resilience G SERIES



Resilience G Plus

Installation manual

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

PREFACE

Congratulations on the purchase of Resilience G Plus – salt electrolysis and pool automation system. You are now the proud owner of the most advanced, innovative and smart chlorine generator. Your purchase will upgrade the pool maintenance with simple, easy to operate device that does more while requiring you to do less.

How does it work? The system is comprised of four main parts: control box, electrolysis cartridge/cell assembly, dosing acid pump, WIFI module (My-Pool App).

Control box – is the "brain" behind the entire constant monitoring and operation. Intuitive, user-friendly design that continuously, automatically and precisely analyses and regulates pool water.

Electrolysis cell/cartridge assembly – one unit that incorporates all individual sensors required to regulate pool water. Simple to install (no power tools required). With patented replaceable electrolysis cartridge, the unique design, allows simple maintenance (no need to remove the unit from the pipeline).

WIFI module and "My-Pool" App – complete control of the pool environment, 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.

Dosing acid pump (Peristaltic or Electromagnetic)– is responsible for injecting acid directly into the cell/cartridge assembly when instructed by the control box. Since pool water is constantly monitored, when pH water levels are high, the system is alerted and jumps into action by automatically injecting acid into the pool to keep pool water balanced.

The Salt chlorinator 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.

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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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



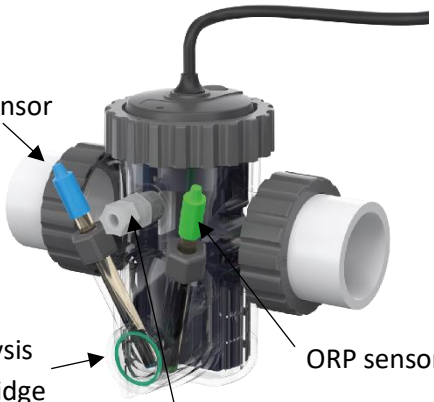
pH 4 buffer solution



pH 7 buffer solution



Control box hanging template





2 pipe adaptors

(63mm to 50mm)



Cartridge cleaning vessel



Pipe cutting template

Depending on the system your purchased it will include one of the two:

Peristaltic pump



Electromagnetic pump



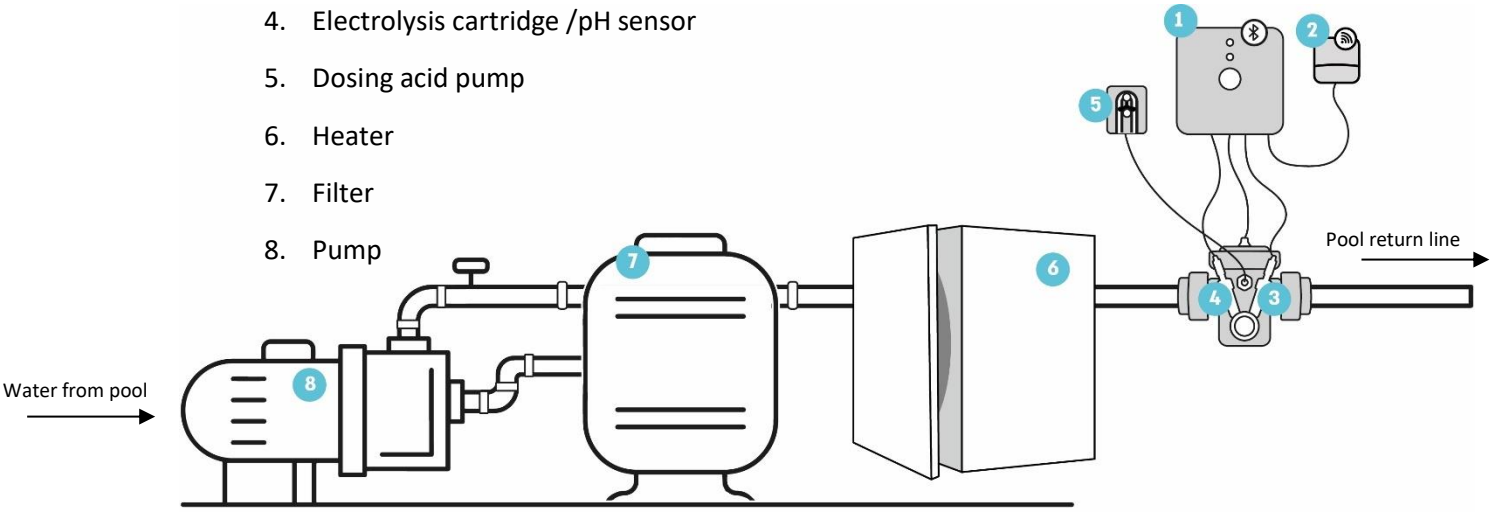
ADDITIONAL MATERIALS REQUIRED (NOT SUPPLIED IN PACKAGE)

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.

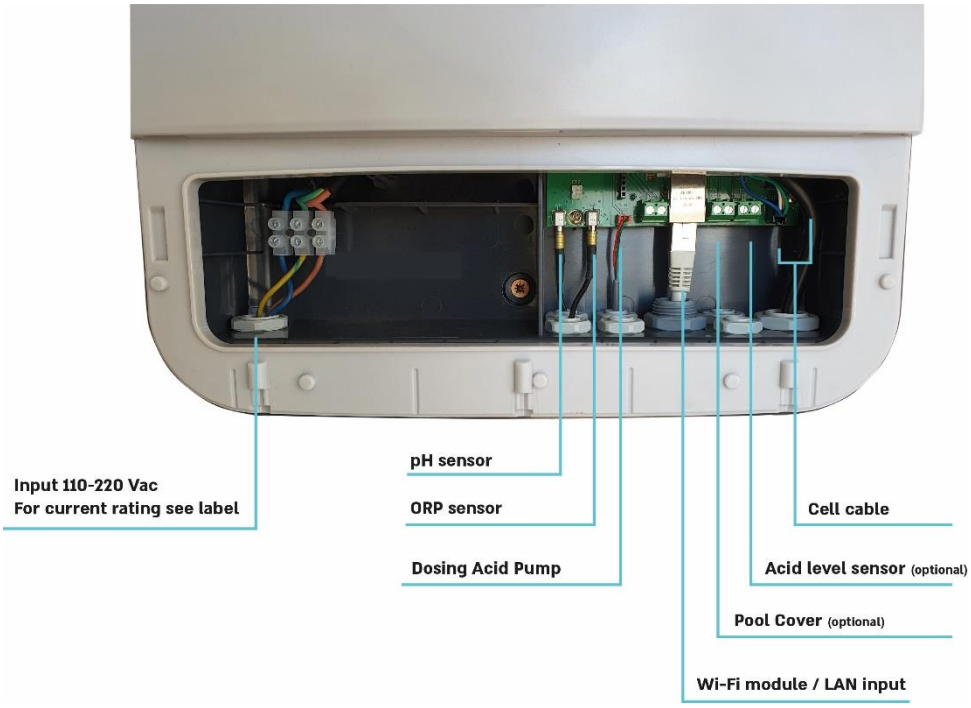
1. Control Box
2. WiFi module
3. Electrolysis cartridge /ORP sensor
4. Electrolysis cartridge /pH sensor
5. Dosing acid pump
6. Heater
7. Filter
8. Pump



Resilience G consists of 4 main units: Control box, Cell/Cartridge assembly (including pH and ORP sensors), WiFi module and dosing acid pump. These assemblies are manufactured using to most advanced corrosion resistant materials and are extremely durable. Installing them in an area that is sheltered from sun and water will protect them from extreme weather conditions and prolong their lifetime.

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

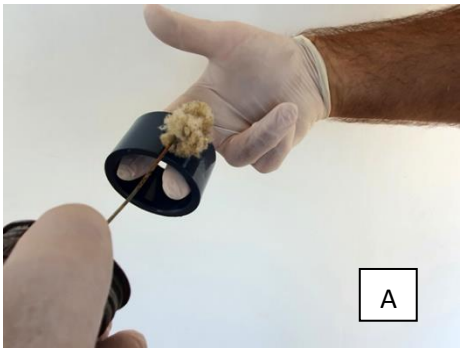
30 cm (12 inch) of straight pipe length is required for the installation.

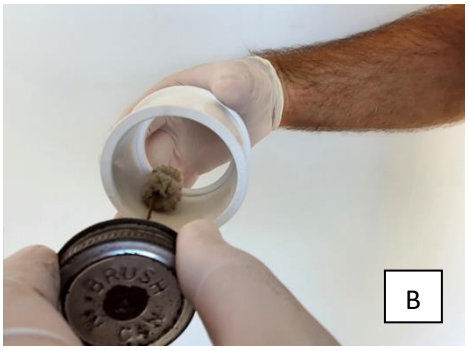
1. Using the cutting template supplied with the unit, mark the required distance of 19.5 cm (7.6 inch) on the pipeline.
2. Cut the pipe using a hacksaw or pipe cutter and slip the barrel nuts onto the pipe. **Make sure the cut is parallel and straight!**
3. Slip the barrel nuts onto each end of the pipe.

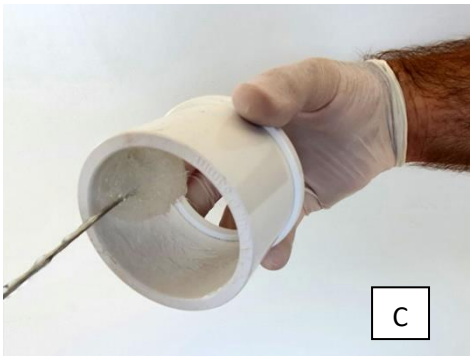


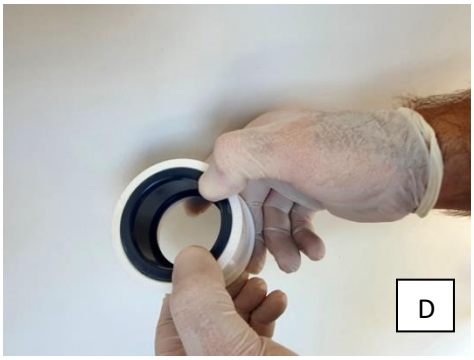



4. If using 50mm (1.9 inch) plumbing pipes, glue the pipe adaptors inside the collars.



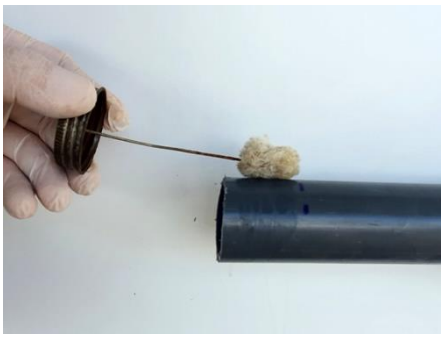


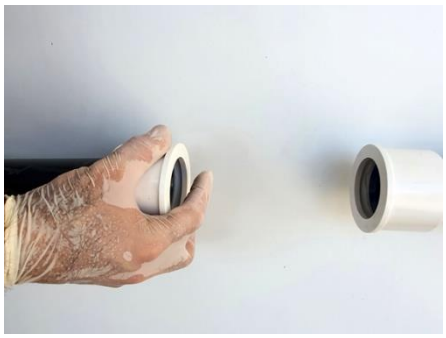




5. Clean the pipe and inner face of each collar with a PVC cleaning solution.

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.



Marking holes positions using the hanging template

4. Remove the service panel cover of the control box. Hang the control box over the two top screws.
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.



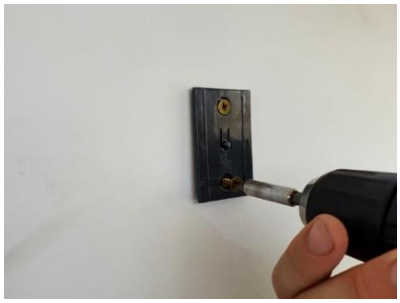


MOUNTING WIFI MODULE

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 65.

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.







MOUNTING THE PERISTALTIC ACID PUMP

For Electromagnetic dosing acid pump installation instructions please refer to page 16.

PERISTALTIC DOSING ACID PUMP – PACKAGE CONTENT

Please unpack the Peristaltic acid pump carefully. **Do not** use a knife or sharp instrument to open the box. Enclosed in the packing you should find the following:



Peristaltic dosing acid pump
+ hanging kit



2 tubes

(delivery & Injection)



Foot Filter



Spare Internal tube

GENERAL INSTRUCTIONS – PERTISTALTIC DOSING ACID PUMP

Disconnect ALL power before work commences.

- **It is recommended to wear rubber or polyethylene protective gloves and safety glasses. It is also advisable to protect your clothes or wear dispensable ones.**
- **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 hold acid in case of overflow or tipping of the acid container).**

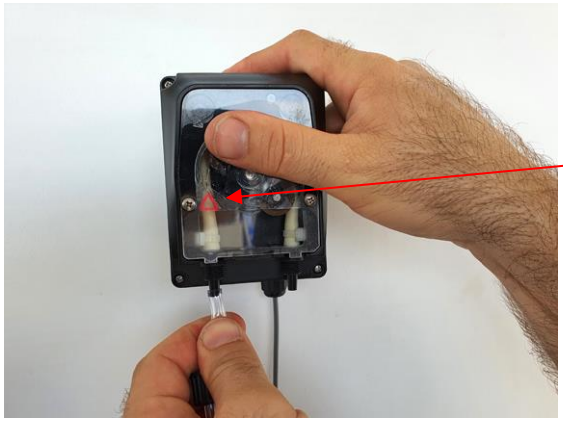
INSTALLATION OF PERISTALTIC DOSING ACID PUMP

1. Determine the **location** where you wish to install the peristaltic dosing acid pump on the wall. Check that all components: electrical wiring, tubes etc. reach their position.
2. Drill and attach the Peristaltic dosing acid pump's wall mounting clip to the wall and hang the pump.



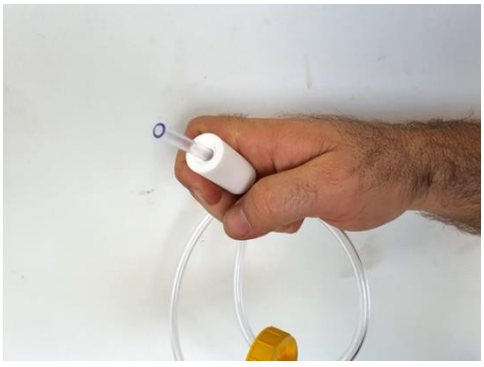


3. Note the arrows impressed on the peristaltic pumps' transparent cover indicating the suction and injection direction.
4. Insert one end of the flexible tube to the suction side (left side) of the peristaltic pump.



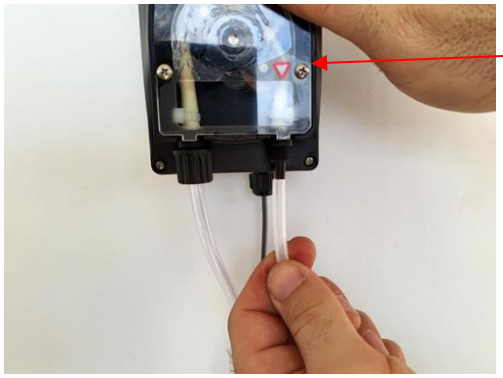


5. Drill a hole in the lid of the acid container and thread the other side of the flexible tube through it.
6. Attach the weight and the foot filter to the flexible tube.





7. Close the lid of the acid container and make sure the suction tube cannot be pulled out of the container.
8. Place the acid container inside a spill container vessel.
9. **Place both acid container and spill container vessel in a safe place and in such a way that it cannot cause damage if it falls. Make sure it is positioned away from the reach of children!**
10. Grab the second tube. One end of it should be inserted into the injection side (right side) of the peristaltic dosing acid pump.



11. Cut the supplied tube to the required length.
12. Open the non-return valve nut which is located on the central front part of the electrolysis cell/cartridge assembly.
13. Slip the locking nut and locking ring over the tube you just cut. Insert the conical coupling to the end of the tube. Bring the locking ring and nut over the conical couplings and close them.
14. Before closing the connection, make sure the black seal is secured in place.









15. Attach the tube with the tube fittings and close the non-return valve nut tightly.





PRIMING - SUCKING AIR FROM THE PERSITALTIC PUMP

Before activating the peristaltic dosing acid pump, priming must be executed. Priming is the action of sucking the air from the pump while allowing acid to take its place.

Priming requires to install "My-Pool" app on your mobile device. If you don't have the app installed on your phone, please refer to page 32 for installing and pairing instructions.

1. Access My-Pool app.
2. Decrease pH set-point to minimum. Detailed instructions of how to decrease pH set-point can be found on page 43.
3. Allow pump to operate for 5 minutes from the time water is circulating in pipeline.
4. Access My-Pool app. Increase pH set-point back to the desired set-point.



After pump is operated check connections to ensure there are no leaks.

MOUNTING THE ELECTROMAGNETIC DOSING ACID PUMP

For Peristaltic dosing acid pump installation instructions please refer to page 12.

PACKAGE CONTENT - ELECTROMAGNETIC DOSING ACID PUMP

Please unpack the Electromagnetic acid pump carefully. Do not use a knife or sharp instrument to remove parts from the box. Enclosed in the packing you should find the following:



2 4X6mm tubes

(delivery & Injection)



Foot filter



Electromagnetic dosing acid pump



Installation manual



Screws and anchors



Spare fuse

Tubing kit: locking ring, tube holder for 4X6 mm tubes

GENERAL INSTRUCTIONS – ELECTROMAGNETIC DOSING ACID PUMP

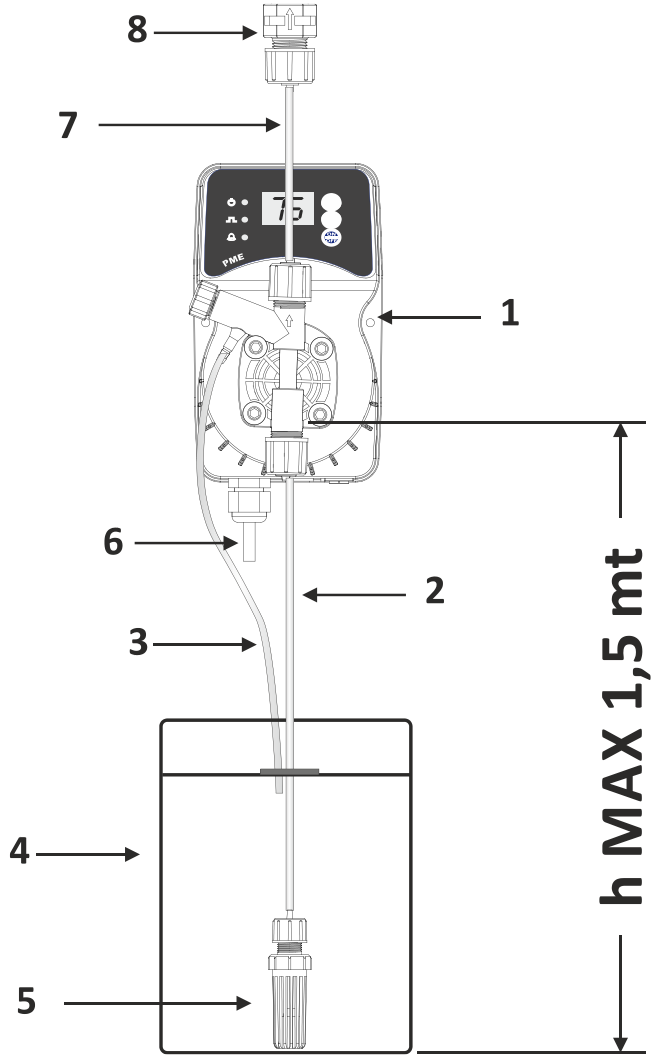
Disconnect ALL power before work commences.

- **All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes.**
- **It is recommended to wear rubber or polyethylene protective gloves and safety glasses. It is also advisable to protect your clothes or wear dispensable ones.**
- **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 hold acid in case of overflow or tipping of the acid container).**
- **After unpacking the pump, make sure it is completely sound. In case of doubt, do not use the pump and contact a qualified personal.**
- **Pump should be used only for the purpose for which it has been expressly designed, any different use it to be considered improper and therefore dangerous.**
- **Use only the correct materials for the tubes, valves and seals to suit the liquid to be dosed; where possible shield the tubes with PVC conduit.**
- **Pump should NOT be installed in direct exposure to sunlight.**
- **Install pump in a dry place, well away from heat sources and at any case in an environmental temperature that does not exceed 40°C.**
- **Minimum operating temperature depends on the liquid to be pumped, bearing in mind that it must always remain in liquid state.**
- **When power cable is supplied without a plug, pump should be connected to the supply mains by means of a single-pole circuit breaker with a minimum distance of 3mm between the contacts.**
- **Before accessing any of the electrical parts, make sure that all of the supply circuits are open.**
- **Pump can be installed 1.5 meters above acid tank injected through it.**
- **The point of injection should always be higher than the liquid to be injected.**
- **Function of injection valve must be periodically tested. Its excessive wear could lead to additive infiltration inside the pump through gravity (even when the system is turned off). If the problem persists, insert a calibrated pressure valve between the pump and the injection point.**
- **For liquids that product aggressive fumes, do not install the pump above the tank unless the tank is sealed.**

INSTALLATION SCHEMATIC OF THE ELECTROMAGNETIC PUMP

1. Electromagnetic pump
2. Suction tube
3. Discharge tube
4. Tank filled with acid
5. Foot filter
6. Power supply cable
7. Injection tube
8. Non-return valve installed on the electrolysis cell/cartridge assembly



ATTACHING THE ELECTROMAGNETIC DOSING ACID PUMP TO THE WALL

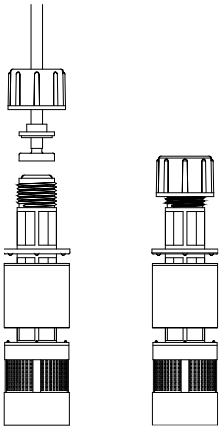
1. Determine the location where you wish to install the electromagnetic dosing acid pump on the wall. Check that all components: electrical wiring, tubes etc. reach their position.
2. Drill and attach the electromagnetic dosing acid pump's wall mounting clip to the wall using the supplied anchors and screws and hang the pump on them.



SUCTION TUBE INSTALLATION

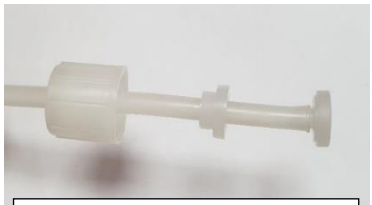
Connecting suction tube to foot filter

1. Open the foot filter locking nut.
2. Separate the locking ring from the conical coupling.
3. Thread the locking nut and the locking ring through one end of the tube.
4. Push the conical coupling onto the end of the tube tightly until it is flush with the tube.
5. Once flush, pull over the conical coupling the locking ring and the locking nut. Close the nut over the foot filter assembly.
6. Gently pull the tube from the foot filter to confirm a firm connection.
7. Place the foot filter on the bottom of the acid container **in a vertical position.**





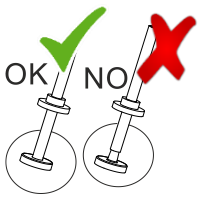
Foot filter in parts



Conical coupling in place just before locking ring

Assembled foot filter





Insert suction tube into the acid tank and connection to the pump

1. Drill a hole in the acid containers cap.
2. Insert the end of the suction tube you just attached to the foot filter through the cap of the acid container.
3. Close the cap and make sure the suction tube cannot be pulled out of the container.
4. Place the acid container inside a spill vessel (a basin to hold acid in case of overflow of tipping of the acid container).
5. **Place the acid container and spill vessel in a safe place in such a way it cannot cause damage if it falls. Make sure it is positioned away from children!**



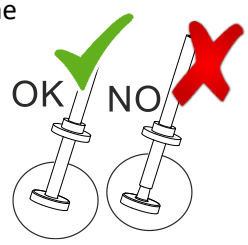
Inserting the tube just connected to the foot filter through the cap



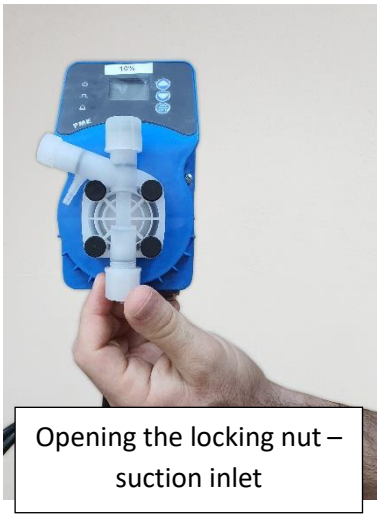
Placing the foot filter vertically inside the acid container

Bring the free end of the tube closer to the electromagnetic dosing acid pump to gauge the length needed. Cut excess tube and save it for future use.

6. Open the locking nut of the pump's suction inlet – facing downwards.
7. Remove the locking nut, locking ring together with the conical coupling.
8. <u>Make sure the black O-Ring seal is left in place.</u>
9. Push the conical coupling onto the end of the tube tightly until it is flush with the tube.



10. Bring the tube towards the suction inlet. Move the locking ring and the locking nut closer to the conical coupling. Close the nut over the suction inlet.
11. Gently pull the tube to confirm a firm connection.



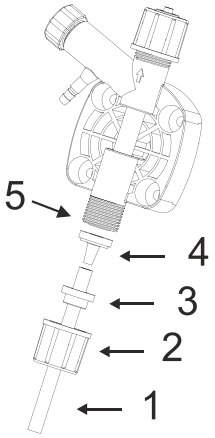
Opening the locking nut – suction inlet



Removing the locking nut, locking ring and conical coupling



Inserting suction tube and closing locking nut

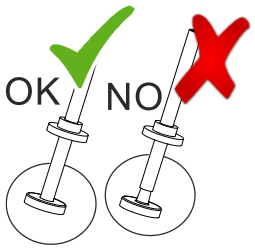


1. Suction tube from acid container
2. Locking nut
3. Locking ring
4. Conical coupling

INJECTION TUBE INSTALLATION

Connecting injection tube to electromagnetic pump

1. On the pump, open the locking nut on the injection outlet (outlet facing upwards).
2. Remove the locking nut with the locking ring and conical coupling.
3. Make sure the black O-Ring seal remains in place.
4. Insert the second tube provided in the box through the locking nut and locking ring.
5. Insert the conical coupling into it until it is flush as seen in the drawing.
6. Move the locking ring and nut over the assembly and close the nut tightly.
7. Gently pull the tube to confirm a firm connection.

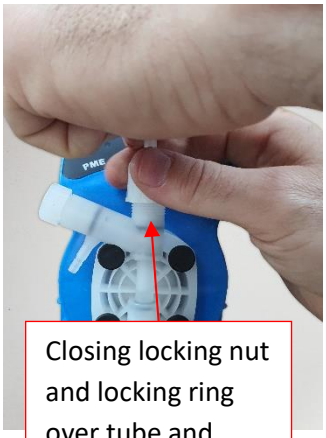




Locking nut of injection outlet



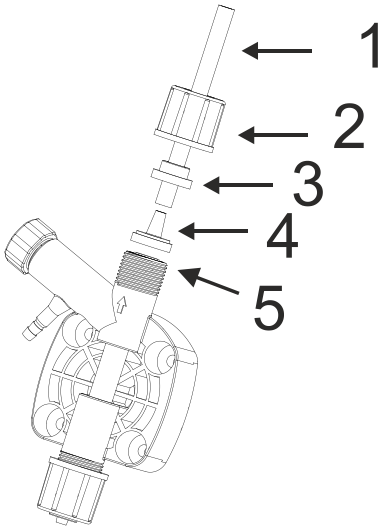
Conical coupling, locking ring and locking nut removed



Closing locking nut and locking ring over tube and conical coupling



Pump after injection tube is connected

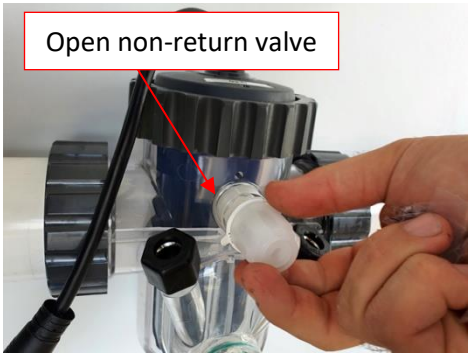


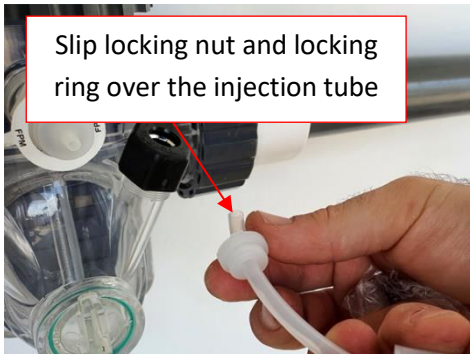
1. Injection tube
2. Locking nut
3. Locking ring
4. Conical coupling
5. Injection outlet

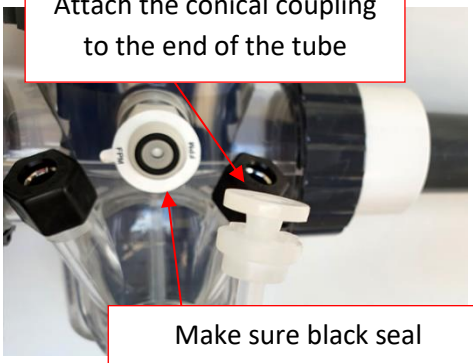
Connecting injection tube to cell/cartridge assembly



1. Cut the other side of the injection tube you just connected to the required length.
2. Open the non-return valve nut which is located on the central front part of the cell/cartridge assembly.
3. Remove the locking nut and locking ring from the non-return valve and slip them on the end of the injection tube.
4. Attach the conical coupling to the end of the tube until it is flush with it.
5. Insert the conical coupling back to the non-return valve and close the locking ring and nut over it. Close the connection firmly.





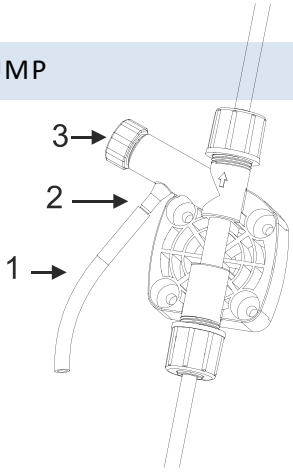






DISCHARGE TUBE INSTALLATION – ELECTROMAGNETIC DOSING ACID PUMP

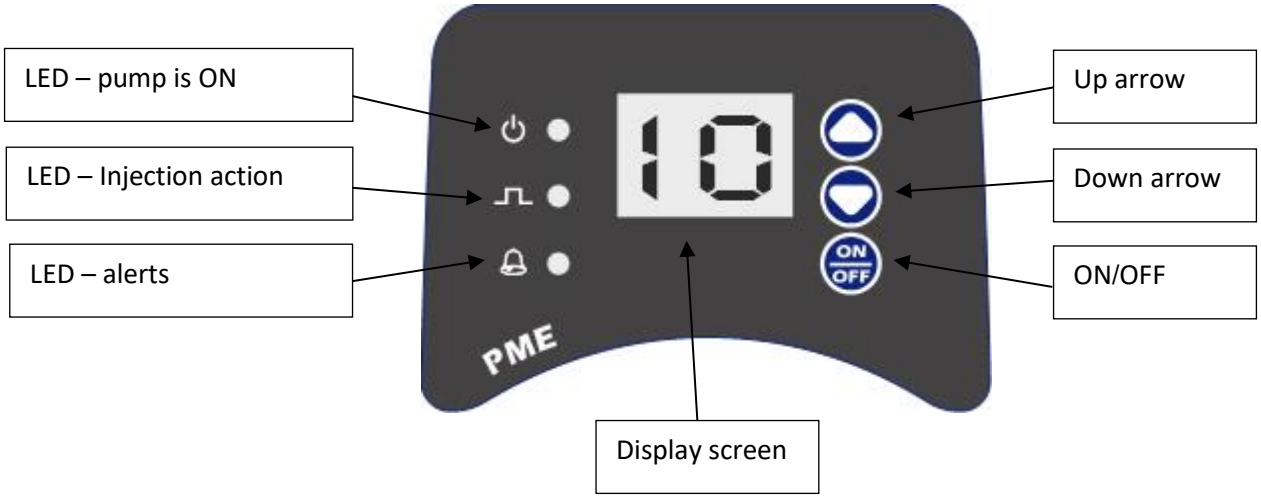
1. Take one of the excess tubes that were cut off previously.
2. slip it over the discharge outlet of the pump.



1. Discharge valve
2. Discharge outlet nipple
3. Discharge tube

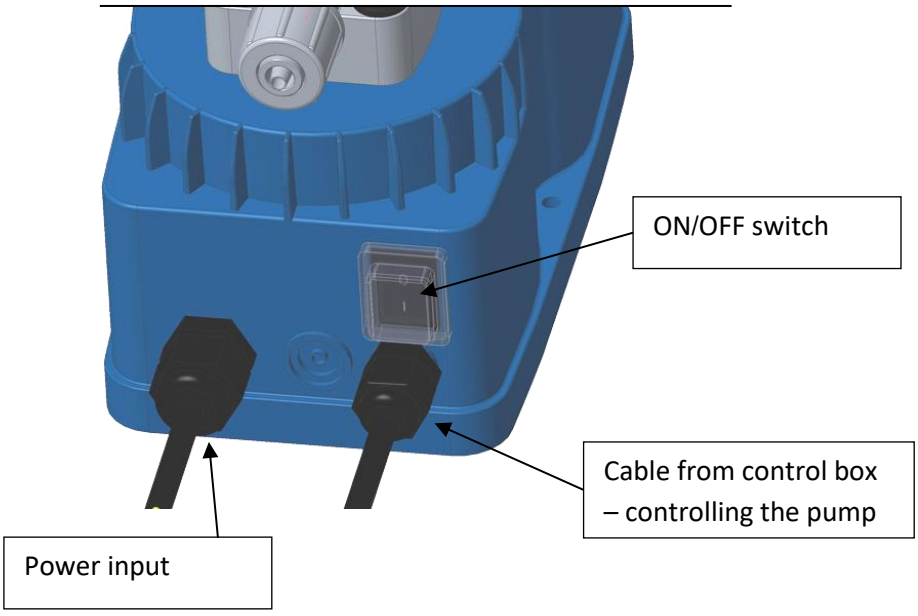
BASIC OPEARTION OF ELECTROMAGNETIC DOSING ACID PUMP

DISPLAY – ELECTROMAGNETIC DOSING ACID PUMP



CONTROL– ELECTROMAGNETIC DOSING ACID PUMP

1. ON/OFF buttons are responsible for turning the pump ON and OFF. The pump has two ON/OFF action buttons/switches:
    a. Switch located on the pump's body.
    b. ON/OFF button right to the display.
2. UP/DOWN arrow buttons are used to control pump's flow rate. Flow rate levels are displayed in percentage on the display screen.



3. LED indication:
    a. GREEN LED – indicates pump is ON.
    b. RED LED – is turned on during the injection action (pulsing).
    c. ORAGNE LED – indicates pump is waiting for action from control box as well as other alerts.

PRIMING - SUCKING AIR FROM ELECTROMAGNETIC PUMP

Before activating the Electromagnetic dosing acid pump, priming must be executed. Priming is the action of sucking the air from the pump while allowing acid to take its place. This process can be executed manually or from My-Pool app.

If you have yet to install My-Pool on your mobile device, please refer to page 32 for further instructions.

1. Use one of the excess sections of the flexible tube and connect one end to the discharge valve on the pump.
2. Open the discharge valve.
3. Turn the pump ON by flipping the ON/OFF switch located on the bottom of the pump.
4. Press the ON/OFF button located to the right of the display panel. The display panel will showcase the number: 10 and the ORANGE LED will turn on to signal it awaits an action from the control box.
5. By pressing the UP-ARROW button, increase the pumps output to 100%.
6. Turn on the control box.
7. Access My-Pool app.
8. Decrease pH set-point to minimum. (For further instructions on how to decrease the pH set-point refer to page 43).
9. Allow pump to operate for 5 minutes from the time water is circulating in pipeline. When pump operates pulses will be heard, with each one the red LED turns on.
10. Acid begins to “climb” through the tube and into the pump. When acid begins to drain through the discharge tube the pump should be stopped via My-Pool app.
11. Using the DOWN-ARROW button, decrease the pumps output back to 10%.
12. Access My-Pool app. Increase pH set-point back to the desired set-point.

MANUAL PRIMING - SUCKING AIR FROM ELECTROMAGNETIC PUMP BY SYRINGE

Before activating the electromagnetic dosing acid pump, Priming must be executed. Priming is the action of sucking the air from the pump while allowing acid to take its place. This process can be executed manually or from My-Pool app. If you have yet to install My-Pool on your mobile device, please refer to page 32 for further instructions.

<u>Manual priming:</u>

1. Grab one of the excess tubes we previously cut to size and connect one of its ends to a syringe.
2. Connect the other side of the tube to the discharge nipple.
3. Open the discharge valve.

4. Turn the pump ON by flipping the ON/OFF switch and pressing the ON/OFF button to the right of the display screen.
5. Using the syringe, suck the air out of the pump until acid begins to enter the syringe.
6. Close the discharge valve.
7. Disconnect the tube and the syringe from the pump.
8. Turn pump OFF.

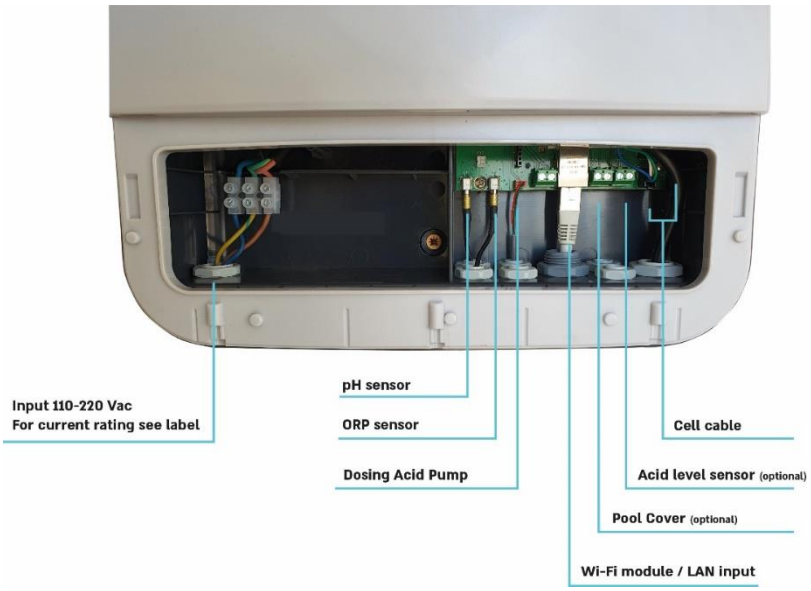


WIRING ELECTROMAGNETIC DOSING ACID PUMP TO POWER

The electromagnetic dosing acid pump should be connected to a separate, individual power socket.

Pump should be connected to the supply mains by means of a single-pole circuit breaker with a minimum distance of 3mm between the contacts.

WIRING AND CONNECTIONS



CAUTION! Disconnect the power supply to the main power source before hardwiring the input voltage cable.

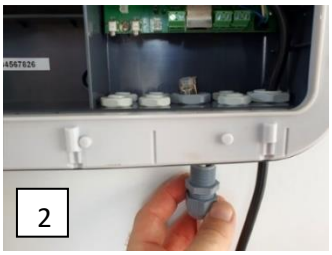
Plug the unit into a ground fault circuit interrupter (GFCI) safety outlet or an outlet protected by a ground fault circuit breaker (GFCB). Follow Local and National codes.

Warning! 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!

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. Position the nut over the cable and tighten the PG connector.
3. Connect the WiFi connector as seen in the picture “3”.

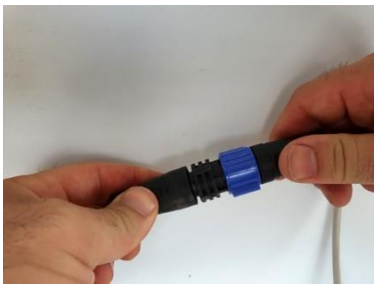






WIRING CELL/CARTRIDGE MODULE TO CONTROL PANEL

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 DOSING ACID PUMP TO CONTROL BOX

1. Connect connector coming out of the peristaltic acid pump into the connector positioned left to the WiFi module connector.
2. Open the PG connector located left to the WIFI cable on the bottom of the control panel to allow the cable through and tighten it back again.
3. Insert the wires into the connection marked: “PUMP 24V”.



WIRING PH SENSOR

*Take care to route sensor cable away from AC power lines, adjustable frequency drives, motors, or any other noisy electrical signal lines. Do not run signal lines in the same conduit as AC power lines.



1. Hold the black wire coming out of the pH sensor.
2. Open the back-left PG connector located on the bottom of the control panel to allow the cable through and tighten it back again.
3. Insert the connector into the connection marked: “PH”.

WIRING ORP SENSOR

*Take care to route sensor cable away from AC power lines, adjustable frequency drives, motors, or any other noisy electrical signal lines. Do not run signal lines in the same conduit as AC power lines.

1. Hold the black wire coming out of the ORP sensor.
2. Open the front-black left PG connector located on the bottom of the control panel to allow the cable through and tighten it back again.
3. Insert the connector into the connection marked: “ORP”.



STARTING UP

BEFORE ADDING THE SALT

1. **Balance the chemicals**: See the section titled "Understanding the chemistry" on page 59 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 Plus.

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]

How much salt to add (in pounds)

Water volume in thousands of Gallons	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 PLUS

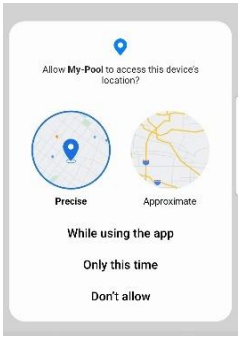
1. Connect the control box to the electricity. Once connected, LEDs on control box will turn on.
2. WiFi LED on the control box and on the WiFi module will blink and continue blinking until connection is established.
3. Search your device's app store, or scan taken to a landing page where you can device's app store.





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 Plus, a user is required to be setup.

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

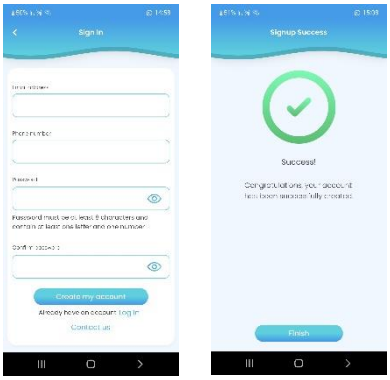


B - Press "Signup now" on the bottom left of the screen.



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 Plus via Bluetooth:

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

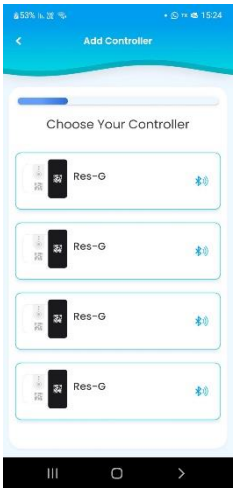
A – Scan the QR code by pressing the "Scan QR" button. Open the service panel door of the chlorinator. Scan the QR sticker.



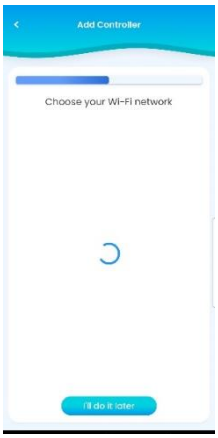
B – Manually type the number that appears on the QR sticker. Then press the blue arrow button next to it.

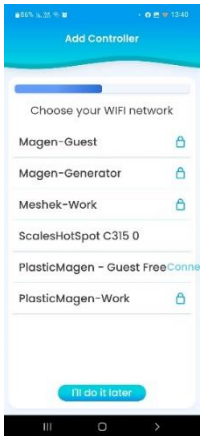


C – Press the "I don't have QR code" button. From the list, press on the device you wish to connect to via Bluetooth.

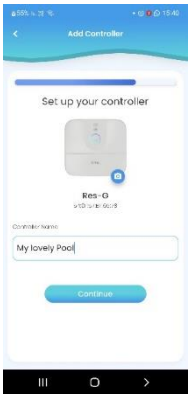


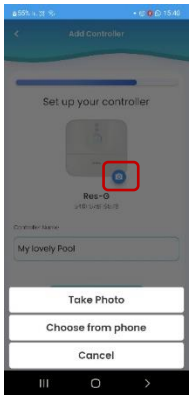
- As soon as QR code is identified, app continues to search for WiFi networks. This may take up to a minute.
- Choose the WiFi network you wish to connect to.
- Input password.



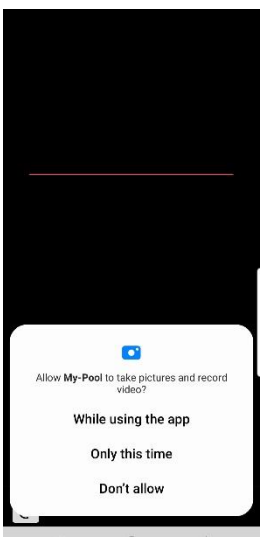


- Choose a unique name for the device and type it in the "Controller Name" input field.
- Take a picture for quick identification by pressing the camera icon on the bottom right corner of the device picture. It is possible to take a picture using the mobile devices' camera or choose a picture from the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

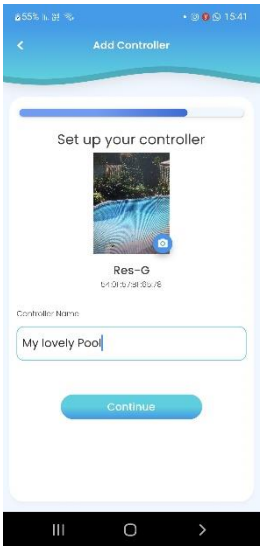




- Allow the App to access your image gallery and camera.
- Take/Choose a photo.
- Press Continue.







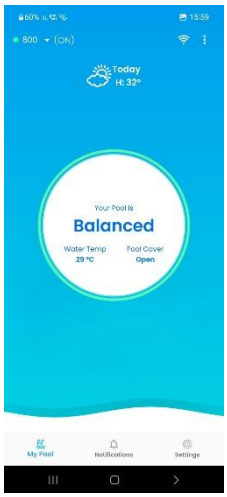
- <u>You are now required to fill in the details of the pool:</u>
  a. Use the + and – buttons to define the pool volume.
  b. From the drop-down menu, choose the country where the device in installed.
  c. It is recommended to add the city and address of where the device is located.
- Once filled, press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





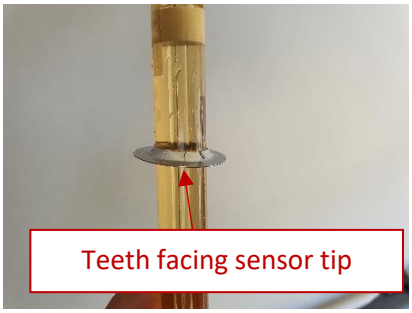
INSTALLING PH AND ORP SENSORS

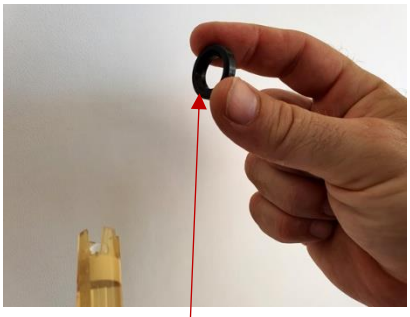
The pH and ORP sensors arrive from the factory pre-calibrated. If for any reason the require re-calibration, please refer to 53.

INSTALLING PH SENSOR

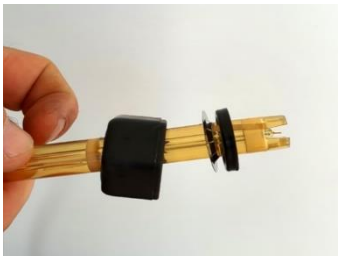


- Remove the black nut from the cell/cartridge assembly.
- Pull the black nut over the pH sensor.





- Insert the silver ring over the bottom of the sensor. Pay attention to its orientation. Toothed side of the ring should face the tip of the sensor.
- Insert the black disc over the pH sensor. Pay attention to its orientation. Flat side of the disc should face the tip of the sensor.
- **Make sure the black seal remains in its place in the chamber**.



- Make sure the seal remains in its place.



- Push the sensor into the left sensor holder of the of the electrolysis cell/cartridge assembly. Sensor needs to be pushed all the way and then pulled slightly back
- Tighten the black collar with your hand.





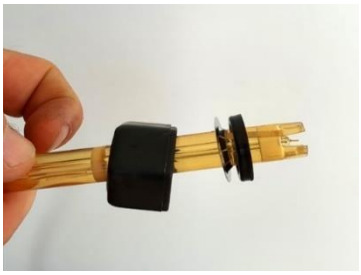
INSTALLING ORP SENSOR

- Remove the black nut from the cell/cartridge assembly.
- Make sure the black seal remains in its place.





- Pull the black nut over the sensor.
- Insert the silver ring (pay attention to its orientation)
- Pull the black disk over the ORP sensor.



- Push the sensor into the right position of the electrolysis cell/cartridge assembly. Sensor needs to be pushed all the way forward and then pulled slightly back.
-
- Tighten the black collar with your hand then with a wrench.



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.

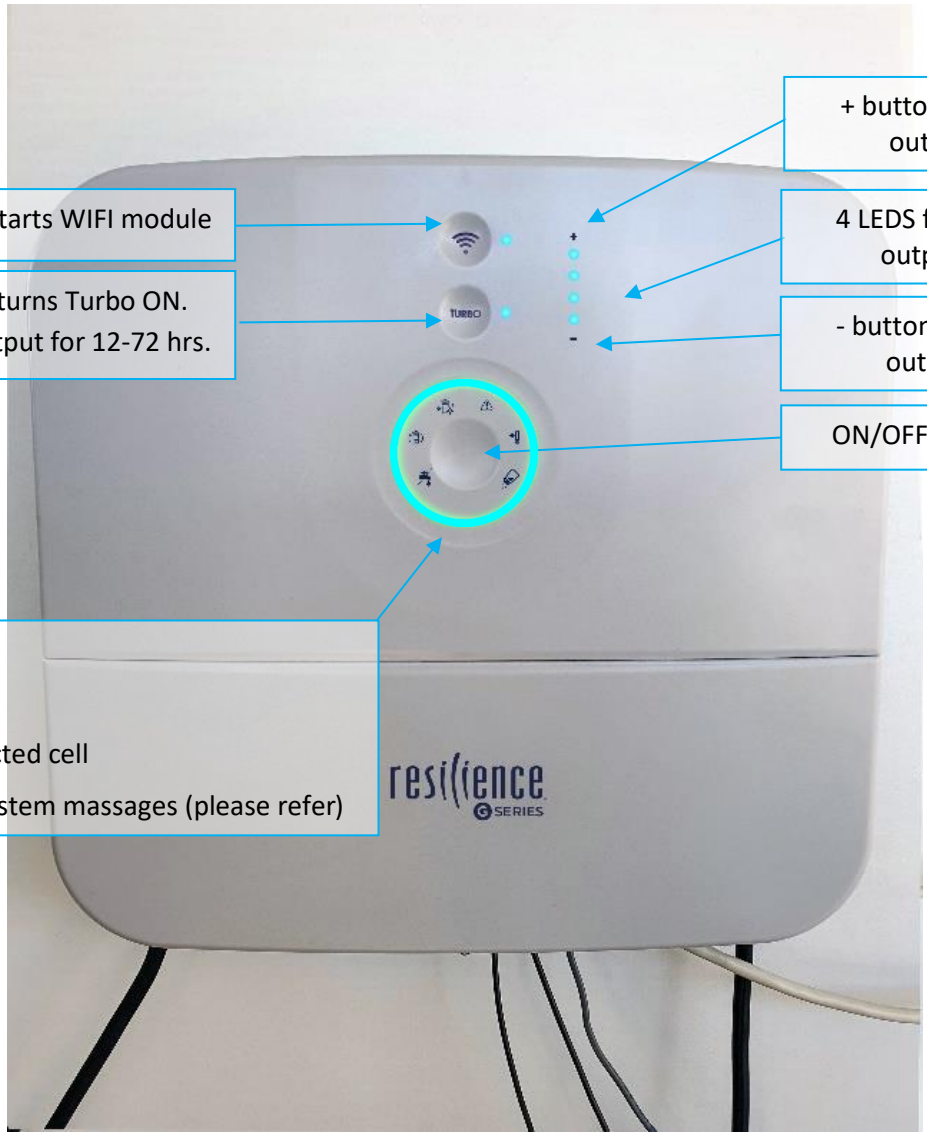
Note: inadequate filtration reduces water clarity and causes the chlorine generator to work harder.

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 59 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 Plus is monitored and controlled via the "My-Pool" Application (the app can be downloaded from Google play or Apple store). Controlling and regulating the pool from the palm of your hands enables constant alerts if and when pool values change, 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.



1

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.



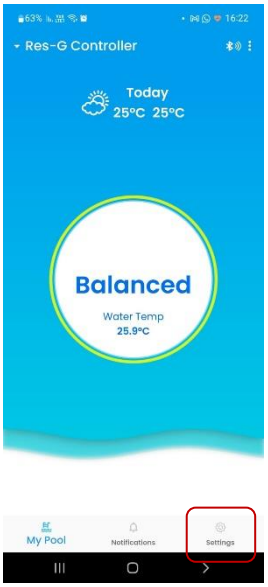
- **SYSTEM ERROR:** This LED is illuminated when the system is not able to produce chlorine. Please refer to the “Troubleshooting” section on page 18.

MY-POOL APP

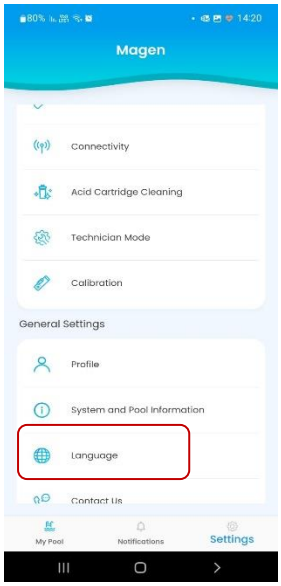
LANGUAGE

If you are interested to change the language of the App it can easily be achieved by executing the following:

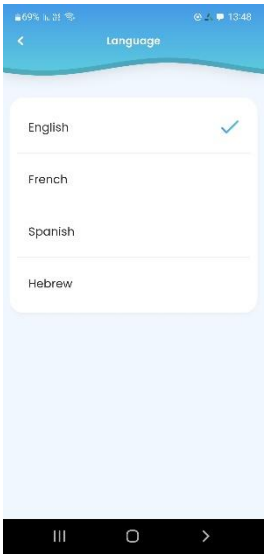
From the main status screen, press the “settings” button. Located on the bottom right of the screen.



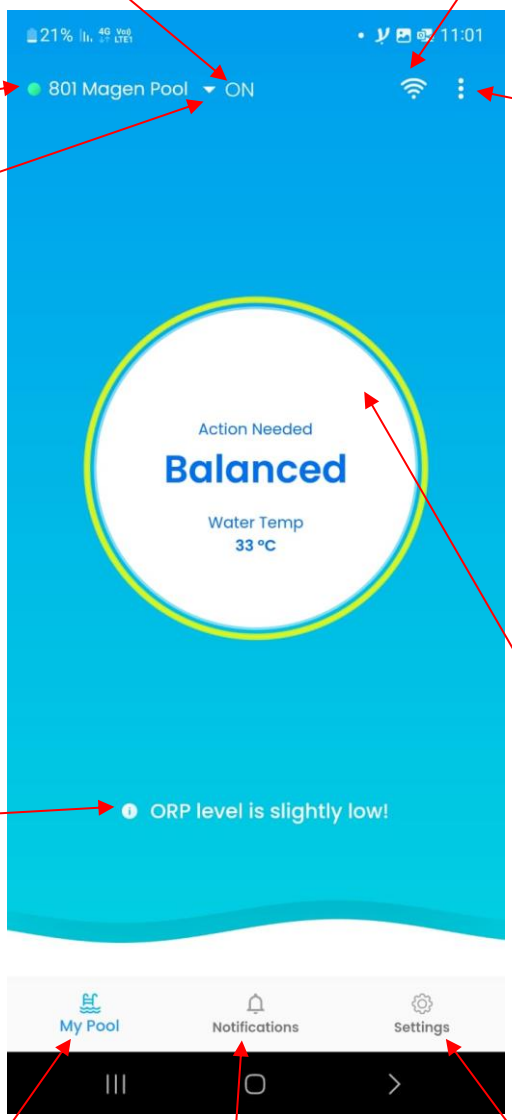
Scroll the list all the way down and press “Language”.



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



MAIN SCREEN – STATUS SCREEN



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

Status of device ON/OFF

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

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:

Last sample time, alerts, device status, water temp and more

If Chlorinator is OFF – On button is visible

If device is ON and there are alerts they will be visible here

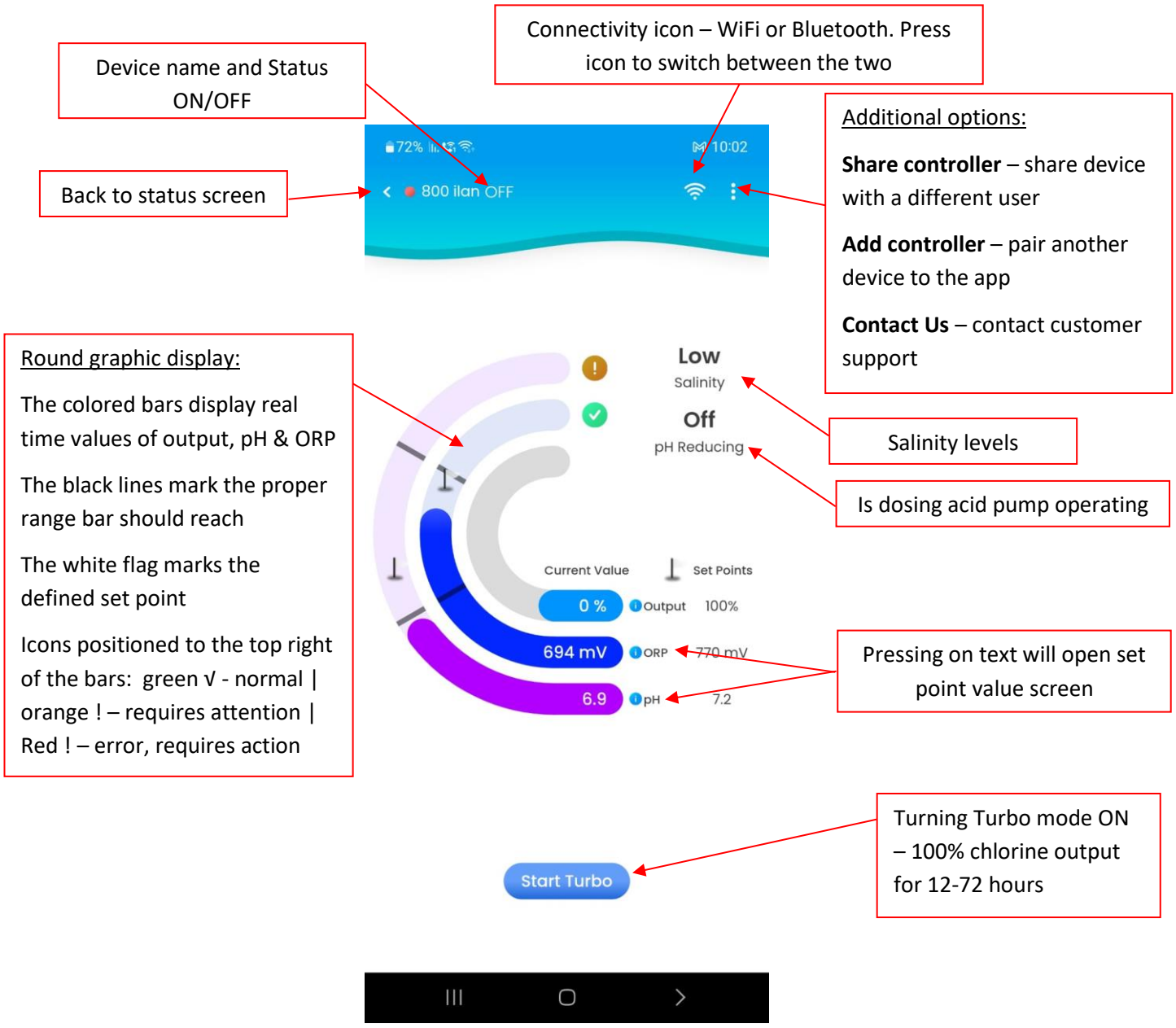
or empty space

Back to status screen

Alerts list

Settings

MONITORING SCREEN



DEFINING PH SET POINT

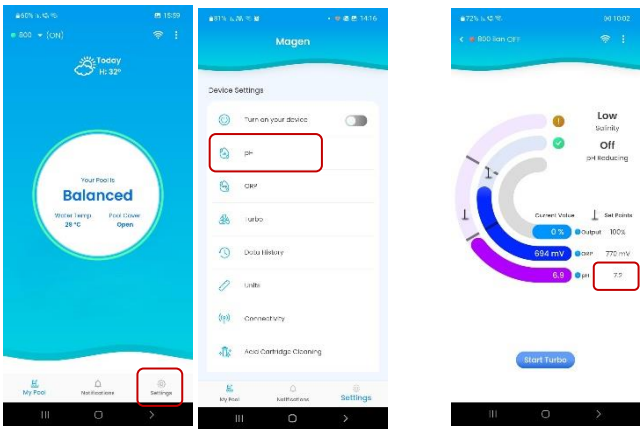
Recommended pH range between 7.2 – 7.8

Accessing pH set point can be done in two ways:

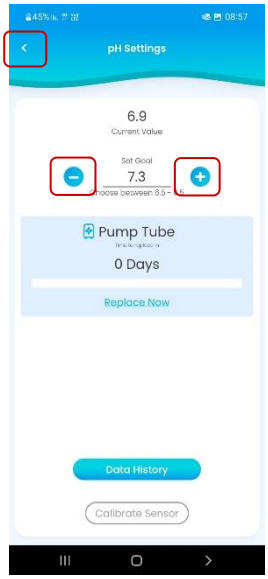
1. Press “settings” (right lower part of the screen). From the list, press pH

   Or

2. On the Monitoring screen, press the pH **value** to the right of the status bar to access the pH set value screen.



3. Press + or - to increase/decrease the set point values.
4. Press < to confirm and return to settings screen and once more to return to status screen.



DEFINING ORP SET POINT

How to define what is the value of the ORP set point?

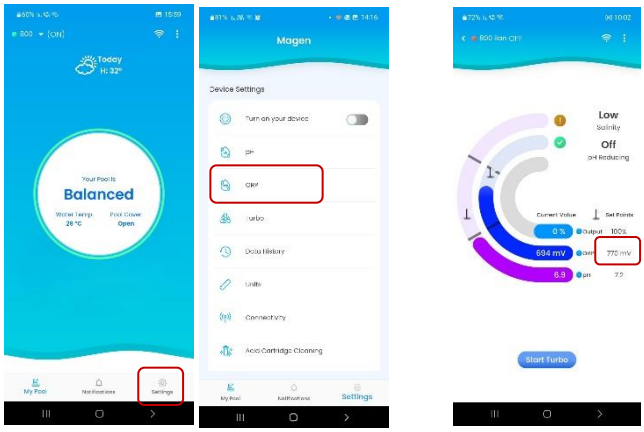
1. Balance pH and chlorine levels in pool water. They must be stable before determining the ORP set point value.
2. Once chlorine levels are between the recommended range of 1-3 ppm. In 'My-Pool' app check to see what is the ORP value displayed.
3. The ORP value that you discovered should be the one you input in the app as the ORP set point.
4. It is recommended to regularly test pool water to see if chlorine levels remain in the recommended range.
5. If Chlorine levels drop, increase the ORP set point in 20 mv increments. If there is too much chlorine, decrease the ORP set point in 20 mv increments.
6. Continue testing pool water to ensure chlorine levels remain in range.

Accessing ORP set point can be done in two ways:

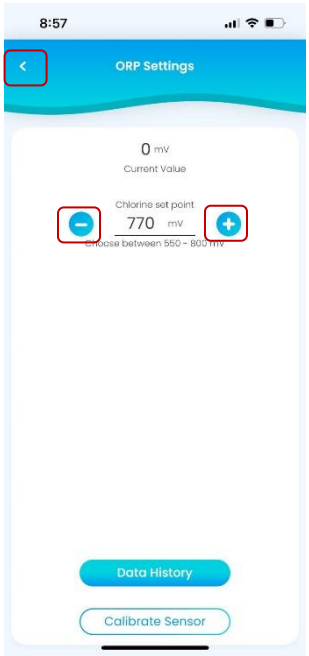
1. Press "settings" (right lower part of the screen). From the list, press ORP

   Or

2. On the Monitoring screen, press the ORP **value** to the right of the status bar to access the ORP set value screen.



1. Press + or - to increase/decrease the set point values.
2. Press < to return to settings screen and once more to return to status screen.



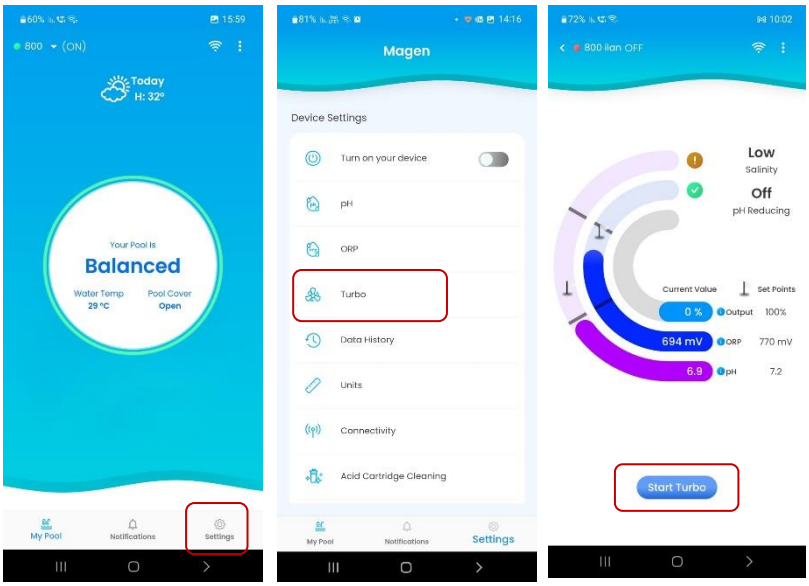
TURBO MODE

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

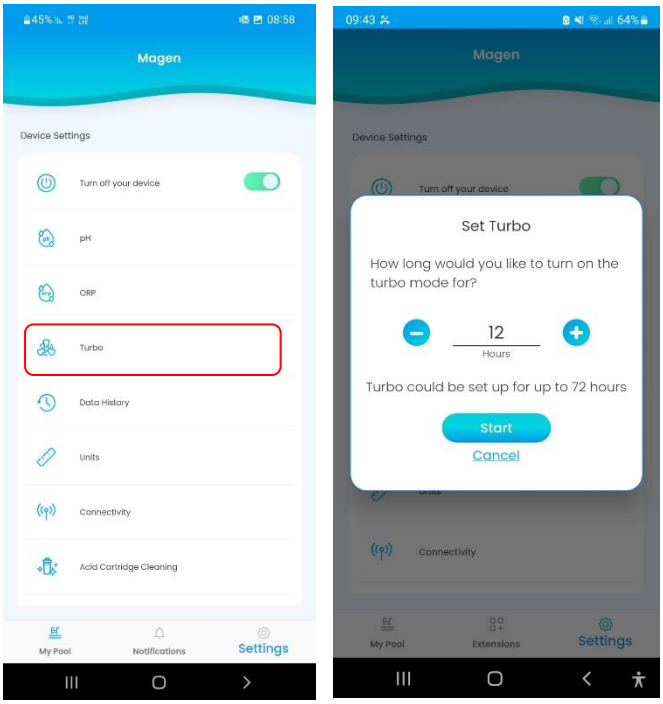
1. In the Status screen press “Settings”
2. From the list, choose “Turbo”

Or

3. In the Monitoring screen, press the “Start Turbo”
4. Press + or - to increase/decrease number of hours 12-72 for Turbo mode to function.
5. Press “Start” to begin.

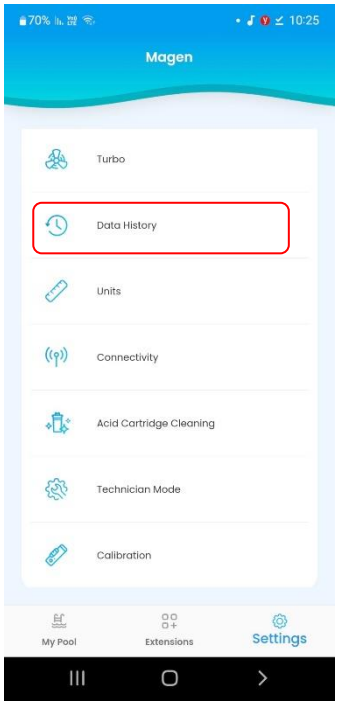


1. Press + or - to increase/decrease number of hours 12-72 for Turbo mode to function.
2. Press “Start” to begin.



DATA HISTORY

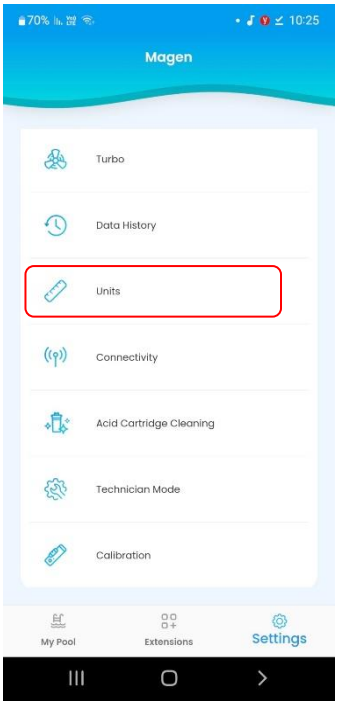
pH, ORP, Salinity, Water temperature, Ambient temperature values are presented in a graph in varying time periods from one day to 3 months.

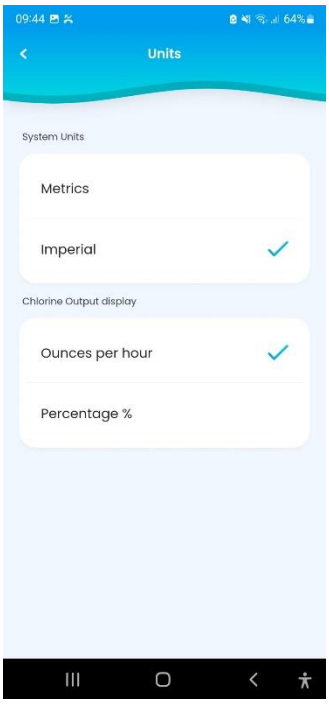




UNITS

Choose Metric/Imperial units according to your preference.





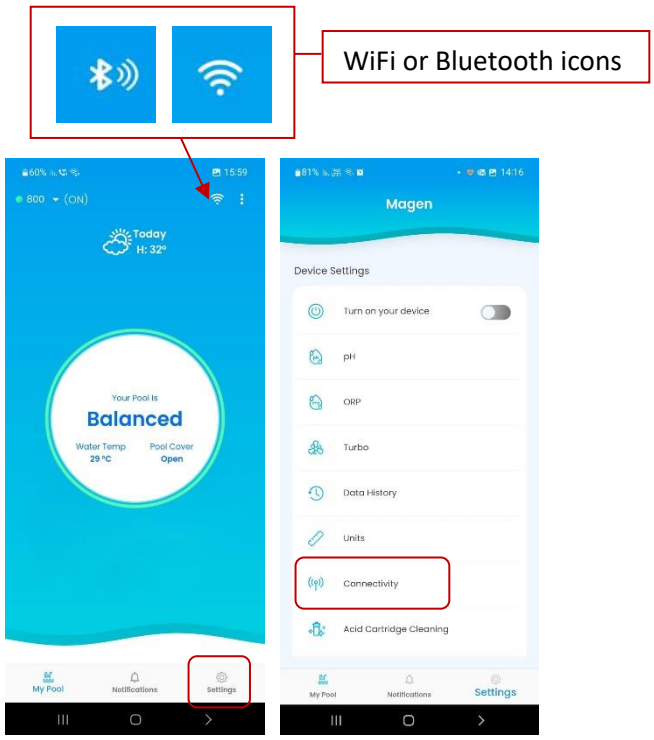
CONNECTIVITY

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.

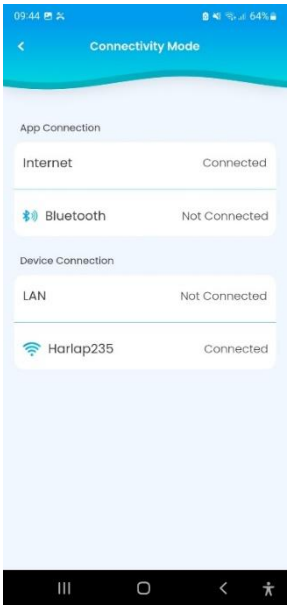
Or from the Status screen

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 Plus control box 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. Calibrate pH sensor periodically as described earlier in this manual.

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), periodically adjust the ORP set point.

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 cable connecting the cell to the control panel.
4. Open the locking nut of the cell assembly and remove the cartridge from the cell body.

5. 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.
6. <u>If deposits are visible, please complete the cell cleaning operation:</u>
7. 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!
8. Remove the O'ring from the top of the cartridge before placing it in the cleaning vessel **make sure the electrical plug does not come in direct contact with water and acid!**
9. Wait for foaming to stop (5-10 minutes when using muriatic acid; vinegar takes longer).
10. Safely dispose of the acid solution or vinegar by pouring it into your pool.
11. Carefully wash the cartridge in tap or pool water.
12. Return the O'ring to the top of the cartridge before inserting it back into the cell body. Notice that the cartridge can only fit in a particular direction so be gentle and flip the other way if necessary.
13. Screw the locking nut on the cell assembly firmly.
14. 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.
15. Push firmly until a 'click' sound is heard.
16. Pull gently to confirm the connection is secured.
17. Turn the unit ON .Make sure there are no leaks from the unit once it has restarted.

SENSOR MAINTENANCE

To function properly, the sensors must be clean and free from oil, chemical deposits or any other substance coating it. Once immersed in pool water, the sensors may need to be cleaned on a weekly or monthly basis depending on bathers load and other facility specific characteristics. Slow response, increased need to calibrate pH, and inconsistent readings are indications that the sensors require cleaning.

To clean the sensors, carefully remove them from the electrolysis Cell assembly.

First attempt to clean the sensors by vigorously stirring them in water or by squirting at them water from a bottle. Organic or hard debris stuck to the sensors can be chemically removed by soaking the sensors in 5-10% hydrochloric acid (HCl) for a few minutes.

Reinstall sensors. Hand tighten only.

Always keep pH and ORP submerged in liquid. Drying will damage the sensors and void its warranty. Make sure sensor is not exposed to direct sunlight.

SENSOR REPLACEMENT

pH and ORP sensors are designed to provide the highest performance and longest service life. If sensors are properly cleaned but provide unstable readings or require excessive calibration, the sensors should be replaced.

SENSOR STORAGE

Exposure to atmospheric conditions will cause the sensor tips to dry out. If sensors are to be removed or stored for one hour or longer, they must be properly stored in their original bottles.

When not installed, keep sensors in their original bottles, making sure that each one is filled with the original storage solution or tap water. If the storage containers have been misplaced, store sensors individually in small glass or plastic containers with tap water covering sensor tips.

Do to the design of the system and if temperatures do not fall below freezing, sensors can remain in the electrolysis chamber as long as they are submerged in pool water.

Sensors must be protected from freezing temperatures!

REPLACING THE INTENRAL TUBE OF THE PERISTALTIC DOSING ACID PUMP

It is recommended to replace the check valve and internal tube of the peristaltic dosing acid pump before starting a new bathing season and/or every six months during the season. Please contact your local dealer to obtain a new tube. The internal tube requires replacing when “Acid pipe internal tube needs replacing” alert is displayed.

WARNING: In order to perform this operation, you MUST wear rubber or polyethylene protective gloves and safety glasses. It is also advisable to protect your clothes or wear dispensable ones.

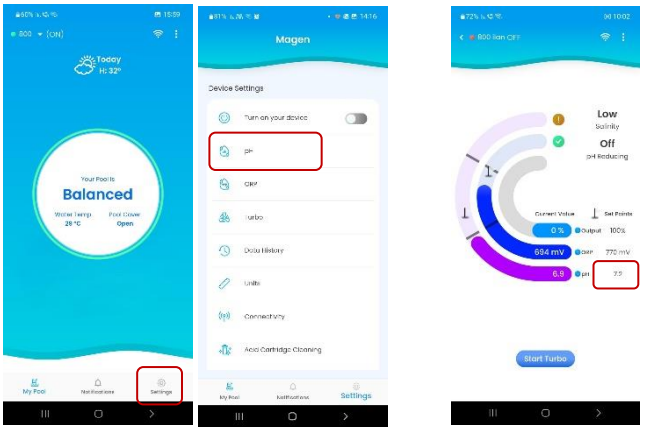
My-Pool app will notify you it is time to replace the internal tube of the peristaltic dosing acid pump.

Access the pH settings by either

1. Pressing on the settings
2. From the list, choose pH

Or by

3. Swipe the app upwards or pressing once on the Status screen to access the monitoring screen.
4. Press the pH value right to the pH status bar



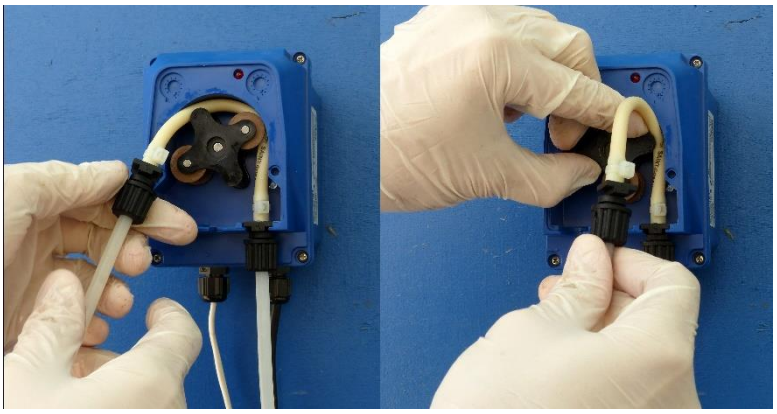
5. Press “Replace Now”
6. You can view how to replace the internal tube by pressing “See how to replace the tube”.







Remove the transparent protective cover of the peristaltic pump



Carefully slip off the rubber tube from its slot. Gently pull the tube out (clock wise) assisting with the other hand to turn the pump's engine wheel and help free the tube until it is completely out.

Note: It is advisable to flush the pump with running tap water in order to dilute any remaining acid which may have spilled from the tube.



Disconnect both ends of the internal tube by unscrewing the nuts from the nipples.



Screw in both ends of the NEW internal tube making sure the nuts are tightly secured.



Gently insert the tube back into place making sure the black bases of the tubes are tightly in their slots in the casing.



Return the transparent cover to its place.

Check for leaks and leave the pump running in manual mode for 10-20 minutes in order to release the air in the system.

1. Once replaced, press “I replaced the tube”.
2. Counter will begin counting back 180 days.



ELECTROMAGENTIC DOSING ACID PUMP MAINTENANCE

During maintenance of electromagnetic dosing acid pump the following must be adhered to:

- **Disconnect ALL power before work commences.**
- **Relive Pressure from valves and non-return valve.**
- **Drain and wash acid from pump and tubes.**
- **In case the hydraulic system of the pump is faulty, the pump should immediately be brought to a stop, emptying and depressurizing the injection hose while taking all due safety precautions (gloves, googles, clothes, etc.)**

1. Whenever the pump is dismantled, you are advised to replace the caps on the connectors to avoid residual liquid being spilled.
2. Periodically check the acid level in the tank to avoid the pump operating without liquid. This would not damage the pump, but may interfere with the balancing pool water operation since air not acid is being injected into the cell/cartridge assembly.
3. **Check pump operation once a month!**
4. It is recommended the check that valves and foot filter are clean from debris.

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 27 for more information.

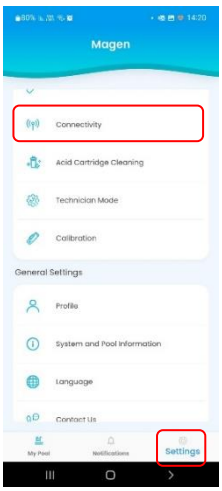
PH AND ORP SENSOR CALIBRATION

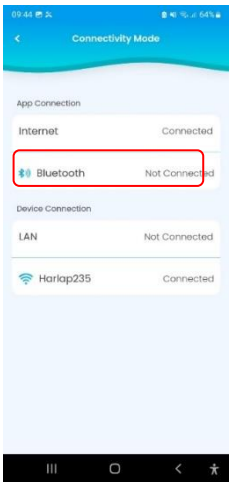
Both sensor's calibration is conducted from My-Pool app. In order to perform the calibration, you will require the following: pH 4.0 buffer solution, pH 7.0 buffer solution as well as ORP solution. pH buffer solution was supplied with the product. ORP buffer solution can be purchased from the local pool shop.

PH CALIBRATION

***To perform calibration, connect cellphone to the device by Bluetooth.**

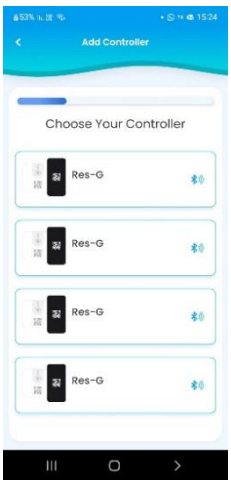
- On bottom right side of the screen, press the "Settings" button.
- Press "Connectivity", Then choose Bluetooth
- On the next screen press the "I don't have QR code" button.
- From the list, press on the device you wish to connect to via Bluetooth.

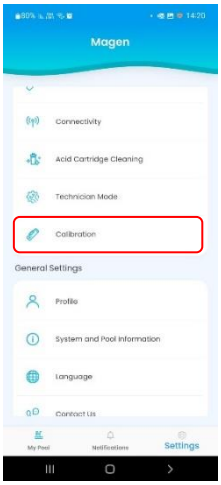




Refer to page .שגיאה! הסימניה אינה מוגדרת **to connect using Bluetooth communication.**

- Press "Calibration".



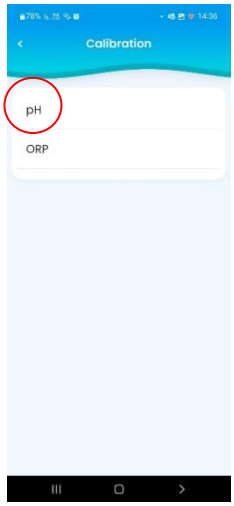


pH sensor is first to be calibrated -

Press pH

Prepare pH 4.0 and pH 7.0 solutions as well as tap water to rinse the pH sensor between steps.

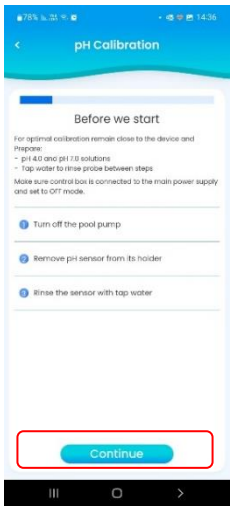
Make sure the red ring light on the device is lit.





Before we start:

- Unscrew the bottle protecting the pH sensor.
- Rinse the sensor in tap water
- Press “Continue”



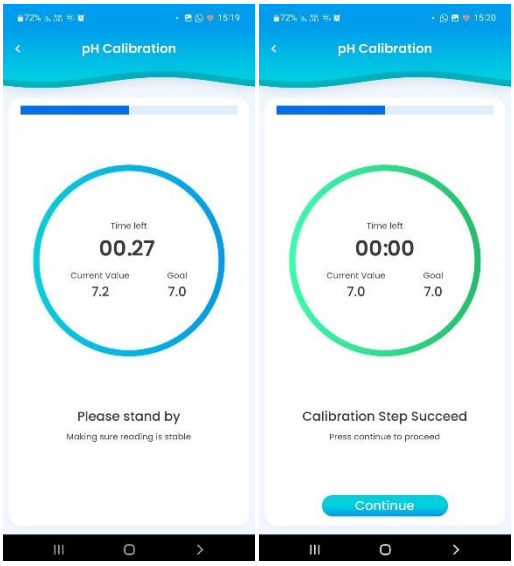
- Place the pH sensor inside the pH 7.0 solution.
- Stir the sensor several times while it is immersed in the solution.
- Press “Continue” to begin the calibration process.





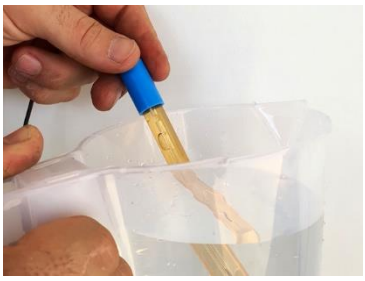
- Real time values of the pH sensor are visible on screen as well as the goal and current values.
- When completed, the circle color turns green and “Calibration Step Succeeded” is visible.
- Press “Continue”.

***If calibration fails, the circle color will turn red. Press “Recalibrate” to begin the process once more. If process fails again sensor may be faulty and required replacing.**

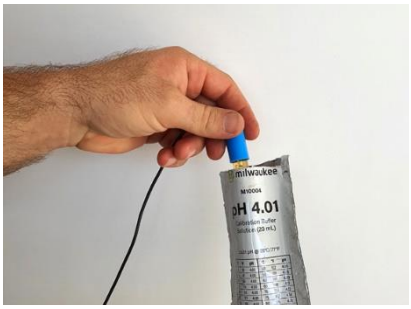


- Remove the pH sensor from the pH 7.0 solution.
- Rinse the sensor in tap water, shake to remove excess water.

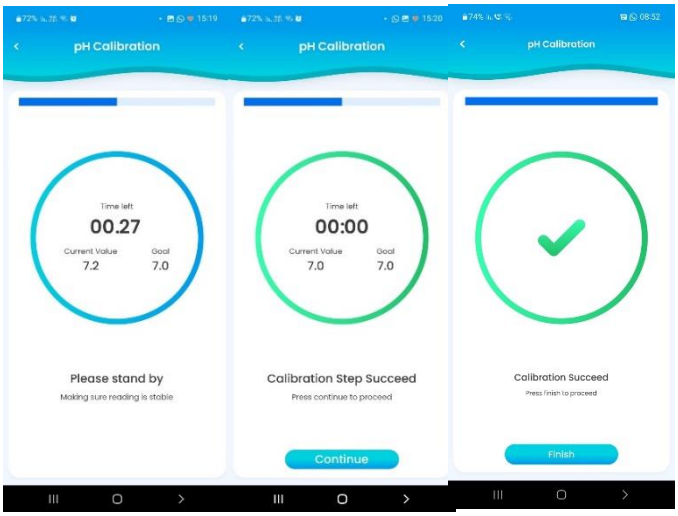




- Immerse the pH sensor in the pH 4.0 solution.
- Stir the sensor in the solution several times while it is immersed in the solution.
- Press “Continue” to begin the calibration.



- Real time values of the pH sensor are visible on the screen as well as the goal and current values.
- When completed, the color of the circle turns green and the “Calibration Step Succeeded” is visible.
- Press “Continue”.
- Calibration Succeeded screen is visible. Press “Finish”.



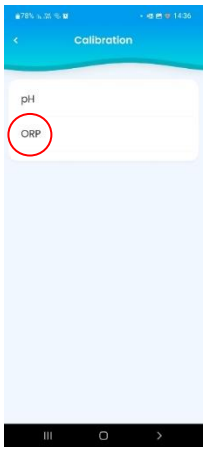
***If calibration fails, the circle color will turn red. Press “Recalibrate” to begin the process once more. If process fails again sensor may be faulty and require replacing.**

pH sensor is now calibrated!

ORP CALIBRATION

- In the App, press ORP.
- Prepare ORP solution as well as tap water.
  Make sure the red ring light on the device is lit.

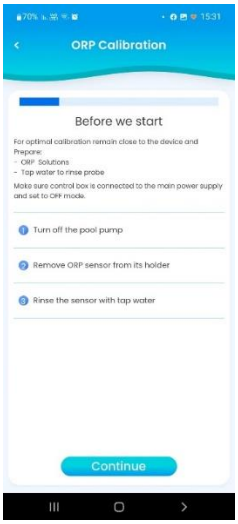




Before we start:

- Remove ORP sensor from its holder
- Rinse the sensor in tap water
- Press “Continue”

- Dip the end of the ORP sensor in ORP solution (ORP calibration solution can be found in the local store near you).
- Stir the sensor several times while it is immersed in the solution.
- Press “Continue”

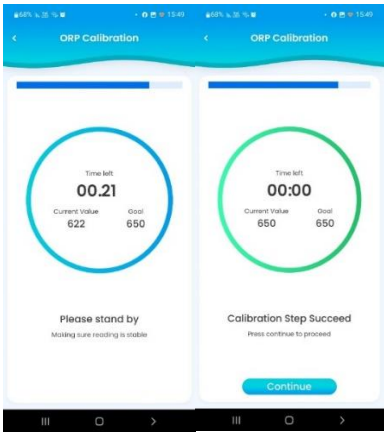




- Using the + or – buttons to adjust the values of the solution so they reflect the actual solution (i.e. 650 mV. Values are written on the solution bottle).
- Press “Continue” to begin calibration.



- Real time value of the ORP sensor will be visible on screen as well as goal values and current values.
- When completed, circle color turns green and “Calibration Step Succeeded” is visible.
- Press the “Continue” button.

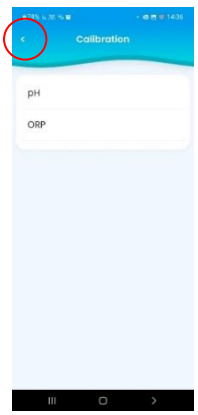


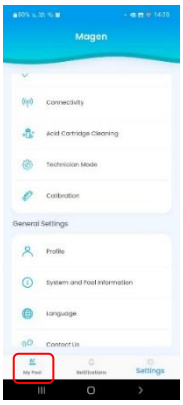
- ***If calibration fails, the circle color will turn red. Press “Recalibrate” to begin the process once more. If process fails again sensor may be faulty and require replacing.**

- “Calibration Succeed” message is visible.
- Sensors calibration is now successfully completed.
- Press “Finish”.



- Press the < button to exit the calibration mode.
- Press “My Pool” (bottom menu) to return to main screen.





- Mobile phone is now paired to the device and Resilience G Plus is ready to balance the pool.



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 Plus).

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 28 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
	• ORP level is set too low in relation to chlorination demand (e.g. higher number of bathers, warmer weather, increased debris in pool)	• Set the ORP to higher setting and/or increase circulation pump's operation time
	• Low salinity	• Check salinity level
	• 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 59)
	• Chemical imbalance	• Check other chemistry and balance chemicals (see "Understanding the Chemistry" chapter, page 59)
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 25)
	• 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 **.שגיאה! הסימניה אינה מוגדרת**

Problem	Possible Causes	What to do
	• WiFi networks password is incorrect	• Check you typed in the correct password • Contact customer support by clicking on the “Contact Us”
ORP value in monitoring screen shows 0	• Low free chlorine	• Allow chlorinator to operate for a few hours • If, ORP values do not increase, add liquid chlorine to the pool
	• ORP sensor requires calibration	• Calibration ORP sensor using ORP buffer solution as instructed on page 57
	• Faulty wiring	• Check that ORP sensor is wired properly as instructed on page 27 • Make sure wiring contacts are good
	• Sensor is dirty or has scale build up	• Remove sensor from cell, dip it in low concentration of muriatic acid (5-10%) for a minute to remove debris/scale • Re-install the sensor on the cell and check that problem has been resolved
	• Faulty sensor	• Replace ORP sensor
pH value in monitoring screen shows 0	• pH levels in pool are below 4.0	• Allow chlorinator to operate for a few hours • Manually increase pH levels in pool
	• pH sensor requires calibration	• Calibration pH sensor using pH buffers solution as instructed on page **שגיאה! הסימניה אינה מוגדרת.**
	• Sensor is dirty or has scale build up	• Remove sensor from cell, dip it in low concentration of muriatic acid (5-10%) for a minute to remove debris/scale • Re-install the sensor on the cell and check that problem has been resolved
	• Faulty sensor	• Replace pH sensor
Low output (only part of the four-small blue LEDS turn on) – chlorine manufacturing	• 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 48
	• Cold water	• Water temperature is below 20°C (68°F). No further action is required

Problem	Possible Causes	What to do
does not reach 100%	• Overheating protection	• In extreme weather conditions, when the unit identifies overheating, it will automatically reduce chlorine production to protect itself

PERISTALTIC DOSING ACID PUMP TROUBLESHOOTING



WARNING! You are about to manipulate components which are in contact with concentrated Muriatic Acid. USE PROTECTIVE GLOVES, GOGGLES and CLOTHING FOR YOUR SECURITY. In case of involuntary contact with acid, flush the affected areas with running water. In case of contact with eyes, flush with water and contact a physician!

Problem	Possible Causes	What to do
Peristaltic dosing acid pump is not operating (motor does not spin)	• Pump is not connected to the control panel	• Check wiring schematic on page 25. Ensure proper connection to control panel
	• Pump is not prompted by control panel to inject acid to the pool	• Access My-Pool app's monitoring screen. Confirm that pH setpoint is lower than actual pH value
	• Pump is in "time out protection" mode	• Access My-Pool app's alert and follow instructions
	• Acid level probe (if connected) stops pumps operation	• Check acid level and that acid level probe is working properly
Peristaltic dosing acid pump motor is spinning but no acid is being sucked and injected	• Hydrochloric (Muriatic) acid container is empty	• Replenish acid in the container or replace with a new one • Refer to chapter "Priming – sucking air from the peristaltic pump" page 15
	• Air is caught in the system	• Refer to chapter "Priming – sucking air from the peristaltic pump" page 15
	• Internal tubing is worn out or ruptured	• Replace ruptured tubing • IMPORTANT: follow the instructions listed in the "Replacing the internal tube chapter", page 50
	• Check valve may be obstructed	• Carefully unscrew the check valve from cell assembly. Disconnect the tube from the check valve. Replace with a new valve (sold separately) discard old valve

ELECTROMAGNETIC DOSING ACID PUMP TROUBLESHOOTING

WARNING! You are about to handle parts that have come in contact with concentrated Muriatic Acid. For your safety USE PROTECTIVE GLOVES, GOGGLES and CLOTHING FOR YOUR SECURITY. In case of involuntary contact with acid, flush the affected areas with running water. In case of contact with eyes, flush with water and contact a physician!

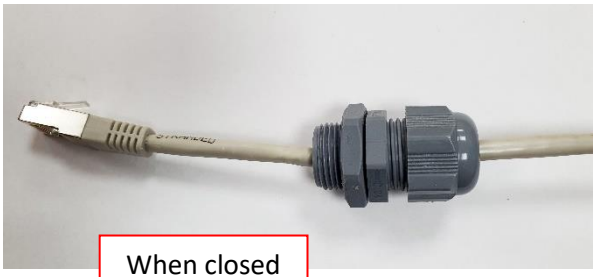
Problem	Possible Causes	What to do
Electromagnetic dosing acid pump is not operating (motor does not spin)	• Pump is not connected to the control panel	• Check wiring schematic on page 25. Ensure proper connection to control panel
	• Pump is not prompted by control panel to inject acid to the pool	• Access My-Pool app's monitoring screen. Confirm that pH setpoint is lower than actual pH value
	• Pump is in "time out protection" mode	• Access My-Pool app's alert and follow instructions
	• Acid level probe (if connected) stops pumps operation	• Check acid level and that acid level probe is working properly
Electromagnetic dosing acid pump give strokes but no acid is being sucked and injected	• Hydrochloric (Muriatic) acid container is empty	• Replenish acid in the container or replace with a new one • Refer to chapter "Priming – sucking air from electromagnetic pump" page 24
	• Air is caught in the system	• Refer to chapter "Priming – sucking air from electromagnetic pump" page 24
	• Foot filter is obstructed	• Clean foot tiler and restart the pump
	• Check valve may be obstructed	• Carefully unscrew the check valve from cell assembly. Disconnect the tube from the check valve. Replace with a new valve (sold separately) discard old valve
Display switch is on but pump is not working (orange LED is on)	• Pump is not prompted by control panel to inject acid to the pool	• Remove control panel access door and check connection coming from the pump • Access My-Pool app's monitoring screen. Confirm that pH setpoint is lower than actual pH value
	• Pump is set to 0%	• Use the arrows on the pump to increase percentage to 10%
Pump's display is on but pump is not working	• Pump is paused	• Push the on/off button located next to the display

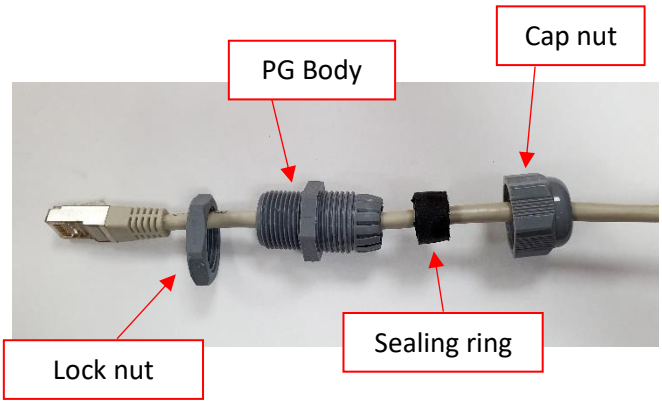
APPENDIX

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

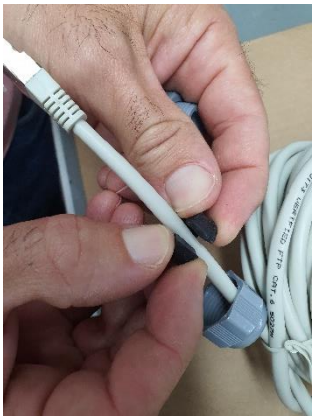
APPENDIX 1 – REPLACING WIFI MODULE COMMUNICATION CABLE

The PG connector is comprised of:

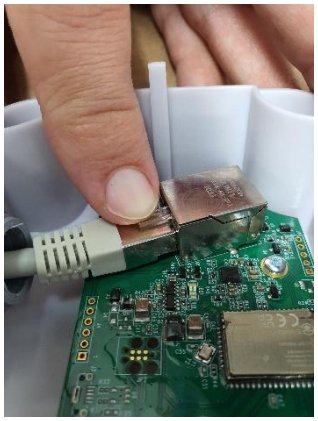




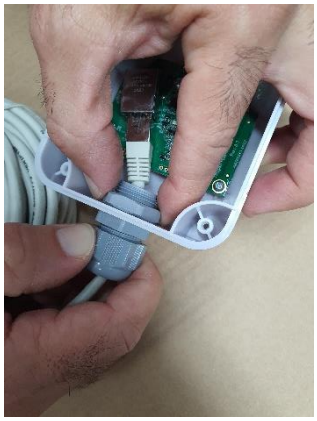
In the control panel, open the locking nut of the largest and most central PG connector that is holding the communication cable in place. Push on the transparent clasp of the connection on the head of the cable and pull it out from the connection of the control panel and through control panel's box itself.	 
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 PLUS 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

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