

Salt Chlorinator

Operating Instructions



Aqua Crystal

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1 Warnings



WARNING: General Information

1. Carefully read all the instructions in this manual and on the device. Failure to read and comply with the instructions can cause injury. This document must be given to the pool owner / custodian, who should keep it in a safe place for reference.
2. Chemicals can cause internal and external burns. To avoid death, serious injury and/or damage to equipment, always wear personal protective equipment (gloves, goggles, mask, etc.) when servicing or maintaining this device. This device must be installed in an adequately ventilated place.
3. The appliance is not to be used by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
4. Children must not play with this device. User maintenance and cleaning must not be carried out by unsupervised children.
5. Use only original Aquark parts.



WARNING: Electrical Hazard

1. This appliance is intended to be used on swimming pools only.
2. The appliance control unit can be installed outdoor, but it must keep a safe distance from the pool tank (at least 3m) , it is recommended to be installed in the pool machine room.
3. Disconnect the equipment from the mains supply before any intervention or maintenance.
4. All electrical installations must be carried out by a qualified and approved electrician in accordance with the standards currently in force in the country of installation.
5. Check that the device is plugged into a power outlet that is protected against short-circuits. The device must also be powered via an isolating transformer or a residual current device (RCD) with a nominal operating residual current not exceeding 30 mA.
6. Check that the supply voltage required by the product corresponds to the voltage of the distribution network and that the power supply cables are suitable for the products power demand.
7. To reduce the risk of electric shock, do not use an extension cable to connect the device to the mains. Connect directly to a wall socket.
8. This device must not be used if the power cord is damaged. An electric shock could result. A damaged power cord must be replaced by after-sales service or similarly qualified persons to avoid danger.

2 Product Introduction

2.1 Product Specification

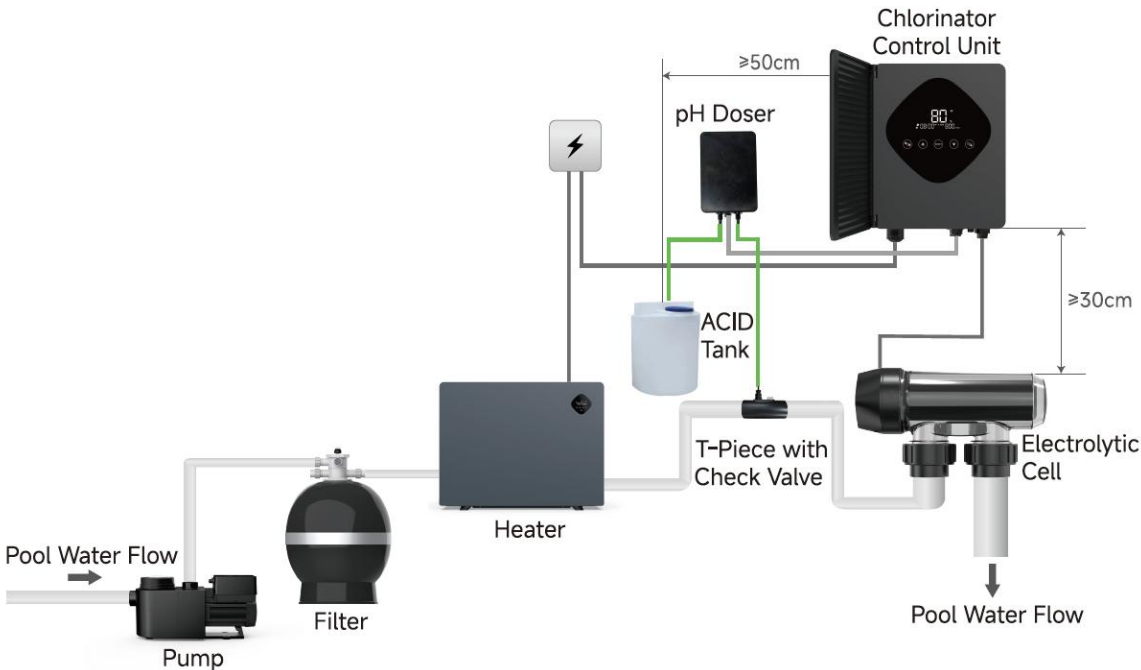
Model	ACS08	ACS16	ACS26	ACS36
100% Chlorine Production (g/h) (Salinity: 3000 PPM)	08	16	26	36
Pool Volume (KL)	25-40	40-70	70-100	100-135
Recommended Salinity	3g/L			
Power Supply	AC 220-240V 50/60Hz			
Max. Output Voltage	DC 12V			
Max Input Power	62W	104W	151W	197W
Advised water flux	5 m ³ /h-18 m ³ /h			
Operating Water Temperature	10°C-40°C			
Ambient Temperature	-7°C-42°C			
Pressure for Electrolytic Cell	≤4.5 Bar			
Material of Cell-Housing	PETG			
Water Flow Control	Air Switch			
IP Rating	IPX5			
Cell Lifetime	8000h			

3 Installtions and Connections

3.1 Materials and Tools

Tools Needed for Installation
Tape Measure
Phillips & Flathead Screwdrivers
Pliers
Hacksaw
Waterproof solvent cement for Pool Pipes

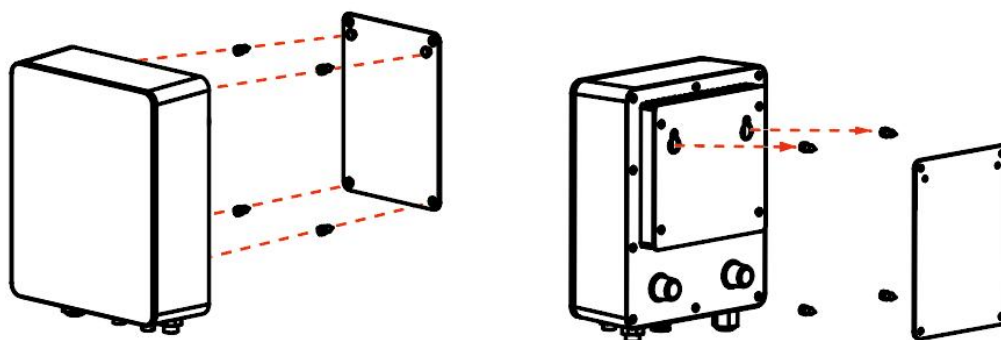
3.2 Installtions Diagram



3.3 Control Unit

Note:

- The control unit can be installed outdoor, but it must keep a safe distance from the pool water (at least 3m), it is recommended to be installed in the pool machine room.
 - For safety and user convenience, the control unit should be installed from the ground at least 80cm.
 - **Don't place the control unit directly above an open chemical container or tank.**
 - It is suggested to place the salt chlorinator control unit keeping a distance from the chemical container or tank, **more than 2m is better**. (The minimum distance between the control unit and **the sealed acid barrel** must be 50cm)
 - The unit should also be kept away from heat sources. Proper ventilation is essential for correct operation.
 - Electrolysis cell is connected to control unit with a **1.8m cell cable**.
 - Control unit should be installed at least 30cm higher than electrolysis cell.
 - Connect the control unit power supply to an appropriate weatherproof power outlet/controller.
 - For easy maintenance, the control unit can be taken out from the mounting surface freely, without any excess operations.
1. Using the wall-mounted backplate as a guide, mark holes on the mounting surface where the control unit will ultimately reside. Drill the holes in the mounting surface.
 2. Insert the expansion plugs into the borehole.
 3. Reinstall the wall-mounted backplate to the top and bottom of the back of the control unit using the screws that were removed.
 4. Tighten all the screws, ensuring that the control unit is securely hung on the mounting surface.
 5. Check source voltage.

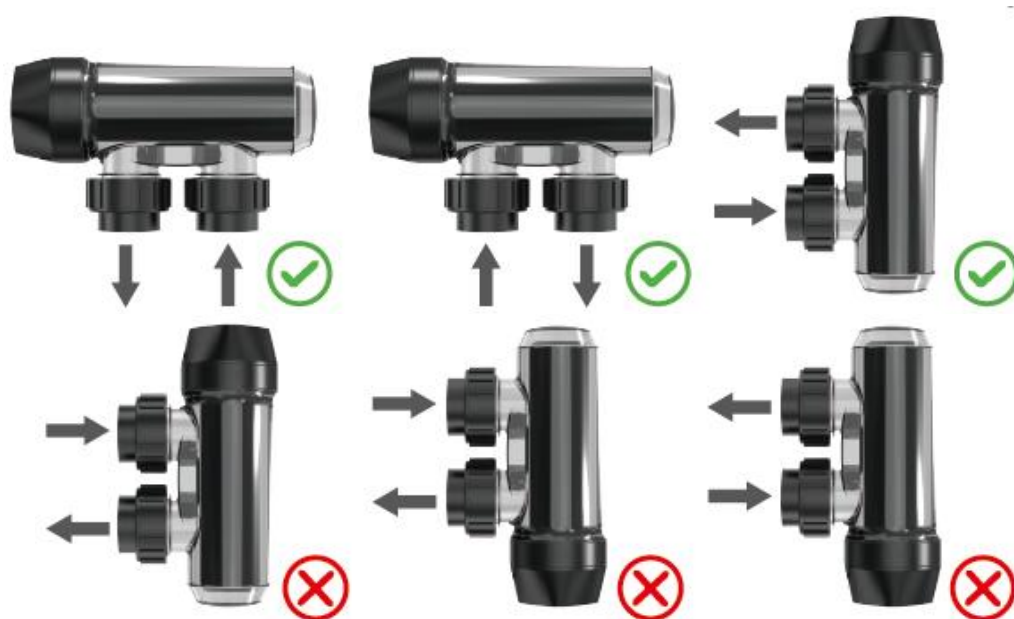


3.4 Electrolytic Cell

Note:

- Before installation, make sure pool pump is turned off.
- It is recommended that the electrolytic cell be installed in the pool return line after the filter and heater.
- The solvent cement or primer can cause damage if allowed to contact the threads or the o rings.
- Electrolysis Cell is connected to Control Unit with a 1.8m cell cable.
- Failing to install in the correct way may cause products faults and void warranty.

1. Shown below are 6 different cell orientations,

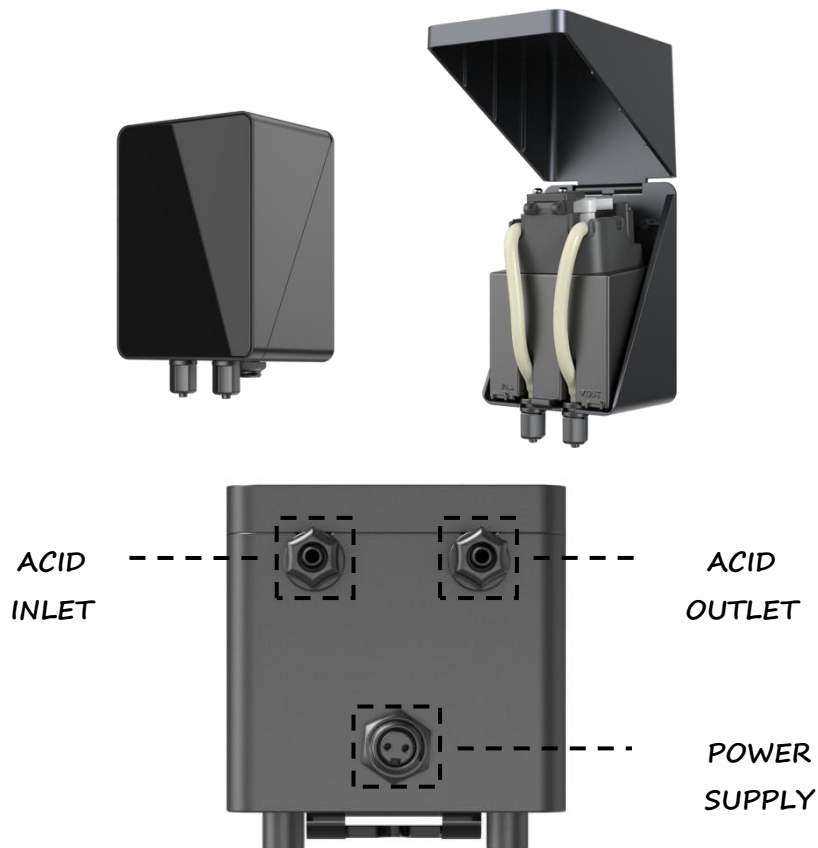


2. The power supply connection cap and the air sensor must be the highest point of the installation.
3. Ensure adequate water flow over the cell plates and the air switch.
4. Make sure the higher water level in the electrolytic cell, and the power supply connection cap is the highest point.
5. The is supplied with 48.3mm, 50mm, 60.3mm and 63mm unions to connect to the PVC plumbing.
6. Ensure a suitable solvent cement is used to glue the unions to the pipework.
7. Ensure the nuts are over the union tails before gluing them onto the pipework.
8. Once the solvent cement has set, place the cell housing onto the pipework and hand tighten the union nuts with the o rings in place.

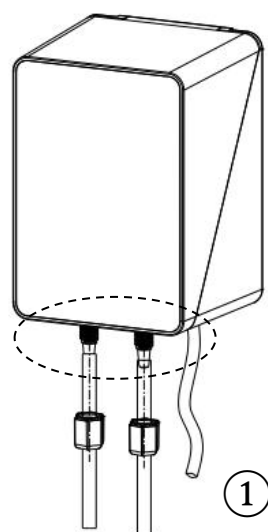
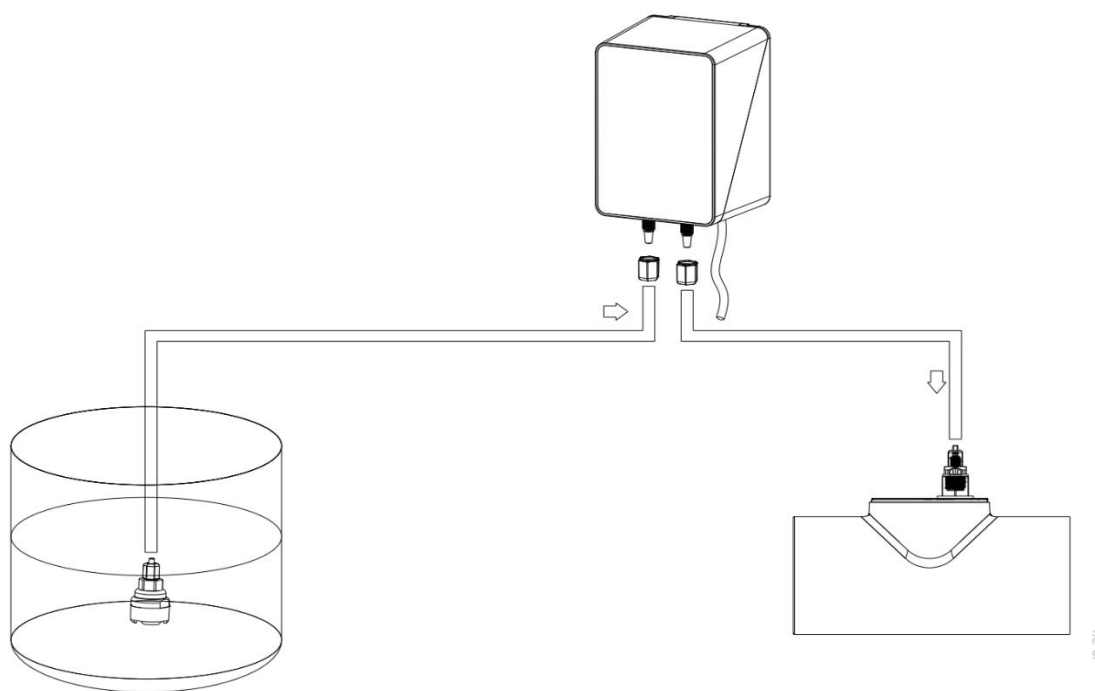
3.5 External pH Doser (Optional)

Note:

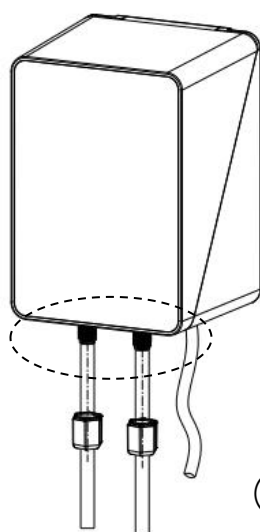
- It is suggested to use Hydrochloric Acid: $\leq 12.5\%$ concentration.
- If you're working with chemicals that release strong fumes, **don't place the doser directly above an open chemical container or tank**, as this could cause dangerous reactions and safety hazards.
- The doser should not be installed higher than 1.5m from the ground.



1. Use an impact drill to make holes in the wall and mount the doser in a vertical position. For best results, install this doser on a waterproof mounting panel.
2. Push the tubes all the way onto their connectors until they fit tightly.
3. Secure each connection. by firmly tightening the screws and nuts.
4. Keep the tubes as straight as possible on both input and output sides - avoiding unnecessary bends and curves.
5. Straight tubes paths will help maintain good flow and prevent resistance issues.
6. Apply grease on the peristaltic tube if necessary.

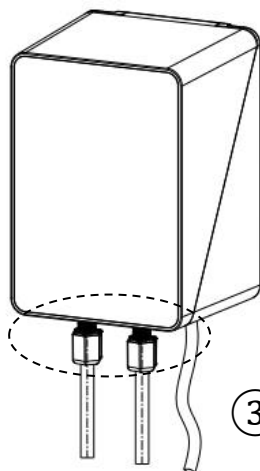


①

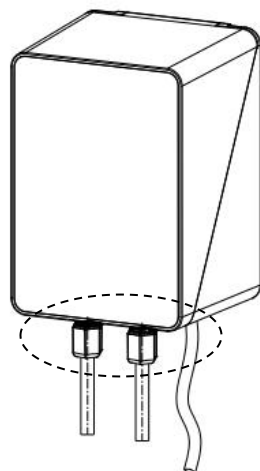


②

Be careful about the acid tube leakage

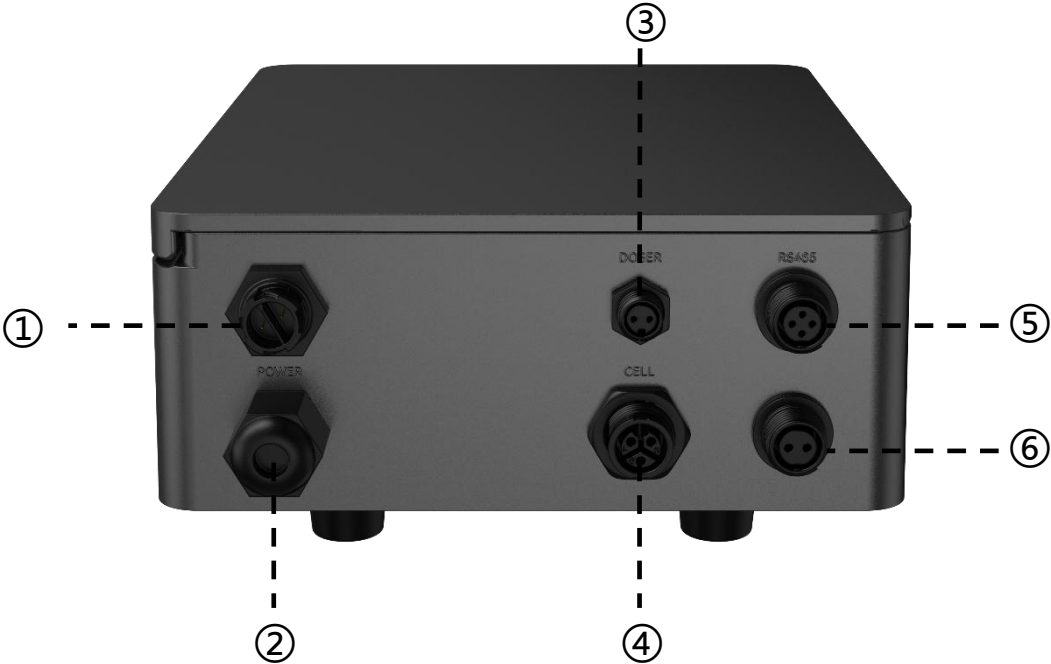


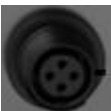
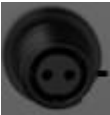
③



④

3.6 Electronic Control



No.	Port Name	Photo	Description
①	Dry Contact		Dry Contact (5A, 240V)
②	Power Input		AC Power Connector (1.5A, 220-240V, 50/60Hz)
③	Doser (Optional)		Connector for external pH Doser
④	Power Output		Terminal for cell power
⑤	RS 485		RS 485 Connector
⑥	External Device Signal Command (Water Pump Call)		With ⑥ connected with an external device (e.g. heat pump) , this allows the external device timers to start the water pump without producing chlorine.

4 Pool Water Preparation

To prepare the pool water to enable the chlorinator, its chemical composition must be balanced and salt added. Certain adjustments to the chemical balance of the pool can take several hours.

The procedure **MUST** therefore be started well **BEFORE** the chlorinator is turned on.

4.1 Adding Salt

Add the salt 24 hours before turning on the chlorinator with the pump working. Ensure that the recommended amount of salt is not exceeded.

Measure the salt content 6 to 8 hours after the amount has been added to the swimming pool.

NOTE:

- If the water in the pool is not fresh and/or if it is liable to contain dissolved metals, use a metal remover, according to the manufacturer's instructions.
- If your water has previously been treated with a product other than chlorine (bromine, hydrogen peroxide, PHMB, etc.), neutralize this product or replace all the water in the pool.
- If using mineral salt (Magnesium chloride and / or Potassium chloride) add approx. 1.4 times the amount of normal salt. (Optimum mineral salt level 4200ppm)
- If your water is supplied from a well, shock chlorination with trichloroisocyanuric acid (2 kg/50 m³ of water).

4.2 Chemical Water Balance

The water must be balanced manually **BEFORE** the device is started up.

The following table summarizes the concentrations recommended. Your water should be checked regularly to maintain these concentrations and minimize surface corrosion or deterioration.

CHEMISTRY	Recommended CONCENTRATIONS
Salt	Salt 3g/L
Free chlorine	Free chlorine 1.0 to 3.0 ppm
pH	pH 7.2 to 7.6
Cyanuric acid (Stabilizer)	20-50 ppm, 0 ppm in indoor pool (Add stabilizer only if necessary)
Total alkalinity	80 to 120 ppm
Water hardness	200 to 300 ppm
Metals	0 ppm
Algaecide	Use of algaecide is an option, but must be copper free

5 Control Unit Operation

5.1 General Screen View



Marked Area	Description	Icon
①	Low Salt Alarm	LOW
②	Chlorine Production / Pool Volume * k/Lt: Kiloliter, 1 k/Lt equivalent to 1m³.	18.8 k/Lt %
③	- Low/No Water Flow (Air Switch) - WIFI Connection - Error Notification	AIR IN CELL Wi-Fi icon, Warning icon

④	Time Display * Real-time * Timer (1) and (2)	
⑤	Chlorine Mode (Auto/Manual)	• AUT • MAN
⑥	Acid Adding (ml/day)	
⑦	Settings	
⑧	Tuning Up	
⑨	Boost Mode Switch	
⑩	Tuning Down	
⑪	Power/Lock Switch	

5.2 Chlorine Production Mode Introduction

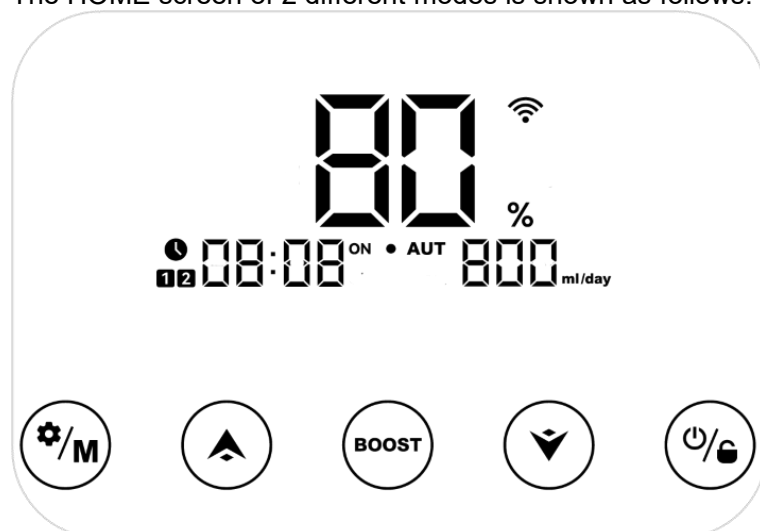
The chlorinator can be configured to 2 different Chlorine production modes.

Configuration	Standard	Standard (Acid adding)
Hardware Options	--	External Doser
Selectable Mode	Auto Mode	
	Manual Mode	

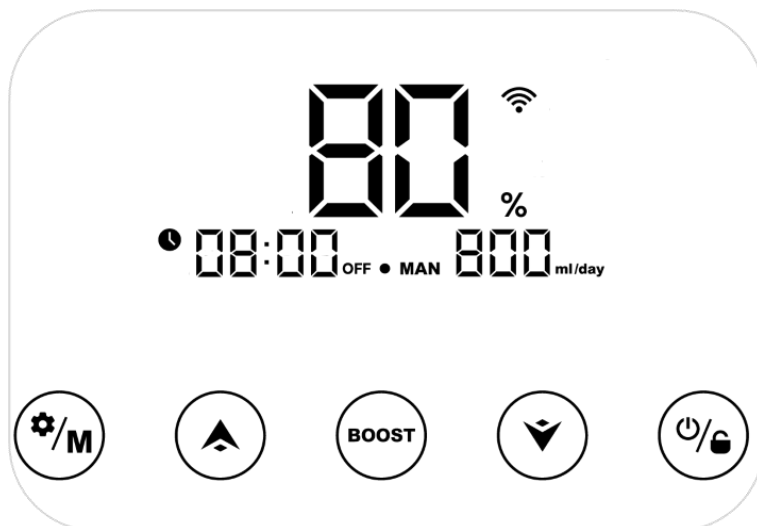
***Auto Mode: Timer control of the Chlorine output (Max: 2 Timers)**

***Manual Mode: Manual control of the Chlorine output**

The HOME screen of 2 different modes is shown as follows:



AUTO Mode



MANUAL

Mode

The LOCK screen of Screen Locked and Power OFF LOCK:



SCREEN LOCKED

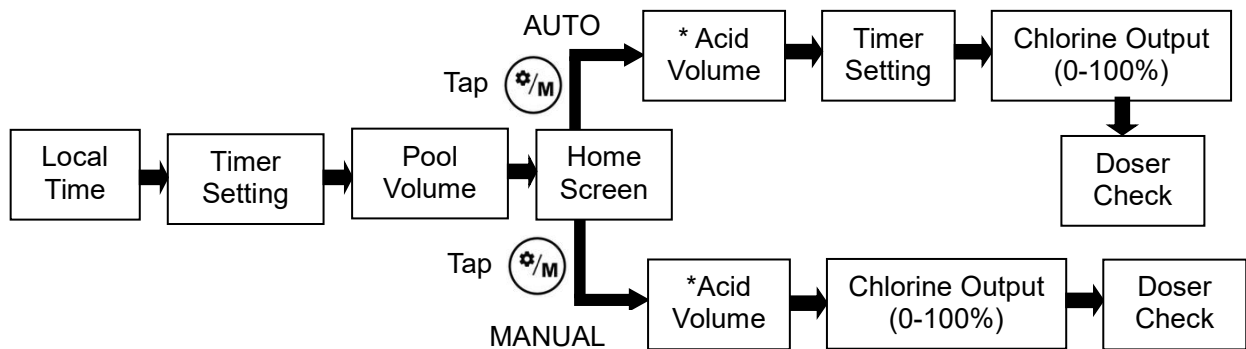


POWER OFF LOCK ED

5.3 Basic Commands and Functions

Command Keys	Function
	1. Power ON: Hold for 3 seconds initially close the “Power OFF lock screen” (five buttons are lit), then tap it to turn to the home screen. 2. Power OFF: Tap on home screen (five buttons are lit). 3. Power OFF LOCK: After Power OFF, hold for 3 seconds to Power OFF Lock screen (only “Power/Lock Switch” is lit). 4. Lock/Unlock: Hold for 3 seconds. Note: The auto lock function will be activated after 1 minute without any operation.
	1. Activate BOOST: Tap on *24 hours constant operation 2. Exit BOOST: Hold for 3 seconds
	1. Chlorine Mode Selection: Tap on 5. Main Settings: Hold for 3 seconds. 2. Back to home screen: Hold for 3 seconds (manually) *After 1 minute without operation (automatically)

5.3.1 Start Up



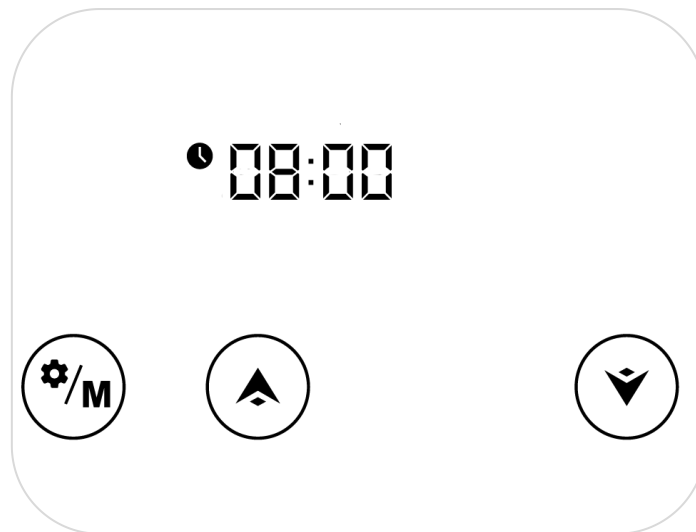
***Default chlorine mode is AUTO Mode.**

*Only available with dosing pump

① Local Time Setting

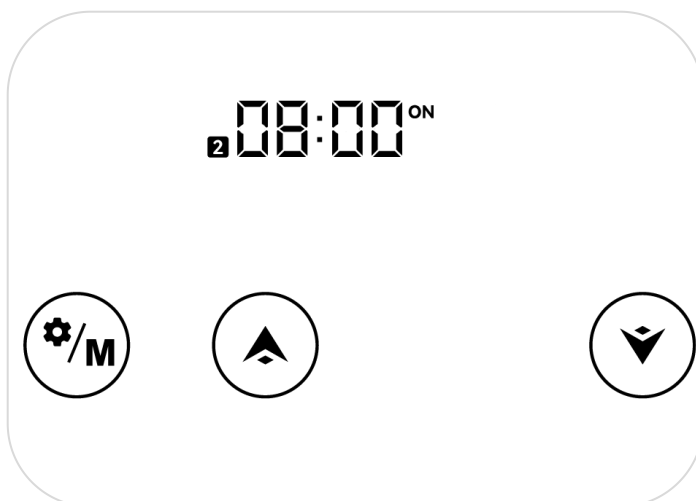
- When the local time is blinking, set hours of the local time by tapping  and 
- Tap  to next step.

* Setting Range: 00: 00 ~ 23: 59

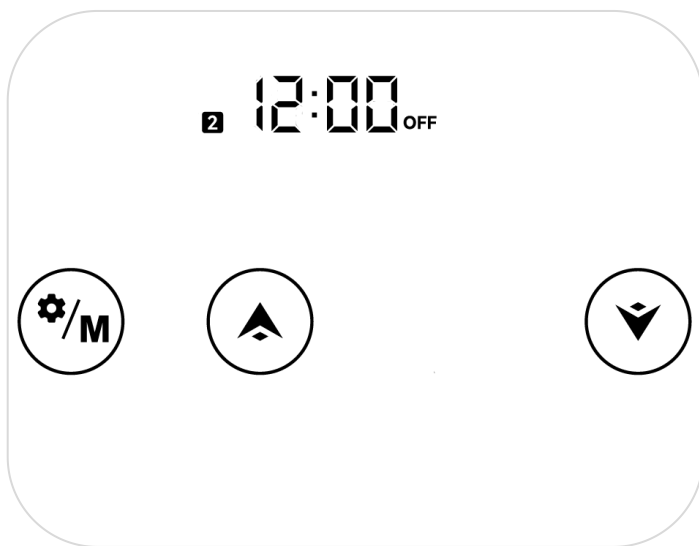


② Timers Setting

- When **TIMER ON** and **1** lights up, set hours of the first timer by tapping  and , save the parameter by tapping , then set and save minutes in the same way.
- When **TIMER ON** setting is finished, **TIMER OFF** lights up, set the end time of the first timer in the same way.
- When **1** vanishes and **2** lights up, set the start and end time of the second timer, if required in the same manner.
- Tap  to Confirm Timers setting.



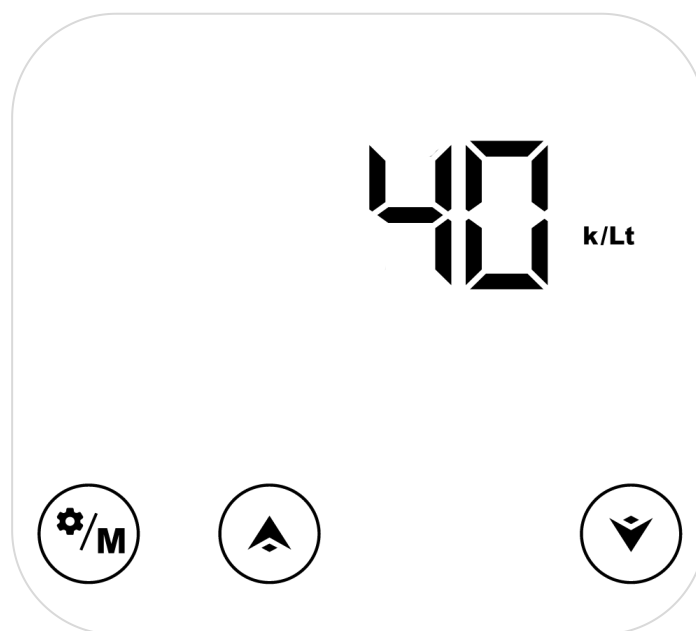
Timer On



Timer Off

③ Pool Volume Setting

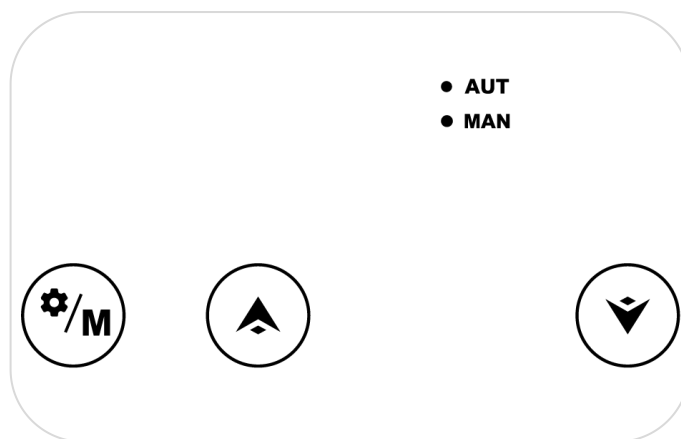
- When pool volume value is blinking, it can be turned from 5 to 150 m³, in increments of 5, by tapping  or . Hold the button can accelerate the tuning speed.
- Tap  to next step.



④ Chlorine Mode (Tap)

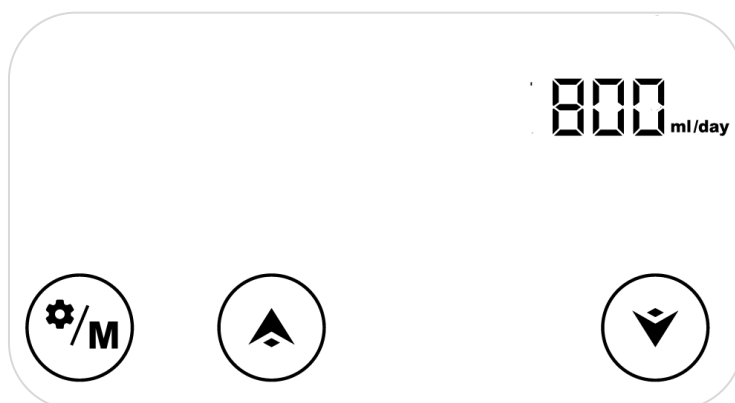
- When **AUT** is blinking, Tap  or  to select chlorine production modes.
- Tap  to confirm your selection and go to next step.

*Default mode is Auto mode.



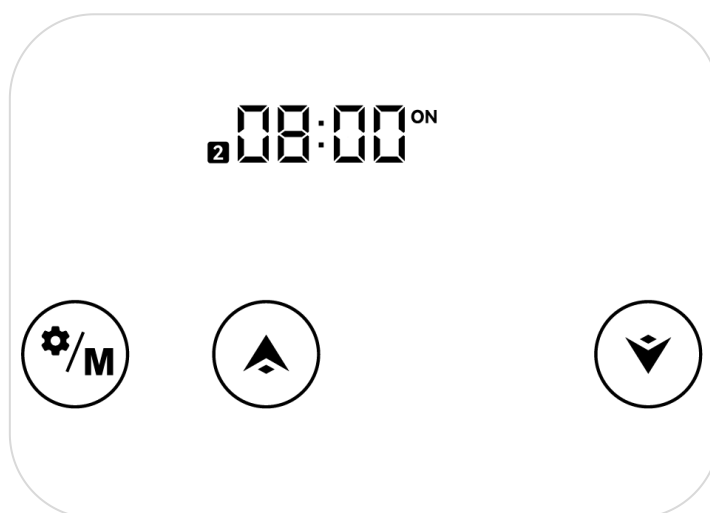
⑤ Acid Dosing Volume Setting (Only Available with Doser)

- When the number is blinking, it can be turned from 0 to 9000, in increments of 100, by tapping or . Hold the button can accelerate the tuning speed, in increments of 500.
- Tap to next step.

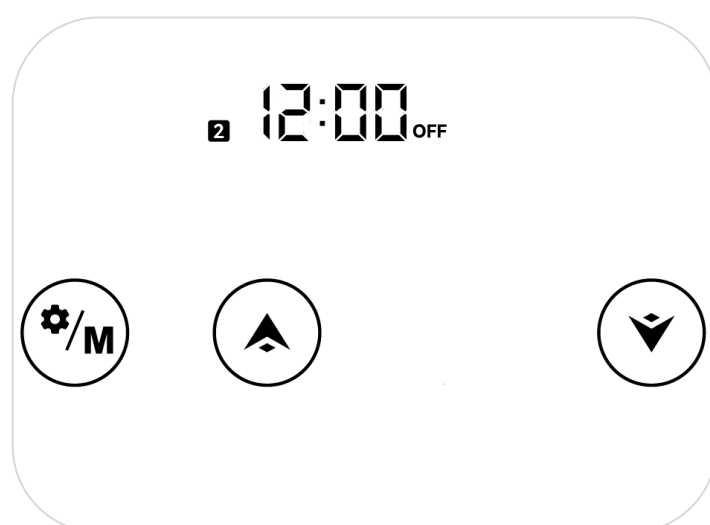


⑥ Timers Setting (Only AUTO Mode)

- When **TIMER ON** and **1** lights up, set hours of the first timer by tapping and , save the parameter by tapping , then set and save minutes in the same way.
- When **TIMER ON** setting is finished, **TIMER OFF** lights up, set the end time of the first timer in the same way.
- When **1** vanishes and **2** lights up, set the start and end time of the second timer, if required in the same manner.
- Tap to Confirm Timers setting.



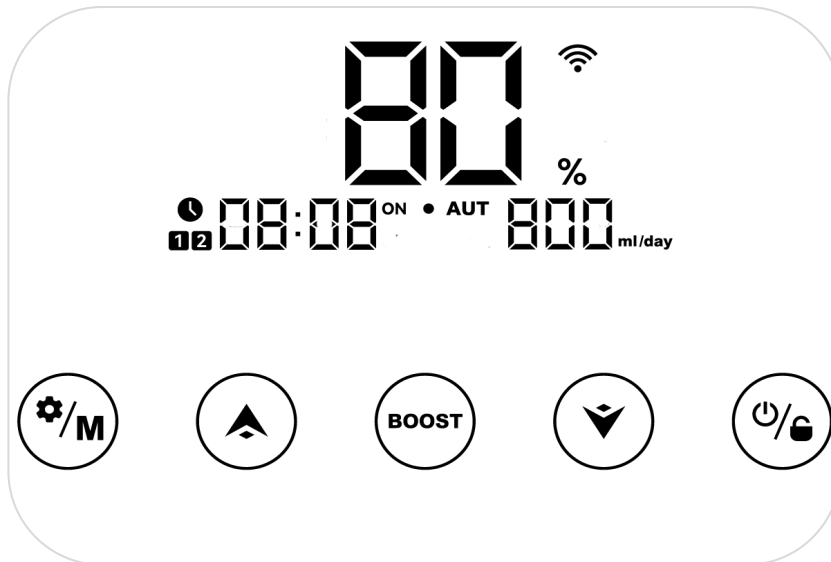
Timer On



Timer Off

⑦ Chlorine Output

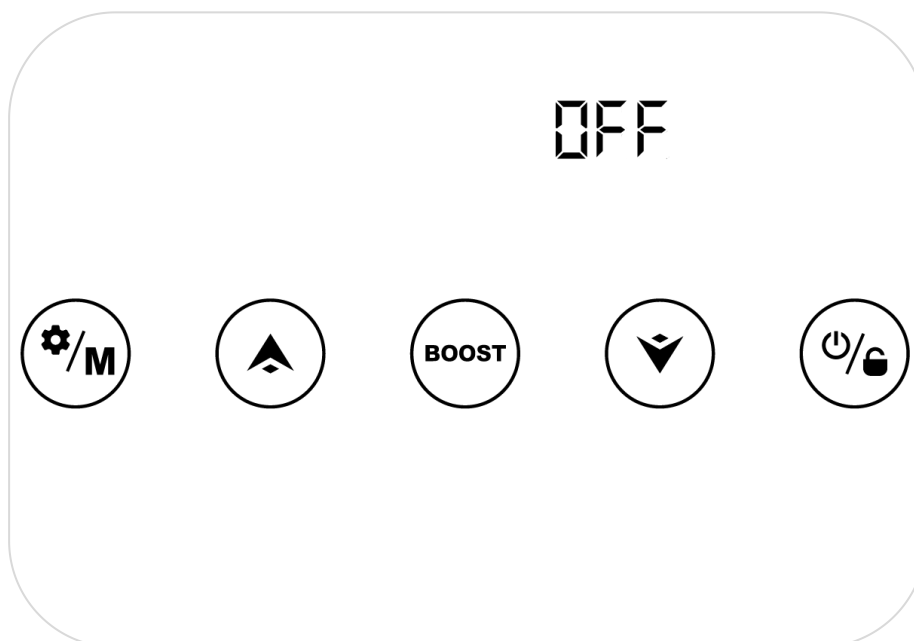
- On the home screen, tap  or  to adjust the chlorine output, 0~100%.



⑧ Doser Check (optional)

To check the Doser works properly or not, the steps are as follows:

- Make sure the Doser hoses and PE acid tubes are connected and fitted tightly.
- Check the acid tank's fluid level, make sure PE acid tube is connected to suction valve in the tank.
- Tap  , turn off the Chlorinator(**Power OFF**).
- Hold the place of  and  for 3 seconds, the Doser will rotate for 30s , to check its rotation.
- Repeat last step 3~5 times, until the acid solution is fulfilled in PE acid tubes and peristaltic tube.
- Acid solution is pushed out to pool water through the Doser tube, the Doser is ready.
- Tap  , turn on the Chlorinator(**Power ON**).

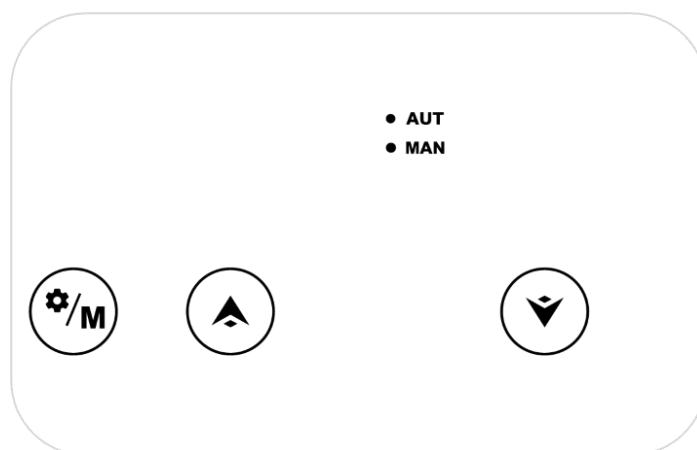


Doser Check

5.3.2 Main Settings

① Chlorine Mode Selection

- Tap  to enter the Chlorine mode selection
- Tap  or  to select chlorine production modes.
- Tap  to confirm your selection and go to next step.

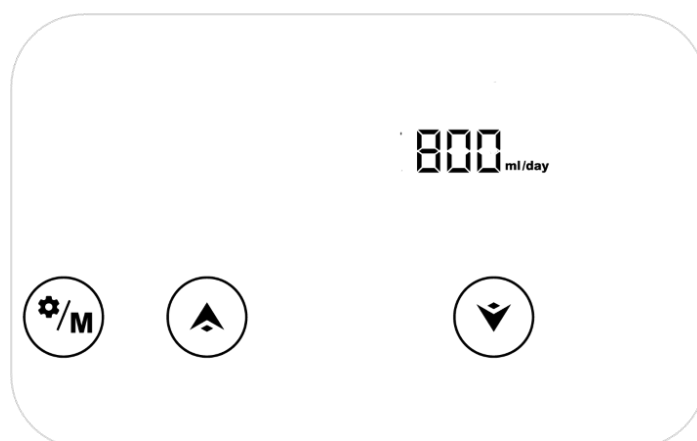


Chlorine Mode Switch

NOTE: Hold  for 3 seconds to back to home screen.

② Acid Dosing Volume Setting (Only Available with Doser)

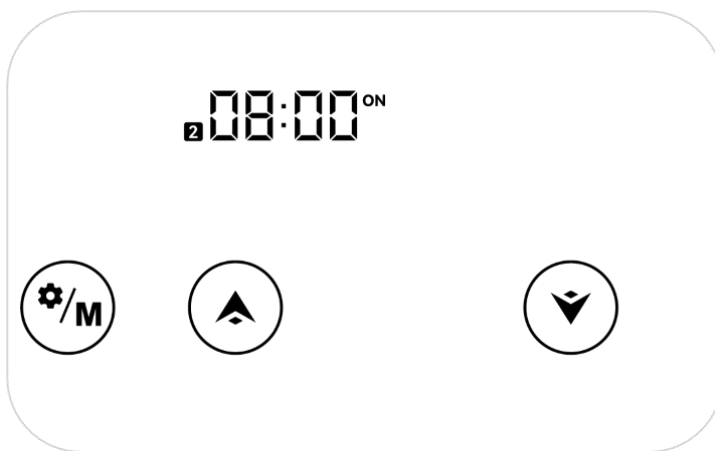
- The default digit display on the pad screen is "0 mL/day".
- When the number is blinking, it can be turned from 0 to 9000, in increments of 100, by tapping  or . Hold the button can accelerate the tuning speed, in increments of 500.
- Tap  to next step.



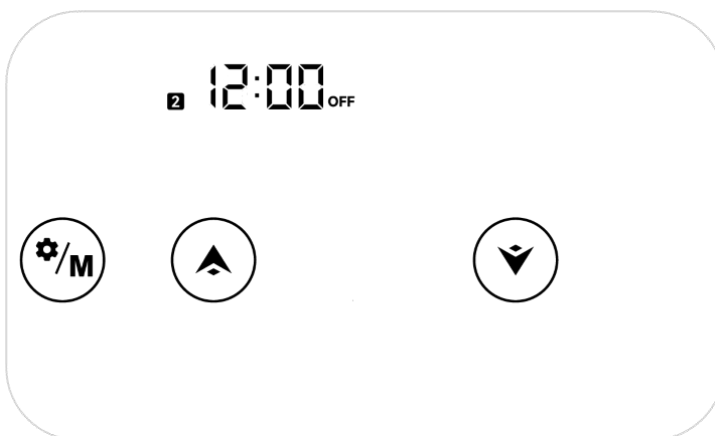
Acid Dosing Volume

③ Timers Setting

- When **TIMER ON** and **1** lights up, set hours of the first timer by tapping  and , save the parameter by tapping , then set and save minutes in the same way.
- When **TIMER ON** setting is finished, **TIMER OFF** lights up, set the end time of the first timer in the same way.
- When **1** vanishes and **2** lights up, set the start and end time of the second timer, if required in the same manner.
- Tap  to Confirm Timers setting.



Timer On



Timer Off

5.3.3 Basic Configuration

① Local Time Setting

- Hold  for 3 seconds

- When the local time is blinking, set hours of the local time by tapping  and .
- Tap  to next step.

② Pool Volume Setting

- When pool size value is blinking, it can be turned from 5 to 150 m³, in increments of 5, by tapping  or . Hold the button can accelerate the tuning speed.
- Tap  to next step.

③ Water Pump Protection Countdown Setting

- When the Countdown is blinking, it can be set by tapping  or . The range is 0 to 10 min.
- Tap  to complete the settings.

NOTE:

- Chlorinator and pump are connected.
- Read the status of the air switch for 15 seconds, If the air sensor is in contact with air for 10seconds or more, it is determined that the electrolytic cell has entered air.

Light up **AIR IN CELL**

- After **AIR IN CELL** light up, Water Pump Protection Countdown begins. The water pump will stop after the countdown is done



5.3.4 BOOST Performance

- ① Switch ON: Tap  to enter Boost mode, the device will run at 100% power for 24 hours.

* 24-hour countdown displays on the screen

- ② Switch OFF: Hold  for 3 seconds.



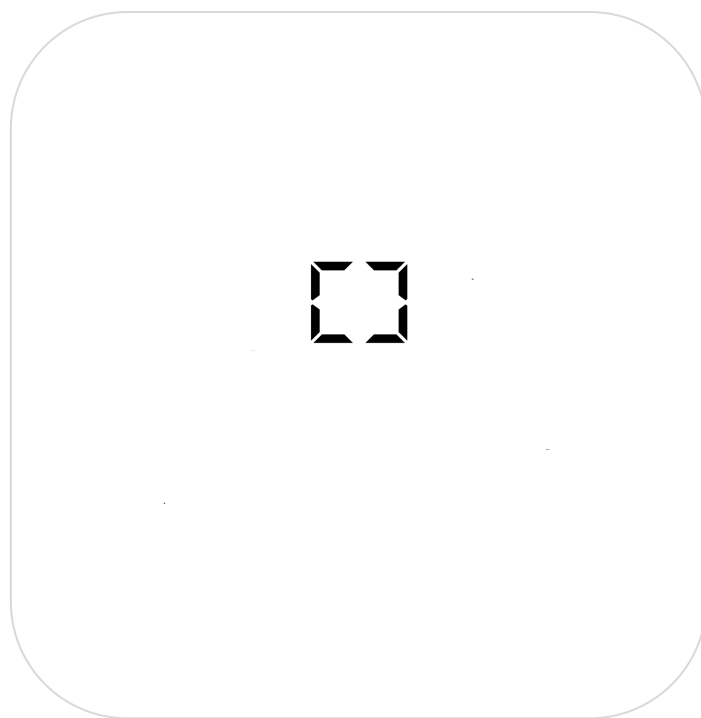
NOTE:

- Boost mode is suggested to be activated when chlorine is urgently needed.
- If the chlorinator is out of power, the 24-hour countdown will be refreshed. Unable to manually turn off the unit during the Boost mode.
- When the Boost mode terminates or stops, production continues according to the preset settings.

5.3.5 Restore Factory Settings

Tap  to the next screen menu.

Hold  and  for 3 seconds, hearing the beeper, the chlorinator is restored to factory settings.



NOTE:

- **Power-down memory:** Abnormal power failure during operation, when the power is restored, the controller automatically restarts and continues to run according to the state before power failure.

5.3.6 External Device Signal Command (Water Pump Call) (Optional)

If an optional external device command cable is purchased, the chlorinator can act as an external device demand controller for a water pump and the external device. This allows the external device (e.g. heat pump) timers to start the water pump without producing chlorine. This allows the external device (e.g. heat pump) to operate outside of the chlorination timers, avoiding over chlorinating.

- When the external device (e.g. heat pump) timers activate, the chlorinator system sends a water pump call signal, which is indicated by **INPUT/OUTPUT** on the display screen, instructing the pump to start without the chlorinator.
- The external device and water pump must be connected to the salt chlorinator.

Diagram of Status Relationship (3 devices):

Chlorinator Status	External Device Status	Water Pump Status
OFF	OFF	OFF
OFF	ON	ON
ON	OFF	ON
ON	ON	ON

5.3.7 Network Configuration

- ① Enter Network Configuration screen by holding  and  for 3 seconds.
- ②  Lighted up with counterclockwise, then:
 - a. If  is lighted up, WIFI connection will be active with 2 sounds buzzer.
 - b. If  is lighted up with 3 sounds buzzer, WIFI failed to connect, back to home screen.



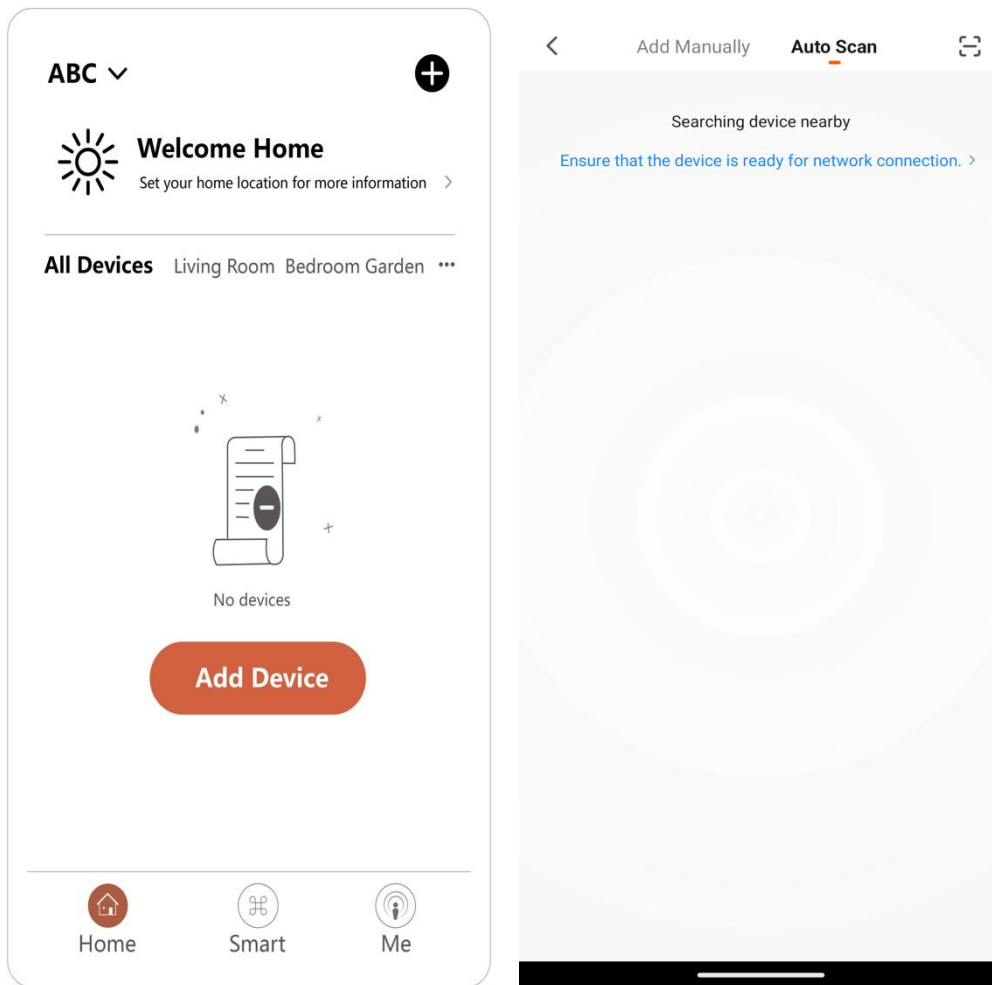
5.3.8 Connect to InverGo

“InverGo” app is available on App Store and Google Play.

Please scan the following QR code to download:



Turn on your location services, Wi-Fi and Bluetooth, enter the “InverGo” App, tap the “+” icon in the top right corner of the home page, and then Tap on “Auto Scan” to start searching for nearby devices.



When Control Unit is on home screen, holding  and  for 3 seconds.  Lighted up

When your phone finds the Control Unit, it will be displayed on your phone. Tap "Next", input the hotspot password, and tap "Next". Then the device will be automatically added to the App menu. The mobile phones and devices need to be connected to the same hot spot.

When installation is finished, it will be shown as added.

6 Salt Replenishment



The chlorinator must remain OFF during this operation and until the additive is completely dissolved. Operating the chlorinator with non-dissolved salt could irreversibly damage the cell and the power supply, and lead to a void of the warranty.

Calculate the volume of the swimming pool and add 3 to 5 Kg of salt per cubic meter. The suggested salinity is 3-5 g/L. Make sure the chlorinator is disconnected during the whole salt adding process, and turn on the filtration system for at least 24 hours, allowing the salt to dissolve completely.



For any new pool builds please wait for four weeks before adding salt into any recently cement coated pool or discuss this with your pool builder.

The salt dissolving process can be accelerated using the pool cleaner. Check the salt concentration is between 3 and 5 kg/m³ using a kit from a specialized pool shop.

The salt concentration may reduce over time due to rain or other periodic freshwater contributions (topping up, backwashing, etc.). Whenever the salt concentration needs to be corrected, pour salt as close as possible to the return lines. Never pour salt in the skimmers or near the drain inlet.

7 Maintenance

7.1 Cleaning the Cell

The smart polarity inversion system is designed to prevent the electrode plates from corrosion and scaling (Default setting = 4 hours, 1~10 hours optional). However, periodic cleaning may be required when the water hardness is too high.

The cleaning process is listed as follows:

- ① Turn off the chlorinator and the filtering, close the isolation valves, and ensure power is disconnected at the isolating switch.
- ② Place the cell backwards and fill it with a cleaning solution so that the electrode plates are immersed.
Do not allow the cell cap assembly to be immersed.
- ③ Leave the cleaning solution to dissolve the scale deposit for about 15 minutes. Dispose of the cleaning solution at an approved waste recycling site, never pour into the rainwater drainage system or into the sewers.
- ④ Rinse the electrode using clean water and put it back on the cell fixture collar (there is an alignment mark).
- ⑤ Open the isolation valves and restart the filtering and chlorinator.
- ⑥ If you do not use a commercially available cleaning solution, you can manufacture it yourself by carefully mixing 1 volume of hydrochloric acid with 9 volumes of water (Warning: always pour the acid into the water and not the opposite and wear suitable protective equipment!).
- ⑦ Make sure that the setting of the polarity inversion cycles is adapted to the pool water hardness.

7.2 Maintenance of the Doser (Optional)

To check the Doser works properly or not, the steps are as follows:

- ① Tap  , turn off the Chlorinator(Power OFF).
- ② Hold the place of  and  for 3 seconds, the Doser will rotate for 30s, to check its rotation.
- ③ Apply lubricant on the inner tube if necessary.

NOTE:

- **Manual Mode:** the Doser will rotate according to **pH Dosing Volume Setting**.

8 Overheat Protection

Overheat protection will be activated when the power pack temperature inside the main control unit is higher or equal to 70 °C.

High Temperature (Power pack)	$70^{\circ}\text{C} \leq \text{Temperature} \leq 75^{\circ}\text{C}$	A. Electrolytic output reduces.
Over Temperature (Power pack)	Temperature $> 75^{\circ}\text{C}$	A. E4 occurred Stop electrolysis B. Temperature $< 68^{\circ}\text{C}$, E4 off, electrolysis starts again.

Overheat protection will be lifted when the temperature drops below 68 °C.

9 Error Code

Error Code	Descripton	Logic	Control Unit Action
E1	Abnormal Electrolysis	a. Electrolytic output power greater than 10% b. Voltage less than 0.8V or current less than 0.3A	A. E1 occurred B. Stop electrolysis: Restart electrolysis after 30 minutes. If abnormal electrolysis is detected 3 times in a row, electrolysis function cannot be restarted again.
E3	Abnormal water Level	Upon triggering the 'AIR IN CELL' indicator and continuous timing for 180 seconds	A.E3 occurred B. Stop the Filter Pump
E4	Over Temperature (Power pack)	Control Unit Temperature $> 75^{\circ}\text{C}$ Overheat protection will be lifted when the temperature	A. E4 occurred B. Stop electrolysis

		drops below 68 °C	
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10 Indicators

Description	Logic	Action
AIR IN CELL	Read the status of the air switch for 15 seconds: If the air sensor is in contact with air for 10 seconds or more, it is determined that the electrolytic cell has entered air.	A. Stop electrolysis B. Light up: AIR IN CELL 
LOW SALT	When the salinity is detected to be less than 2000ppm for 4 times, it is determined to be Low Salt. Low Salt indicator will disappear when the salinity is detected to be more than 2500ppm.	Light up: LOW

11 After-Sales Support

Important Information for After-Sales Support

To ensure that we can assist you effectively when you contact our after-sales service, please have the following information ready:

Product Information

- **Serial Number** (located on the nameplate)
- **Device Virtual ID** (available in the InverGo app)
- Device Model

Problem Description

- Error Code Display
- Device Readings and Production Status
- Frequency and Timing of Issues

Usage Environment

- Pool Size, Indoor/Outdoor
- Water Flow and Filtration Time

Providing this information will help us resolve your issue more efficiently. Thank you!

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