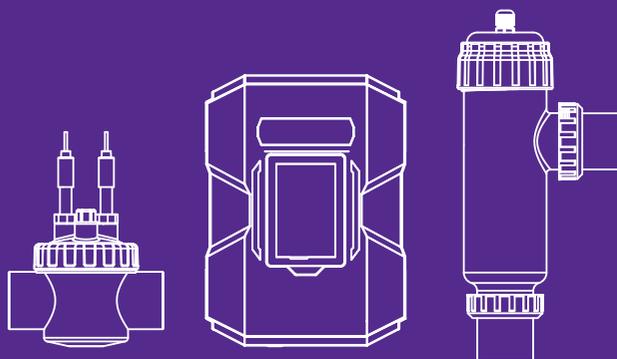




CyberSync Chemical controller

INSTALLATION AND OPERATION MANUAL



USER MANUAL

CyberSync



RoHS
DIRECTIVE
2011/65/Eu

SAA

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1. SAFETY WARNINGS



This appliance must be installed in accordance with national wiring codes and with a means of disconnection incorporated in any fixed wiring. High voltage can shock, burn, or cause death or serious property damage.

1. In order to reduce the risk of electric shock DO NOT use an extension cord to connect the unit to electric supply.
2. If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or a qualified electrician.
3. The system must be permanently connected to an individual circuit breaker, especially when pump power is connected from pump socket of the device.
4. This electricity supply must be connected through a residual current device (RCD) or Ground Fault Circuit Interrupter (GFCI) with a rated residual operating current not exceeding 30 mA.
5. Electrical grounding must be connected before connecting to electrical power. Failure to ground all electrical equipment can cause electric shock or serious or fatal injury.
6. Before servicing, unplug the power plug from the electrical socket and allow the device to cool for at least 15 minutes.
7. Never unplug the cell cable during operation.



This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.



HYPERTHERMIA

Always unplug the device from its socket or power source and allow it to cool before opening the enclosure. There is high risk of shock and burn injuries from touching the internal component.



COMPRESS AIR HAZARDOUS

This system enclosed titanium cell in a plastic enclosure that can become pressurized. Pressurized air can cause the plastic enclosure to explode causing serious injury or death. The cell must be operated with the pump running and the valves fully open allowing water to flow unrestricted through the cell enclosure.



This device is intended for use with swimming pools and spas only; it must not be used for disinfecting drinking water.
Only one pump and one underwater light may be connected to this unit
The current loading of the pumped connected must not exceed 8 Amp.

SAFETY WARNINGS

	Correct disposal of this product
	This symbol on the product, or in its packaging, indicates that this product may not be treated as household waste. Instead, it should be taken to the appropriate waste collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by the inappropriate waste handling of this product. For more detailed information about the recycling of this product, please contact your local council, your household waste disposal service, or the shop where you purchased the product.

2. SAFE POOL SANITIZING WORKING PRINCIPLE

Chlorine is a highly effective sanitizing agent which is commonly used in swimming pools. It can prevent the growth of bacteria and fungi. This chlorinator uses the process of electrolysis to break down the salt (NaCl) in the swimming pool water to produce chlorine gas (Cl₂) Chlorine production can be regulated from the control unit by altering the electric current flowing through the titanium electrode in the cell housing.



2.1 WATER CHEMISTRY:



It is important to note that the EMAUX Chlorinator does not maintain the water chemistry of your swimming pool water; it simply produces chlorine from a mild salt solution.

To ensure that your chemical balances is within the guidelines listed below and to encourage a sparkling clean, you should also have your water tested regularly at your local pool shop.

Salt level	3000 - 4000 ppm
	3000 - 4000 ppm
	4000 – 5000 ppm
Free Chlorine	1.0 – 3.0 ppm
pH	7.2 – 7.6
Cyanuric acid (stabilizer)	30 – 50 ppm
Total Alkalinity	80 – 120 ppm
Calcium Hardness	200 – 400 ppm
Metals	0ppm

2.2 CHLORINE LEVEL CALCULATION

It is important to note that the EMAUX Chlorinator does not maintain the water chemistry of your swimming pool water; it simply produces chlorine from a mild salt solution.

$$\text{Required Chlorine Production Rate (g/hr)} = \frac{\text{Pool Volume (litre)} \times \text{Standard Chlorine (g/litre)}}{\text{Turnover Rate (Hr)}}$$

Standard chlorine level not less than 2mg/liter = 0.002g/liter

Example:

Pool volume: 65m³ = 65,000 litre

Turnover rate: 4 Hour

$$\text{Required chlorine production rate(g/hr)} = \frac{65,000\text{liter} \times 0.002\text{g/liter}}{4 \text{ Hr}} = 32.5\text{g/hr}$$

2.3 SALT LEVEL

The amount of salt required is between 4000 and 6000 ppm. This can be done by adding 4-6Kg of salt per 1,000 litres of water directly into the pool water.

A low concentration of salt (below 2500 ppm) will cause premature cell failure.

A High concentration of salt (above 6000 ppm) may cause electro-oxidation and corrosion damage to the Stainless Steel pool fixtures and fittings.

Salt required according to the volume of the pool:

Pool volume (m3)	Salt (kg)	Pool volume (Gallon)	Salt (Pound)
10	40	2,642	88
15	60	3,963	132
20	80	5,283	176
25	100	6,604	220
30	120	7,925	264
35	140	9,246	308
40	160	10,567	352
50	200	13,209	440
60	240	15,850	528
70	280	18,492	616
80	320	21,134	704
90	360	23,775	792
100	400	26,417	880
110	440	29,059	968
120	480	31,700	1,056
150	600	39,626	1,320

Note: Table based on 4000 ppm of salt per m3 of water.

2.4 TYPE OF SALT



The most common salt used in swimming pools with Salt Electrolysis is 99% pure Sodium Chlorine (NaCl).

DO NOT use the following types of salts:

1. Rock salt.
 2. Salt with more than 1% yellow prussiate of soda.
 3. Salt with more than 1% of anti-caking additives.
 4. Iodized salt.
- Salt with additives or impurities will cause premature cell failure.

2.5 ADDITION AND REMOVING SALT IN THE SWIMMING POOL WATER

Before adding the salt into the pool, place the multiport valve on "Filtration" or "Recirculation" and then turn the filtration pump on.

Add the salt directly into the pool evenly around the pool or ballast tank. Do not allow the salt to sit in a pile on the bottom of the pool. Do not add large amount of salt nearby the skimmer at the same time. It will damage the unit. Keep the filtration system running for 24 hours using the Main Drain or vacuum suction nozzle as a main suction line. The only way to remove the salt in the pool water is to partially drain the pool and refill with fresh water.

3. INTRODUCTION

The Emaux CyberSync Chemical Controller is an innovative saline electrolysis system designed to enhance swimming pool water quality and transform your pool into a smart pool. This advanced product generates chlorine from both regular and seawater through electrolysis, providing a more environmentally friendly alternative to traditional chlorine chemicals.

The CyberSync continuously monitors the pool water status, optimizing chemical dosing and minimizing chemical usage, which helps reduce skin irritation and discomfort for swimmers. As the best choice for upgrading your pool to smart technology, the CyberSync ensures your pool remains clean and well-maintained. As a smart control station, the CyberSync allows you to connect your pump, lights, disinfection system, and heater. With its smartphone or tablet app, you can monitor and control your pool status anytime, anywhere.

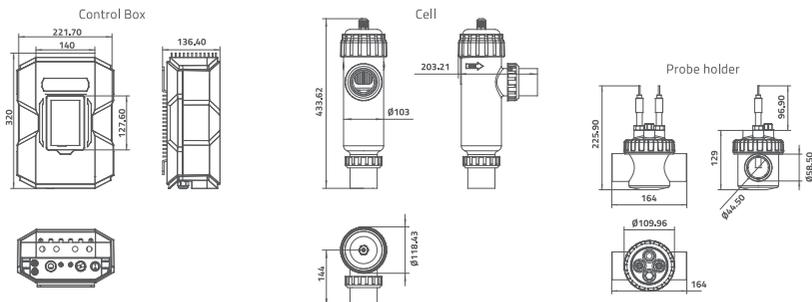
4. PRODUCT FEATURE:

Introducing our advanced IoT-enabled pool monitoring system, designed to enhance your pool maintenance experience. This innovative system connects seamlessly to the Smart Life app, allowing you to monitor critical parameters such as pH, temperature, ORP (Oxidation-Reduction Potential), and salinity in real time. With the ability to respond intelligently to these sensor readings, the system can automatically control your pool pump, ensuring optimal water quality and safety.

Additionally, the Smart Life app features robust scheduling and automation functions, enabling you to manage your pool effortlessly from anywhere. Experience a smarter, more efficient way to keep your pool in perfect condition, all through the convenience of the Smart Life app.

1. Real-Time Alerts: Get instant notifications for pH, temperature, ORP, and salinity to maintain optimal water quality.
2. Pump Operation Status: Receive instant notifications when the pool pump starts or stops for real-time updates.
3. Connection Status Alerts: Get notified if the app loses connectivity to IoT devices or the internet.
4. Remote Control: Manage your pool's settings and check system status from anywhere, even remotely.
5. Automated Scheduling: Schedule maintenance tasks and automate chemical dosing for effortless pool upkeep.
6. Seamless Integration: The app easily connects with various Smart Life IoT devices for effortless pool management.
 - 1) Automation pool chemistry control
 - 2) Automatic pool device control: UV-C, heater,
 - 3) Simple to upgrade the pool to automation
 - 4) Monitor Pool status
 - 5) IOT connection
 - 6) AI chemical control (simple setup and minimize chemical usage)

Product dimension



Product specification

CyberSync Pool Station		Input Voltage/ Frequency (US Version)	Input Voltage/ Frequency (EU Version)	Salt Level	Cell Output (gram/h)	Concrete Pool (m ³)	IP Rating	Function
Code	Model							
9130601	CS-A20	110-120V 50 Hz/60 Hz	220-240V 50 Hz/60Hz	3000-5000 ppm	20	60	IPX4	Chlorinator
9130602	CS-A30	110-120V 50 Hz/60 Hz	220-240V 50 Hz/60Hz	3000-5000 ppm	30	80	IPX4	Measurement
9130603	CS-A40	110-120V 50 Hz/60 Hz	220-240V 50 Hz/60Hz	3000-5000 ppm	40	100	IPX4	Device connection

CyberSync Salt Chlorinator		Input Voltage/ Frequency (US Version)	Input Voltage/ Frequency (EU Version)	Salt Level	Cell Output (gram/h)	Concrete Pool (m ³)	IP Rating	Function
Code	Model							
9130052	CS-20	110-120V 50 Hz/60 Hz	220-240V 50 Hz/60Hz	3000-5000 ppm	20	60	IPX4	Salt chlorinator
9130053	CS-30	110-120V 50 Hz/60 Hz	220-240V 50 Hz/60 Hz	3000-5000 ppm	30	80	IPX4	
9130054	CS-40	110-120V 50 Hz/60 Hz	220-240V 50 Hz/60 Hz	3000-5000 ppm	40	100	IPX4	

FUNCTION	SPECIFICATION
Display	4.3" LCD with Touch control
Cell type (chlorine production)	20 g/h , 30 g/h or 40 g/h
Measurement	pH, ORP, Salinity and Temperature
Device connection	Dosing pump: x 3 (hot contact) @50W Switch: x 3 (cold contact)
Pool cover detect	Detect connetion x 1
Wi-Fi	- 802.11 b/g/n - 2.4 GHz
Modbus	RS485
Input	220V to 240V AC, 2A max (EU version) 110V to 120V AC, 4A max (US version)

Probe and Accessories Specifications

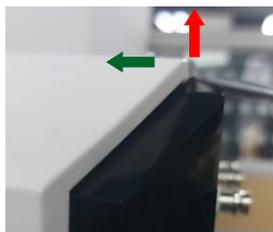
Code	Product Name	Parameter
106090073	ORP probe	Pressure: 7 bar Material: epoxy Measuring range: -300 to 900 mV (with 3 m signal line)
106090073	pH probe	Pressure: 7 bar Material: epoxy Measuring range: pH 0-14 (with 3 m signal line)
178818	Salinity probe	Pressure: 7 bar Material: epoxy Measuring range: 1000 to 35000 ppm (with 3 m signal line)
178817	Temperature sensor	stainless steel wit 3 m cable
1090010392	ORP buffer solution	256 mV, 30 mL
109007168	pH buffer solution pH 4 and pH 7	pH 4.0 and pH 7.0, 30 mL
E130078	Probe holder	PVC transparent
114145332	Flow switch	Normal open
620065469	Holder	PVC

5. INSTALLATION:

Open the cover



Insert the tools (screw driver) near the buckle position



Prise up the cover and then push it open

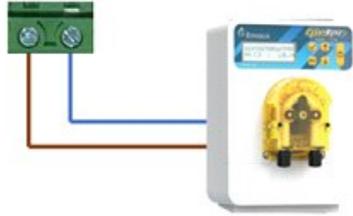
Connections:

Emaux Chemical controller can connect with 3 dosing pump, 1 circulation pump and 4 devices.



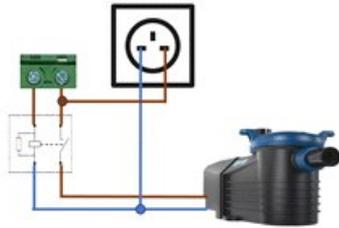
Hot contact vs Cold contact

-Hot contact (Dosing pump): The contact has electricity which same as input power of this chemical controller. You can direct connect dosing pump L/N to the connector for use



Connection: Device power > 0.2A (230V, 50W, 120V 25W)

-Cold contact (Device relay): the contact is a switch only. Max 2A, 240V. Relay switch is highly recommended for user to connect to external device:

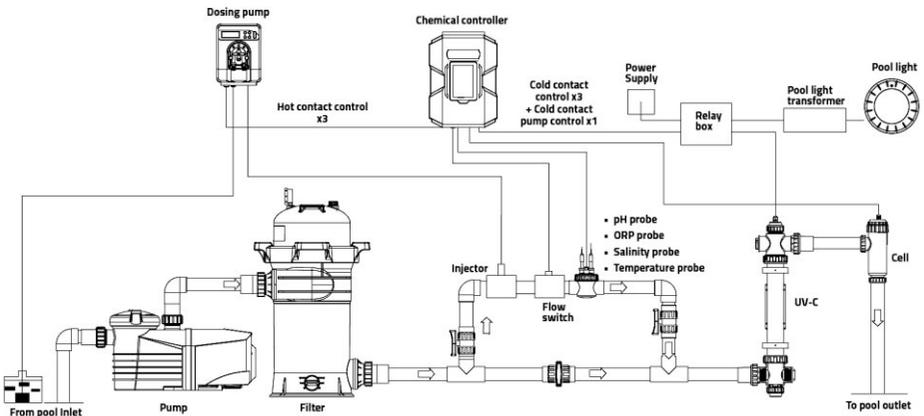


Connection: Device power < 2A (230V, 500W, 120V 250W)



Connection: Device power < 2A (230V, 500W, 120V 250W)

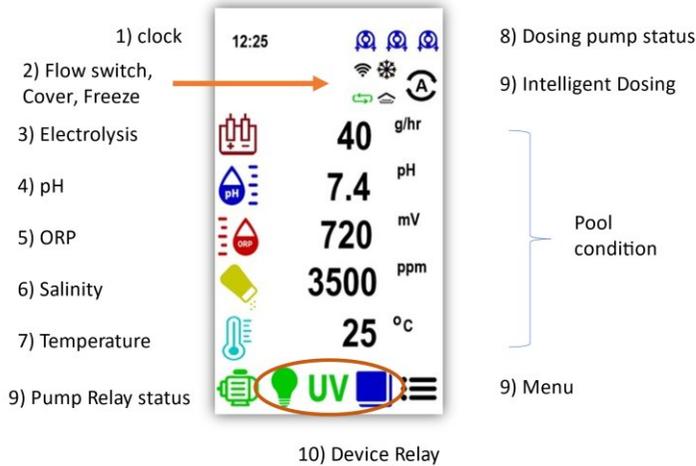
Installation Diagram



6. CONTROL AND SETUP

The lower the water's temperature, the lower the salt water's conductivity will be. This in turn will cause the SSCnano to work much harder than normal to produce chlorine. Algae and bacteria don't grow well in cold environments. Thus, very little chlorine is needed, simply adjust the chlorine percentage to an ideal rate.

6.1 Main Page



- 1) Clock: Clock sync with connected mobile when internet is connected
- 2) Show Flow switch, pool cover and low temperature status
- 3) Electrolysis: show the production of Chlorine
- 4) pH: pool has to be controlled in range 7.2 to 7.6
- 5) ORP: range should be in 650mV to 750mV, reference indication of Chlorine in range 1.0 to 3.0ppm. temperature related.
- 6) Salinity: for salt pool (user with chlorinator), Recommended using in range 3000 to 5000 ppm.
- 7) Temperature: 26C to 28C, racing pool 25C to 27C.

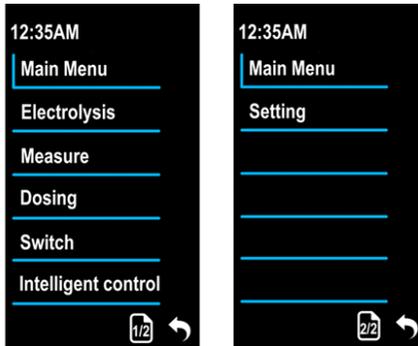
6.2 General device condition

Dosing pump relay status:

- On/ Auto 
- Schedule 
- Stop 
- Error 
- disactivate 

6.3 Setup :

Press Menu switch to setup menu



6.3.1 Electrolysis

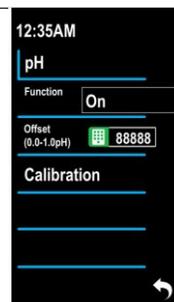
- 1) Select cell: 20g, 30g, 40g
- 2) Level: you can this option to change duty cycle so to reduce the chlorine production
- 3) Winter mode: when winter mode is activated, Chlorine production reduce to 85%
- 4) Mode: you can switch off the cell function
- 5) Schedule: 4 schedule time for user to provide the chlorine production.



6.3.2 Measurement

User from probe: pH, ORP, Salinity and Temperature setup and calibration.

- 1) Function: you can turn on/ off the function
- 2) Offset: fine tuning the reading without calibration if necessary
- 3) Calibration: calibration the probe (pH and ORP only). It is recommended to calibrate from time to time monthly.



Note:

Electrolysis: During in "Auto", chlorine production will following the range of Dosing 2, Chlorine. When the range of Chlorine in Dosing 2 is 700mA to 720mA, the unit will product Chlorine which control in the range.

Calibration for samples are Pre-calibrated. No need to run calibration procedure. If you need to run probe calibration, please send a mail to "product.emaux.com.hk"

6.3.3 Dosing

There are three dosing pump can be connected.

- 1) Type:
 - a. Dosing 1: Acid/ Alkaline
 - b. Dosing 2:ORP, Chlorine
 - c. Dosing 3: Others
- 2) Dosing mode
 - a. Auto/ on/ off
- 3) Setting
 - a. Upper/ Lower
 - b. Pump rate
 - c. Duty
- 4) Priming: press the switch, the relay switch will close which to let the connected dosing pump continuously. User need to check the dosing pump tube and press again to stop when the tube is filled up.



	Dosing 1	Dosing 2	Dosing 3
Dosing type	Acid/ others	Chlorine	Alkaline/ others
Auto dosing*	Yes (pH value) User input: – Pump rate	Yes (ORP value) User input: – Pump rate	Yes (ph value) refer to dosing 1
Manual dosing (on)	Yes User input: – Duty	Yes User input: – Duty	Yes User input: – Duty
Dosing control range setting	Yes, pH – Alert when out of the range	Yes, ORP – Alert when out of the range	No
Off the device	Yes	Yes	Yes

*if user input incorrectly, the chemical control will adjust the dosing rate automatically.

6.3.4 Default and general setup (use with salt chlorinator)

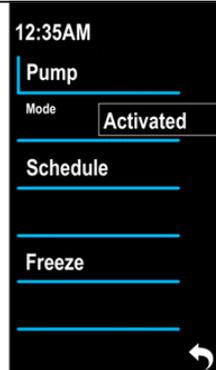
- 1) Dosing 1 (pH):
 - a. Dosing type: Acid
 - b. Dosing mode: Auto
 - c. Setting:
 - i. Upper PH: pH 7.6
 - ii. Lower PH: pH 7.2
 - d. Pump rate: input the dosing pump max rate
 - e. Duty: don't care
- 2) Dosing 2 (ORP): off
- 3) Dosing 3 (Others) : off
- 4) Electrolysis: a. Mode on

6.3.5 Switch Pump

Switch 1 which is defaulted for user connected to pool pump. When the switch is activated, user can connect the pump and schedule circulation automatically.

User can connect the under used circulation pump to the connector and turn the pump on/ off by schedule automatically.

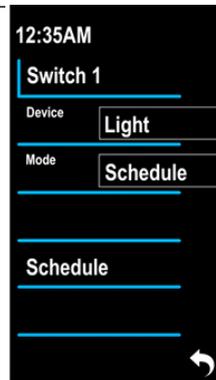
- 1) Mode: Activated, deactivated, off
- 2) Schedule: 4 schedule time you can config the pump
- 3) Freeze: freeze protection function.
 - a. When the pool temperature is detected close to freeze, turn on the circulation to prevent freeze.



6.3.6 Switch 1-3

a. You can fee config Switch 1-3 to device either light, UV, heater, others.

b. Device can set to on/ off/ Schedule mode so to fit you control expectation



6.3.7 Intelligent control

- This function is target to user:
- Lack of pool chemical knowledge
 - Need minimize chemical usage
 - Need Fully automation

After input the reference pool size and setup dosing pump. Internal DSP will test the dosing, calculate required dosing and optimize chemical by AI logic. Even though user has input incorrect values, it will detect and make the correction.

7. IOT, SMART LIFE PLATFORM

Cybersync chemical controller can connect to Smath life APP so that you can control and monitor you pool condition anytime and anywhere. Follow the general installation and setup guide to install "Smart life" and Add device.

Note: the Intelligent control function is under testing. Please connect cell, ph, ORP and temperature probe + acid dosing on dosing 1. Function to be upgraded.

7.1 Preset:

The device must connect to internet though Wi-Fi, 2.4G. Make sure a router network is ready. Make sure the device has connected to internet which wifi ICON will show on main screen.



7.2 App screen

1) Electrolysis
 2) pH
 3) ORP
 4) Salinity
 5) Temperature
 6) Dosing pump
 7) Device Relay
 8) AI function
 1) Flow switch / Cover
 Pool condition
 Menu

Device status:

Dosing pump relay status:

- On/ Auto
- Schedule
- Stop
- Error
- disactivate



Setting Menu – Go to Menu



Menu screens, device and App are sync. Besides:

- 1) App is allowed to modify display name on portable device so for higher flexibility to control
- 2) Device screen: Some function such as Priming, Probe calibration, dosing on/ off which function must be control on-site would be in device only.

Setup procedure:

- 1) Install App Smartlife from GooglePlay or Appstore

Android (PlayStore)	iOS (AppStore)
<p>Smart Life - Smart Living</p> <p>Volcano Technology Limited</p> <p>4.7★ 1.7M+ 10M+ 1.8M+ 1.1M+</p> <p>Smart Life - Smart Living</p> 	<p>Smart Life - Smart Living</p> <p>Smart Living</p> <p>Volcano Technology Limited</p> <p>4.7★ 1.7M+ 10M+ 1.8M+ 1.1M+</p> <p>Smart Life - Smart Living</p> 

- 2) Registrare and login to Smartlife (3rd parity account)
- 3) Add a device:
 - a. Prepare an internet Wi-Fi network which is in 2.4G
 - b. On the portable device, open the App Smartlife.
 - c. Power up Cybersync, on Setup manual → Wi-Fi → 
 - d. The icon will change to blue colour.
 - e. In the main page of App, select “add device” and follow the on screen instruction
 - f. Your Cybersync will show on the screen when detected.

Details function for Smartlife, please refer to user manual of Smartlife App:

8. CLEANING THE TITANIUM CELL

1. Turn the filtration system off.
2. Remove the salt cell from the housing.
3. Add the salt cell to the cleaning mixture making avoiding contact with the terminals.
4. Wait five to ten minutes for the Salt Cell to be cleaned.
5. If any parts of calcium are stuck or will not dissolve, carefully remove them with a smooth plastic instrument.
6. Once the salt cell is clean, rinse with fresh water and place back in the housing and tighten the cell or collar.
7. Turn system back to automatic setting or timer. Dispose of cleaning mixture.

If the salt cell has a heavy deposit of calcium that has not been removed after ten minutes in the cleaning solution, we recommend using a "Cell Cleaner" product which is not as corrosive as hydrochloric acid. The cell can then be left in the cleaner for up to a hour and will completely remove the calcium.

We recommended using Salt Cell Cleaner at all times over the traditional Hydrochloric mixture, it is a safer alternative and not harmful to your Salt Cell at all and reusable.



9. TERMS OF THE WARRANTY

As original purchaser of this equipment have purchased from Emaux Water Technology Co Ltd, through Authorized International Distributor or Dealer, warrants its products free from defects in materials and workmanship under normal use during warranty period. The warranty period begins on the day of purchase and extends only to the original purchaser. It is not transferable to anyone who subsequently purchases the product from you. It excludes all expendable parts.

During the warranty period, Emaux authorized reseller will repair or replace defective parts with new parts or, at the option of Emaux, serviceable used parts that are equivalent or superior to new parts in performance.

This Limited Warranty extends only to products purchased from Emaux authorized reseller. This Limited Warranty does not extend to any product that has been damaged or rendered defective (a) as a result of accident, misuse or abuse;

(b) as a result of an act of God;

(c) by operation outside the usage parameters stated herein;

(d) by the use of parts not manufactured or sold by Emaux;

(e) by modification of the product;

(f) as a result of war or terrorist attack; or

(g) as a result of service by anyone other than Emaux authorized reseller or authorized agent.

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