

Resilience G

Installation Manual

Resilience G warranty card can be found at the end of this manual

PREFACE

Congratulations on the purchase of Resilience G salt electrolysis system. Your purchase will lessen the pains needed to maintain your pool water and make the most of the pool you own.

Resilience G uses a very low concentration of salt (less than the concentration in a human teardrop) and converts it into free chlorine that destroys algae and bacteria in the pool. After removing the algae and bacteria, the chlorine naturally reverts back into salt. This process of purification continues, making the need of adding extra sanitizing chemicals to the pool virtually unnecessary.

How does it work? The system is comprised of four main parts: control box, electrolysis cartridge/cell assembly, WIFI module and My-Pool App for monitoring and controlling the control box.

> **Control box –** is the "brain" behind the operation of the system. Intuitive, user-friendly design that continuously, automatically produces chlorine for optimal swimming conditions.
>
> **Electrolysis cell/cartridge assembly –** Simple to install (no power tools required). With patented disposable electrolysis cartridge, the unique design, allows simple maintenance (no need to remove the unit from the pipeline).
>
> **WIFI module and "My-Pool" App –**control the chlorinator anytime from anywhere. Extremely intuitive and requires no technical knowledge. With a red-orange-green stoplight visual design, it's easy to visually see the status of the pool and act when prompted.

Before installation or operation, please take the time to read this entire manual, compare package contents with the parts list, and gather tools required. Improper installation may void the warranty and create unnecessary hazards. This manual contains step-by-step instructions to help ensure that your installation meets the recommended standards. Spending the time to understand your system and its functions will assure successful, trouble-free operation. If you are unsure about any of the information in this manual, please contact your installer/dealer.

When working around your pool, please take care to avoid hazards such as electrical wires and chemicals.

CAUTION! Safety comes first!

SAFETY INSTRUCTIONS

Read and follow all instructions

All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes. Improper use or installation can badly harm the unit and its surroundings. When installing and using electrical equipment, basic safety precautions should always be followed, including the following:

● Disconnect all AC power before installation and maintenance. Do not operate the unit with the cover open.

● Position the equipment so that the disconnecting device is easily accessible.

● If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

● **WARNING** – to reduce the risk of injury, do not permit children to use/access the product.
● The Control Box must be mounted **vertically** on a flat surface and at a minimum horizontal distance of 1.5m (5ft) (or more, if local codes require so) from the pool.
● **WARNING** – **risk of electric shock!** Connect only to a grounding type circuit protected by a ground-fault circuit-interrupter (GFCI) outlet. The installer should provide this GFCI requirement. The GFCI should be rated for minimum 6 Amps and tested on a regular basis by pushing the test button. If the GFCI fails to operate correctly, there is ground current flowing, indicating the possibility of electric shock. **Do not use this unit!** Disconnect the unit and have a qualified professional fix the problem before using it again.
● The Input circuit must be connected only after OVERCURRENT DEVICES, such as fuse or circuit breaker to limit the amperage in the input wire to the maximum that is permitted by the National electrical Code.
● The Unit must be permanently connected, with copper wire, not less than 1.5 mm^2 (14 AWG).

● Do not bury the cord. Place the cord to minimize damage by lawn mowers, hedge trimmers and other equipment.

● **WARNING!** To reduce the risk of electric shock, replace a damaged cord immediately.

● **WARNING!** To reduce the risk of electric shock, do not use an extension cord to connect the unit to electric power supply; provide a properly located outlet.

● Wiring of the unit must be performed according to the wiring instructions detailed in this manual.
● Build-up of flammable fumes can result in a hazardous condition if the cell is allowed to operate without water flow.
● Ensure that equipment and materials used in or around the pool are compatible with salt-based sanitation systems. Certain materials may be susceptible to salt and chlorine damage.

● ALWAYS ADD ACID TO WATER, NEVER WATER TO ACID.
● Make sure the pool's machine room is properly vented to avoid damage from acid vapors.

●Under no circumstances should the machine room be used to store equipment, furniture, sports gear or any other apparatus that is not related to the pool including spare acid containers. The machine room must be aired and vented prior to entering it.

● Acid container must be stored inside a spill containment vessel (a basin to holds acid in case of overflow or tipping of the acid container)

● **KEEP THESE INSTRUCTIONS FOR FUTURE USE.**

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RESILIENCE G WARRANTY CARD **43**

PACKAGE CONTENTS

Please unpack the system carefully. **Do not** use a knife or sharp instrument to open the box as it may damage the contents. Enclosed in the packing you should find the following:

Control Box





WiFi module +

Hanging kit



Pipe cutting template

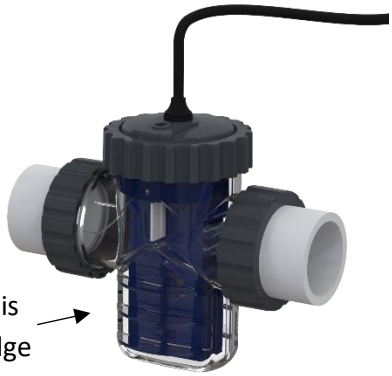


2 pipe adaptors

(63mm to 50mm)



Control box hanging template



Electrolysis cell/cartridge assembly



Cartridge cleaning vessel

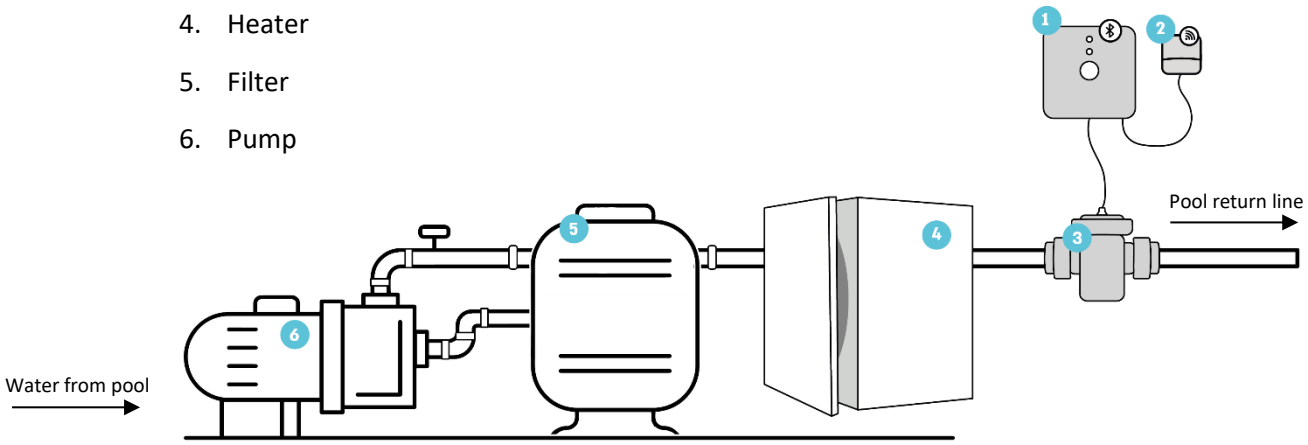
ADDITIONAL MATERIALS REQUIRED (NOT SUPPLIED IN PACKAGE)

1. PVC solvent cement and priming fluid
2. Hacksaw or pipe cutters
3. Screwdrivers
4. Permanent marker

SYSTEM OVERVIEW

This installation manual is designed for the pool professional. It assumes the installer has working knowledge of basic pool-service operations. It is based on actual field installations and the natural flow of progress found to be most efficient.

1. Control Box
2. WiFi module
3. Electrolysis cartridge
4. Heater
5. Filter
6. Pump



Resilience G consists for 4 main components: Control box, Cell, WiFi module and “My-Pool” app. All of these are manufactures using the most advance corrosion resistant materials and parts, which make them extremely durable. However, installing them in a sheltered from the sun and water will protect them from extreme weather conditions and prolong their life span.

Make sure to install the system in such a place that will allow easy access to dismantle if needed.

SAFETY MEASURES - See important safety instructions on page 2 of this manual.

CELL/CARTRIDGE ASSEMBLY INSTALLATION

30 cm (12 inch) of straight pipe length is required for the installation.

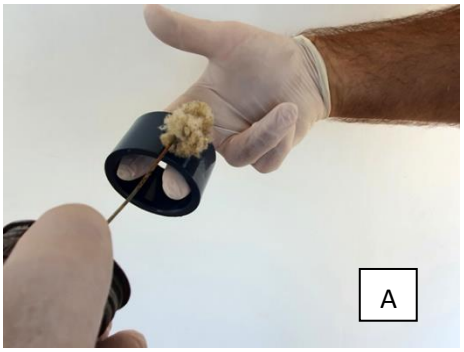
1. Using the cutting template supplied with the unit, mark the required distance of 19.5 cm (7.6 inch) on the pipeline.
2. Cut the pipe using a hacksaw or pipe cutter and slip the barrel nuts onto the pipe. **Make sure the cut is parallel and straight!**
3. Slip the barrel nuts onto each end of the pipe.

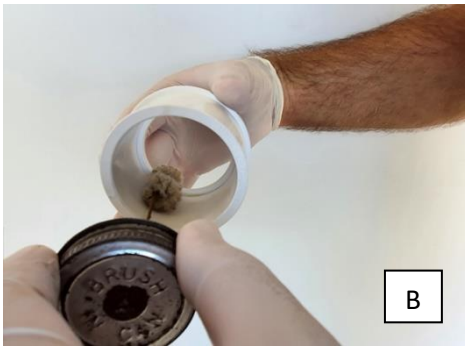


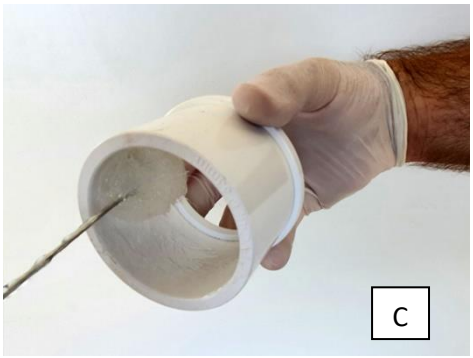


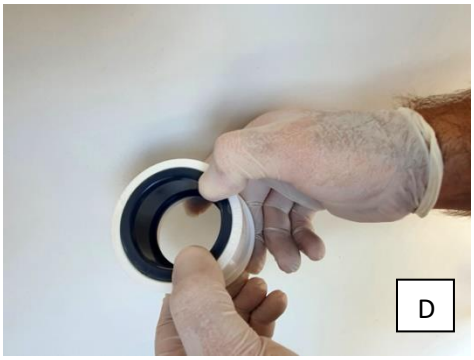


4. If using 50mm (1.9 inch) plumbing pipes, glue the pipe adaptors inside the collars.



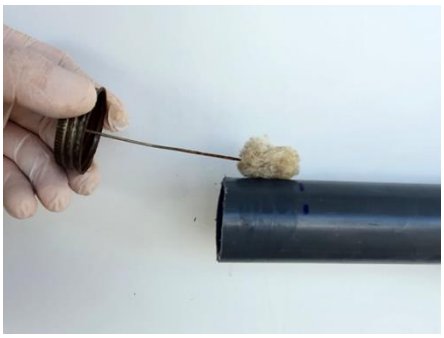




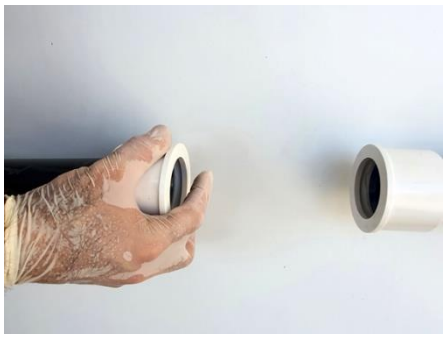


5. Clean the pipe and inner face of each collar with a PVC cleaning solution.

6. Apply glue to the cleaned surfaces; Slide each collar over the pipe.







7. Wipe any excess glue and wait for the glue to cure (minimum 10 minutes).
8. Place the system with the O-rings (seals) into the opening between the two ends of the pipe and tighten the barrel nuts.



MOUNTING THE CONTROL BOX

The control box must be mounted vertically on a flat surface at a minimum horizontal distance of 1.5 meters (4.9 feet) from the pool (or more, if local codes require).

CAUTION! Do not mount the control box over a heater or inside a tightly enclosed area. This can overheat and damage the system.

DO NOT block the vent slots of the control box, located at its back!

1. Select a location for the control box that is no more than 3½ meters (11.4 feet) from the cell/cartridge assembly to ensure enough cable is available.
2. Using the supplied “control box hanging template”, mark the position of the three screws required to secure the control box to the wall.
3. Drill the three holes into the wall and insert the screw anchors into the holes. Drill in the screws into the two top screw anchors so the screws are sticking out a bit from the wall.
4. Remove the service panel cover of the control box. Hang the control box over the two top screws.



Marking holes positions using the hanging template

5. Insert and screw the third and final screw through the service panel into the anchor.
6. Control box is now secured to the wall.



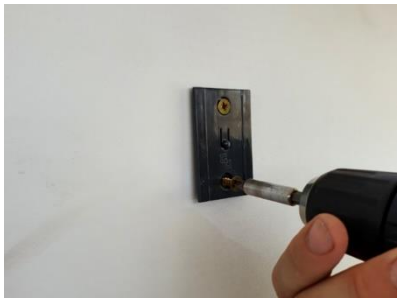


MOUNTING WIFI MODULE

Locate the best position for the WiFi module. Chosen position must have optimial WIFI reception. Length of cable provided from the WiFi module to control box is 10 meters (32.8 feet) long. If needed, cable can be replaced.
For instructions on how to replace the WiFi module's cable (if it is not long enough), pleaser refer to page 35.

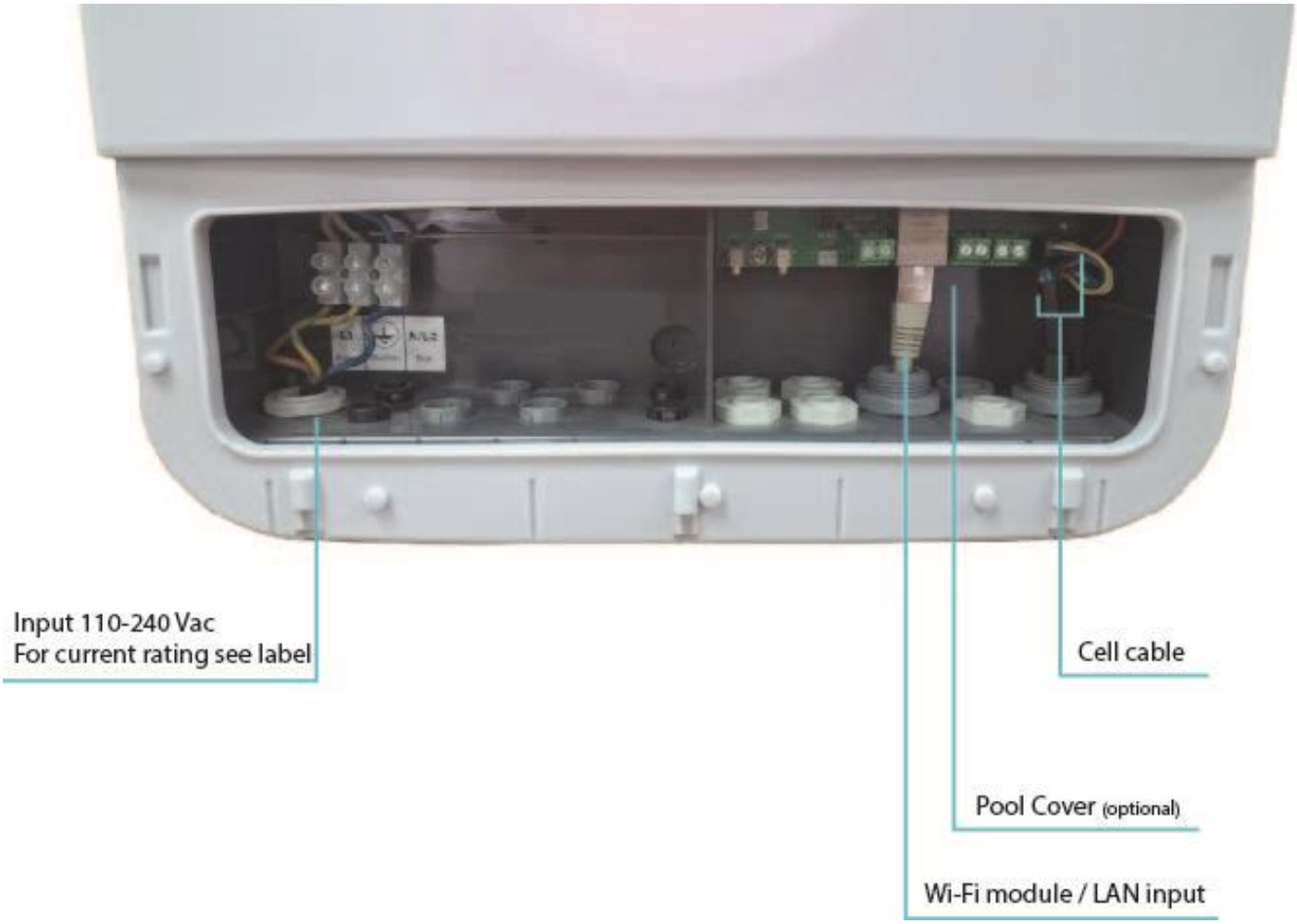
1. Position the WiFi module wall mount clip on the wall and mark the position of the holes.
2. Drill the wall and insert screw anchors.
3. Screw the wall mount clip into place.
4. Hang the WiFi module over the wall mount clip. WiFi module is now secured to the wall.







WIRING AND CONNECTIONS

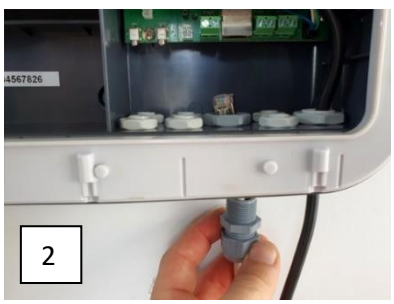


and using electrical equipment, basic safety precautions should always be followed!

WIRING WIFI MODULE TO CONTROL PANEL

1. Remove the nut from the PG connector that is attached to the cable coming out of the WiFi module.
2. Insert the cable into the middle and largest hole at the bottom of the control box. Press on the transparent clasp to allow the connection through. Position the locking nut over the cable and tighten the PG connector to secure the cable in palce.
3. Connect the WiFi connector as seen in the picture “3”.

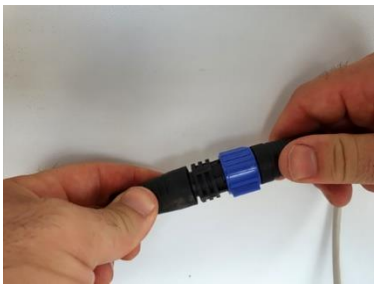






WIRING CELL/CARTRIDGE MODULE TO CONTROL PANEL

1. Grab the black connector coming out of the control box and connect it to the cable coming out of the top of the cell/cartridge assembly.
2. Push the connectors firmly towards one another until a ‘click’ sound is heard.
3. Gently pull to confirm that connection is secure.



WIRING POOL COVER

Hardwire two wires that deliver dry contact signal from the pool cover control to the “pool cover” terminals in the lower part of the control box. Make sure to user a proper stain relief (PG/Heyco) that will prevent the cable from being pulled out from the control box.

STARTING UP

BEFORE ADDING THE SALT

1. **Balance the chemicals**: See the section titled "Understanding the chemistry" on page 31 for recommended water balance. This will ensure that the transition to the natural chlorine generator system is quick and reliable.
2. **New Pools**: wait 30 days or longer if specified by your pool builder for plaster to cure before adding salt or operating the natural chlorine generator.
3. **Biguanide Pools:** if installing the system in a pool that has Biguanide sanitizers, all Biguanide must be removed prior to system startup.

Now that your new chlorinator has been installed, water chemistry should be tested and adjusted prior to initiating automated control of the pool. Check that your pool water conforms to the following ranges before powering on and setting up the Resilience G.

IMPORTANT! It is compulsory to control and adjust water balance parameters **BEFORE** operating the system.

Parameter	Value
Salt	3000-4500
pH	7.0-7.6
Free Chlorine (ppm)	1-3
Stabilizer - Cyanuric Acid (ppm)	0-60
ORP (mV)	650-850
Total Alkalinity	80-120
Calcium Hardness	100-400

ADDING THE SALT

1. Measure the pre-existing salinity of your pool.
2. Determine how much salt is needed from the Salinity Demand Table on the following page. This table is based on a salt concentration of 4000 ppm (approximately ⅓ %). More salt may be added for larger pools (e.g. 4500 ppm).
3. Keep the circulating pump on.

4. Distribute the determined amount of salt evenly around the pool. To avoid clogging the filter or damaging the control box and pump, do not add salt through the skimmer or surge tank. Brush the pools' bottom to help dissolve the salt.
5. The readout on the chlorine generator may fluctuate until salt is fully dissolved.
6. Turn the control box OFF. **Failure to do so will cause the fuse to blow**.
7. Keep the pump ON to circulate water.
8. Distribute the required amount of salt evenly around the pool. It will take about 8 hours for the salt to disperse evenly in the water.
9. Once the salt has fully dissolved, adjust the chlorinator to the desired setting.

Calculating the size of the pool

	Liters (dimensions in meters)	**Gallons** (dimensions in feet)
Rectangular	Length X Width X Average Depth X 1000	Length X Width X Average Depth X 7.5
Round	Diameter X Diameter X Average Depth X 785	Diameter X Diameter X Average Depth X 5.9
Oval	Length X Width X Average Depth X 893	Length X Width x Average Depth X 6.7

What type of salt should I use?

Good	**Bad – do not use!**
The best salt is an evaporated, granulated pool salt	Iodized salt
99.9% pure salt	Salts with more than 1% anti caking agents (e.g. yellow prussiate of soda or sodium ferrocyanide) – because they contain iron and will yellow the fittings. These anti caking agents are commonly found in water softener salts
	Rock salt – because of the dirt mixed with the rock salt
	Calcium chloride- is not a salt. Use only sodium chloride

Salinity demand table (in kg.)

Salt level before addition (in ppm)

Your pool water volume – in thousands of liters	0	500	1000	1500	2000	2500	3000	3500	4500
	How much salt to add? (In kg.)								
10	40	35	30	25	20	15	10	5	0
20	80	70	60	50	40	30	20	10	0
30	120	105	90	75	60	45	30	15	0
40	160	140	120	100	80	60	40	20	0
50	200	175	150	125	100	75	50	25	0
60	240	210	180	150	120	90	60	30	0
70	280	245	210	175	140	105	70	35	0
80	320	280	240	200	160	120	80	40	0
90	360	315	270	225	180	135	90	45	0
100	400	350	300	250	200	150	100	50	0
110	440	385	330	275	220	165	110	55	0
120	480	420	360	300	240	180	120	60	0
130	520	455	390	325	260	195	130	65	0
140	560	490	420	350	280	210	140	70	0
150	600	525	450	375	300	225	150	75	0
160	640	560	480	400	320	240	160	80	0
170	680	595	510	425	340	255	170	85	0
180	720	630	540	450	360	270	190	95	0
190	760	665	570	475	380	285	190	95	0
200	800	700	600	500	400	300	200	100	0

Identify the current salt concentration at the top of the chart (e.g. 1000 ppm). Then find the size of your pool on the left (e.g. 100,000 liters). Run these figures down and across until they meet. That is the number of Kilograms of salt that needs to be added to your pool.

Salinity demand table (in lbs.)

Current Salt concentration in pool (before addition) [ppm]

Water volume in thousands of Gallons	How much salt to add (in pounds)								
	0	**500**	**1000**	**1500**	**2000**	**2500**	**3000**	**3500**	**4500**
4	117	100	83	67	50	33	17	0	OK
6	175	150	125	100	75	50	25	0	OK
8	234	200	167	133	100	67	33	0	OK
10	292	250	209	167	125	83	42	0	OK
12	350	300	250	200	150	100	50	0	OK
14	409	350	292	234	175	117	58	0	OK
16	467	400	334	267	200	133	67	0	OK
18	525	450	375	300	225	150	75	0	OK
20	584	500	417	334	250	167	83	0	OK
22	642	550	459	367	275	183	92	0	OK
24	701	600	500	400	300	200	100	0	OK
26	759	651	542	434	325	217	108	0	OK
28	817	701	584	467	350	234	117	0	OK
30	876	751	626	500	375	250	125	0	OK
32	934	801	667	534	400	267	133	0	OK
34	992	851	709	567	425	284	142	0	OK
36	1051	901	751	600	450	300	150	0	OK
38	1109	951	792	634	475	317	158	0	OK
40	1168	1001	834	667	500	334	167	0	OK
42	1226	1051	876	701	525	350	175	0	OK
44	1284	1101	917	734	550	367	183	0	OK
46	1343	1151	959	767	575	384	192	0	OK
48	1401	1201	1001	801	600	400	200	0	OK
50	1460	1251	1043	834	626	417	209	0	OK
52	1518	1301	1085	868	651	434	218	0	OK
54	1577	1351	1127	901	676	450	226	0	OK
56	1635	1401	1169	934	702	467	235	0	OK
58	1694	1451	1211	968	727	483	243	0	OK
60	1752	1501	1253	1001	752	500	252	0	OK

Locate the current salt concentration at the top of the chart (e.g. 1000 ppm). Then locate the size of your pool on the left (e.g. 12 thousand gallons).

Run these figures down and across until they meet. That number is the number of lbs. of salt required for your pool.

INSTALLING "MY-POOL" APP AND PAIRING RESILIENCE G

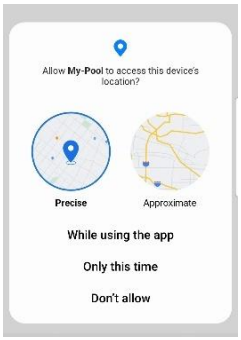
1. Connect the control box to the electricity. Once connected, LEDs on control box will turn on.
   WiFi LED on the control box and on the WiFi module will blink and continue blinking until connection is established.

- Download "My-Pool" App from Google Play or Apple app store.
- Activate the App by pressing the "My-Pool" icon.



During initial startup of the app, it will request your approval to turn on the GPS feature of the cellphone.

- App will prompt you to allow access to mobile device location. Please allow.
- App will prompt you to allow it to send notifications. Please allow.



In order to control Resilience G, a user is required to do setup.

A - Press the Facebook/Google/Apple buttons to sign up using an existing account.



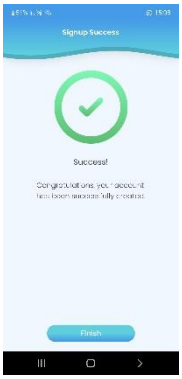
B - Press "Signup now" on the bottom left of the screen.



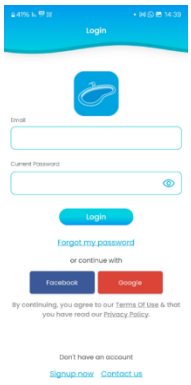
Signing Up using "Signup now" button

- Type in your details in the required fields
- Press "Finish"





- Login screen will show up.
- Type in the e-mail address and password
- Press "Login"



- My-Pool App will request to connect to and determine relative position of nearby devices.
- Please allow access.

***It's time to make sure Bluetooth communication is activated on your device.**



There are 3 methods to connect to the Resilience G via Bluetooth:

***To access the QR code sticker remove the service panel door. Sticker is adhered next to the wiring terminals.**

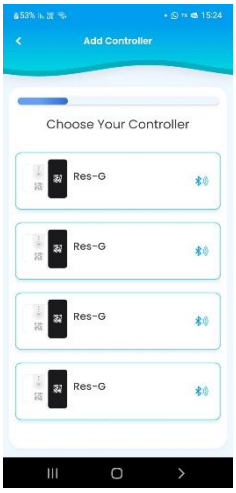
A – Scan the QR code by pressing the "Scan QR" button. Open the service panel door of the chlorinator. Scan the QR sticker.



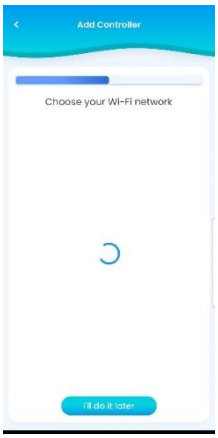
B – Manually type the number that appears on the QR sticker. Then press the blue arrow button next to it.

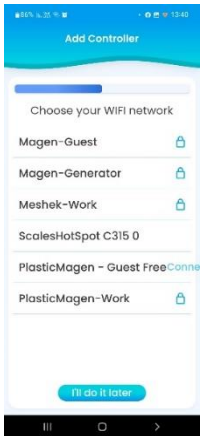


C – Press the "I don't have QR code" button. From the list, press on the device you wish to connect to via Bluetooth.

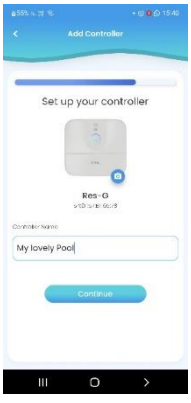


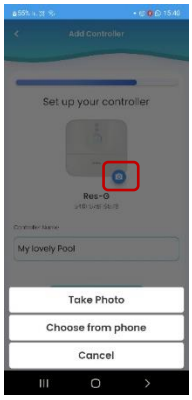
- As soon as QR code is identified, app continues to search for WiFi networks. This may take up to a minute.
- Choose the WiFi network you wish to connect to.
- Input password.



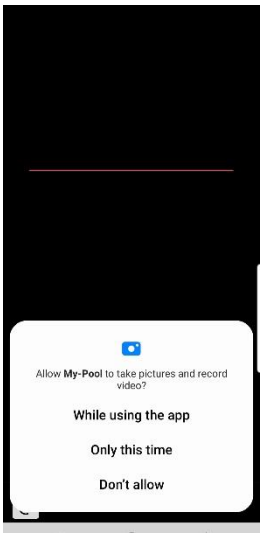


- Choose a unique name for the device and type it in the "Controller Name" input field.
- Take a picture for quick identification by pressing the camera icon on the bottom right corner of the device picture. It is possible to take a picture using the mobile devices' camera or choose a picture from the photo gallery.

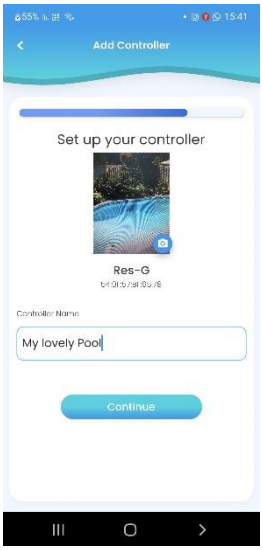




- Allow the App to access your image gallery and camera.
- Take/Choose a photo.
- Press Continue.





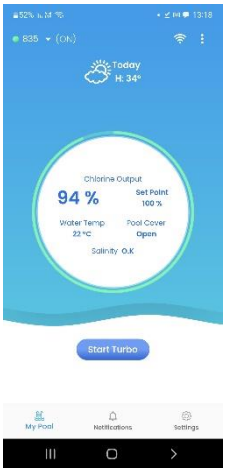


- <u>You are now required to fill in the details of the pool:</u>
  a. Use the + and – buttons to define the pool volume.
  b. From the drop-down menu, choose the country where the device in installed.
  c. It is recommended to add the city and address of where the device is located.
- Once filled, press "Continue".





- Device is now paired to your account.
- Real time pool data is only monitored when device is turned on. Do not be alarmed that sensors are shown as N/A.



OPERATING INSTRUCTIONS

FILTRATION

Proper filtration is critical for maintaining clean and healthy water. It is typically required in the pool industry that all water of the pool pass through the filter at least one and a half (1½) times per day (at least eight hours in most pools). During very heavy use, the filter run time should be increased. If needed, the filter circulation pump and chlorine generator may run continuously.



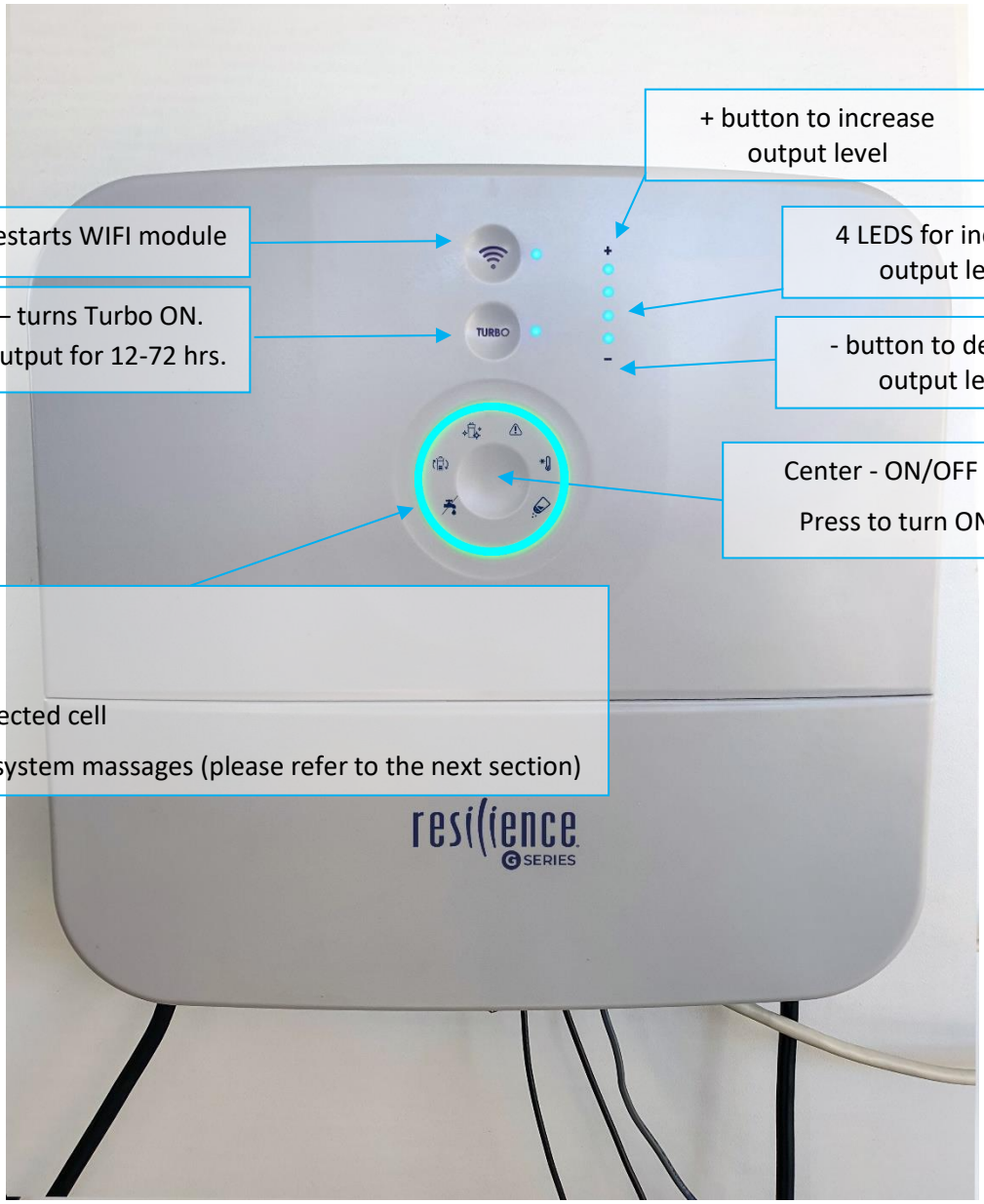
Note: inadequate filtration reduces water clarity and causes the chlorine generator to work harder.

RELATED CHEMISTRY

Other chemical levels must be monitored and adjusted because they can greatly reduce the effectiveness of the chlorine produced by the system. If you use a good quality pool test kit and follow the simple instructions outlined in this manual, your natural chlorine generator will help you maintain a sparkling-clean, trouble-free pool for years with minimal effort. See the section "Understanding the chemistry", page 31 for more information.

The natural chlorine generator produces a pure form of chlorine to sanitize and oxidize the pool water. The chlorine residual needs to be maintained at 1 to 3 ppm. This may be tested using a standard kit or by your local pool store. To obtain the optimal residual buildup of chlorine, the best time to run the chlorinator is in the early morning and after 4pm (16:00 O'clock) when there is less UV to destroy the chlorine produced, leaving chlorine in the pool to oxidize the unwanted foreign matter.

Resilience G is controlled via the "My-Pool" Application (the app can be downloaded from Google play or Apple store). Controlling the pool from the palm of your hands enables constant alerts if action is required on your behalf, or if you wish to check pool water temperature before the family wants to go for a swim.


+ button to increase output level
WIFI button – Restarts WIFI module
4 LEDS for indicating output levels
Turbo button – turns Turbo ON.
100% chlorine output for 12-72 hrs.
TURBO
+
-
- button to decrease output level
Center - ON/OFF button
Press to turn ON/OFF
LED ring color:
Cyan – ON mode
Orange – Disconnected cell
Red – OFF mode/system massages (please refer to the next section)
resilience
G SERIES

System Messages: These LED lights display important information about the operations of your system.



• **NO FLOW**: When this LED is illuminated, the system has detected an insufficient amount of water in the Cell. This causes the Cell to stop generating chlorine. Verify that you have proper water flow without air bubbles in the Cell housing, and verify that water flow is fully pressing the flow switch away from its resting center position. In case you have a variable speed pump, increase flow until the LED turns off.



• **LOW SALT:** When this LED is illuminated, salt may need to be added to the pool. First, inspect the Cell for mineral scaling and clean if necessary. If this does not solve the problem, manually check the salinity of the pool water and add salt according to the table on page 7.



• **COLD WATER / WINTER MODE**: To protect the Cell, the Control Module is programmed to automatically decrease chlorine production when it senses low temperatures. In case of low water temperature below 20°C the unit reduces chlorine production to 45% Below 15°C the unit reduces chlorine production to 15%. Below 12°C the unit stops chlorine production.



• **CLEAN CELL:** When this LED is illuminated, it indicates that the Cell requires cleaning. Refer to page 11 of this manual to see how to clean the blades of the Cell.



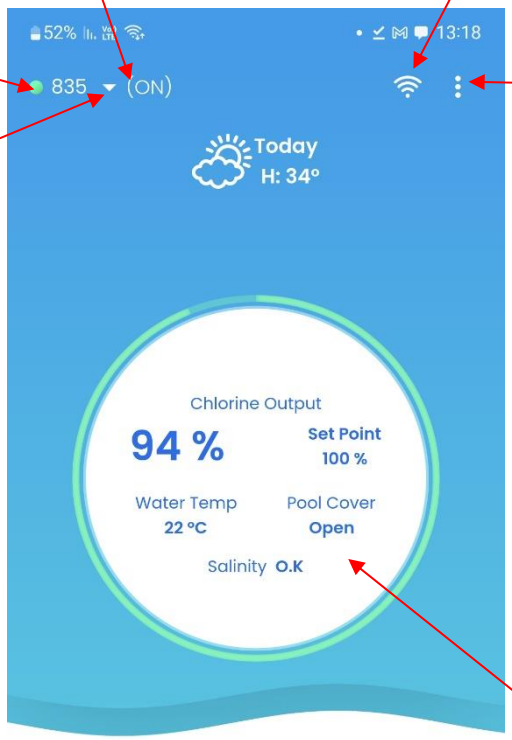
• **CELL LIFE LOW: T**his LED is illuminated when the Cell is reaching the end of its expected lifespan. Replacement cells are readily available for purchase from your local deal.



• **SYSTEM ERROR:** This LED is illuminated when the system is not able to produce chlorine. Please refer to the "Troubleshooting" section on page 18.

MY-POOL APP

MAIN SCREEN – STATUS SCREEN



Status of device ON/OFF

Connectivity icon – WiFi or Bluetooth. Press icon to switch between the two

Device name

From the drop-down list, choose another device associated with the app

Additional options:

Share controller – share device with a different user

Add controller – pair another device to the app

Contact Us – contact customer support

Start Turbo button

Real time status summary –

Green circle – pool is balanced. Real time values are within or above range

Orange circle – pool is balanced but may require intervention. Real time values are close to bottom range.

Red circle or error message – pool is not balanced. Real time values are below range

Inside circle displayed:

Chlorine output level, set point value, water temp, pool cover status, salinity state.

Main screen

Alerts list

Settings

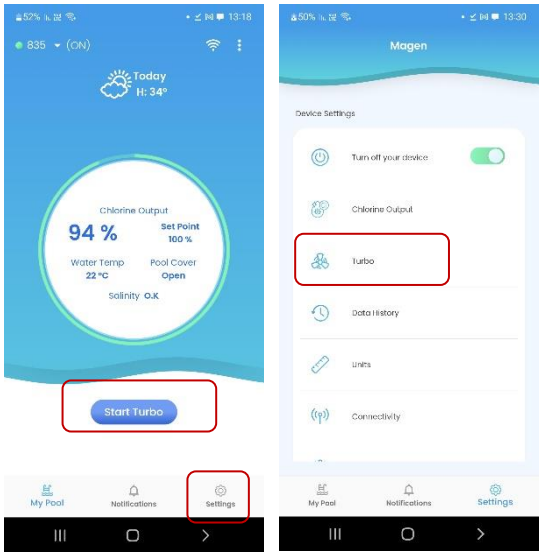
TURBO MODE

Turning on the Turbo mode can be done in two ways:

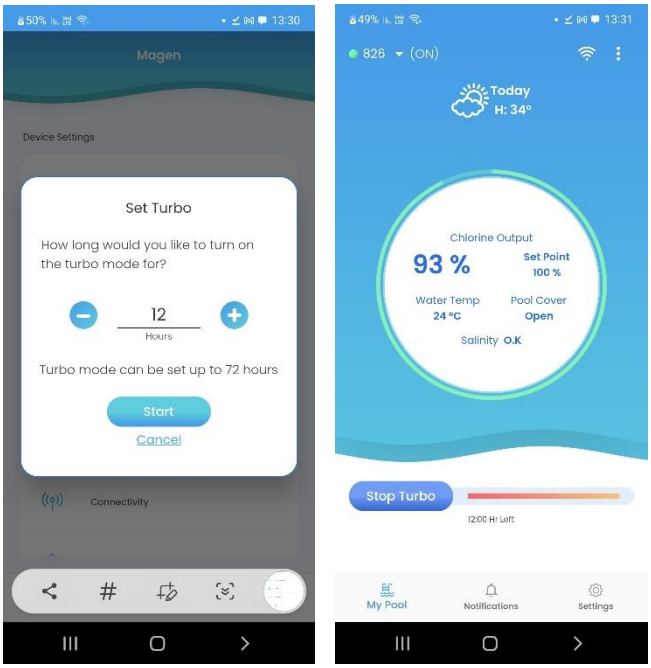
1. from the Status screen press “Settings”
2. From the list, choose “Turbo”

Or

3. Directly press the “Start Turbo” button

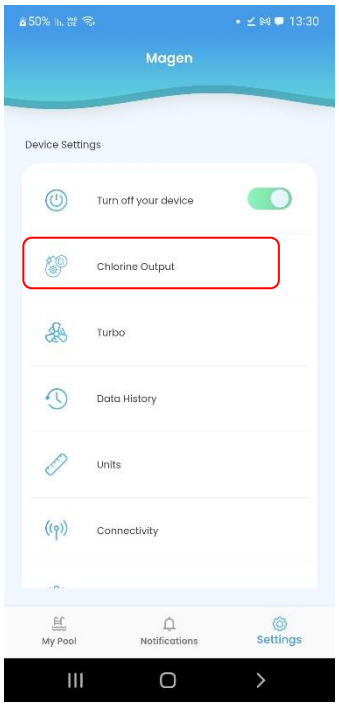


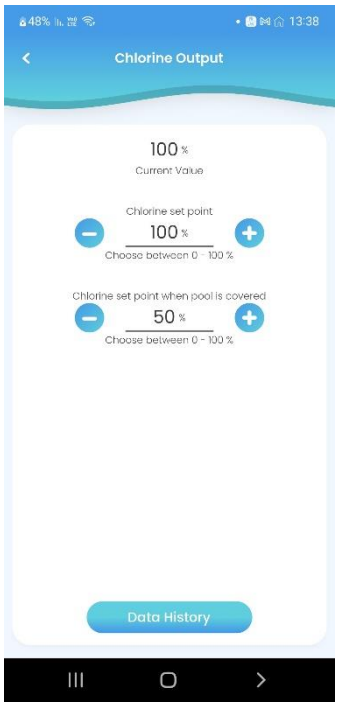
1. Press + or - to increase/decrease number of hours 12-72 for Turbo mode to function.
2. Press “Start” to begin.
3. Turbo is active. Remaining duration is visible on screen.



CHLORINE OUTPUT

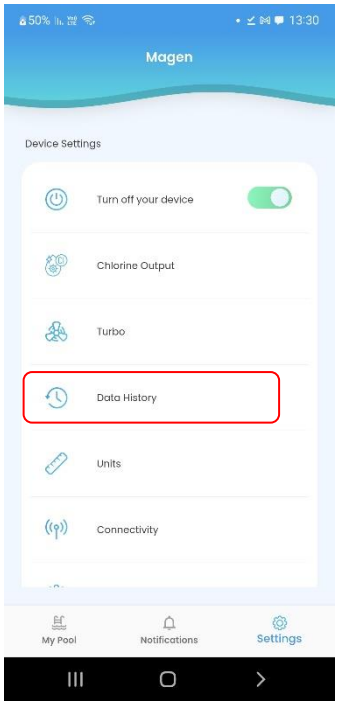
Enables control of chlorine output levels by defining the chlorine set point as well as chlorine output set point when pool is covered.





DATA HISTORY

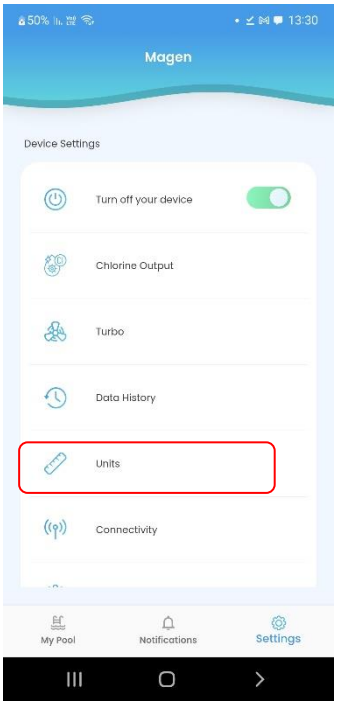
Chlorine output, Salinity levels, and Water temperature values are presented in a graph in varying time periods from one day to 3 months.





UNITS

Choose Metric/Imperial units according to your preference.



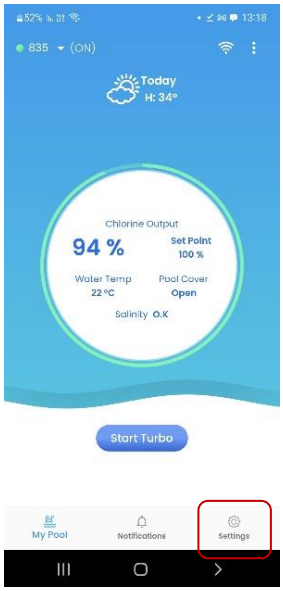


LANGUAGE

From the main status screen, press the “settings” button. Located on the bottom right of the screen.

Scroll the list all the way down and press “Language”.

From the list, choose the language you wish to have the app communicate with you.





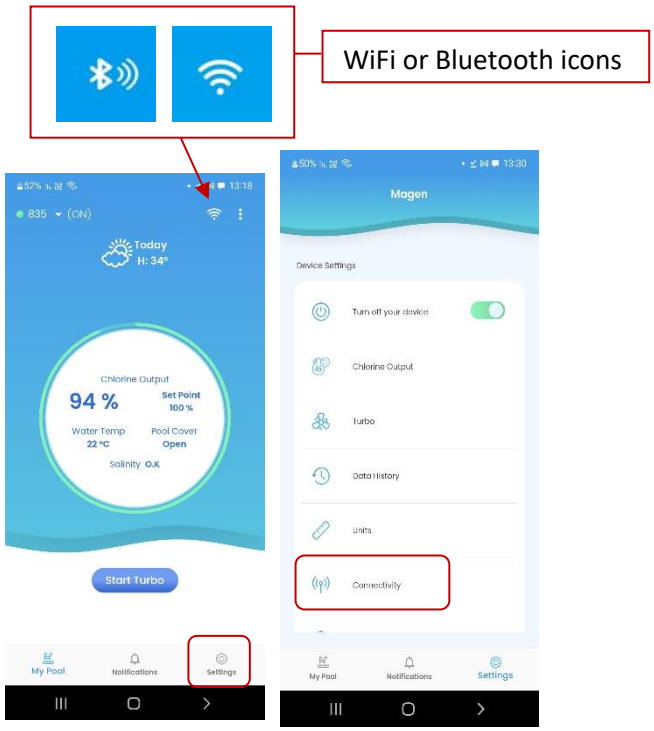
CONNECTIVITY

If you wish to choose a different Wifi network or switch to Bluetooth communication or vice versa this can be done in two ways:

1. From the Status or Monitoring screens press the Wifi/Bluetooth icon (top right corner).
2. Pressing on it will direct you to the connectivity screen.

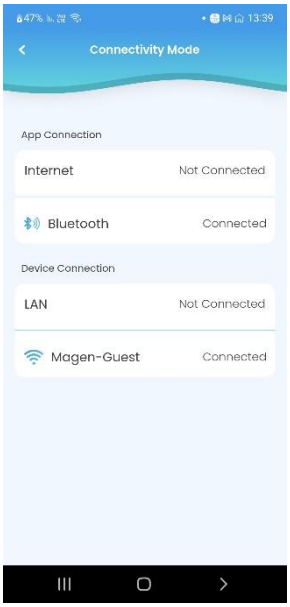
Or from the Status screen

3. Press Settings
4. From the list, choose connectivity



Showcases the network device that is connected and how the app is connected to it (Bluetooth or WiFi).

Switch to/from Bluetooth/WiFi. Press the alternate method or choose a different WiFi network from the once chosen.



MAINTENANCE

Maintaining your natural chlorine generator maximizes the performance and life of the system and requires minimal work.

POOL WATER TESTING: Pool water should be tested weekly, but MUST be tested at least once a month.

CONTROL BOX

The Resilience G control box requires periodic cleaning of the enclosure. Use a soft cloth to wipe off any dust or debris.

POOL WATER

Always test and record water chemistry readings in compliance with Health Department requirements using a quality manual test kit.

It is important to note that changes in pH, cyanuric acid concentration, total dissolved solids, and use of additional or alternative sanitizers will all affect the primary sanitizer residual level relative to ORP. It is important to maintain total alkalinity on a regular basis to ensure pH stability. To maintain a consistent sanitizer residual in parts-per-million (ppm).

CARTRIDGE MAINTENANCE

The clear cell body allows easy, regular inspection of scale and calcium build up. Monthly inspection and cleaning of the cell will prolong its life span. The cell **MUST** be visually inspected **every month** for scale build up (white flakes or crust on or between the plates) and cleaned. Cleaning the cell does not damage it! If in doubt, the cell should be cleaned. **Warranty does not cover cells with scale!**

Cartridge cleaning

CAUTION – do not use metal or other hard objects to clean the cell.

DO NOT insert anything into the cell.

Both actions detailed above may scratch the precious coating on the plates and void the warranty.

Always add acid to water NOT water to acid. Diluted muriatic acid solution = 1-part acid to 10 parts water.

Follow the instructions of the acid manufacturer.

1. Turn the unit OFF and disconnect it from all electric sources.
2. Close the valves before and after the unit
3. Unplug the cell cable. Open the locking nut of the cell assembly and remove the cartridge from the cell body.

4. Once removed, look inside the cartridge and inspect for lime-scale formations (light colored crusty or flaky deposits) on the plates and for any debris which has passed through the filter and caught on the plates. If no deposits are visible, reinstall.
5. <u>If deposits are visible, please complete the cell cleaning operation:</u>
6. Mix undiluted white distilled vinegar, or a solution of diluted muriatic acid (one-part muriatic acid to 10 parts water) in the cleaning vessel supplied in the product's box. ALWAYS ADD ACID TO WATER - NEVER ADD WATER TO ACID!
7. Place the cartridge in the vessel **make sure the electrical plug does not come in direct contact with water and acid!**
8. Wait for foaming to stop (5-10 minutes when using muriatic acid; vinegar takes longer).
9. Safely dispose of the acid solution or vinegar by pouring it into your pool.
10. Carefully wash the cartridge in tap or pool water.
11. Insert the cartridge into the cell body. Notice that it can only fit in a particular direction so be gentle and flip the other way if necessary.
12. Pass the cable coming out of the top of the cell assembly through the locking nut. Screw it on the cell assembly firmly.
13. Grab the black connector coming out of the control box and connect it to the cable coming out of the top of the cell/cartridge assembly.
14. Push firmly until a 'click' sound is heard.
15. Pull gently to confirm the connection is secured.
16. Turn the unit ON .Make sure there are no leaks from the unit once it has restarted.

WINTERIZING

Just like the pool plumbing, freezing may damage the system. If severe or extended periods of freezing temperatures may occur, drain all water from the pump, filter, cell, supply and return lines before temperatures drop.

The sensors should be prepared for storage as outlined above and protected from freezing temperatures.

SPRING STARTUP

DO NOT turn on the system until the pools' water chemistry has been brought to the required levels. See the "Starting up" chapter on page 13 for more information.

UNDERSTANDING THE CHEMISTRY

The table shows the recommended balance levels followed by a more detailed explanation of the factors affecting the water chemistry. Maintaining these levels ensures maximum enjoyment of the pool. Pool water should be tested periodically. If the water chemistry needs adjustment, the local authorized dealer or most pool stores can supply you with the appropriate chemicals and procedures. We recommend either taking a copy of the Water Balance Table to the pool store, or notifying the pool store that you are using Magen eco-Energy's natural salt chlorine generator (model Resilience G).

Factors	Ideal levels
Salt	**3000 – 4500 ppm**
Free Chlorine	**1 – 3 ppm**
pH	**7.0 – 7.6**
Total alkalinity	**80 – 120 ppm**
Stabilizer (also known as Cyanuric acid or conditioner)	**0-60 ppm**
Calcium Hardness	**100-400**

Salt is the source of the Natural Chlorine. The ideal salt level to ensure maximum benefits using our system is 3500 ppm (parts per million). A lower concentration of salt may hinder the chlorine generators effectiveness. A concentration of salt above 5500 ppm may cause corrosion damage to the pool fixtures. See the "Adding salt" chapter, on page 13 for more information.

Free Chlorine vs. Combined Chlorine: The unpleasant odors and side effects often associated with chlorine are actually caused by combined chlorine (e.g. chloramines). Combined chlorine is a chlorine molecule that attacks a noxious particle in the water but is unable to destroy it. This chlorine particle remains attached to the noxious particle until one of the two is burned off; hence the term Combined Chlorine (also known as chloramines). To burn off the noxious particle and free up the chlorine again, pool owners have to periodically shock (with chlorine) the pool. In the natural chlorine generator, the noxious particle is burned off within the chlorine generators cell and the combined chlorine is continuously converted back to free chlorine.

The free chlorine level in the pool should be maintained at 1 to 3 ppm. This level of free chlorine is comfortable to swim in with no unpleasant, sharp odors, and maintains proper sanitizing.

pH is a measure of the acidic or basic solution. A scale of 0 to 14 is used to measure pH. Pure water has a pH of seven (neutral), acid solution has a pH of less than seven, and basic (alkali) solutions have a pH of more than seven. The recommended range is 7.0 to 7.6; chlorine is much more effective within this range and the water is most comfortable for bathers. **pH levels above 7.6 drastically reduce the effectiveness of the chlorine.**

To lower the pH, add muriatic acid or dry acid. Be sure to read and follow the respective manufacturer's instructions.

Total Alkalinity eases changes in pH. It is often referred to as the "big brother of pH". Keeping proper levels of total alkalinity helps reduce unwanted fluctuations in pH levels. Total alkalinity is also used to offset high or low levels of calcium hardness.

Add muriatic acid or dry acid to lower the total alkalinity and sodium bicarbonate to aid the total alkalinity. Be sure to read and follow the respective manufacturers' instructions.

Stabilizers (Cyanuric Acid or Conditioner) is necessary in most outdoor pools to maintain appropriate levels of chlorine. Chlorine stabilizer helps provide an appropriate residual chlorine level in the water. Without stabilizer, UV radiation from the sun will destroy most chlorine within 2 hours, but excessive amounts of stabilizer can decrease the effectiveness of chlorine. Chlorine stabilizers should be maintained at 60 ppm to offset the harmful effect of the sun while maintaining the effectiveness of the chlorine. Where pH/ORP automatic sensors are used, 40 ppm of stabilizer suffices.

Calcium Hardness, like pH and alkalinity, affects the water tendency to be aggressive or scale forming. Lower levels of calcium hardness improve the chorine generators' ability to stay clean and provide softer silkier water for the swimmers. Check with your local pool professional for proper calcium levels for your pool surface.

GENERAL TROUBLESHOOTING

NOTE: Evaluating the possible causes for each problem from top to bottom (first to last) will void extra labor.

Problem	Possible Causes	What to do
Chlorine level is low	• System is turned off	• Turn the system ON to the desired settings
	• Output level is set too low in relation to chlorination demand (e.g higher number of bathers, warmer weather, increased debris in pool)	• Increase the chlorine set point as described in page 26 and/or increase pump operation time.
	• Low salinity	• Check salinity levels
	• Pump operation time is too short	• Run the pump at least eight hours per day (1.5 turnovers of all the pool water) or more if necessary
	• Low stabilizer (cyanuric acid)	• Manually check water chemistry; stabilizer should be 0-60 ppm. If low, add stabilizer (see "Understanding the Chemistry" chapter, page 31)
	• Chemical imbalance	• Check other chemistry and balance chemicals (see "Understanding the Chemistry" chapter, page 31)
LED ring light doesn't turn ON – No power	• System in not connected to power	• Connect to electricity. • Check the breaker leading to the pool control.
	• Power wires cut, disconnected or incorrectly wired	• Check for correct wiring (see page 11)
	• Other malfunctions in control box	• Contact customer service
LED ring light is RED	• System is turned OFF	• Press the power button if to activate the unit.
LED ring light is ORANGE	• No communication between the Cell and the Control Module	• Ensure Cell has proper connection to Control Module. If connected, disconnect and reconnect, check that connection is clean and tight.
Pairing device to My-Pool app fails	• My-Pool app version is not up to date	• Download recent My-Pool app version from Google Play or Apple app store
	• No WiFi reception	• Search for a better position with optimal WiFi reception • Connect to the device via Bluetooth communication as instructed on page 28

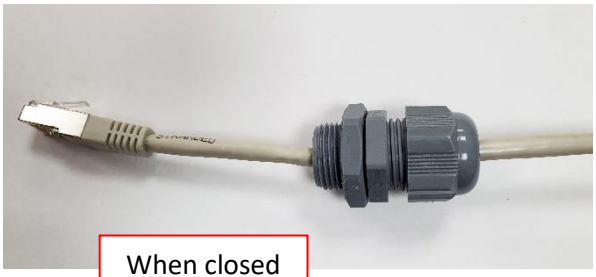
	• WiFi networks password is incorrect	• Check you typed in the correct password • Contact customer support by clicking on the “Contact Us”
Low output (only part of the four-small blue LEDS turn on) – chlorine manufacturing does not reach 100%	• Low salinity	• Add salt to water so salt levels are higher than 2,800 ppm
	• Scale build up inside cartridge	• Clean cartridge as instructed in the maintenance chapter, page 29
	• Cold water	• Water temperature is below 20°C (XXX°F). No further action is required
	• Overheating protection	• In extreme weather conditions, when the unit identifies overheating, it will automatically reduce chlorine production to protect itself

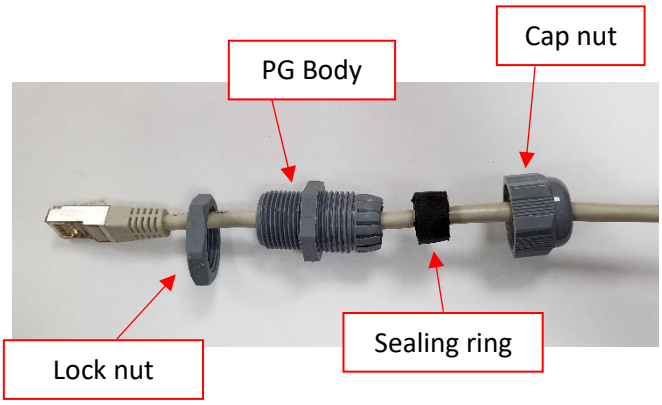
APPENDIX

If the WiFi's communication cable supplied with the product is too short and requires replacing, please follow these detailed instructions:

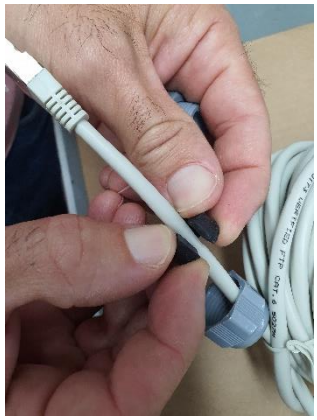
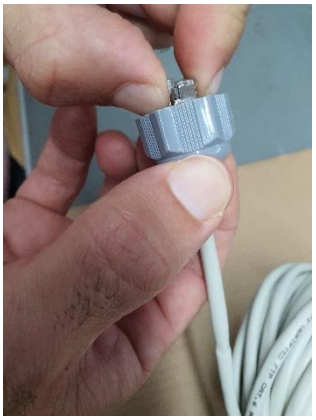
APPENDIX 1 – REPLACING WIFI MODULE COMMUNICATION CABLE

The PG connector is comprised of:

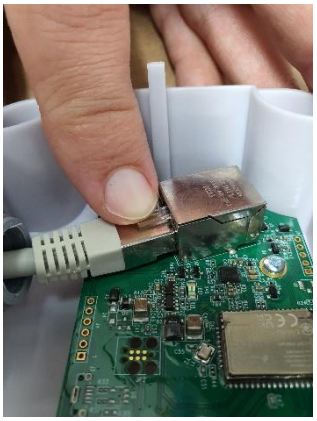




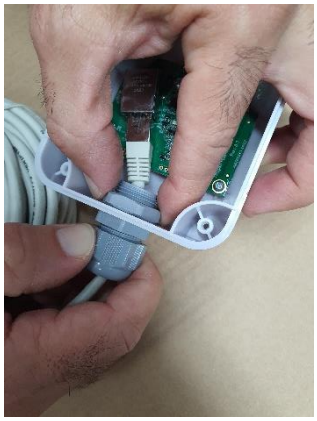
In the control panel, open the locking nut of the largest and most central PG connector that is holding the communication cable in place. Push on the transparent clasp of the connection on the head of the cable and pull it out from the connection of the control panel and through control panel's box itself.	 
Open the Cap nut and pull it back. Pull out the black sealing ring from inside the PG body	 

While pressing the transparent clasp of the cable head, pull the cable out of the PG connector body	 
Look for the slit in the sealing ring and remove it from the cable	
Pull the cable out of the cap nut. If required, push the transparent cap of the cable's head to allow the cable to push through.	 
The PG connector is now fully removed from the cable.	

On the WiFi module box:

Open the cap nut of the PG connector attached to the WiFi module box and pull it back.	 
Using a screwdriver, remove all 4 screws holding the box together. Remove the back of the box.	
While holding the transparent clasp of the communication's cable head, pull back the cable and out of the box.	 
Remove the black sealing ring from the PG connector body and pull out the cable from the box	 

Look for the slit in the sealing ring and remove it from the cable. Then pull the cap nut from the cable.	 
On the new cable, first, insert the cable through the Cap nut. Then connect the black sealing ring over the cable.	
Insert the connectors' head through the PG body that is connected to the box. Push it into the box so the cables head is inserted into the communication connector of the circuit and a 'click' sound is heard.	 

Push the black sealing ring into the PG body. Make sure the teeth of the PG body are not broken or folded.	 
Close the lock nut and the cap nut over the connector to secure the cable in place.	
Make sure the black seal on the back of the box is inside its recess.	
When closing the lid, pay attention to the hole one it that correlates to the plastic tooth of the box.	

Close the lid of the box and screw back the screws diagonally.	
Pull the Cap nut over the other end of the cable	 
Wrap the black sealing ring around the cable, then insert the cable gently through the PG body. If needed, push down the transparent clasp of the cable's head.	 

Push the sealing ring gently in between the teeth of the PG body. Make sure the teeth of the PG body are not broken or folded.	 
Pull over the close the Cap nut over the back of the PG connector.	
Remove the lock nut from the connector	 
Insert the cable through the central largest hold located on the bottom of the control panel. Pull over the cables head the locking nut.	 

Then Insert the cables' head into the connector until a 'click' sound is heard.	
Using both hands, hold both the lock nut and the cap nut and close them tightly to secure the cable in place.	

RESILIENCE G WARRANTY CARD

Resilience G/G Plus System & Components

LIMITED WARRANTY

Resilience G Control box, Wi-Fi module box, Cell G types, Dosing acid pump, pH/ORP probes

WARRANTY

This warranty applies to the models referenced above and their factory-supplied components (the "System") when purchased from an authorized dealer and used for residential swimming pools. Magen eco-Energy warrants the System to be free from defects in materials and workmanship in the manufacturing process for a period of up to two (2) years or 8,000 working hours (whatever comes first) from the original purchase date (see detailed table below). Should the System exhibit a manufacturing defect within this period, when properly installed and operated in accordance with the relevant manuals, Magen eco-Energy will supply comparable replacement parts or repair the system according to its judgment.

Component	Warranty
Res. G control box	2 years
Cell G type (G12, G18, G40, G60)	2 years
Wi-Fi module box	2 years
Dosing acid pump	1 year
pH/ORP probe	1 year

EXCEPTIONS & LIABILITY LIMITATIONS

This warranty is not transferable. Magen eco-Energy, and its suppliers, dealers, and distributors SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES; DAMAGE OF ANY SORT OR NATURE RESULTING FROM ABUSE, MISUSE, NEGLIGENCE, LIGHTNING, ABNORMAL WEATHER CONDITIONS, OR ACT OF GOD; OR DAMAGE CAUSED BY IMPROPER OR UNAUTHORIZED USE, INSTALLATION OR REPAIR. This warranty applies only to components supplied by the factory and only where such components have been installed and maintained in compliance with the respective installation and operation manuals and instructions and applicable ordinances and codes. In no event shall the liability exceed the purchase price of the product. THE CONSUMER SHALL BE LIABLE AT STANDARD RATES FOR ANY SERVICE VISIT WHERE NO MANUFACTURING DEFECT WAS PRESENT AND FOR ALL SERVICE VISITS REQUESTED AFTER THE THIRD YEAR FOLLOWING THE ORIGINAL PURCHASE DATE.

PROOF OF PURCHASE

The consumer is responsible for establishing the original purchase date and the purchaser's identity for warranty purposes. The consumer is responsible for filling the Warranty form sending it to Magen eco-Energy or to an authorized dealer in their country of residence. We recommend that a bill of sale or some other appropriate payment record be kept for that purpose.

The express warranty above constitutes the sole and complete warranty and takes precedence over all other warranties, whether expressed or implied, including a warranty for fitness for a particular purpose. No sales representative, dealer, distributor, or other person is authorized to give any warranty on behalf of Magen eco-Energy.

Table content indicates all parts available for sale. Your purchase may not have included all of them.

IN ORDER TO ACTIVATE YOUR WARRANTY PLEASE FILL THE FORM, SCAN AND SEND IT TO THE:

AUTHORIZED DEALER IN YOUR COUNTRY:

Authorized Dealer Label

OR TO:

MAGEN eco-Energy

info@magen-ecoenergy.com

OWNER'S REGISTRATION FORM

Please scan and send:

Authorized Dealer:	Owner's Details:
Dealer's Name _____	Owner's Name _____
Street Address _____	Street Address _____
Zip _____	City _____
City _____	Phone# _____
Phone# _____	Date of Purchase _____ / _____ /_____

Date of Purchase: _____ /_____ / _____ Type#: ☐ G12 ☐ G18 ☐ G40 ☐ G60

Cell Serial # _____ Control Box Serial # _____ Dosing acid pump Serial # _____

***If there are more than one warranty papers in the box, there is no need to send more than one.**

Magen eco-Energy

Kibbutz Magen

8546500 Israel

Tel. +972.8.9983201

www.magen-ecoenergypool.com