activates the alarm to halt dosing when the level becomes too high. Therefore, while the current reading may seem normal, it could have previously reached dangerously high or low levels.



If after resetting the alarm function the values deviate as described above, the alarm will continue.

Swimming is not allowed in the pool if the "alarm" indicates a deviation

#### **Alarm off:**

Never use the device in the alarm OFF position during normal use. If you turn off the alarm, the alarm function described above will not work for 240 minutes.

The alarm OFF mode is only used to check the values of a swimming pool that deviate significantly. (as at the first start)."

For example, the pH value can be very high and the Rx value very low when the pool is first put into use. In this case, you need to use the alarm function "OFF" to check the pH and chlorine.

When the "alarm off" function is used, swimming in the pool is not allowed

### **Install the suction nipple.**

Place the pH suction cup in the acid tank and the chlorine suction cup in the chlorine tank.

It is recommended not to lower the suction cup to the bottom of the jug. If something goes wrong during dosing, the entire container with chlorine or acid is not pumped into the pool.

### **Start the device**

Start the installation by turning on the flow of the pump and the dosing unit.

Switch on the pH dosage (via the switch on the bottom of the dosing pump) until the pH value is between 7.2 and 7.6. If the pH value is less than 7.2: add pH plus manually to the pool water.

Once the pH value is in the range of 7.2 to 7.6, switch on the chlorine dosage.

With the "Prop" dosing method, the acid and chlorine pumps never work simultaneously.

Make sure that the dosing nipples for acid and chlorine do not leak and that acid and chlorine are dosed effectively.

## **Verify**

Regularly check the operation of the probes and the settings by measuring the pH value and the chlorine content using an alternative method (colour measurement). If necessary, adjust the set values of the system.

### Chlorine control via Rx: set the Rx setpoint value

The Rx (redox) is a measure of the chlorine content (oxidizing capacity) of the pool water. The higher the Rx, the higher the chlorine content.  
the Rx is expressed in mV (millivolts), the chlorine content in ppm (parts per million).  
The chlorine content in a swimming pool is ideally between 1 and 1.5 ppm.

There is no clear link between Rx and ppm chlorine, but usually an Rx of 700-750 mV corresponds to a chlorine content of 1 to 1.5 ppm.

Therefore, the chlorine content should be checked at regular intervals at commissioning and thereafter using a color measurement method (e.g. Poolab ZWMX1060). If it turns out that the chlorine content is too high, the Rx setpoint should be lowered. If it is determined that the chlorine content is too low, the Rx setpoint should be increased. If necessary, repeat this procedure several times until the chlorine content remains constant between 1 and 1.5 ppm.

As an extra safety measure, we recommend that you do not lower the suction cup to the bottom of the jerry can when starting. If something goes wrong during dosing, the whole can of acid will not be pumped into the pool.

Read the safety instructions carefully before using chemicals.

### Specification pH addition

Since pH + has been added to liquid chlorine, the pH value must be corrected with pH minus. We recommend the use of 15%-30% sulfuric acid. Boe "weaker" the sulfuric acid, boe more accurately the pH dosage will work.

In the exceptional case that the pH falls below 7.2, it is best to bring it back into the zone 7.2-7.6 by adding pH plus.

As an extra safety measure, we recommend that you do not lower the suction cup to the bottom of the jerry can when you launch it

If something goes wrong with the dosage, the whole can of acid is not pumped into the pool

Read the safety instructions carefully before using chemicals.

### Calibration and control chlorine /pH

The accuracy of the pH value and the salt electrolysis content should be checked regularly (weekly) by means of a thorough colour measurement (e.g. Poollab ZWMX1060).

Each system shall be calibrated at least once a year. In case of a long bathing season or if there is a discrepancy between the colour method and the pH / Rx values, it is advisable to carry out the calibration also every six months, i.e. twice a year. The procedure for calibrating and setting the set point has already been described in detail above

### Deviation of the pH measurement compared with another method.

We have a very specific order that we recommend in case of doubt pH measurement. This is the result of many years of experience.

When working with probes, one must accept the following as true:

- In principle, a calibrated probe measures correctly, more correctly than a color method.
- A probe that is calibrated, works deze zin is in alle talen verkeerd vertaald
- The color method works correctly, only if the alkalinity of the water is correct
- A difference of 0.2 between two methods is normal, a difference of 0.5 is not acceptable.
- A simple measurement with droplets or strips does not give reliable results

Here are the steps to follow in case of doubt about the pH:

In case of opposite pH measurement (one method gives an acidic result, the other method gives a basic result):

Take a glass of water and add 2 tablespoons of vinegar. Both methods must measure an acidic pH. If the probe gives a pH > 7: add 10 spoons of vinegar and see if the pH rises or falls. If the pH rises: contact the sensor supplier

After this verification:

Always take samples in the pool just before the skimmer, so that the sample corresponds to the water passing by the electrodes.

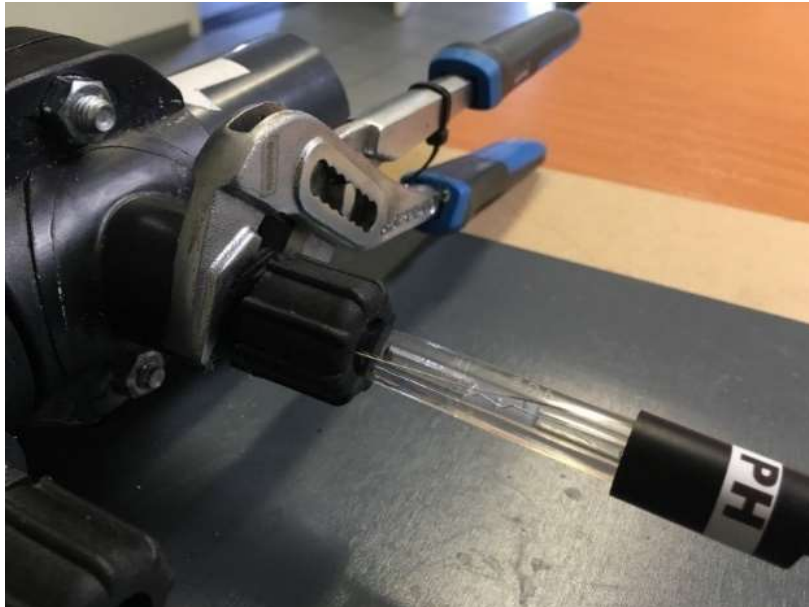
- 1 Recalibrate and remeasure pH with probe. If in doubt:
- 2 Check and adjust the alkalinity of your water between 80 and 120 and remeasure the pH with your color method. If doubt remains
- 3 Renew the pills/liquids of your measurement tool and remeasure the pH with your color method. If doubt remains :
- 4 Buy a new calibration solution and measure pH with probe. If doubt remains
- 5 Buy a certified pH 7.4 solution and measure pH with a probe. If the pH of the probe is between 7.2 and 7.6 accept the probe. If the measured pH is 7.0-7.1: check the pH at 7.6. If the pH of the probe is 7.7-7.8: control the pH to 7.2. If the pH is lower than 7.0 or higher than 7.8: contact your supplier (Pool Twin supplier as well as the supplier of the alternative method).

### **Leaktesting and leak managment**

Insert the pH and RX probes after calibration and put water pressure and flow through the unit.

Insert pH and chlorine electrodes into the electrode holders. Fix the nut with pliers or wrench while tightening the cap.

At start-up of the leak test, do not switch on electrical power to the water treatment unit.



Leaks must be repaired immediately.

Make sure leaks of sulphuric acid cannot mix with leaks of the salt electrolysis outlet, as they may cause formation of toxic chlorine gas.

Make sure leaks cannot run over (other) parts of the swimming pool equipment.  
Make sure leaks are captured into a separate container or drip tray.

### **Start up**

Start up the filterpump, and switch on the power to the water treatment unit. As soon as flow is detected, the unit will start up.

Consider starting up the water treatment 15 min later than the filter pump by using a scheduler.

### **pH and RX setting**

We recommend for salt electrolysis to set the pH at 7.6. The salt electrolysis will generate pH+ and the pH will rise. This is compensated by adding pH – via a dosing pump. When pH setting = 7.6, the pH will – in case of overshoot – very likely remain in the correct pH 7.2 – 7.6 operating range.

The real criterium for safe swimming pool water is to have a pH of 7.2 – 7.6 and a free chlorine content of 1 +/- 0.5 ppm. The free chlorine is very difficult to measure continuously online, hence the redox is used.

The Redox is a measurement of the oxidation power of the swimming pool water. The higher the redox, the more “aggressive” the pool water will be towards bacteria and algae in the water.

The redox measured depends on many variables (such as chlorine content, type of chlorine used additive content, electrode lifetime ...) and is different for each pool. Usually, a Redox value of 650-750 mV corresponds with 1 ppm chlorine.

Once the pH of the system is balanced, you will need to measure the free chlorine content of your pool using a proper coloring method (e.g. via a Pool Lab). If this is < 1ppm, you should increase the RX setpoint (in 10mV increments) until you measure 1ppm of free chlorine in the pool. If the free chlorine level is higher than 1ppm, reduce the RX setpoint (in 10mV increments) until you measure 1ppm of free chlorine in the pool.

### **Hysteresis**

A pH and RX hysteresis has been programmed, to avoid fast and repetitive start-stops of pH pump or salt electrolysis.

pH Hysteresis is +/- 0.04

RX Hysteresis is +/- 10mV

This means that pH may be over or under the target value by 0.04 units, without the pH pump being activated or stopped.

RX value may be over or under the target value by 10mV, without the salt electrolysis pump being activated or stopped.

### **Deviation of the pH measurement compared with another method.**

When working with probes, one must accept the following as true:

- In principle, a calibrated probe measures correctly, more correctly than a color method.
- A probe that calibrates itself works
- The color method works correctly, only if the alkalinity of the water is correct
- A difference of 0.2 between two methods is normal, a difference of 0.5 is not acceptable.
- A simple measurement of droplets does not give reliable results

Here are the steps to follow in case of doubt about the pH:

In case of opposite pH measurement (one method gives an acidic result, the other method gives a basic result):

Take a glass of water and add 2 tablespoons of vinegar. Both methods must measure an acidic pH. If the probe gives a pH > 7: add 10 spoonfuls of vinegar and see if the pH rises or falls. If the pH rises: contact the sensor supplier

After this verification:

Always take samples in the pool just before the skimmer, so that the sample corresponds to the water passing by the electrodes.

- 1 Recalibrate and remeasure pH with probe. If in doubt:
- 2 Check and adjust the alkalinity of your water between 80 and 120 and remeasure the pH with your color method. If doubt remains
- 3 Renew the pills/liquids of your measurement tool and remeasure the pH with your color method. If doubt remains :
- 4 Buy a new calibration solution and measure pH with probe. If doubt remains
- 5 Buy a certified pH 7.4 solution and measure pH with a probe. If the pH of the probe is between 7.2 and 7.6 accept the probe. If the measured pH is 7.0-7.1: check the pH at 7.6. If the pH of the probe is 7.7-7.8: control the pH to 7.2. If the pH is lower than 7.0 or higher than 7.8: contact your supplier (Pool Twin supplier as well as the supplier of the alternative method).

### **Deviation of the Redox measurement compared with another method.**

A deviating RX value is not so bad, as long as the probe is sensitive to changes and the redox increases when more chlorine is added to the pool.

You can test this by mixing 5 drops of liquid chlorine in a bucket of water and measuring the redox before and after adding the chlorine. Due to the 5 drops, the Redox must rise significantly.

A deviating redox can be caused by a deviating pH and/or by "contaminants" in the swimming pool such as flocculant, anti-algae, wall cleaner, etc ... .

A deviating redox is not so bad. You proceed as follows: measure the free chlorine content in the pool using a color method (before measuring the chlorine content, the pH and hey cyanuric acid content must be within specifications). Add chlorine to the pool until the chlorine level is 1-1.5ppm. The redox that you then read is the redox that you must set as the setpoint.

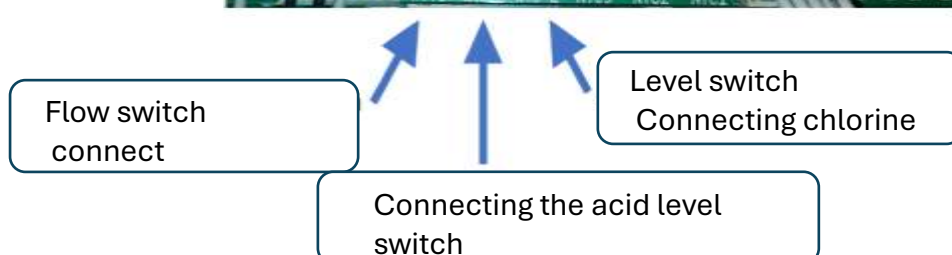
If you still have doubts about the redox value you have read, you can proceed as follows:

- 1 Change calibration fluid and recalibrate the device. If you still have doubts about the redox value read:
- 2 Exchange redox probe and recalibrate.

### Connecting the flow switch

For units manufactured in 2020 or later, a flow switch can be mounted on the unit. On the circuit board with the display, the "FS" connector is located at the bottom left. These are connected to the two contacts of the flow switch.

If no flow rate is detected, neither the acid nor chlorine pump runs and an alarm is triggered.



## Connect the level switch

For units manufactured in 2020 or later, 2 level switches can be mounted on the unit.

On the circuit board with the display, the connections "WLH" and "WLL" are located in the middle and bottom right. These are connected to the 2 contacts of the level switch. Connect the WLH connection to the level switch in the acid tank and the WLL connection to the level switch in the chlorine tank.

When a low level is detected, the pump involved stops pumping and an alarm is generated

### Table 1

The following table shows the ratios between mV, pH and the corresponding chlorine content in ppm. For example, your device has the following values on the screen: pH 7.2 and RX of 740, then your pool water has a chlorine content of 1.2 ppm.

Attention: this table is not always correct. Products such as flocculants, wall cleaners, settling agents, sulfates, copper sulphate, extreme shredder (Chloramines), electromagnetic interference and/or less than optimal grounding can cause an Rx of 700-750 mV NOT to correspond to a chlorine content of 1-1.5 ppm. This is often a temporary phenomenon that mainly occurs with salt electrolysis.

A color measurement with a solid-state device (e.g. Poollab ZWMX1060) gives the best indication of the chlorine content in the swimming pool.

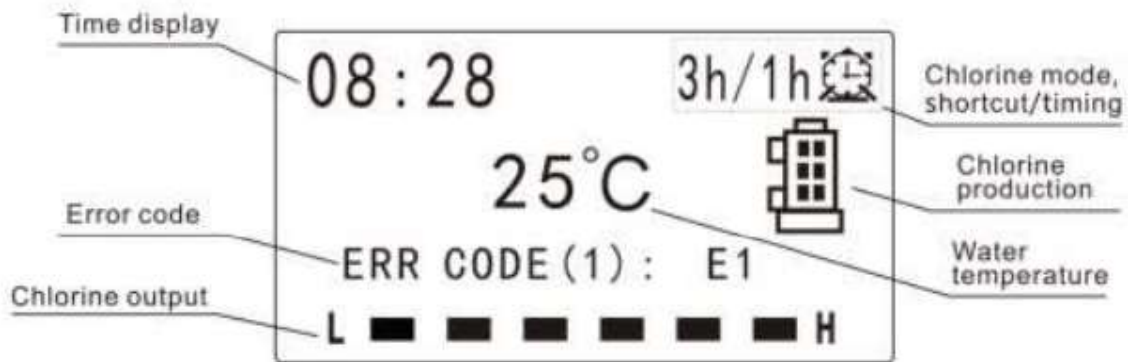
Free chlorine RX/mV vs pH

		pH													
		6,9	7	7,2	7,3	7,4	7,5	7,6	7,7	7,8	7,9	8	8,1	8,2	ppm
RX/MV	mV	507	505	502	500	499	497	496	494	493	491	490	488	487	0,2
	mV	561	558	553	550	548	546	544	541	539	536	534	532	529	0,3
	mV	599	596	590	586	583	580	577	574	571	568	565	562	559	0,4
	mV	629	625	618	615	611	607	604	600	597	593	590	586	583	0,5
	mV	652	648	640	637	632	629	625	621	617	613	610	605	602	0,6
	mV	663	658	650	646	642	638	634	630	626	622	618	614	610	0,65
	mV	673	669	660	656	651	647	643	639	635	630	626	622	618	0,67
	mV	682	677	668	664	660	663	651	647	642	638	634	629	625	0,75
	mV	690	686	677	672	668	655	659	654	650	645	641	636	632	0,8
	mV	698	694	684	680	675	670	666	661	657	652	647	643	638	0,95
	mV	706	702	692	687	682	677	673	668	663	658	654	649	644	0,9
	mV	713	708	698	694	689	684	679	674	669	664	659	654	650	0,95
	mV	720	715	705	700	695	690	685	680	675	670	665	660	655	1
	mV	733	727	717	712	707	701	696	691	686	680	675	670	665	1,1
	mV	744	739	728	722	717	712	706	701	695	690	685	679	674	1,2
mV	755	749	738	732	727	721	716	710	705	699	694	688	682	1,3	

mV	765	759	747	742	736	730	724	719	713	707	702	696	690	1,4
mV	774	768	756	750	744	738	732	727	721	715	709	703	697	1,5
mV	790	784	771	765	759	753	747	741	735	728	722	716	710	1,7
mV	798	792	779	773	766	760	754	748	741	735	729	722	716	1,8
mV	812	805	792	785	779	773	766	760	753	747	740	734	727	2
mV	824	818	804	797	731	784	777	771	764	757	751	744	737	2,2
mV	841	834	826	813	806	800	792	785	778	771	764	757	751	2,5

## CHLORINATOR OPERATION

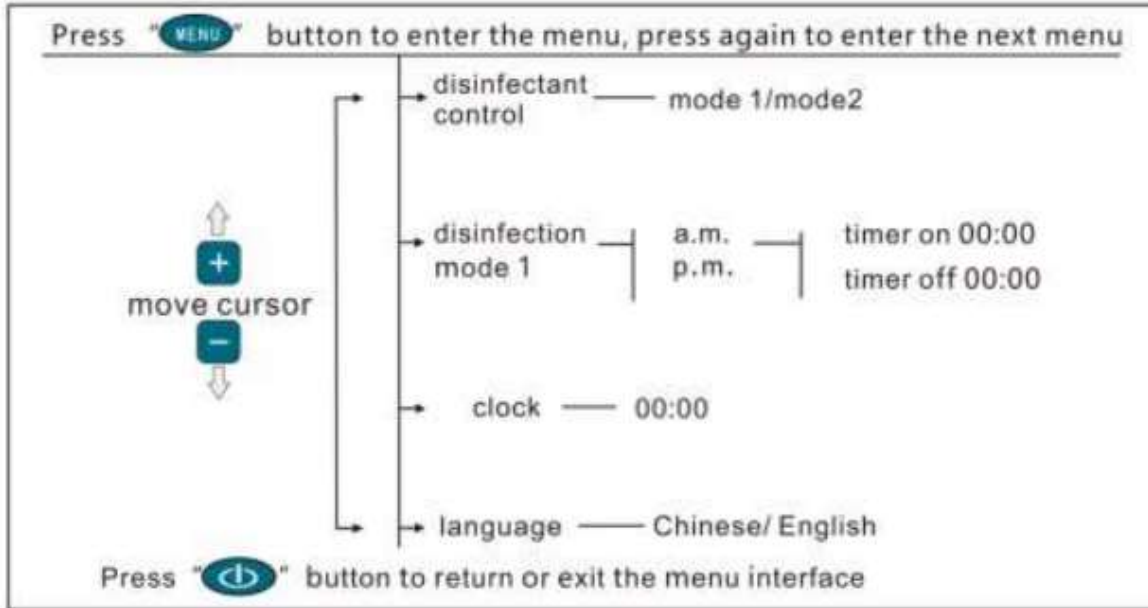
1. After installation, supply the power to generator, the "Power" indicator will be lit and the LCD display will show the time and the water temperature inside the generator.  
(Details as follows)



Displayer with automatic screen saver function, it's off in the absence of operation delay 3 minutes, press any key to active the light.

Remarks:

- Time display: show the local time.
  - When the underwater light is on, a light icon is displayed.
  - Circulation pump: when circulation pump is on, dynamic icon is displayed.
  - Chlorine mode: shortcut or timed chlorine control.
  - Error code: when the work is abnormal, the corresponding fault code is displayed.
  - Chlorine production: this icon indicates chlorine production.
  - Chlorine production: "L" low chlorine production, "H" high chlorine production, the more "-", the the higher chlorine output.
  - Temperature display: show the water temperature inside the generator.
2. Function settings interface, as shown below:



### 3. Function settings

#### a. Language:

Language selection, enter the menu interface, move the cursor to language, Press "view" to enter, press +/- button to choose Chinese or English. (see figure 4).

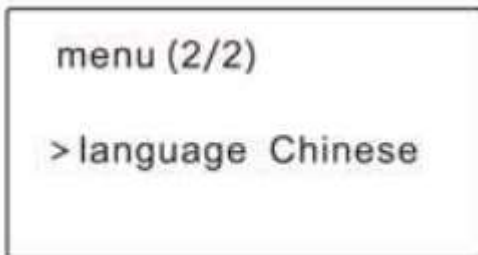


Figure 4

#### b. Setting the clock:

The generator inbuilt with clock function. The initial use should set the local time. Press the "view" button to page 2/2, Move the cursor to Clock, Press "view" button to enter time setting Press the power button to select the setting clock Hour and Minute. Setting the Clock by +/- button. (24 hours system).

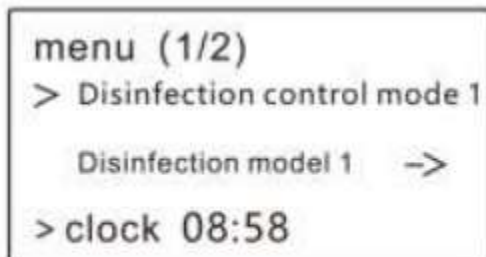


Figure 5

c. Chlorination cell on based upon the programmed times for Timer-1 and Timer-2.

**Timer-1:** automatic control of chlorine production by present time

**Timer-2:** permanently switch pool pump and chlorination cell, thus overriding the timing function.

d. Press the “view” button to page 1 or 2 (shown as follows). Move the cursor to chlorination by -/+ button press the view button, select timer-1 or timer-2 by -/+ buttons press the view button to save setting.

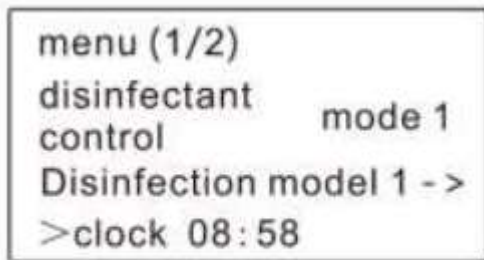


Figure 6

e. When set Timer-1, the start time and end time setting are required, divided into morning and afternoon. Press view button to page 1/2. Move the cursor to Timer-1. Press view button into morning time setting (shown as figure 9). Press view to set the start morning session running time by -/+ buttons (1-12 hours), same to set end time (shown as figure 8). Save and back to clock LCD, is shown, as (figure 7). Timer-1 is running. Note: end time must be larger than start time, or system defaults no setting time.

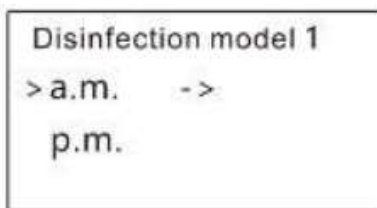


Figure 9

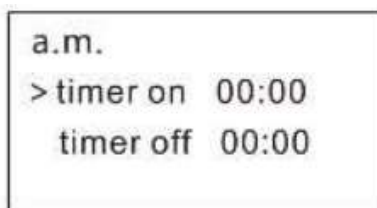


Figure 8

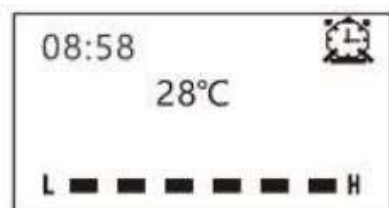


Figure 7

f. When set Timer-2, Display cycle time above the display screen "2h/1h" as figure 10.

And for 3 kinds of periodic time choice, press restart button, Select switch.

a. 2h/1h: recycling of operation for two hours and breaking one hour.

b. 3h/1h: recycling of operation for three hours and breaking one hour.

c. 4h/1h: recycling of operation for four hours and breaking one hour.

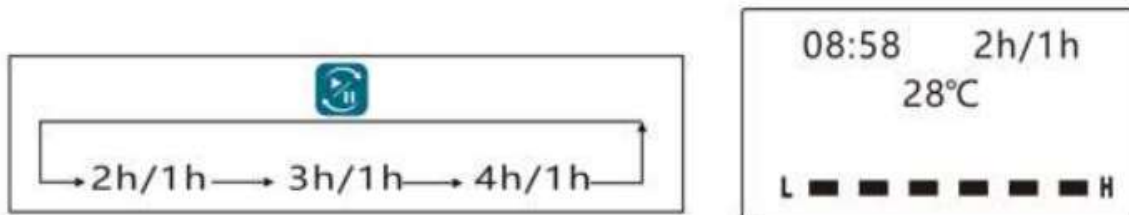


Figure 10

#### 4. Operation

##### a. Chlorine production

Press the power button, the "Power indicator will be lit and the pool pump will be showed on the LCD display and start. Delay 5 seconds, "Chlorine icon will be showed in LCD display and start to produce chlorine. If the system is to Timer-2, the chlorine starts and stops upon based programmed time, shown as figure 11.

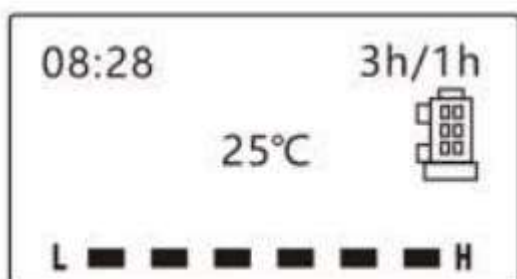


Figure 11

b. Setting the chlorine output level: 6 levels options. Press +/- button to increase or decrease chlorine output and shown on small blocks under screen. More bright blocks signify more chlorine output. Maximum is 6 blocks. Shown as figure 12

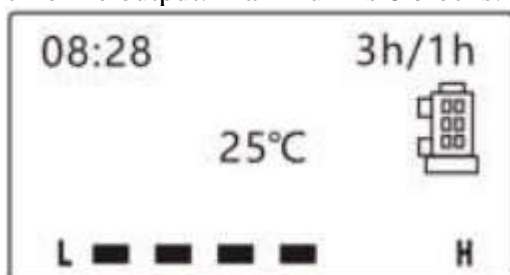


Figure 12

c. state view: press and hold restart button, original display chlorine production, now change to display controller internal temperature, operating voltage, liquid level detection, shown as figure 13. Note: the state view function is convenient for trouble shooting.

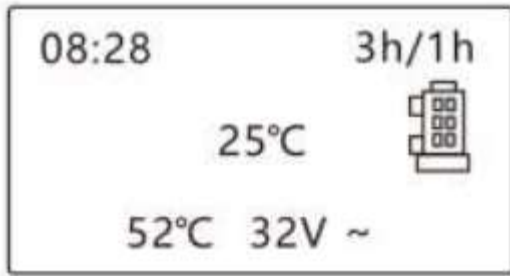


Figure 13

d. Fault reset when "ERR Code (1): E1" icon shown on LCD screen, as figure 14, check the fault code table, according to the excluded method, long press - button, Error code disappears.

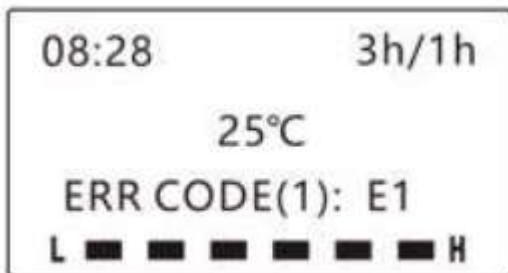


Figure 14

## CHECKING CHLORINATOR OUTPUT

Four factors directly affect the chlorine production:

1. Pool salt concentration
2. Chlorine output setting
3. Chlorinator working time.
4. Pool water temperature

In order to achieve the optimal chlorine production, first check whether the pool salt concentration meets the requirements (appendix The environment and maintenance of salt chlorine generator). Secondly, set the filtration time according pool volume. Initial use salt chlorine generator, it is suggested to lower a half chlorine output for few days, regularly test the amount of chlorine every day, and correspondingly adjust chlorine output. After several debugging to determine the best settings. As general guide it is suggested adjusting the amount of chlorine production according to actual use of the swimming pool, such as increasing chlorine output in summer peak season with increasing number of swimmers and reducing chlorine output when water temperature is high and low frequency use in cold period.

Salt chlorine generator production test:

1. Start the salt chlorine generator, by observing flow water whether with white mist, if there is, means chlorine production normally. Salt chlorine generator production test.
2. Get water sample from backwater/outlet of swimming pool to detect the chlorine content and record the measured data.
3. When the cycle is filtered and the maximum chlorine production is generated, get water sample from water inlet of the pool to detect chlorine content. The result is 1PPM larger than the first sample, meaning the salt generator is normal working

## MAINTENANCE INSTRUCTIONS

- Maintenance should be carried out at the recommended time and frequency as stated in the manual.

### **The operating environment and maintenance of salt electrolyse**

The operating water environment of the salt chlorine generator

#### **1- Water chemistry condition**

May the pool bring you a lot of fun, may secure your swimming, may prevent from corrosion

and scale on your pool equipment, please keep regular test and check your pool's water

quality. The following chart is the national and international standard of water chemistry

environment for swimming pool, and the best water quality condition for Laswim salt chlorine generator working.

Chemicals	Recommended value
Free residual chlorine	1-3.0 ppm
Salt	2700-4500 ppm
pH value	7.2 – 7.8 (within this range, the chlorine requirement is minimized but the disinfectant effect is maximized)
Total basicity	75-250 ppm
Stabilizer	60-80 ppm
Calcium hardness	75-500 ppm
Total dissolved solid amount (including salt)	3500-5700 ppm. Maximum does not exceed 6000 ppm
Metal	0
Nitrates	0
Phosphate	0
Saturation index	-0.2 – 0.2 (0 is the most optimal)

#### **2- Saturation index**

The saturation index (SI) is related to the calcium and alkali amount in the pool water, it is an indicator if the water is balanced in a swimming pool. The SI is between 0~0.2 or -0.2~0, the water quality in the pool is perfectly balanced; if the IS is higher than 0.2 or lower than -0.2, the water may cause damage or corrosion to the pool and pool equipment's.

**Saturation index calculation formula:**

Saturation index = PH value + Calcium Hardness coefficient + total basicity ratio coefficient + temperature coefficient + total dissolved solid coefficient.

**SI = PH + CHF+ AF + TF+ TDSF.**

calcium hardness	calcium hardness coefficient	total basicity	total basicity coefficient	Celsius degrees	Fahrenheit degrees	temperature coefficient	total dissolved solid coefficient
75	1.5	75	1.9	12	53	0.3	-12.1
100	1.6	100	2.0	16	60	0.4	
125	1.7	125	2.1	19	66	0.5	
150	1.8	150	2.2	24	76	0.6	
200	1.9	200	2.3	29	84	0.7	
250	2.0	250	2.4	34	94	0.8	
300	2.1	300	2.5	39	103	0.9	
400	2.2	400	2.6				
600	2.4	600	2.8				
800	2.5	800	2.9				

**Maintenance of the water treatment**

Maintenance has to be carried out by a person knowledgeable off swimming pool technology.

Make sure to take the necessary safety precautions before starting the maintenance such as:

- Turn off the power before starting the maintenance
- Always wear protective gloves and safety goggles when working on the installation.
- Keep the installation and chemicals out of the reach of children

**Maintenance of the pH dosing peristaltic pump**

The pump peristaltic tube has to be greased regularly with silicone grease. Verify that the tube feels greasy each 2 months.

The pump peristaltic tube has a lifetime of 500/600 operating hours and must be replaced annually.

The inlet and dosing pipelines must be replaced every two years.

As part of the maintenance, verify the integrity of the suction foot and injection nozzle. Replace the rubber seal of the injection nozzle yearly.

## **Maintenance of the salt chlorinator**

To ensure the proper functioning of the salt chlorinating plant, the electrolysis cell must be verified every three months.

1. Before removing the electrolysis cell, close the inlet and outlet valve and turn off the salt chlorinator for 5-10 minutes.
2. After removal of the electrolysis cell, check for flake-like sediments, debris, light-colored layers in the inner surface. Clean gently with clean water.
3. If there is a white calcified substance on the titanium plate, immerse the titanium plate in a Salt electrolysis cleaning solution (which is a water – acid mixture) to remove the calcified substance. (For your safety, wear rubber gloves and eye protection.)
4. If there are important sediments that cannot be removed on their own, please contact the seller for professional advice.

# **WINTERIZING AND SPRING START-UP INSTRUCTIONS**

## **Winterizing the system**

Winterize the units containing electronics, unit in a dry and warm (15 – 25 ° C) environment.

Winterize the pH and RX probes in a special winterizing solution for probes (which is a KCl-water mixture). Make sure the probes are always kept wet.

To ensure thorough cleaning, it is essential to flush all tubes of the peristaltic pump and electrolysis with water. This process contributes to maintaining optimal hygiene standards and extends the lifespan of the equipment.

Flushing the tubes of the peristaltic pump requires careful attention. We begin by circulating 250 ml of clean water through the pump. This ensures that any remaining

residues or contaminants are flushed away, preparing the pumps for further cleaning and use.

A next step in this process is removing the white peristaltic tubing from the roller assembly. This is an important step to ensure that the tubing can be thoroughly cleaned and inspected. By carefully removing the tubing, we can detect any blockages or damages and take corrective measures if necessary.

Do not insert the white peristaltic tubing into the pump until spring start-up, as leaving the tube into the peristaltic chamber may squeeze it indefinitely.

## **Spring start-up**

Recalibrate the pH and RX probes.

Verify for leaks. Verify and adjust the salt level.

Insert and grease – with silicon grease – the white peristaltic tube and rollers.

Correct pH, if needed temporarily dose pH+ (manually or automatic).

At correct pH (7.2 - 7.6): make sure pH- is used and set in the app. Start up the electrolysis. After reaching 650-700mV, verify the free chlorine level using a high quality measurement and adjust the redox setpoint as described above.

# TROUBLESHOOTING

## **Troubleshooting Wi-Fi / app related problems**

For Wi-Fi equipment, it is possible to share the app with your supplier or the manufacturer. This is explained in the Problem-solving section of the Wifipool app and simple device manual.

Setting up a Teams meeting via your telephone and sharing the screen will also allow your supplier / manufacturer to see your telephone screen.

---

## **Deviation of the pH measurement compared with another method.**

We have a very specific order that we recommend in case of doubt pH measurement. This is the result of many years of experience.

When working with probes, one must accept the following as true:

- In principle, a calibrated probe measures correctly, more correctly than a color method.
- A probe that calibrates itself works
- The color method works correctly, only if the alkalinity of the water is correct.

- A difference of 0.2 between two methods is normal, a difference of 0.5 is not acceptable.
- A simple measurement of droplets does not give reliable results

Here are the steps to follow in case of doubt about the pH:

In case of opposite pH measurement (one method gives an acidic result, the other method gives a basic result):

Take a glass of water and add 2 tablespoons of vinegar. Both methods must measure an acidic pH. If the probe gives a pH > 7: add 10 spoonful of vinegar and see if the pH rises or falls. If the pH rises: contact the sensor supplier

After this verification:

Always take samples in the pool just before the skimmer, so that the sample corresponds to the water passing by the electrodes.

1. Recalibrate and remeasure pH with probe. If in doubt:
2. Check and adjust the alkalinity of your water between 80 and 120 and remeasure the pH with your color method. If doubt remains
3. Renew the pills/liquids of your measurement tool and remeasure the pH with your color method. If doubt remains :
4. Buy a new calibration solution and measure pH with probe. If doubt remains
5. Buy a certified pH 7.4 solution and measure pH with a probe. If the pH of the probe is between 7.2 and 7.6 accept the probe. If the measured pH is 7.0-7.1: check the pH at 7.6. If the pH of the probe is 7.7-7.8: control the pH to 7.2. If the pH is lower than 7.0 or higher than 7.8: contact your supplier (Pool Twin supplier as well as the supplier of the alternative method).

### **Deviation of the Redox measurement compared with another method.**

A deviating RX value is not so bad if the probe is sensitive to changes and the redox increases when more chlorine is added to the pool.

You can test this by mixing 5 drops of liquid chlorine in a bucket of water and measuring the redox before and after adding the chlorine. Due to the 5 drops, the Redox must rise significantly.

A deviating redox can be caused by a deviating pH and/or by "contaminants" in the swimming pool such as flocculant, anti-algae, wall cleaner, etc.

A deviating redox is not so bad. You proceed as follows: measure the free chlorine content in the pool using a color method (before measuring the chlorine content, the pH and hey cyanuric acid content must be within specifications). Add chlorine to the pool until the chlorine level is 1-1.5ppm. The redox that you then read is the redox that you must set as the setpoint.

If you still have doubts about the redox value you have read, you can proceed as follows:

- Change calibration fluid and recalibrate the device.
- If you still have doubts about the redox value read:
  - Exchange redox probe and recalibrate.

## Troubleshooting for the peristaltic pump

<b>PROBLEM</b>	<b>CAUSE</b>	<b>SOLUTION</b>
The screen does not light up	Supply voltage is missing	Verify electrical power  Startup acid pump via manual control.
Acid pump does not dispense	Switch under the dosing pump is set to "O"	Set switch to "1"
	Settings of pH control are wrong : pH+ while pH- is dosed (or vice versa)	Verify settings
	There is a level detector attached that gives a wrong contact	Delecte Level Detector from pH dosing requirements.
	A flow switch is connected and it indicates that there is no flow	Check the flow rate and flow switch (go to the flow switch setting: no).
	Wrong cabling or wrong contact	Use the "administrator verification" procedure. See below
Acid pump continues to dose	Setpoint not yet reached	No Action Required
	Wrong parameter set : pH+ while pH- is being dosed (or vice versa)	Corrects parameter.
	Smart plug error	Reset smart plug (delete from app , hard reset (7xin-out) and re-install.
	Relay on PCB Stuck	Contact supplier.
Acid pump only dispenses occasionally	Acid pump is on proportional dosing or in duty cycle mode	No Action Required
Acid pump does not pump.	A flow switch is connected and it indicates that there is no flow	Verify flow and flow switch (Delecte Flow from pH dosing requirements)
	There are level detectors attached that give a wrong contact	Disconnect Level Detectors. (Delecte level detector from pH dosing requirements)
Acid pump does not suck up liquid	Barrel is empty or suction foot hangs above liquid level	Replace acid or chlorine container; Lower suction foot.
	Suction foot is clogged	Replace suction foot ZWMX2205

	Peristaltic tube is leaking	Replace peristaltic tubing ZWMX2231 or AWMX2232  Ensure dosing tube is greased regularly
	Injection nozzle is clogged	Replace injection nozzle ZWMX2220
Liquid (acid) in dosing compartment of acid pump	Santoprene or Viton tube leak	Verify if dosing nipple is clogged, and replace dosing hose.  Ensure dosing tube is greased regularly
Dosing tube in pH forms a bladder	Supply of acid in injection nipple curdled by dirt / calcification	Immediately stop dispensing acid and clean/replace the nipple.
Calibration failed	Calibration solution obsolete or dirty	Replace calibration solution
	Probe not yet in balance	Repeat calibration
	Broken probe	Replace probe
	Probe has been standing dry	Replace probe
Device gives alarm: pH too high	pH > 8.5	Verify pH with color method. Correct pH manually or switch off the alarm function once and let the dispenser reduce the pH.
	pH > 8.5	Drum mistake : you are using pH+ instead of pH-
	Electrode broken	Replace electrode
	Acid pump does not suck up liquid	See above
Device goes into alarm: pH too low	pH<5.5	Drum or setting error : setting is pH+ and drum is pH-
	pH<5.5	Verify pH with color method. Correct pH manually or switch off the alarm function once and let the dispenser reduce the pH. Use pH+ once and set device setting to pH+
	Electrode broken	Replace electrode
	Overdosing	Use the duty cycle function to slow down dosing.

pH always 7, also in calibration solutions pH 4 and pH 9.	pH probe broken	Replace probe
The unit no longer functions.	<p><b>1. Connection between the PCBs:</b> The connection between the rear and front PCBs may be defective, causing communication between different parts of the unit to be interrupted.</p> <p><b>2. Faulty relay:</b> The relay may not function as expected, affecting the operation of the pH and RX pumps. The service menu can be used to test whether the relay is functioning correctly.</p> <p><b>3. Faulty display or display circuit board:</b> If the pumps operate after disconnecting, but the unit still does not function properly, the problem may be with the display or the entire display circuit board.</p> <p><b>4. Poor calibration of the probes:</b> The probes must be recalibrated to ensure correct readings, which can affect the overall operation of the unit.</p>	<p>Check extra info below.</p> <p>--- appendix section A</p>
The unit is in read only.	Possibly done by accident.	<p>Check extra info below.</p> <p>--- appendix section B</p>

# ERROR CODES AND ASSOCIATED SOLUTIONS

## CHLORINATOR

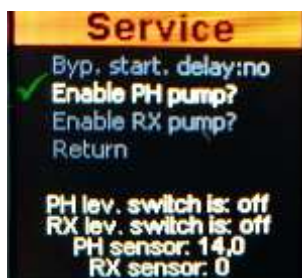
Error code	Reason for failure	Remark	Solution
E1	The temperature of the cooling fin is too high	The temperature of the cooling fin is too high The error must be corrected manually	First, check if the error code E6 is present, if any, check if the temperature sensor is connected, if connected, replace the sensor; If error code E6 is not present, check the installation
E2	The water temperature is below normal	The normal temperature range is between 10-45 degrees Celsius	First, check if the error code E7 is present, if it is, check if the temperature sensor is attached. If this is the case, replace the sensor; If the E7 error code is not present. Check that the water is within the operating temperature range
E3	No water	In normal operation, sufficient water is required in the chlorine supply	First, check that the water level detector is attached. Check to see if there is any water leaking or if air is present. If water is present, wash the water level detector
E4	The salt concentration is too high	Normal salt concentration is 3500 PPM	First, use the salt meter to check the salt concentration in the pool. If the salt concentration level in the pool is above 3500 PPM, drain part of the pool and replace it with fresh water. When the pool salinity reaches normal salinity, the error code should disappear. And the device should work again.
E5	The salt concentration is too low	Normal salt concentration is 3500 PPM	First, use the salt meter to check the salt concentration in the pool. If the salt concentration level in the pool is above 3500 PPM, drain part of the pool and add salt to the fresh water. When the salinity of the pool reaches the salinity of normal operation, the error code should disappear and the machine should function again.
E6	The sensor in the controller is not working properly	The fault must be fixed manually	Check that the corresponding temperature sensor is attached, replace the sensor if it is
E7	Water temperature sensor faulty	The fault must be fixed manually	First, check that the corresponding temperature sensor is attached, replace the sensor if it is
E8	The input voltage is too high or too low	The fault must be fixed manually	Change the power supply
E9	Electrode not working properly	The fault must be fixed manually	Contact the supplier for the repair
EA	Electrode defective	The fault must be fixed manually	First, check that the electrode is attached, if it is, replace the electrode
EBB	Storage chip malfunction	The fault must be fixed manually	Contact the supplier for repair
EC	The Malfunction of the System Detection Circuit	The fault must be fixed manually	Power off and restart, if the error does not occur again, the chlorinator should be turned on normally; If this error occurs multiple times, please contact the supplier for controller repair

## ADMINISTRATOR VERIFICATION

Attention : this operation can only be executed by a person knowledgeable in swimming Pool technology and water treatment.

Go into the administrator menu via the main menu / administrator menu with password 2121.

Via this menu, it is possible to verify the correct cabling of the unit. This is done via starting separately the pH pump or RX pump (Salt electrolysis)



For the verification of the pH pump : Choose option “Enable pH pump”. The pH pump (the peristaltic pump on the left on a liquid chlorine dosing device) has to start. If it does not start, check the pump by switching ON and OFF the pump using the button on the pump itself. If the pump still does not start, contact your supplier or the manufacturer.

For the verification of the RX pump (or Salt electrolysis) : Choose option “Enable RX pump”. The RX pump (the peristaltic pump on the right on a liquid chlorine dosing device) has to start. If it does not start, check the pump by switching ON and OFF the pump using the button on the pump itself. In case of salt electrolysis : press the ON/Standby bottom once. If the pump / salt electrolysis still does not start, contact your supplier or the manufacturer.

## APPENDIX

**Appendix section A:** *The unit no longer functions.*

**Extra info for problem:** The unit no longer functions.

Open the unit and disconnect the two circuit boards. The pH and RX pumps should start after disconnecting.

## **Steps:**

To disassemble:

- a. Turn off the system.
- b. Loosen four screws (press and turn 90 degrees).



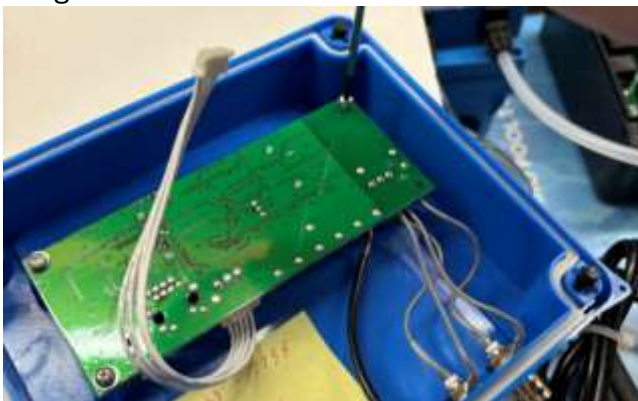
Disconnect the connection between the rear and front circuit boards:

- a. Pull out the white cable and hold the base plates.
- b. Put everything on one side.



Unscrew the flow monitor from the system:

- a. Move the cover.
- b. Install the flow monitor from the new hood.
- c. Connect the white cable.
- d. Tighten the cover with the screws.



**Calibration:** The probes need to be recalibrated.

**Test method:**

If the pumps do not work, follow the test instructions below. If the pumps work, check whether the display or the entire display circuit board is defective.

You can test via the service menu. If the relay works, the system works. If the relay is not functioning, connect a wire from the pH pump going to the relay directly to the power. This should ensure that the pH pump or electrolysis functions

**Appendix section B:** *The unit is in read only.*

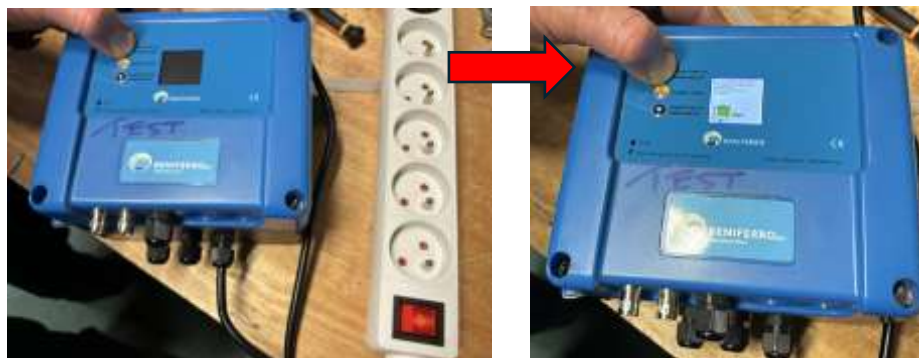
**Extra info for:** Switching Your Pool Twin Display from Read-Only Mode to Normal Mode



Occasionally, your device may enter "read-only" mode, meaning the Pool Twin display can only read values without making any changes. This mode is often activated accidentally. To reset the Pool Twin display and switch it back to normal mode, follow these steps:

Steps to Switch from Read-Only Mode to Normal Mode:

- 1. Disconnect the System from the Power Supply**
  - Ensure the device is completely powered off.
- 2. Press the Top Button and Reconnect the Power Supply**
  - Hold down the top button.
  - While holding the button, reconnect the device to the power supply.
  - Continue holding the button until the system is fully started



### 3. Confirm Switching to Normal Mode

- After the system starts, press and hold the screen displaying the version.
- A confirmation screen will appear, asking if you want to switch to normal mode.
- Press "OK" to confirm.



Once these steps are completed, the device should operate in normal mode.



#### What to Expect After Switching

Upon starting, if the system is still in read-only mode, you will see a screen indicating this status. In read-only mode, the device only measures values and does not control any functions.

#### **Manufacturer**

Beniferro B.V.  
Industrieweg 9  
3190 Boortmeerbeek Belgium

+32 476 965919  
[info@beniferro.eu](mailto:info@beniferro.eu)  
[www.beniferro.eu](http://www.beniferro.eu)