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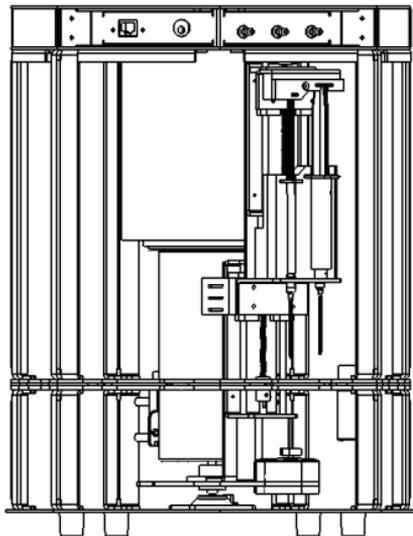
[reefkinetics.com](http://reefkinetics.com)

# ReefBot Lab User Manual



## ReefBot Lab User Manual

Your ReefBot Lab go-to guide. Everything you need to operate this unit is found here. Read carefully the step-by-step ReefBot Lab operating guide and keep it for future reference.



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## **A** About ReefBot Lab

ReefBot Lab is a user friendly automated device used to test water-quality with multiple third-party reagents remotely and automatically.

You can now automate and schedule tests from your App and receive the results remotely at your convenience on your Reef Kinetics App.

## **B** Features

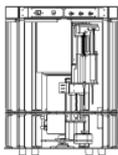
- Stirrer mechanism
- Dropping mechanism
- Automated sample pumping
- Automated color reading

### **App Features:**

- Available on Android and iOS
- Reef Kinetics web-version App
- Apple and Smart Watches

- Shows visual results in colors and numerical values
- Offers a step-by-step wizard to connect ReefBot Lab to the Internet
- Can be used on multiple ReefBot Lab for multiple tanks
- Enables you to test on demand and scheduler basis
- Enables you to customize vial's positions in any desired form
- Sends emails and push notifications with test results and additional information
- Grants access to result history, as well as graph representation of results
- Offers a direct comparison with test kit manufacturer reference
- Can log manual testing

## C Unpack your Box



ReefBot Lab



Power Supply



Vials



Quickstart Guide



Filter



Syringes and  
Needles



Stirrers



Silicon Tubings  
& Filters



Allen Keys



Calibration Kit

## D Parts Identification

Power

Ethernet

Reset

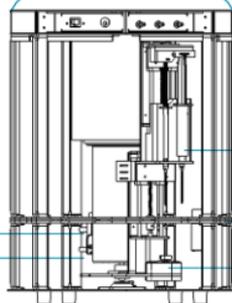
0/10V



LED Indicators

Color Sensor  
Testing Chamber

Rinsing Chamber



Syringe Assembly

Vials Rack

Stirrer Assembly

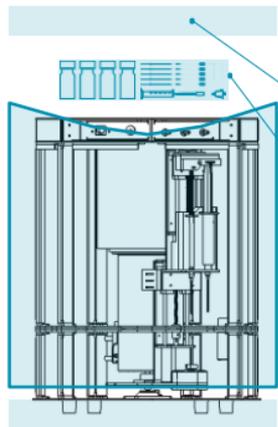
## Additional Information:

- Magnetic Stirrer is coated with PTFE
- ReefBot Lab is equipped with 1ml & 10 ml syringes
- Vials are borosilicate glass
- ReefBot Lab casing is made of grade aluminum and stainless steel A4 screws.
- Covers are made of acrylic
- The syringes are replaceable
- The dropper are precise up to  $1\mu\text{l}$  respectively, ensuring the most accurate results
- The capacity of the testing chamber is 13ml
- Automated flushing and cleaning

## E Installation Process:

Follow the scheme and instructions carefully.

1



Unbox the machine

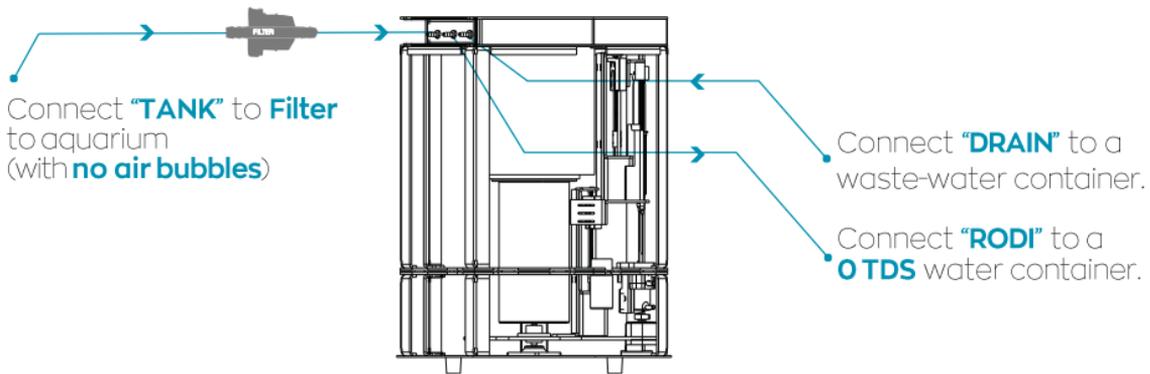
Remove Styrofoam  
paddings

Vials, Stirrers, Hoses  
Power Supply,  
filter, calibration kit,  
allen key 2 & 2.5mm  
and syringes.

2

**Add 1 of the smaller magnetic stirrers in the rinsing chamber and 2 of the small stirrers in the testing chamber during calibration and while performing any test.**

3



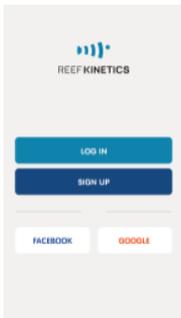
4


 AppStore


Google Play

Download the **Reef Kinetics App** from the AppStore or PlayStore

5



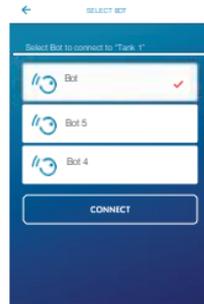
Sign up to the **application** or log in with your username and password



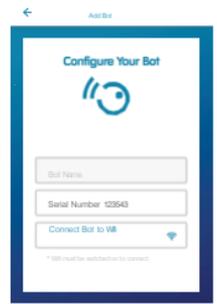
Create a **tank**. You will have to fill in the tank type



You will then be redirected to a page where your App will search for your **Bot**



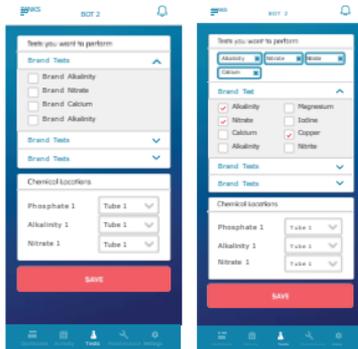
Available Bots will **appear** and you will then choose the Bot that will be connected to the chosen Tank.



Once Bot is selected, a list of Wi-Fi networks will appear. Connect to your desired **Wi-Fi network** and name your Bot.

- **If the bot is not connecting to the Wi-Fi network, check your Wi-Fi connection and reset the bot.**
- **Make sure that the bot is close enough to the router.**
- **Make sure that your Wi-Fi's name and password does not contain any special characters like “, . \_ - \$”**

6



Place the  
**reagent vial**  
in its designated  
place as assigned in  
the mobile app



7

When placing syringes, never push on the actuator. Always make sure to support it from behind to avoid any bending.

Unfasten **Syringe**  
joint screw and  
remove the joint.



Place the syringe  
in its proper  
**position.**



Fasten the **screw**  
to the joint  
removed earlier.





# CAUTION

Chemical reagents are corrosive, harmful, and irritant.

- 8 Shake the reagents as needed.  
Add a stirrer to the vial before adding the reagents.  
Fill the vials with reagents & close them tightly.

**DO NOT REMOVE THE Septa - RUBBER COVER OF THE VIAL CAP**

- 9 Close the covers and you are ready to schedule a task or run a test.



## F

The ReefBot Lab has **LED indicators**. During a test, the **ReefBot Lab** will be displaying the color read by the sensor on the LED indicators. The LEDs can also be used to identify the state of the device; the color codes of the LEDs are as follows:

Blinking Blue	ReefBot Lab is ready but not connected to Wi-Fi
Solid Blue	ReefBot Lab is connected, idle, and ready for test
Solid Green	ReefBot Lab Test in Progress
Solid Red	ReefBot Lab is initializing – not ready yet
Solid Orange	ReefBot Lab is Calibrating
Solid Cyan	ReefBot Lab is Updating

## **G** Chemical Testing

- The reaction chamber is flushed with the tank water several times to prevent contamination from prior tests and to ensure accurate results
- The color sensor is set to be calibrated/zeroed according to the water sample
- The syringes are set to be rinsed with 0 TDS water to prevent cross contamination between the reagents
- The sampling syringe delivers precise volumes of water required for each test in the reaction chamber
- Reagents are stirred, based on test-kit manufacturer recommendations before being used for the test
- Colorimetric tests require a wait time while the color builds up before it gets displayed on the app and LED indicators
- Titration tests require a color reading after each drop being delivered from the titrant

## H Cleaning and Maintenance

**Before opening the top cover, turn off your ReefBot Lab by disconnecting the power supply**



Poorly maintaining your ReefBot Lab dramatically affects the test results. In that regards, kindly make sure that any replaced part is compatible with the ReefBot Lab and as per the following best practices:

- Replace needles and syringes every 60 tests or whenever needed
- Replace the heads of all pumps every six months, or at any sign of malfunctioning
- Clean the reaction and rinsing chamber every 100 tests or whenever needed by following the procedure below:
  - Soak both chambers with warm (not hot) water for about two minutes
  - Scrub firmly with tissue paper or a small brush
  - Always check that RODI has 0 TDS or it will dramatically affect some tests,  
e.g Magnesium & Potassium

## I Troubleshooting Irregular Result Colors

- Check that the silicon tubes are securely connected to the water tank without any air bubbles.
- Verify the quality and quantity of chemical reagents, ensuring they match the correct batch and fill at least 30-40% of the vial's volume. Confirm they are in their assigned positions.
- Ensure a magnetic stirrer is present in each vial and is spinning. Check the viability of the syringe.
- Confirm the presence of RODI water and check for any connection issues.
- Ensure the pump heads are functioning properly without any unusual noises.
- If you observe a white color result, it indicates a lack of water in the testing chamber or insufficient chemical reagents. Ensure water is entering the test chamber and that the syringe can reach the reagents.
- If you observe pale colors during testing, it suggests the testing chamber requires cleaning, the chemical reagents need to be refilled after vigorously shaking the original bottles, or there is a lack of a magnetic stirrer.
- If you observe inconsistent colors during testing, it may indicate the pump needs recalibration or a lack of a magnetic stirrer in the vial.

- If you observe incorrect colors during testing, it suggests possible cross-contamination or incorrect placement of chemicals. Clean the vials thoroughly and refill them with the appropriate reagents.
- If the LED indicator consistently shows red, please **contact** our customer support for assistance.
- If the LED indicators start blinking blue during testing, it indicates a loss of connection. Please check the machine's connectivity.
- If the test chamber calibration remains consistently below 10ml, please clean the filter to ensure proper functioning.

## **J** Terminology

- **Vials:** Containers for chemicals
- **Stirrers:** Small magnetic pieces covered with PTFE that are used for homogenizing the reagents and water sample
- **RODI:** Reverse Osmosis Deionized water
- **0 TDS:** Zero total dissolved solids
- **Drain:** Tubing corresponding to wastewater
- **Initial Consumables:** Syringes, needles, silicon tubing, magnetic stirrers, vial covers, and borosilicate glass vials
- **Dosing Syringe** is the 10ml syringe

## **K** Important Safety Instructions

### **CAUTION**

- Do NOT immerse the ReefBot Lab in water.
- Do NOT operate the ReefBot Lab or initiate a test without securely fixing the covers in place. Failure to do so may disrupt test results or cause injury.
- Avoid directing any light source directly into the testing chamber during testing to prevent inaccurate results.
- Keep the ReefBot Lab out of reach of children and pets.
- Never interfere with the moving parts of the device.
- Use only the power cord or adapter provided with this model; do not attempt to use any other power source without consulting the support team first.
- Avoid pulling, twisting, or excessively bending the power cord or silicone tubing.
- Refrain from direct exposure to chemical reagents, as they are corrosive, harmful, and irritating.
- In case of contact with eyes or skin, immediately rinse with water and seek medical advice.

## ATTENTION

- The Tank & RODI water should be at the same level of the ReefBot Lab.
- Do NOT unplug the ReefBot Lab during a test or during an update.
- Every ReefBot Lab power cord and outlet should have a drip loop.
- When the ReefBot Lab is NOT connected to power, clean it with a dry cloth, and avoid the use of detergents, as they may interfere with the test results.

**NB: Chemical reagents are not included in the unit.**

## **L** DISCLAIMER

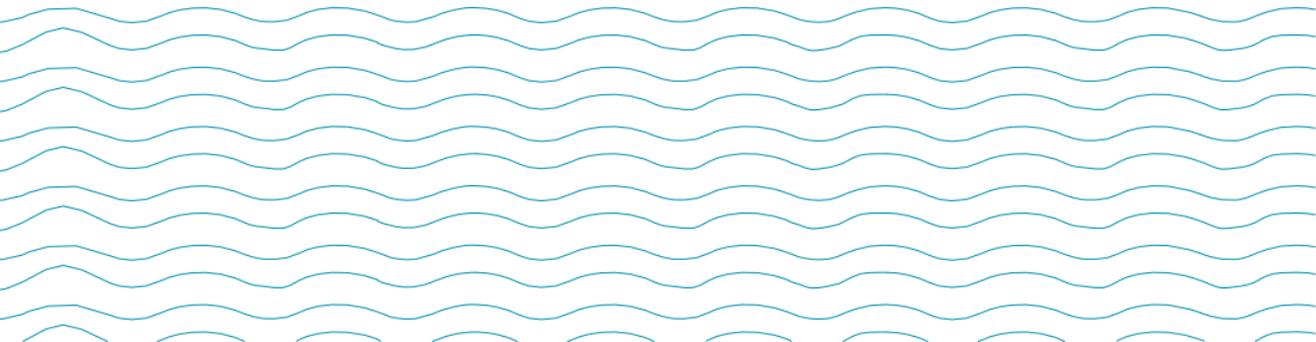
Reef Kinetics SAL is not responsible for any damage of you or your tank or livestock caused, any misuse or wrong results acquired from testing with the ReefBot Lab. Kindly stay reminded that you are using third party reagents that limit the control of the ReefBot Lab to the accuracy and resolution of the test kits used.

To check compatible test kits and parameters, scan the QR code provided



To contact support, send an email to [support@reefkinetics.com](mailto:support@reefkinetics.com) or go to the direct chat support tab on the mobile app

For more information, visit [www.reefkinetics.com](http://www.reefkinetics.com)



Beirut, Lebanon

Tel: +961 1759330

[info@reefkinetics.com](mailto:info@reefkinetics.com)

[www.reefkinetics.com](http://www.reefkinetics.com)



@reefkinetics



**PATENTED**