Limpido XC2-PH

Smart electrolysis and pH regulation

Réf : PF10I041 / PF10I032 / PF10I030

Table of Contents

Read these instructions carefully before installing, commissioning and using this product

1. Pack contents

- 1 electrolysis box Limpido XC2-PH
- 1 electrolysis cell with **built-in temperature sensor** + 1 set of 2 union connections for 50mm diameter tubes
- 1 pH sensor with Ø50mm ½" fixing collar + sensor holder
- 1 pH injection kit (Strainer, crystal tube, injector with Ø50mm ½" fixing collar)
- 2 pH calibration solutions: 7.0.and 9.0
- 1 flow detector fitted with a connector with a Ø50mm ¾" fixing collar + M/M ¾" nipple
- 1 stainless steel earthing collar with Ø50mm ½" fixing collar
- 1 analysis kit (chlorine, pH, hardness, salinity, stabiliser, etc.)
- 1 bag containing
  - 1 staple for the cell connector
  - 4 fixing screws and anchors for the power supply box
  - 2 seals for the cell union connections
- Technical manual (this document)

2. Technical specifications

Power supply voltage	230V~ AC 50/60Hz
Power consumption	PF10I041: 90W PF10I032: 120W PF10I030: 150W
Dimensions:	Box: 290 x 350 x 150mm Cell: 312 x 100 x 120mm Packing box: 575 x 400 x 170mm
Weight	Box: 1.04 kg / Cell: 1.35 kg
Installation	Box: Wall fasteners (4 screws/wall plugs supplied) Cell: On 50mm diameter PVC tubes (union fittings not included)
Protection factor	Box: IP-45 / Cell: IP-55
Maximum treated volume	PF10I041: Maximum 60 cubic metres PF10I032: Maximum 100 cubic metres PF10I030: Maximum 160 cubic metres
Recommended salt level	2.5 to 5 g / litre
Cell cleaning	Automatic using polarity reversal
Maximum pressure (cell)	3 bars
Maximum flow rate (cell)	22 m3/h
pH measurement	Resolution +/-0.1 - Calibration at 7.0 and 9.0
pH regulation	pH- proportional regulation (20% per 0.1 pH) - Max 1 l/hour

3. Description

3.1. The principles of electrolysis

Salt water electrolysis separates salt (NaCl) into sodium (Na) and Chlorine (Cl). The chlorine is immediately dissolved in the water to produce hypochlorous acid (HClO). This powerful disinfectant destroys bacteria and algae before turning back into salt.

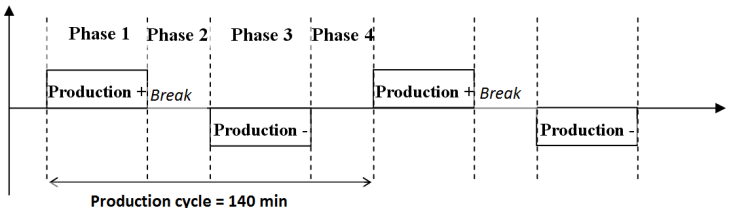
The quantity of chlorine needed to disinfect a swimming pool increases with the water temperature and pH.

Chlorine production must be adjusted to the environment and water characteristics:

- water conductivity
- water temperature
- the volume of the pool to be treated
- water pH

For the installation's safety, the Limpido XC2-PHpuissance only produces chlorine when the flow meter indicates that water is actually flowing through the cell.

During these filtering periods, the chlorine production time is composed of two-period cycles (Normal and Reverse) that alternate electrode polarity. This polarity reversal makes it possible to prevent the electrodes from scaling.



Thus, the production cycle is split into 4 phases:

1. Phase 1, normal production (positive)
2. Phase 2, standby
3. Phase 3, reverse mode production (negative)
4. Phase 4, standby

At the end of the filtering period, the **Limpido XC2-PH** stops producing and restarts it exactly where it left off when filtering restarts.

The main benefit of this choice of operating mode is to always guarantee (even if there is a power failure) that normal and reverse production times are strictly identical and, as a result, guarantee the best cell descaling possible (giving quality production and long equipment service life).

3.2. Presentation of the Limpido XC2-PH

Effective and optimised production - depending on water temperature - reduced when the automatic cover is closed - A selection of several production modes

Single block compact and strong cell - fitted with solid titanium plates.

Self cleaning cell using reversed polarity.

Increased safety using flow detection.

Installs in just a few minutes, easy connection.

3.3. Production heat regulation (AUTO mode)

As the water temperature varies during the season, production times must be adjusted. This temperature regulated production is carried out automatically by the **Limpido XC2-PH** in AUTO production mode.

The calculated production time is (in hours): (Pool temperature - Minimum temperature*) + 1.

*The minimum temperature (15°C by default), can be configured. The calculated production time can therefore be influenced.

There will be no production below this minimum temperature.

Default calculated production time (minimum temperature = 15°C);

Pool water temperature	10	15	20	25	30	35
Production time in AUTO mode	0h	1h	6h	11h	16h	21h

Production time calculated using a minimum temperature = 12°C;

Pool water temperature	10	15	20	25	30	35
Production time in AUTO mode	0h	4h	9h	14h	19h	24h

However, it is not recommended to lower the minimum temperature below 12°C in order to protect the electrolysis cell plates from low temperature operation, as this would reduce their service life. If production time seems insufficient, make sure the pool volume is set to the maximum in order to optimise chlorine production (see 6.3.4), then, if necessary, use the ON mode (24h/24h) or the PROG mode (by entering the required number of hours in "Prog hours". (see 6.3.6)

3.4. pH Regulation

For fully automatic pool water treatment, the pH version is equipped with pH regulation. This regulation system maintains your swimming pool's pH using a pH correction solution: PHminus (or pH-).

The pH, or potential Hydrogen, measures the degree of acidity of the water. Its value is between 0 and 14.

- A solution with a pH of 7 is neutral.
- If the pH is below 7 the solution is acidic and if it is above, the solution is called basic or alkaline.

For the comfort of bathers, effective treatment and reliability of the installation, the swimming pool water's pH must be maintained at about 7. A pH of between 6.8 and 7.8 is generally considered to be correct. Water which is too acid (pH <6.8) is aggressive to the mucous membranes, causes metal parts to corrode and may damage plastics (liners). Water which is too alkaline (pH>7.8) may also be aggressive (caustic) and considerably reduce the effectiveness of the chlorine. The pH also tends to increase due to the presence of salt in the water, making pH regulation especially useful. In order to avoid possible measurement errors, it is recommended to check the sensor calibration once per month. To do this, just follow the instructions in the CALIBRATION section.

4. Installation

4.1. Hydraulic installation

The different elements to fit to the pool piping are: the electrolysis cell (C), the flow detector (B) (installed upstream of the cell but on the same section of piping), the pH sensor (E), the pH correction solution injector (F) and the earthing device (D).

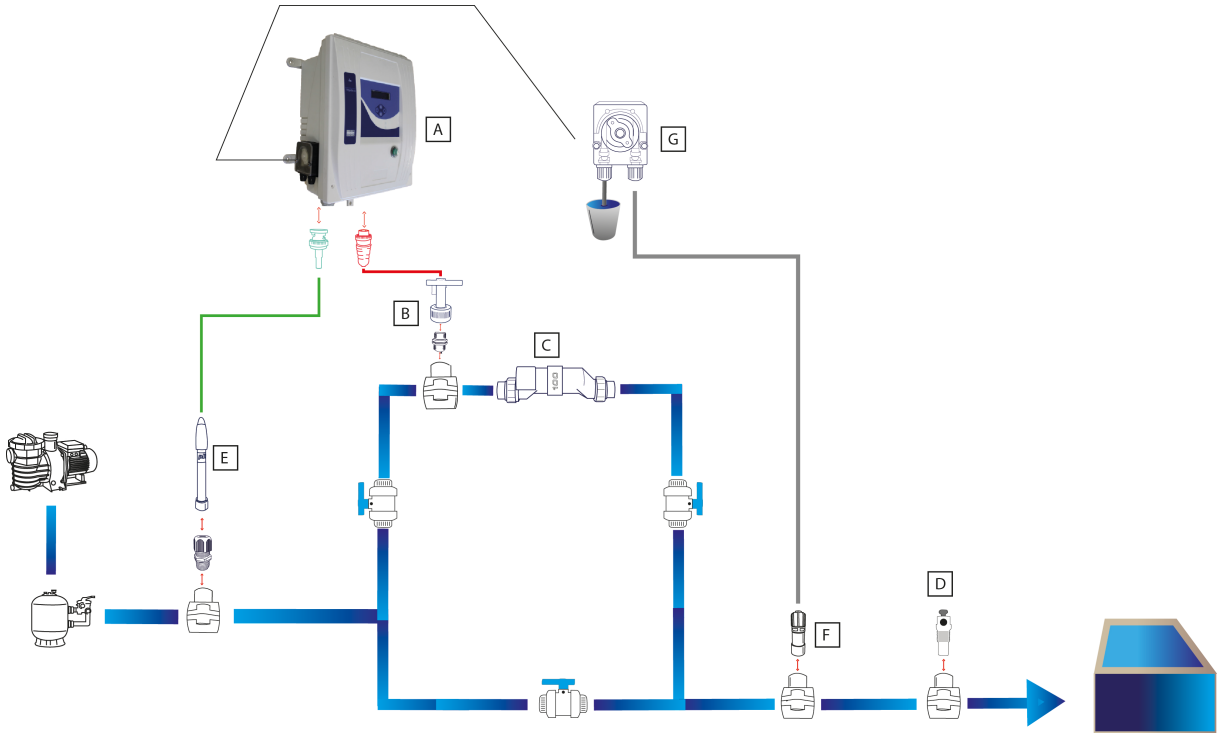
The cell (C), which is the essential part of the **Limpido XC2-PH**, must be handled with care. It is fitted with solid titanium electrode plates treated with ruthenium oxide and is specially designed for a maximum service life and to limit maintenance operations. The temperature sensor is built into the cell and uses the same connector.

The **Limpido XC2-PH** cell should be installed on 50mm diameter piping, using the supplied union connectors. It should be installed downstream of the filtering system (after the filter) and can be placed either horizontally or vertically.

Prefer using a by-pass (mandatory in excess of 22m3/hour) so that the flow through the cell can be controlled without stopping filtering.

4.1.1. Bypass installation

The flow detector must be placed either just before or just after the cell on the same branch: there must not be any derivation, valve or anything else between the two!


A
G
B
C
E
F
D

4.1.2. Water flow detector

The Limpido XC2-PH is shipped with a flow detector. The flow detector is built into the cell delivered with the Limpido XC2-PH.It prevents the electrolysis unit from running when there is no flow, or during a backwash. It is used to prevent all risks of hydrogen accumulating or excess heating and thereby makes the system safer.

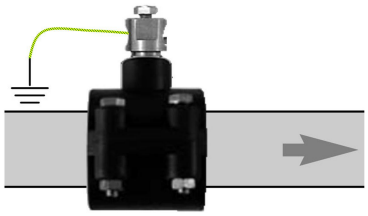
1. Install the fixing collar on the piping after having previously drilled it.
2. Screw the male / male ¾" nipple into the fixing collar. (use Teflon tape to make sure it is watertight)
3. Screw on the flow detector (use Teflon tape to make sure it is watertight). Do not over-tighten the detector.

Take special care over the water flow direction so that the device correctly detects the flow. For the flow detector to be correctly positioned, the arrow engraved on it must point in the direction the water flows.

4.1.3. Earth electrode

The Pool-Terre device shipped with the Limpido XC2-PH is used to drain the water's electrostatic charge to the earth. When this system is connected to a "proper earth" (the connection must be direct to a local earth electrode), it eliminates leakage current and limits the reduction-oxidation phenomena that cause corrosion.

1. Install the fixing collar on the discharge piping after having drilled it, downstream from the heating or electrolysis devices.
2. Screw the electrode into the fixing collar. (use Teflon tape to make sure it is watertight)
3. Connect the Pool-Terre directly to the earth electrode using a correctly sized green and yellow wire. (minimum 4mm²)



4.1.4. pH sensor

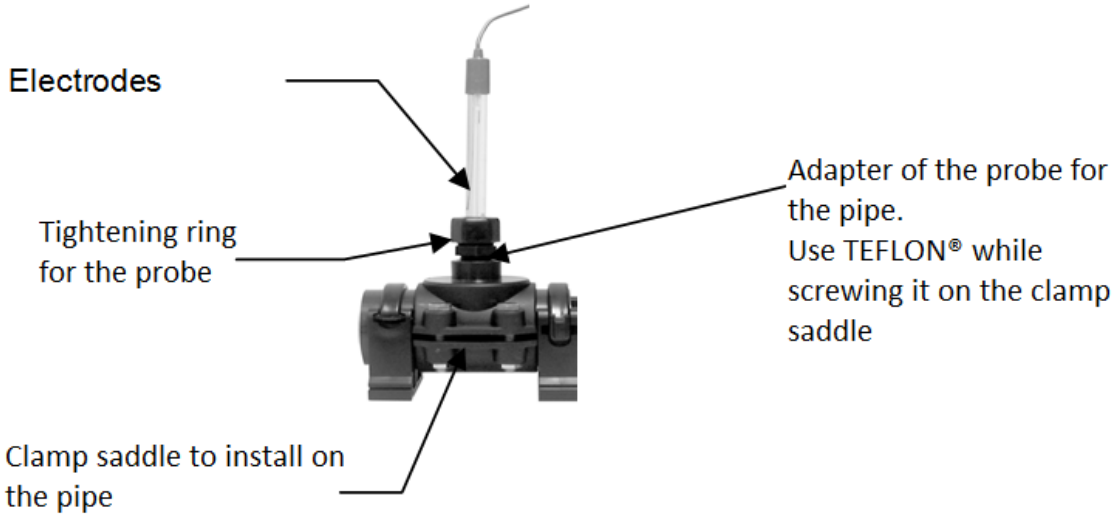
The sensor is used to measure the pH level. Its electrodes supply weak electric voltage. These elements are fragile and sensitive to disturbances. They should therefore be handled with the greatest care.

The sensor is shipped with a cap filled with electrolyte solution to protect it. Remove this cap before installing the sensor and keep it for possible later storage of the sensor (for wintering for example) **Never leave the sensor in the open air**.

The sensor must be installed on the discharge piping using a 50 mm diameter fixing collar with a ½" threading and a sensor holder.

The sensor is installed on the cell using a ½" sensor holder.

The sensor must be placed downstream of the filter and upstream of the cell.



This sensor's responses tend to fade over time and its response times increase. This is why it is important to calibrate it regularly to prevent measurement errors. This sensor is a fragile component that requires care and maintenance. The sensor head should especially be kept permanently immersed. Never use distilled or demineralised water.

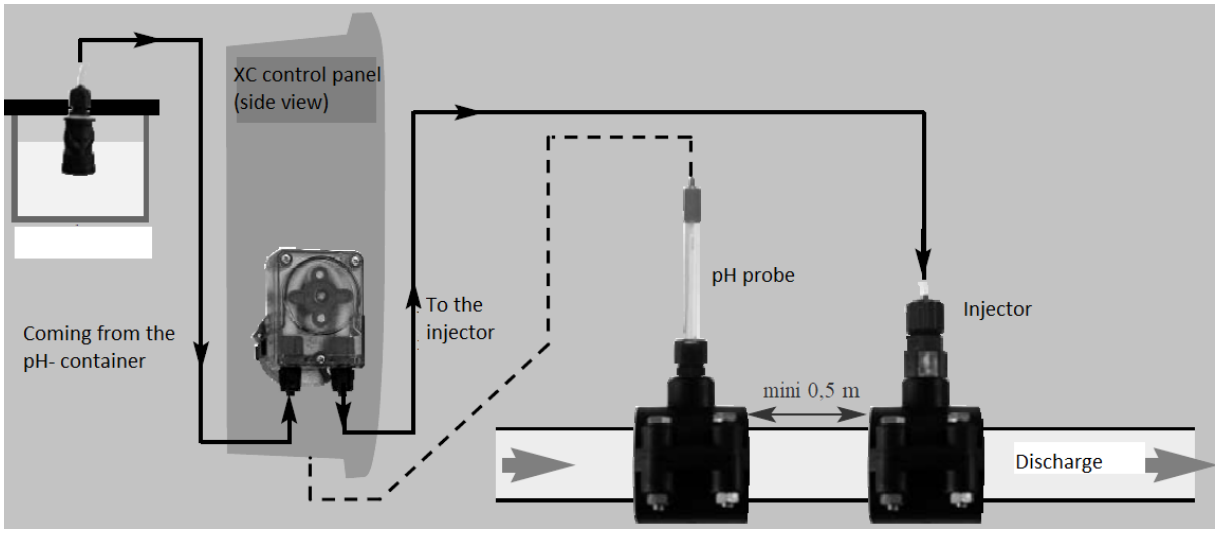
4.1.5. pH injection

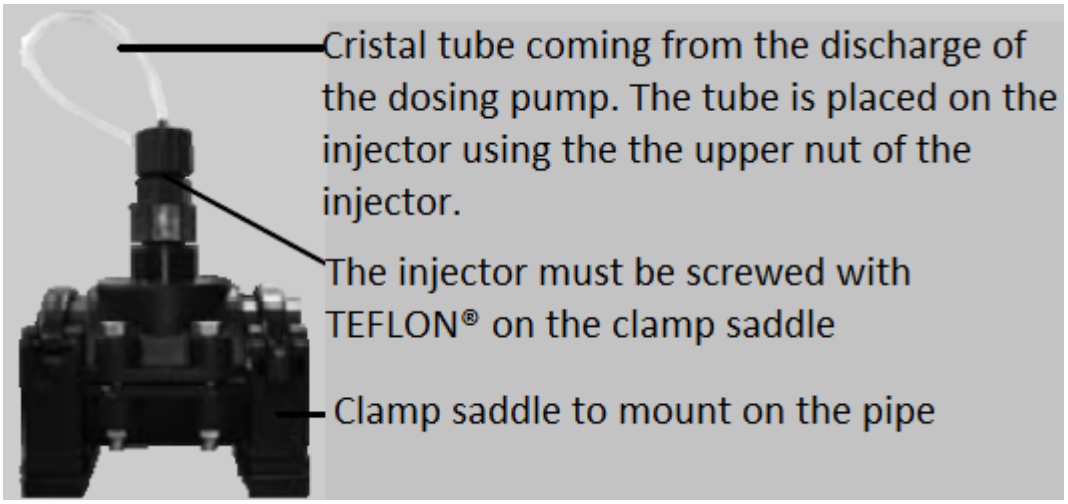
The acid (pH-) or base (pH+) product injector is placed just before the discharge into the pool. The intake strainer is placed in the pH corrector product container. It is installed using a 50 mm diameter fixing collar with a ½" threading and an injector.

The injector is used to inject the required amount of product to correct the water pH. **It is imperative to place it after the pH sensor and as close as possible to the discharge into the pool**.

The chemicals used in pools are highly corrosive and can have a harmful effect on health and the environment.

These products must be handled with care and stored in a suitable location.





4.2. Connection to electricity

Installation of this project involves a hazard of electric shocks. We strongly recommend you contract a professional installer. Incorrect installation places you in danger and may irreversibly damage the product and the equipment connected to it.

For safety reasons and in compliance with the NF C15-100 standards, the Limpido XC2-PH box must be installed

- **either at 3.50 m from the pool edge. This distance takes into account the distance around obstacles. If the Limpido XC2-PH box is installed behind a wall, the distance will include the length of the path taken to move around the wall to reach the box.**
- **or in an in-ground space immediately next to the swimming pool. In this case the space must be accessible via a hatch which requires a tool to open it.**

The Limpido XC2-PH power supply box

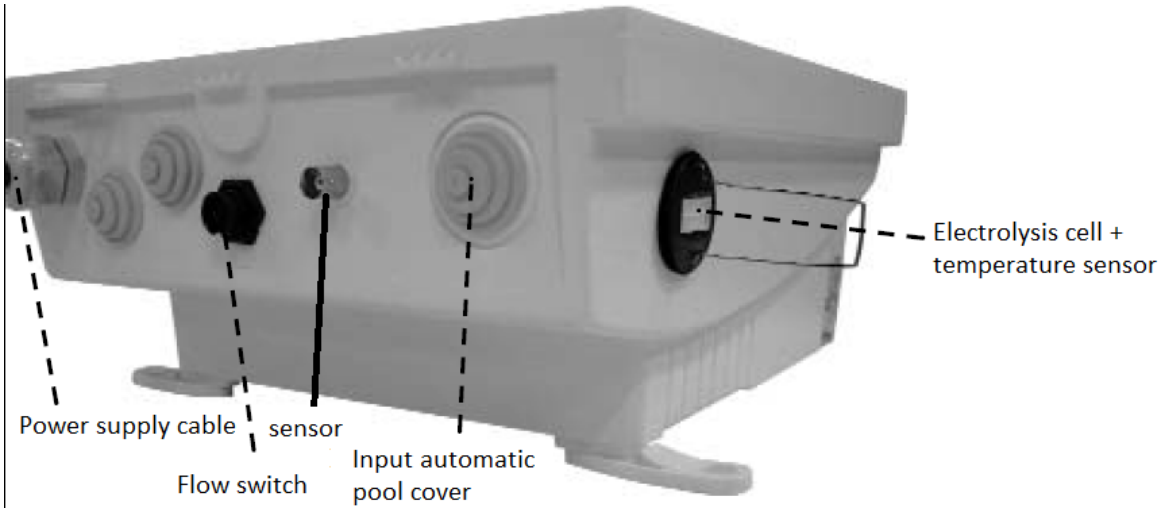
- must not be directly installed outdoors, it must be sheltered from rain, cleaning or watering spray, and UVs (sunlight).
- is spray resistant *but must not be installed in a floodable area.*
- must be fitted on a level and stable support and fixed to the wall using the supplied anchors and screws.

To keep it watertight, it is essential to check that the seal is correctly positioned when closing the cover, and to tighten the 2 screws on the front face every time the box is accessed.

4.2.1. Power supply, cell, flow detector, sensor

The box is shipped with a power supply cable that can be connected to the mains in the technical room using a standard plug and socket (230V / 50 Hz). **This socket must be protected by a 30mA ground fault circuit breaker in compliance with the NF C15-100 standard**.

The box uses a flow detector to know whether the filtering system is running or not. THE CONTROL BOX MUST NEVER BE CONNECTED TO A SOCKET COUPLED TO THE FILTERING SYSTEM!



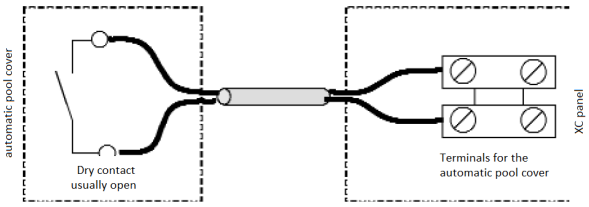
4.2.2. Cover contact

For pools with an automatic cover, the quantity of chlorine produced must be lowered when the pool is covered. Indeed, in this situation the water is sheltered from UVs and most pollutants, so the amount of chlorine required is significantly less. Most covers are fitted with a travel switch to which the Limpido XC2-PH can be connected to adjust its production.

This contact must be open when the cover is open, and closed when the cover is over the pool.

Use the cable passage at the back of the control box and connect the two contact wires directly to the module (see photo below).

***The cover contact must imperatively be a dry contact with no electric potential. No other wires (coupling for other devices, etc.) must be connected at the same location. A connection error can seriously damage the device and will void the guarantee.**



4.2.3. Cell connection

Connect the cell to the side connector and lock it in place using the metal staple supplied with the accessories.

4.2.4. pH sensor connection

Connect the sensor to the BNC connector under the control box and lock it using a quarter turn.

5. Start up

The device settings can only be adapted through regular analysis.

Following the steps described below carefully makes it possible to start up without experiencing any issues.

The chemicals used in pools are highly corrosive and can have a harmful effect on health and the environment.

These products must be handled with care and stored in a suitable location.

5.1. Stabiliser

At room temperature chlorine is a gas. Its solid form (tabs, pellets, etc.) is obtained by combination with a molecule of cyanuric acid. This cyanuric acid is a stabiliser because it protects the chlorine from breaking down under the action of ultraviolets (UVs) from the sun. On the other hand, the cyanuric acid is not used and inevitably accumulates in pools treated using chlorine tabs and ends up by inhibiting the chlorine's potential. For swimming pools, the maximum recommended cyanuric acid concentration is 80 ppm (or mg/l).

Salt electrolysis treatments avoid this excess cyanuric acid. The use of pool salt is recommended as it is pre-dosed with stabiliser.

5.2. Salt level check

The Limpido XC2-PH is designed to run in water with conductivity corresponding to a salt level of between 2.5g/l and 5g/l at 25°C.

To accurately check your pool water's salt level, we recommend using a conductivity meter. This easy-to-use instrument gives a direct salt level reading in g/l. Analysis strips are also available to effectively check your water's salt level.

When the salt level is not appropriate, the Limpido XC2-PH stops production if the salt level is too high or too low. If one of these faults occurs, first check that the cell is properly connected to the control box and that it is in working condition. Then make the required corrections to the pool water.

Water's conductivity is proportional to its salinity, but also depends on the temperature for 2.2% per degree Celsius.

Salinity (in g/l)	10°C	15°C	20°C	25°C	30°C	35°C	40°C
Min	3.3	3.1	2.8	2.5	2.2	2.0	1.7
Ideal	4.7	4.3	3.9	3.5	3.1	2.7	2.3
Max	6.7	6.1	5.6	5	4.5	**3.9**	3.4

At 35°C the maximum salt level is therefore changed from 5g/l to *3.9g/l*.

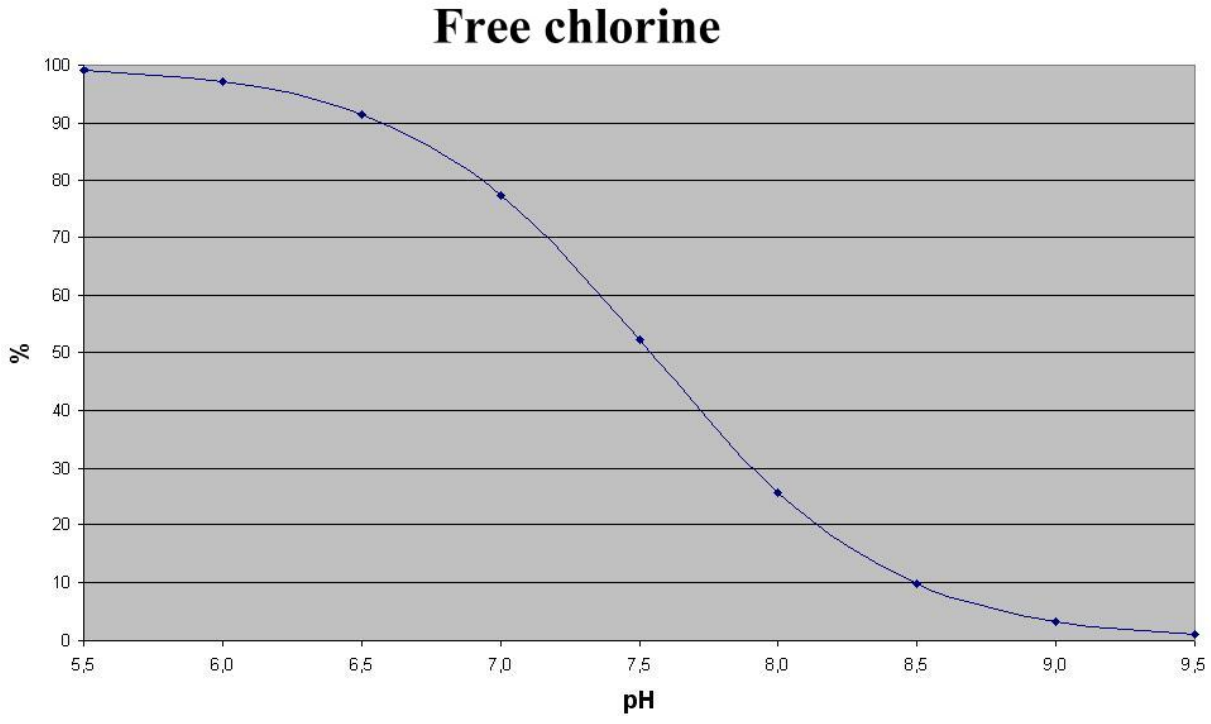
5.3. TAS / TH check

It is recommended when installing to ask a specialist to test the pool water's TAS (Total Alkaline strength) and/or TH (Total Hardness). These two measurements are usually quite close and are most often expressed in French degrees (°F). If the TAS and TH are different, use the mean value of the two measurements. It is important to highlight that very soft water (TH <10°F) has the advantage of preventing scale deposits, but can also be aggressive, depending on the pH and TAS.

At the other end of the scale, very hard water (TH>35°F) will cause scale deposits on the installation. It is therefore recommended to correct the TAS and TH using the appropriate chemicals. Contact your pool builder for more details.

5.4. pH checks

pH, or potential Hydrogen, measures the acidity of the water. Its value is between 0 and 14. A solution with a pH of 7 is neutral. If the pH is below 7 the solution is acid, and if it is above 7 it is basic (or alkaline). For the comfort of bathers, effective treatment and reliability of the installation, the swimming pool water's pH must be kept at about 7.2. However, as the ideal pH for a pool depends on all the elements used (coating, materials, etc.) in the pool, please check the pool builder's recommendations. When the pH goes up from 7.2 to 8.2, the percentage of active chlorine passes from 70% to 20%.



For more effective treatment it is essential to keep the water's pH within the range of ideal values defined by your pool builder (see manuals).

6. Operation

6.1. Powering on

There is a switch on the control box to power on the electrolysis device. When the device is powered on, the switch lights.

6.2. Control interface

The interface has a multi-function liquid crystal display with a 16 character line, and 4 keys;

Component	Description
Key	"UP / PLUS" Used to increment values or to scroll to the top of setting or programme lists
Key	"DOWN / MINUS" Used to decrease values or to scroll down to the bottom of setting or programme lists
Key	"VALIDATION / OK" Used to validate a programme selection
Key	"RETURN / CANCEL" Used to go back, cancel current updates without validating them

6.3. Use

The system is switched on using the luminous switch on the front. The screen displays the following home message:

Where v X.Y is the version of the programme installed your Limpido XC2-PH display, followed by the control box model;

And finally the type of cell connected to the control box (example for a 60m3 model);

To scroll through the menus, use the and keys.

To access a menu, press the key.

To update a variable, press the key until it flashes. Once the variable has started flashing, set the value using the and keys. To validate the new variable value, press the key again. Finally, to go back without updating the variable, press the key.

After a few seconds, the system status is displayed on the screen (see 6.3.1)

6.3.1. System status

The default screen (screen saver) gives the status of the Limpido XC2-PH by alternatively showing pH and production messages;

	
On the left is the water temperature, and on the right the configured electrolysis mode (see ELECTROLYSIS MENU).	On the left is the water temperature, and on the right the pH measured by the sensor (see pH MENU).

Depending on the system status, the following symbols are shown in the middle of the screen;

Symbol	Meaning
	Water flow detected (by the flow detector). This arrow should appear a few seconds after the filtering system is triggered and should disappear a few seconds after it stops.
	Cover closed. The contact connected to the "cover" input is closed and the system will only produce chlorine for a few hours per day. The duration is configurable (see COVER cycle).
	Chlorine production in progress, positive direction.
	Chlorine production in progress, negative direction.
	Production paused (no ongoing production).

Symbol	Meaning
	Temperature low. If the selected mode is "PROG" or "AUTO", as the current temperature is less than the minimum temperature (configurable - see Min temperature), production is halted (wintering).
	Risk of freezing. This is for information (the system operation is not changed).
	Dosing active. The dosing pump (for pH regulation) is running (the pump should be operating). This symbol flashes during the wait phases (the pump never runs continuously, but at the maximum 1 minute every 2 minutes).

6.3.2. Messages

Alternating with the status screen (screen saver) described above, the Limpido XC2-PH gives the user information to help prevent possible anomalies or to troubleshoot a possible fault. Messages are then displayed alternating with the device status:

Message	Description	Solution
Wait For Flow	Waiting for filtering to be detected.	This message should only appear when there is no flow detected through the cell. If this message appears when the filtering is running, check the valve positions and flow detector installation (bad contact on the electric connection, damper jammed due to a too small hole in the piping, etc.).
Error temp	Water temperature measurement error	Check the cell connection
Low salt	Current too weak / not enough salt	Check the salt level If the fault persists even though the salt level is correct, check the cell condition Descale the cell using diluted acid Add salt after having confirmed the need. Please refer to the electrolysis section. This fault may just be caused by the temporary presence of air in the cell following the filtering pump becoming unprimed or an air leak somewhere on the circuit.
Too much salt	Current too strong / too much salt	Check the salt level Change part of the water Please refer to the electrolysis section.
Increase Filtr.	Over the past 24 hours the filtering system has not been detected for long enough for the electrolysis device to produce during the programmed / calculated time.	Adapt filtering time to production needs. The fault will only disappear after 24 hours on condition that the electrolysis unit has been able to produce for the programmed time.
pH error	pH measurement error. Check the sensor, the connection, and recalibrate.	

Message	Description	Solution
SUPERVISOR	This message is displayed briefly when entering supervisor mode (see 6.10).	

6.3.3. Menus

Using the ^ and v keys, it is possible to scroll through the screens to access the following menus;

Screen	Function
SETTING	Used to access the device's general settings (see 6.3.4)
pH CONTROL	Used to access regulation mode selection, the pH set point, sensor calibration (see 6.3.5), etc.
CHLORINATOR MENU	Used to access the production settings (see 6.3.6)
AUTO 1/8h 12g	Displays production status

6.3.4. CONFIGURATION

This menu gives access to the device's general settings.

Screen	Function
Pool vol = 60m3	Used to enter the pool volume value. The pool volume is especially used to calculate production cycles when in AUTO mode. For maximum production, leave this setting at the maximum.
Temp Correction= +0°C	This function is used to correct the displayed temperature value (adjustable by -2 to +2) in order to compensate a possible systematic temperature error.
Language	Used to choose the device language (French, Deutsch, Español, English, Cesky, Nederlands, Italiano)

6.3.5. pH MENU

Screen	Function
pH mode = pH-	Used to select the pH regulation (OFF / ON / pH-). • OFF: to prevent any injection of product. This mode can be used during wintering for example • ON: to inject corrector permanently *without any regulation*. This mode can be used to prime the pump. CAUTION, do not leave the device in ON mode! This would completely empty the container! • pH-: to inject PHminus product and therefore lower the pool pH. The pump will start when the water pH is above the pH set point.
pH set point = 7.2	Used to select the required pH set point. If the regulation mode is pH-, the Limpido XC2-PH will pump corrector liquid if the value is higher than this set point.
Volume/24h=20L	The maximum daily volume of pH corrector to inject can be limited by entering a value different from 0 here. **Entering "0" for this value deactivates the maximum daily volume control. In this case, *there will be no injected volume limit.***
pH calibration	Used to calibrate the pH sensor. See below.

This menu is used to calibrate the pH sensor.

This operation must be carried out the first time the appliance is commissioned and then approximately every month **as indicated in the Maintenance section (7.3)**. Calibration uses the two solutions supplied with the Limpido XC2-PH : one PH7 solution and one PH9 solution.

To carry out calibration,

1. Press the key
2. The Limpido XC2-PH displays Cal. pH7 = x.x ?
3. Rinse and dry the sensor before plunging it into the pH 7.0 calibration solution and then wait for at least 2 minutes for the reading to stabilise.
4. Press the key
5. The Limpido XC2-PH displays Cal. pH9 = x.x ?
6. Rinse and dry the sensor before plunging it into the pH 9.0 calibration solution and then wait for at least 2 minutes for the reading to stabilise.
7. If the value is correct, the calibration procedure is complete and the Limpido XC2-PH displays "Cal. OK". Otherwise the "Cal. Err." message flashes. Press the key to repeat the measure-

ment after having checked that the sensor is in working order, and that the solution and connection are correct.

6.3.6. ELECTROLYSIS MENU

This menu gives access to the production settings.

Screen	Function
Prod. mode AUTO	Used to selected the production mode (see below).
TH = 15°F	Used to enter the TAS/TH value (configurable from 10 to 50°f) to adapt the polarity reversal time to the water alkalinity and hardness. To protect the electrolysis cell service life, too frequent polarity reversals should be avoided. It is therefore advisable to adapt polarity reversal frequency to actual needs. The TAS (Total Alkaline Strength) and the TH (Total Hardness) are values that give an idea of water hardness and the risks of scale deposits in the cell. Polarity reversal frequency will be calculated using this value. The value is characteristic of the water's geological origin and does not vary much. It only needs to be measured when the device is started for the first time, or after a change of water. It is measured using the strips from the analysis kit. The value read on the strip must be entered into the device.
Mini temp. = 15°C	Used to enter the minimum temperature from which the electrolysis device will start producing in PROG and AUTO mode. Below this temperature, in both operating modes the device will not produce chlorine (configurable from 5 to 25°C).
SHOCK run = 20h	Used to configure the duration of a "SHOCK" production cycle. Once this time period is over, the device automatically returns to AUTO mode (configurable from 8 to 24 hours).
Cover run = 2h	Used to set the cycle time when the pool cover is closed (configurable from 1 to 12 hours).
Prog. hours =8h	Used to set the production time (configurable from 1 to 24 hours): This setting defines production time in PROG mode (in AUTO mode the time is calculated by the device).

The different production modes are the following:

- OFF: Chlorine production is disabled.
- ON: Chlorine production is permanent whenever a flow is detected. the SHOCK function is recommended rather than the ON function when a shock treatment is needed (in SHOCK mode, once the programmed time is over, the device automatically switches to AUTO mode). Closing the cover has no effect on this mode.
- PROG: Chlorine production will occur every day for the number of hours programmed in the "Prog. hours" menu. If the cover is closed, the number of hours of production will be the number entered on the "Cover cycle" menu

- AUTO: Chlorine production will automatically occur every day for a number of hours calculated depending on the water temperature and the pool volume entered on the Pool vol." menu. (see 6.3.4) Remember, the calculated production time is (in hours): (Pool temperature - Minimum temperature*) + 1. (see 3.3) If the cover is closed, this time is divided by 4.
- SHOCK: Chlorine production will occur on the first day for the number of hours programmed on the "SHOCK hours" menu. Once this time has expired, the device automatically returns to AUTO mode. This mode is used to remedy water that is starting to turn green or water that is no longer clear. Closing the cover has no effect on this mode.

6.3.7. Short cuts

Some menu functions can be accessed directly from the screen saver (status) without scrolling through the menus.

Press	To directly access
Key ✓	Prod. mode AUTO Production mode selection
Key ✗	pH mode: pH- pH regulation mode selection (type of dosed product)

6.4. Low temperature

The need for disinfectant drops significantly when the water temperature drops. In order to avoid using the electrolysis cell needlessly, the device stops producing when the water temperature is lower than the temperature programmed on the "Min. temp." menu and displays, on the system status screen (screen saver);

This automatic wintering mode **is only enabled in PROG and AUTO mode**. This setting **is not taken into account in SHOCK or ON** mode.

6.5. Automatic cover

If the **Limpido XC2-PH** is connected to an automatic cover, it detects when the cover is closed. If the cover is closed,

- In PROG mode, production time is the time set on the "Cover cycle" menu.
- In AUTO mode, the calculated production time is divided by 4.

When the control box detects that the pool cover is closed it displays on the system status screen (screen saver);

This feature is used to reduce the risk of large amounts of chlorine accumulating.

6.6. Supervisor menu

6.6.1. Access to the Supervisor menu

Some of the functions on the device are reserved for use by installers or the persons in charge of maintaining the device. To access the supervisor menus,

1. Power off the electrolysis unit using the ON/OFF button on the control box,
2. Wait for about 30 seconds,
3. Press the key ^ and keep it pressed,
4. Power the electrolysis unit back on using the ON/OFF button on the control box and release the key,
5. You will see

displays, confirming supervisor mode.

6.6.2. System status (supervisor)

The following additional system status screens are available in supervisor mode;

Screen	Function
	This screen provides a purely informational and experimental indication of the salt level calculated using the water conductivity measurement. This calculation is made assuming a new cell and the current it normally consumes without taking into consideration its age. Whenever a salt level measurement is needed, we recommend the use of an electronic salt tester (ref. T-SEL, sold separately).
	This screen gives an estimate of the number of operating hours chlorine production.

6.6.3. GENERAL MENU (supervisor)

The following additional configuration screens are available in supervisor mode;

Screen	Function
Option: pH	CAUTION: This screen is used to configure the menus for your device depending on its equipment and version. Do not change this setting, leave it as pH
Reset to zero Confirm reset?	This screen is used to reset all the control box settings. A . **This resets all the settings to their default factory value. Your device will need to be reconfigured.**
Config enable	This screen is used to prevent the user from accessing the different device configurations. (See Appendix A)

6.6.4. Exiting the supervisor menu

Supervisor mode can be exited by turning the device off and then back on again after about thirty seconds, using the ON/OFF button.

6.6.5. Reset to zero

It may be necessary to reset the Limpido XC2-PH.

This returns all the settings to their default factory value. Your device will need to be reconfigured and the sensor recalibrated.

To do this:

1. Power off the electrolysis unit using the ON/OFF button on the control box,
2. Wait for about 30 seconds,
3. Press the ✓ and ✕ keys and keep them pressed,
4. Power the electrolysis unit back on using the ON/OFF button on the control box and release the keys,
5. Resetting the device requires its full reconfiguration. Select the model corresponding to your version of cell and validate using the ✓ key.

LXC2 + PH 60/100/160

7. Maintenance

7.1. Adding salt

When the salt level drops below 2.5 g/l, salt must be added.

The use of specially treated salt containing stabilisers for pools is recommended. The effectiveness of the Limpido XC2-PH will be significantly improved.

We recommend checking salt levels at the start of the season and returning them to 4g/l. Depending on the measured salt level, the salt quantities to add are the following:

Measured level / Pool volume	20m3	40m3	60m3	80m3
2.5 g/l	30	*60*	90	120
3 g/l	20	40	60	80
3.5 g/l	10	20	30	40

Weight of salt to add in kg **to reach 4g/l**:*For example, if the measured salt level is 2.5g/l 60 kg of salt should be added to arrive at a level of 4g/l in a 40m3 pool*

7.2. Wintering

In winter, weather conditions permitting, the treatment can be kept running while significantly lowering its frequency. An 8 hour filtering cycle every 15 days is usually enough. It is imperative, however, to carry on monitoring the salt levels to protect the cell from the consequences of running in water that is not salted enough (<2 g/l).

If a cover is used, the chlorine is protected from UVs and the chlorine needs drop. In Automatic mode, when the cover contact is connected, the Limpido XC2-PH reduces production automatically. To let the Limpido XC2-PH run in cold water (less than 18°C), it may be necessary to increase the salt level to 5g/l.

7.3. Sensor maintenance

When a pH sensor is immersed in water, a film forms around the glass bulb at its tip and gets thicker over time. This invisible film causes response times to lengthen, deteriorates the slope and deviates from point 0. It is easy to compensate for changes to point zero by regularly recalibrating. Increased temperatures are also a major ageing factor.

Sensor protection:

Never store the sensors in distilled water. Sensors that have been stored wet can be reused immediately. Sensors stored "dry" require several hours of rehydrating but "age" less.

As a result, we recommend:

- long term "dry" storage

- short term storage in a KCl 3M solution or, failing this, in tap water.

Sensor regeneration:

Sensor service life can be extended by regular regeneration. To regenerate a sensor, leave it to soak in a solution of diluted hydrochloric acid (HCl 0,1M). To obtain this type of solution, add a few (8 to 10) drops of hydrochloric acid (HCl at 37%) to half a glass (5cl) of tap water.

When is regeneration possible?

- when the slope is too weak (often due to a polluted or clogged junction)
- when the response time is too long
- when point 0 has shifted. There can be several causes of a point 0 shift:
  - the electrolyte may have been polluted by liquid entering the sensor
  - polluted junction
  - sensor used in an installation with leakage currents caused by a bad earth electrode (In this case regeneration is pointless)

Calibration:

Each sensor is characterised by its deviation and slope. These two points of measurement must be defined using calibration solutions and sent to the connected instrument. As these characteristics tend to drift with use, calibration must be carried out regularly. Calibration is mandatory in the following cases:

- when installing
- after replacing the sensor
- after every cleaning using a cleaning solution
- after long term storage
- when the measurement results are too far from the expected results.

7.4. Cell cleaning

When the indicated production remains low despite a correct salt level, check the cell condition and clean it if any scale is visible on the plates.

This operation must be carried out with the greatest care, and it is essential to follow the instructions for the use of the acid.

To clean it, close one end using a cap and fill it with diluted acid (HCl at 10%) from the other end. Leave the acid to act for several hours.

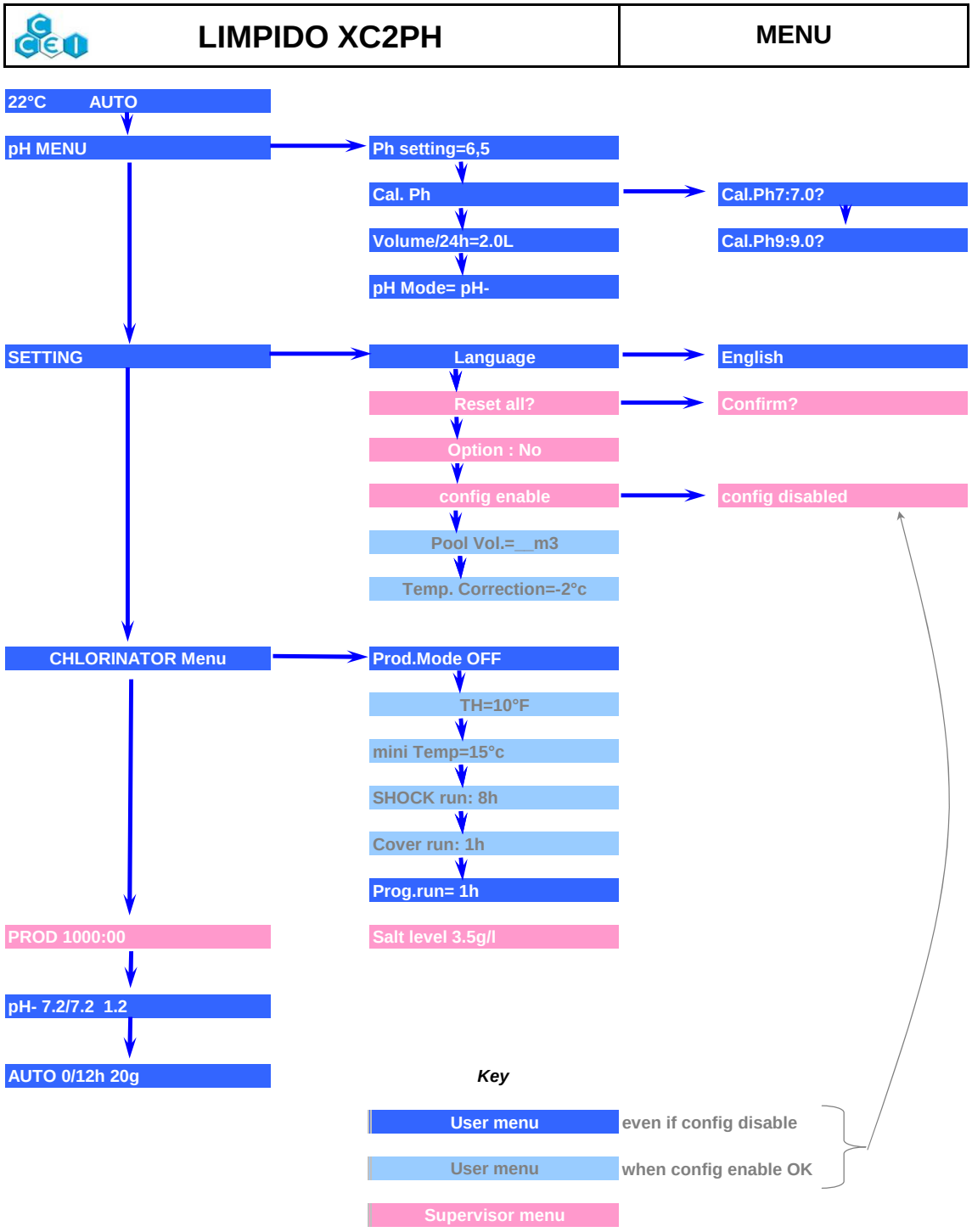
Never pour water into the acid!

Always pour the acid into the water

"Water into acid, stupid

acid into water, much smarter!

A. Menu synopsis



B. Declaration of conformity

Bleu Electrique SAS (FR47403521693) declares that product Limpido XC2-PH is compliant with the safety and electromagnetic compatibility requirements of European directives 2006/95/CE and 2004/108/CE .
CE  Emmanuel Baret Marseille, on 12/05/2017
Distributor's stamp
Date of sale: . . . . . Batch N°: . . . . . .