Thank you for purchasing our device

kH keeper

IMPORTANT:

The first time the device is turned on or when the device has not been used for a long time, it is recommended to place the probe in the aquarium water (brine) for 30 minutes and then take some test measurements.

I. Introduction.

Before setting up and using the device please read this entire user manual carefully.
In chapters of instruction there may be differences between what is presented on the screen of the device and graphics in the manual. The manual includes information about the device functions, which contains the software version number 0.5.3. The software version information is always in the lower right corner of the screen under the product serial number. If the software version is older, proceed with device software update to get access to the latest features.

II. Kit contents.

The following items are included with your kH keeper device (see graphic below):

- 10ml high measuring cup for calibrating the reagent dosing pump (1),
- two sachets with powder to calibrate the pH4 and pH7 probe (2 and 3),
- a glass beaker for kH measurements installed in the device,
- magnetic stirrer installed in the device,
- connection pipes installed on the pumps inside the device,
- spare connection tubes in a bag (4),
- a magnet used to reset the device (5),
- a set of two hoses (6 and 7) with a diameter of 2 / 5mm for connecting a discharge pump aquarium water with a water filter (connect to connectors number 4 in the graphic below) and for connecting a pump that drains the water after measuring without a water filter (connect to connector number 6 in the graphic below),
- a 1 / 3 mm diameter hose (8) with a plastic tube for taking a reagent (connect to the connector o number 5 of the graphic below),
- 100ml high measuring cup for calibrating the pump collecting water from the aquarium (9),
- 12 V / 2 A power adapter (10),

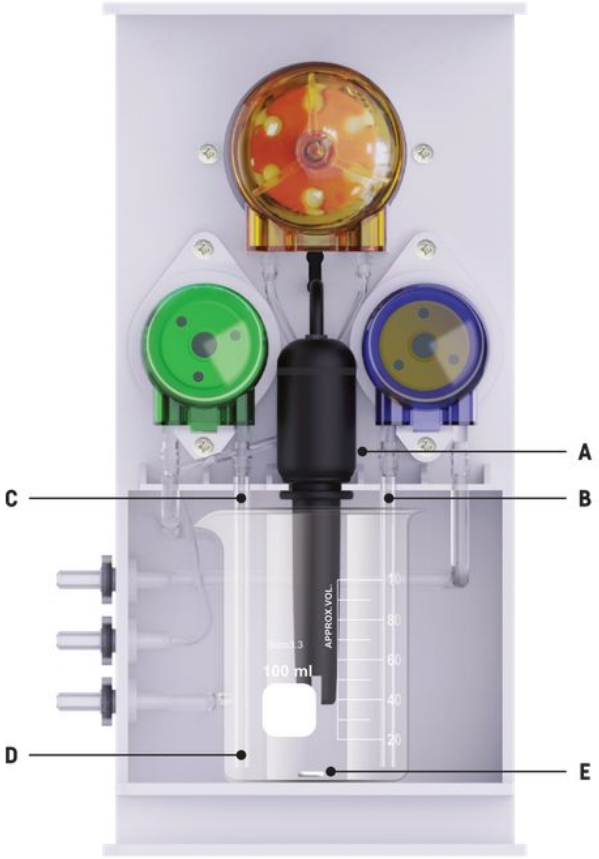
WARNING: It is recommended to use the shortest possible hoses. Hoses with a diameter of 2/5 mm should not be longer than 150 centimeters, while the reagent hose should not be longer than 75 centimeters. Remember that any change in hose length affects the amount of liquid dispensed and requires recalibration of the device. Please remember to cut the silicone hoses to the correct length before calibrating the Aquarium & Reagent pumps.

III. Installing and removal of the measuring beaker.

If you need to clean the device or disassemble the glass beaker, follow the steps below:

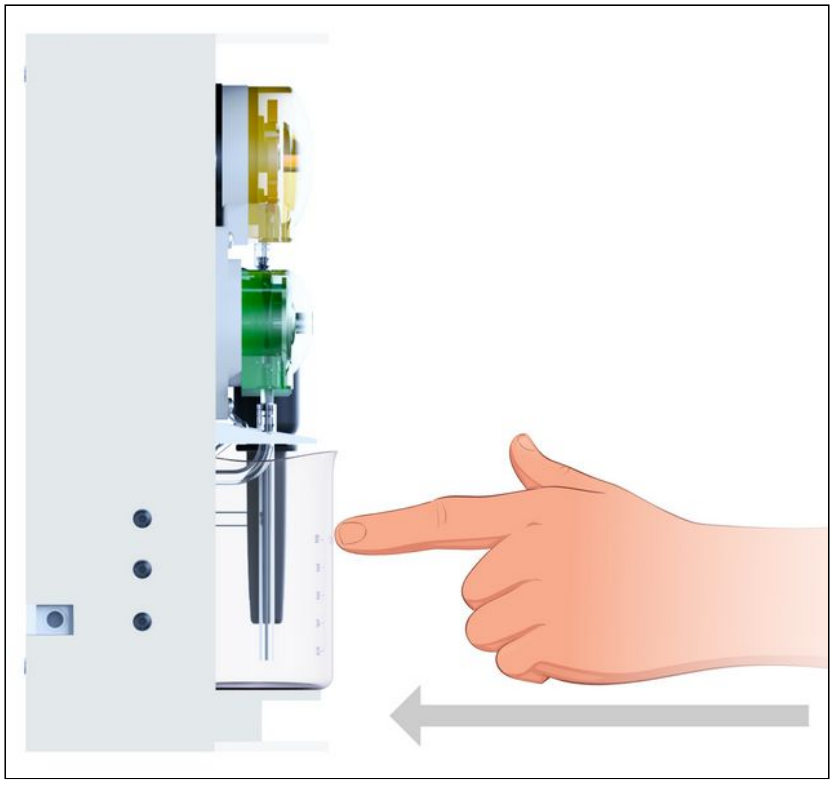
- Gently remove the pH probe (A) from the plastic holder,

- Pull out the connector of the pump that pours water from the aquarium, which is located in the beaker on the right side, from the plastic holder. Pay attention to the installed tube to not damage it (B),
- Pull the connector of the emptying pump out of the plastic holder gently after the test, which is provided in the beaker to its left. Pay attention to the installed tube to not damage it (C),
- Gently pull out the glass beaker (D), pay attention to the magnetic stirrer (E) which is inside the glass beaker so do not lose it.
- Please remember to leave the piece of plastic under the glass beaker. The purpose of this is to ensure the beaker does not move and positions the plastic tubes to the bottom of the beaker.



When assembling the kit, proceed in the reverse order. When attaching the probe, insert it into the slot in the holder, lower it as far as possible and press it from below with a rubber cap. Try to keep the probe mounted as close to the vertical position as possible.

WARNING: It is very important to put the beaker right (to the maximum position) against the back wall of the device. If it is not adjusted properly, there is a risk that the magnetic stirrer will not rotate and the Kh measurement will be incorrect. Each time after mounting the beaker in the device, test the operation of the magnetic stirrer by selecting the speed of its rotation in the device functions (stirring function).



IV. Preparation of the reagent.

Make sure that you have purchased a dedicated Reef Factory reagent for measurements with the device. It must be purchased separately because it is not included with the device. If you do not have a dedicated reagent, the measurement will not be possible (result will be incorrect). The reagent we offer is condensed and it is necessary to dilute it in RO water in a proportion of 1 to 9. This means that the preparation of 1 liter of the ready solution for measurements requires mixing 100 ml of the condensed reagent and 900 ml of RO water. Below is a table with calculations on how to properly prepare a reagent of a specific capacity.

WARNING: Remember to stir the reagent in the container every few days so that its concentration is even throughout the volume of the container.

Chemical solution preparation table (reagent)		
Container size (liter)	Condensed reagent (liter)	RO water (liter)
1	0,1	0,9
2	0,2	1,8
2,5	0,25	2,25
5	0,5	4,5
10	1	9
25	2,5	22,5

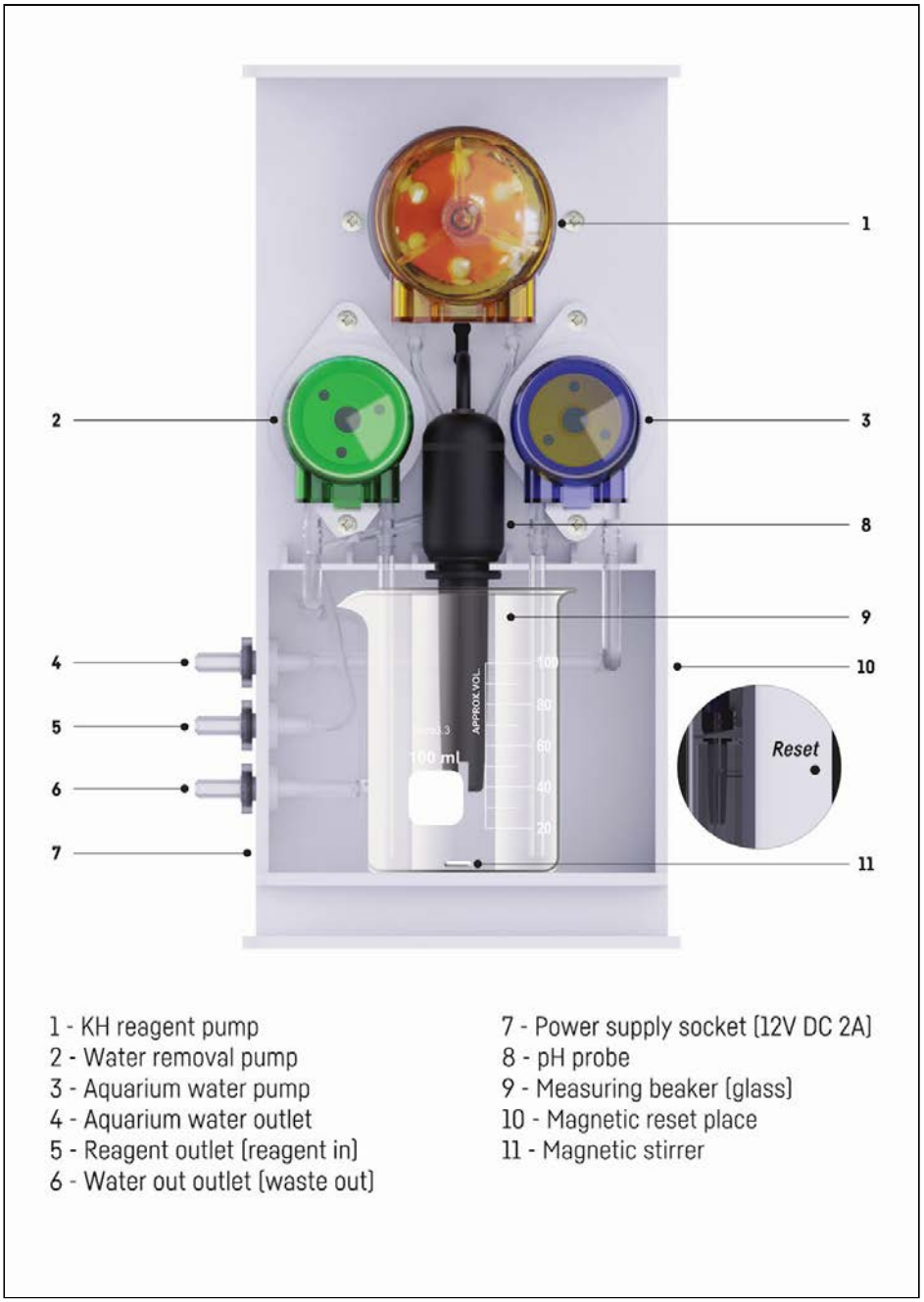
V. Configuration and operation of the device.

Make sure that the device is installed in a place that allows easy regular maintenance. The device is also suitable for wall mounting.

WARNING: The device must be placed in an upright position.

To configure the device correctly, follow the instructions below.

1. Please refer to the graphics below to properly connect peripheral devices to the kH keeper. Pay attention to the marking of individual components so as not to make a mistake when making connections.



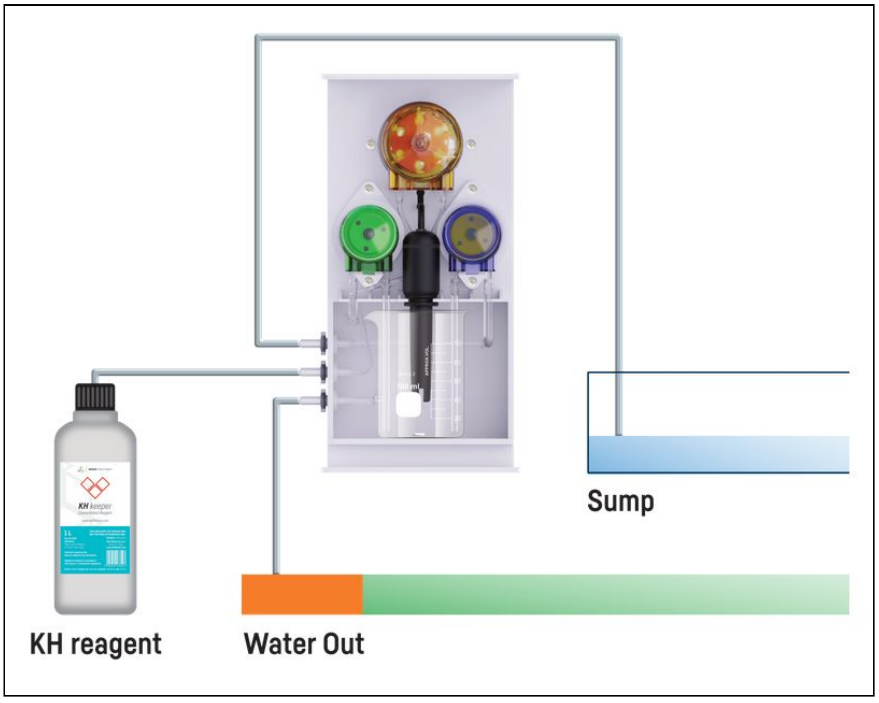
1 - KH reagent pump
2 - Water removal pump
3 - Aquarium water pump
4 - Aquarium water outlet
5 - Reagent outlet (reagent in)
6 - Water out outlet (waste out)
7 - Power supply socket (12V DC 2A)
8 - pH probe
9 - Measuring beaker (glass)
10 - Magnetic reset place
11 - Magnetic stirrer

2. Pay particular attention to the proper connection of the hoses, liquids (aquarium water, reagent) and the water outlet to the waste container.

   WARNING: The water filter must be completely submerged in the water, and its elements must not protrude above the water.

Water filter

3. There is a magnetic stirrer in the glass beaker, be careful not to lose it.
4. Try to place the reagent container as close to your kH keeper as possible, preferably at the same height or maximum 20 cm below.
5. Connect the device to the power socket using a dedicated 12V / 2A power supply.
   WARNING: the power supply dedicated to the device has a different supply voltage than our other products and cannot be replaced with another power supply. If you use a power adapter from our other device, the device may not work properly or be permanently damaged.



6. The device requires calibration after installation. This process will be described later in this manual.

   WARNING: each change of the device installation location, shortening or lengthening the hoses, connecting additional accessories, such as filters or check valves in the water or reagent supply circuit in kH, requires recalibration of the device.

7. To perform kH measurements, it is necessary to purchase a reagent.

   WARNING: To ensure the highest accuracy of measurements, it is necessary to use only a dedicated Reef Factory reagent. The use of other than the dedicated one will result in incorrect measurement.

8. The device can be configured using a web browser on your computer, laptop, tablet or smartphone. To do this, display the list of Wi-Fi wireless networks available on the selected device, then search for and connect to the network which name corresponds to the serial number of the device, according to the formula:

   RFKHXXXXXXXXXXX

   Our devices are working in 2,4 GHz technology. To log in, please provide password:

   reeffactory

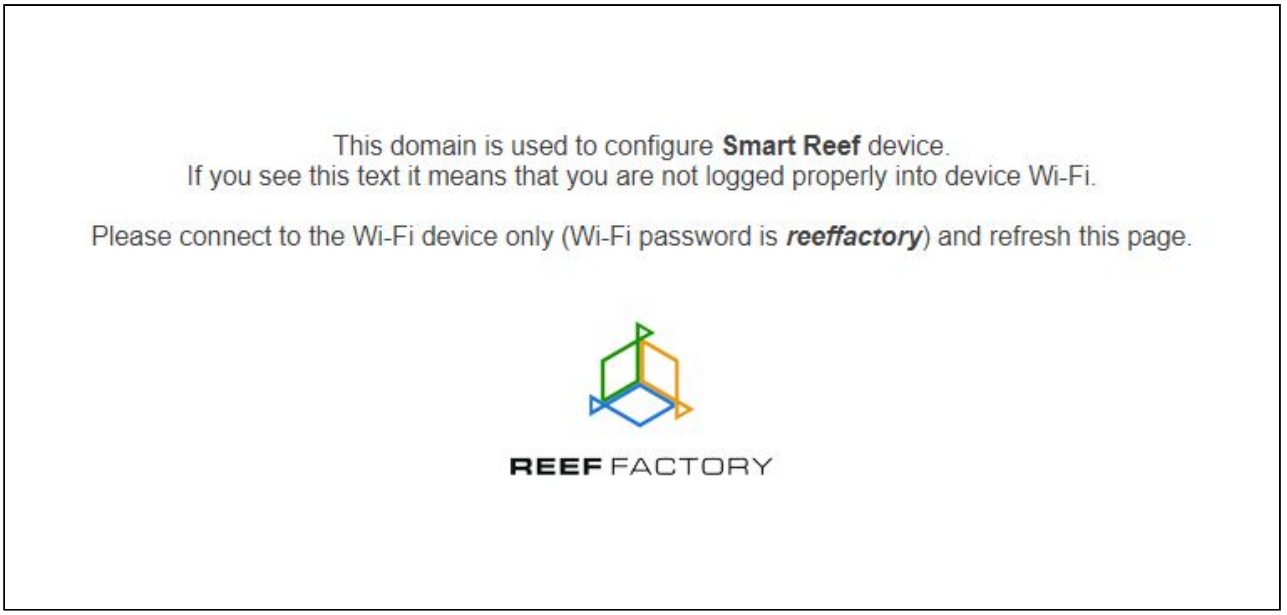
   When you are connecting to a Reef Factory device, the connection status may state'no internet'. Please ignore it. This appears on a smartphone, tablet, laptop or any other device, because you are connected to a Reef Factory device WiFi and you have no internet access through these devices.

   WARNING: *Be sure you are in range of device WiFi network.*

9. Whilst connected to the device WiFi module, open a browser and type in the following:

   www.khkeeper.io

   If after entering the correct website address, the following message appears on the screen, it means that the connection with the device has not been established, and the connection to your home internet network (wired or wireless) is still active.

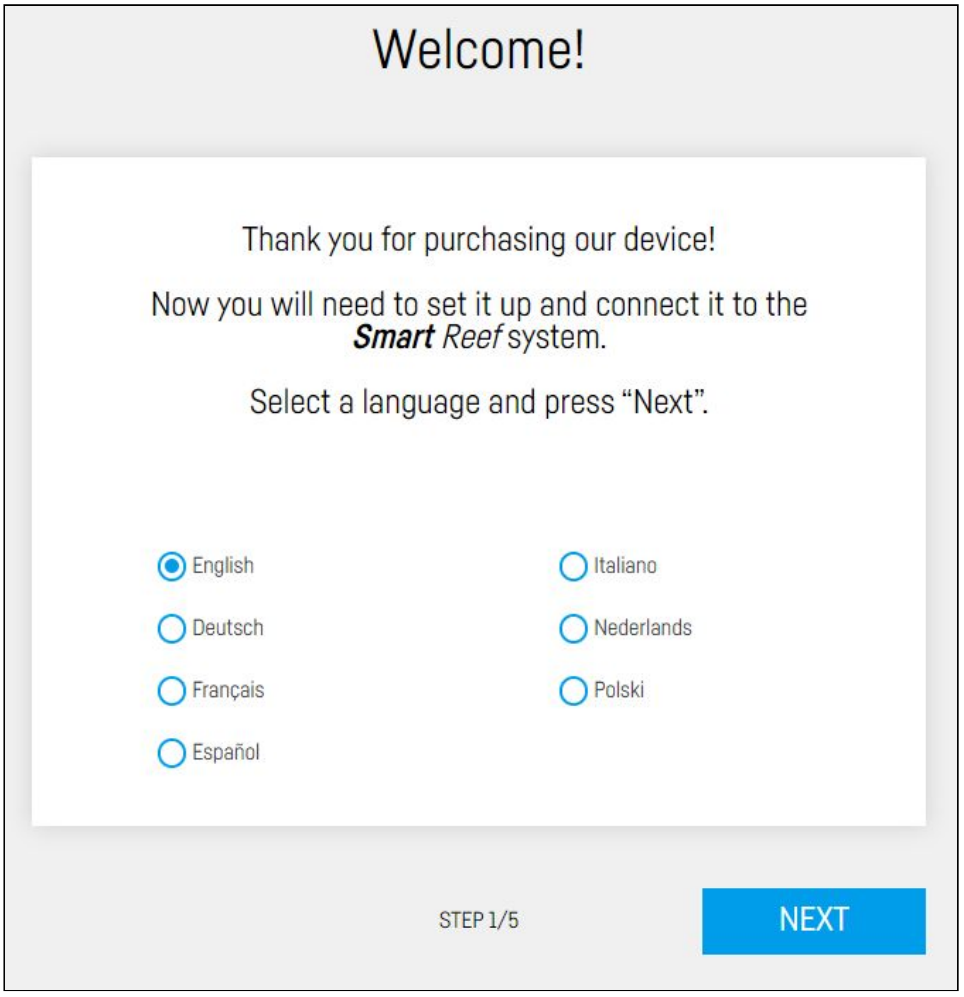


Try to connect to the device again and repeat the steps above.

NOTE: Our devices communicate without any problems with home networks, where the configuration is carried out in B/G/N standards, and the channel width is 20Mhz. Incorrect configuration of the router in MIX mode (variable/mixed channel width 20Mhz/40Mhz) may cause the device to disconnect and reconnect to the router in random cases.

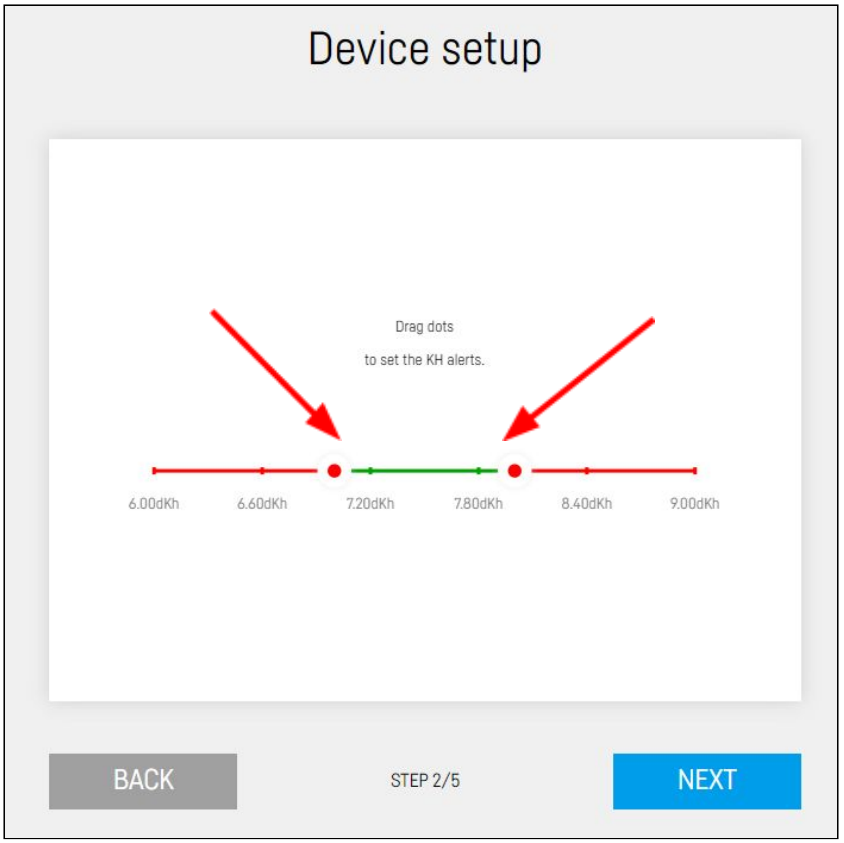
Set up your device in five easy steps.

Step one - choose the language you want to use while operating the device.

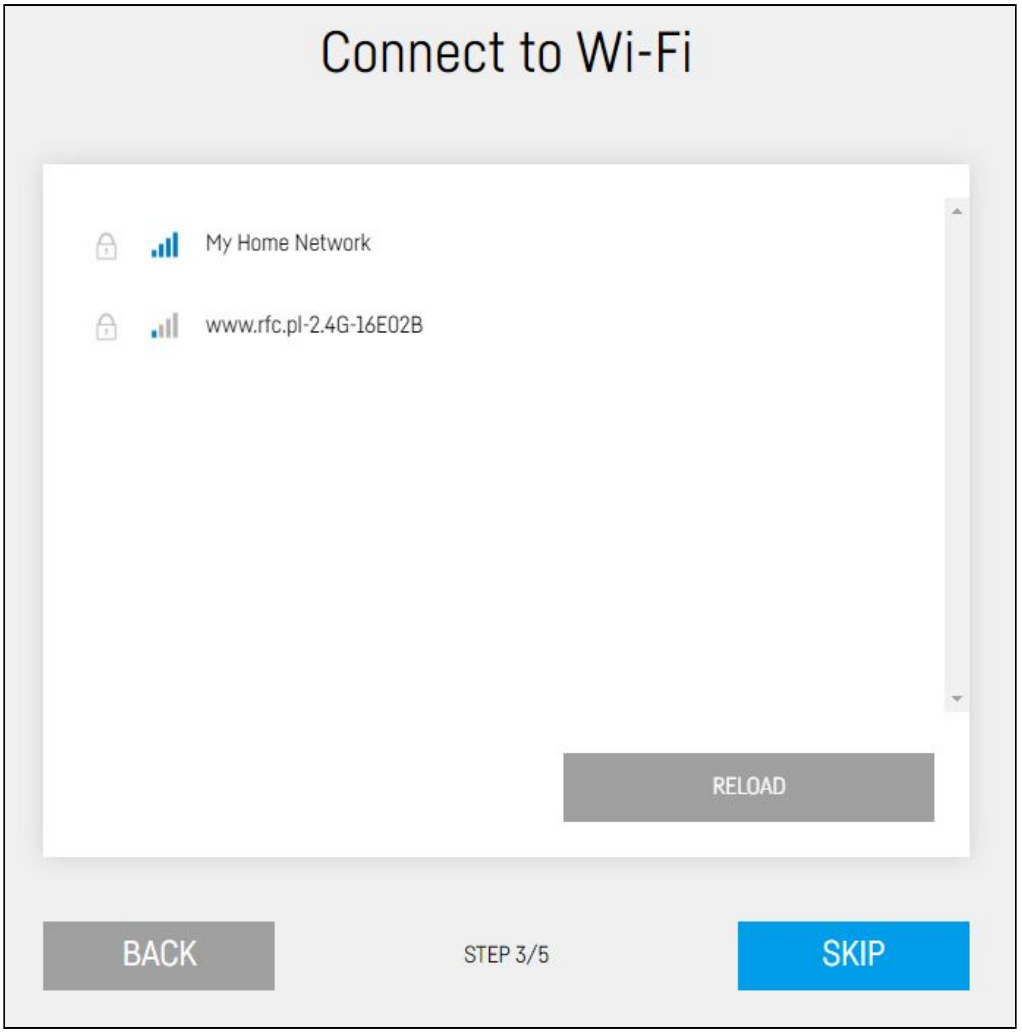


Step two - set the kH range suitable for your tank (by default from 7.00 to 8.00).

By clicking and holding the red dots and moving left or right, you set the minimum and maximum value of the kH range appropriate for your tank. When the kH level reaches levels below or above the set range, the device will immediately notify you about it. The range scale automatically changes and adjusts in size to the range you specify. The measurement is performed with an accuracy of two decimal places, i.e. up to 0.01 dKh.This can be modified at any time after set up is complete.

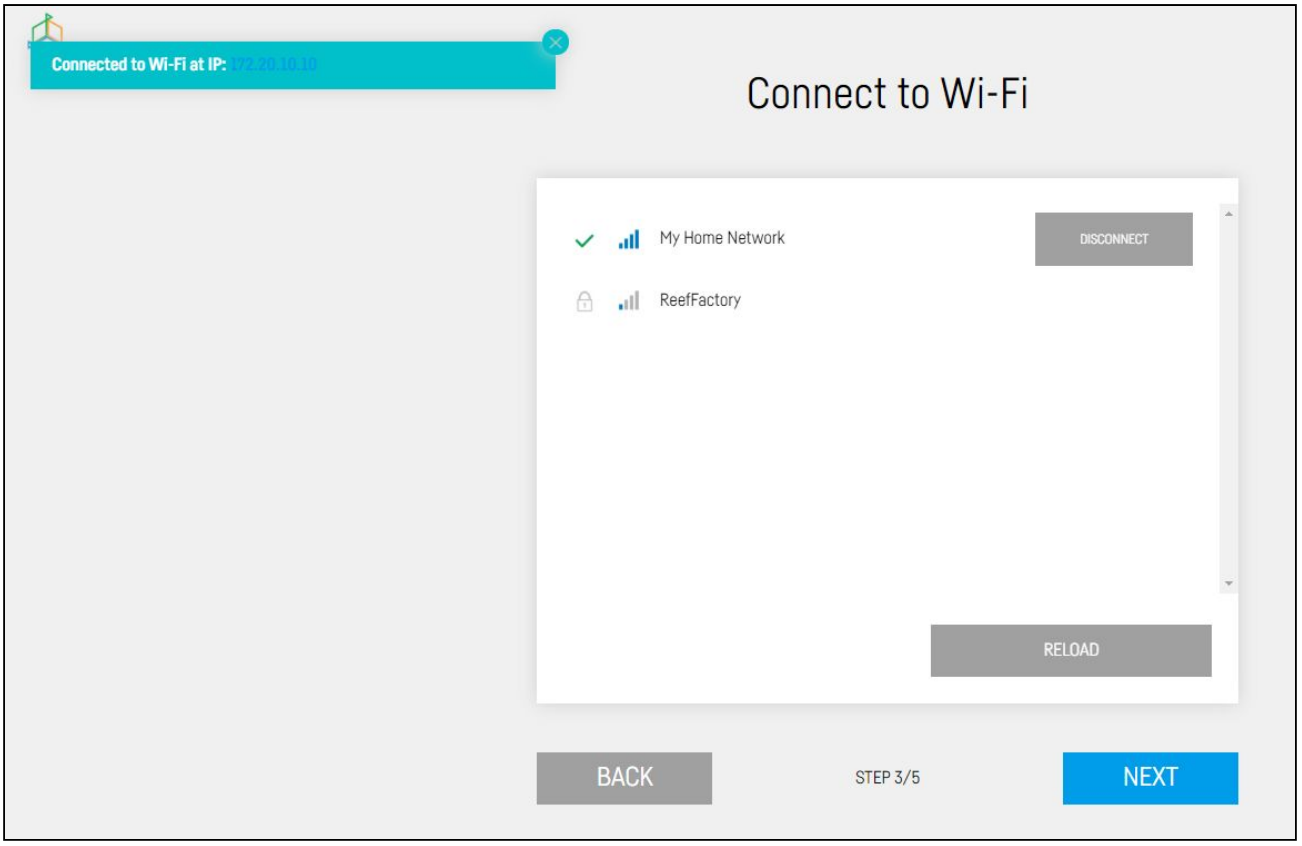


Step three - connect the device to your home Wi-Fi wireless internet network. If the network is secured, enter the password that protects the home network against unauthorized access.



If the device does not connect to your home Wi-Fi wireless network the first time, you will have to repeat this step. It largely depends on the type of your network device and its producer. Your wireless network signal level should be as high as possible. Please note that the device that KH Keeper connects to must have internet access to communicate with the Smart Reef system.

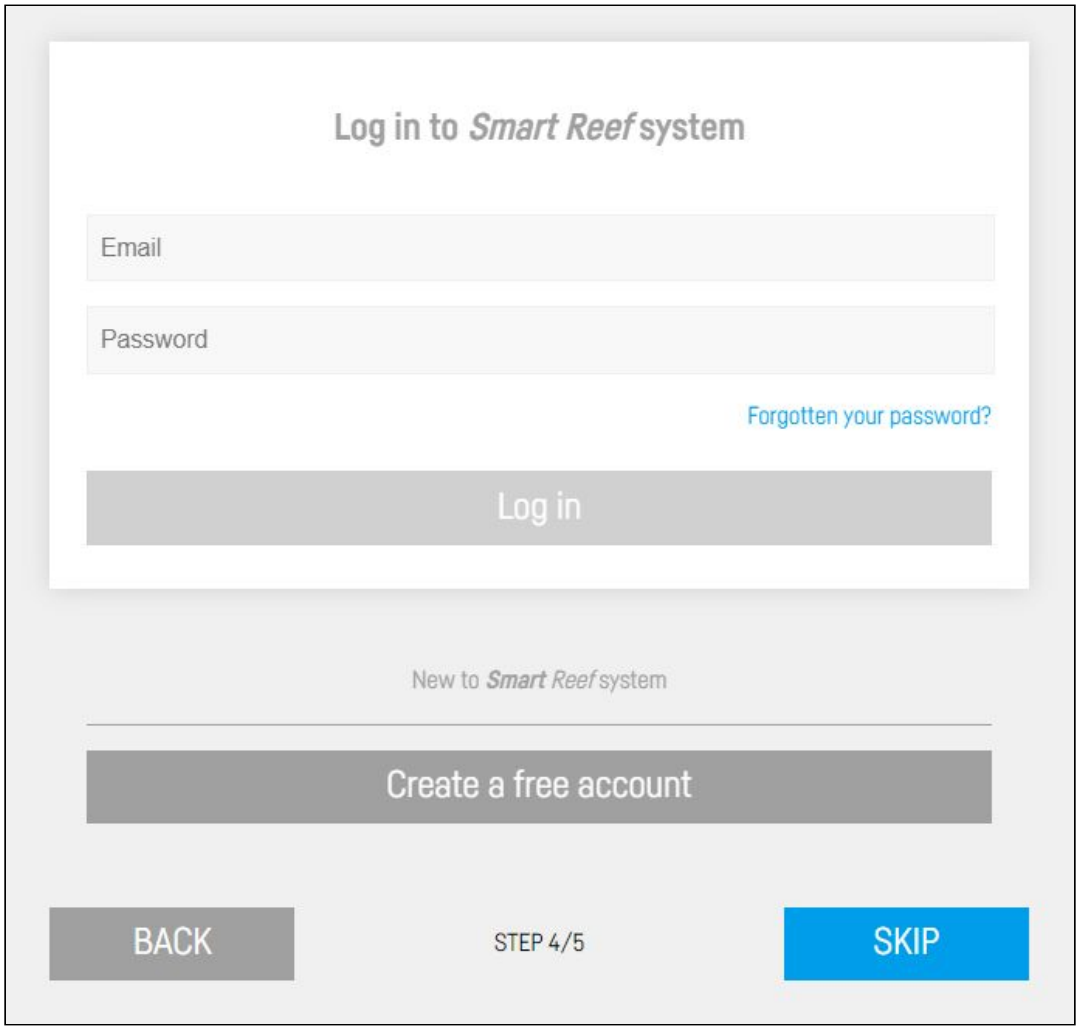
When KH Keeper has successfully connected to the Wi-Fi wireless network, the IP address assigned to your device will appear in the upper left corner of the screen. This will inform you that everything is connecting well.


Connected to Wi-Fi at IP:
Connect to Wi-Fi
My Home Network
DISCONNECT
ReefFactory
RELOAD
BACK
STEP 3/5
NEXT

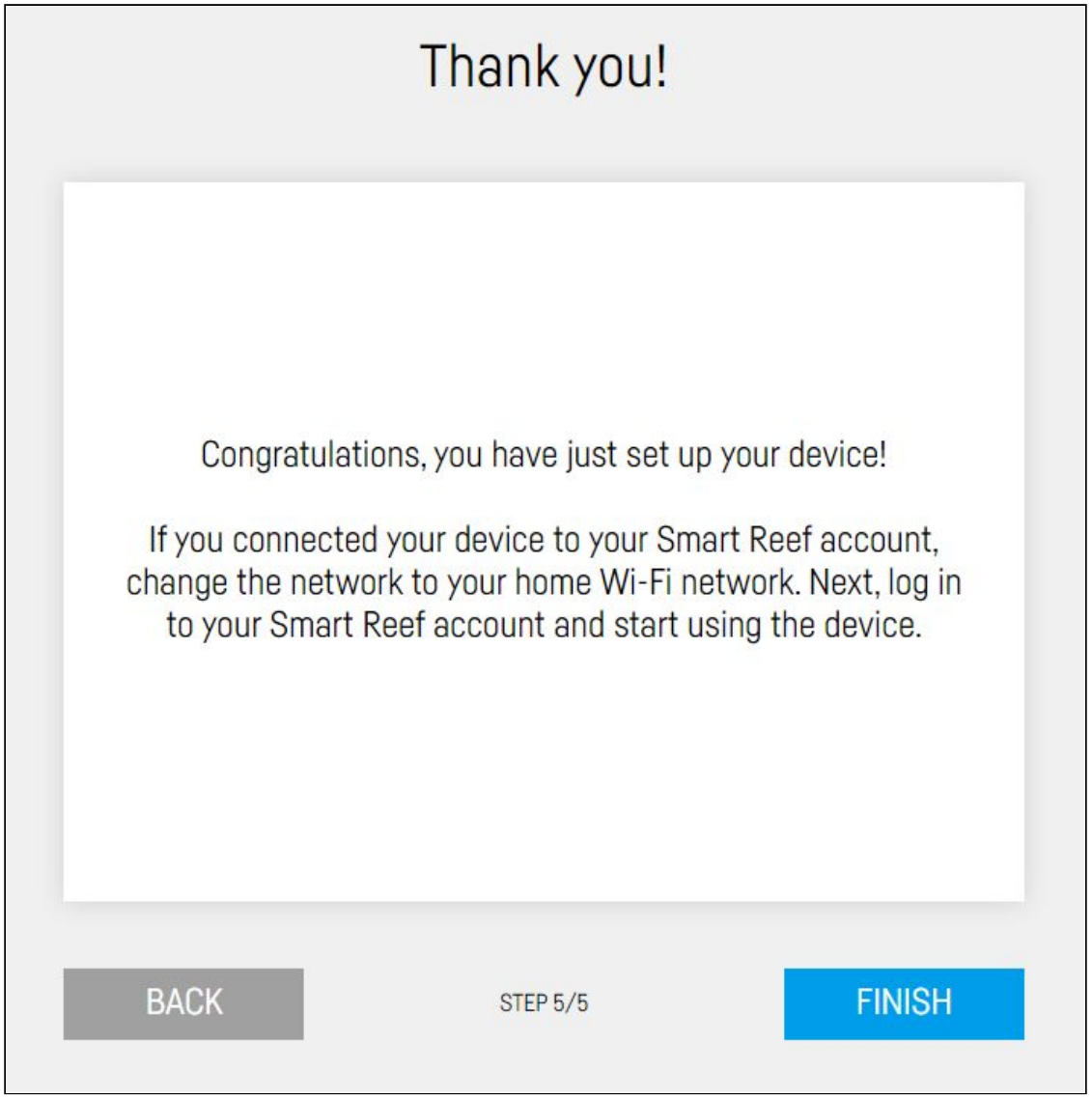
Step Four - Create a free account on Smart Reef system by clicking the "Create a free account" button. Remember that you need to connect to the Internet through your home Wi-Fi router to do this.

WARNING: The password for the account should be sufficiently complex and difficult to hack.

Connecting the device with a Smart Reef account will enable remote control of the device and water purity control as well as access to additional functionalities. If you already have a Smart Reef account, please enter your login details to add another device. If you do not want to manage your device remotely, you can skip this step, but you will lose a number of additional benefits regarding this operation, including the ability to update your device.



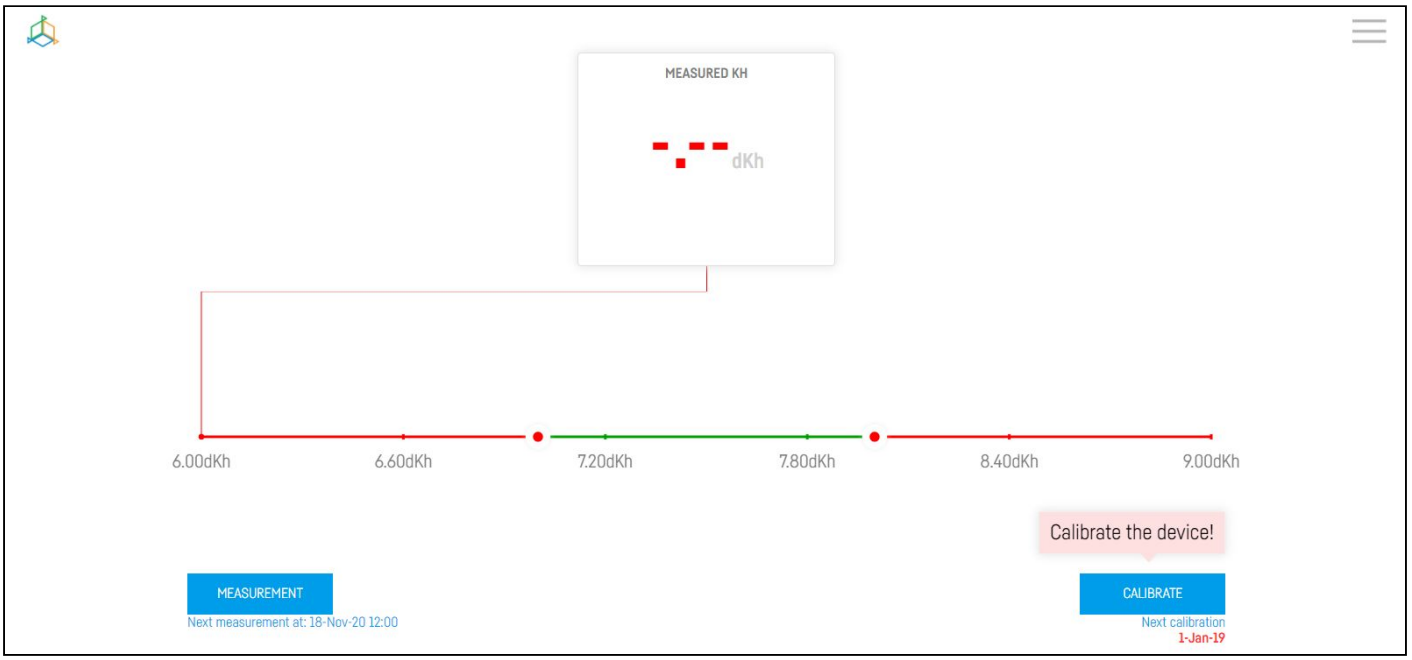
Step Five - Congratulations, the KH Keeper setup is complete.



WARNING: The first time the device is turned on or when the device has not been used for a long time, it is recommended to place the probe in the aquarium water (brine) for 30 minutes and then take some test measurements.

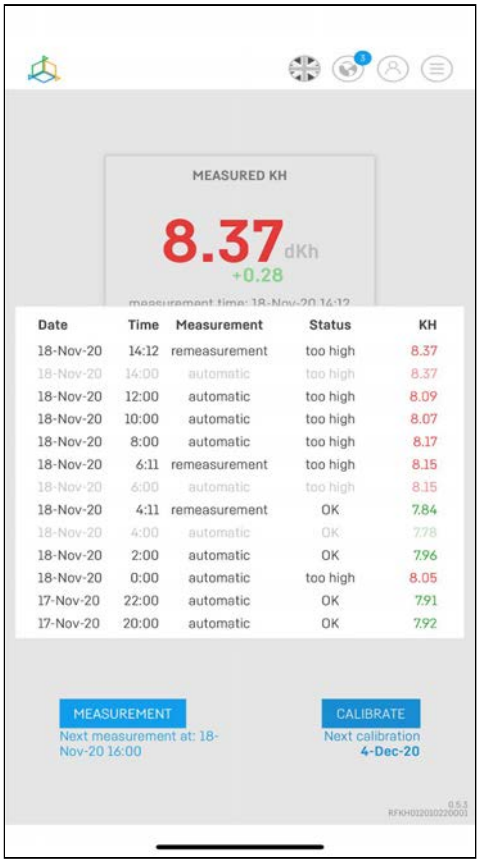
VI. Description of the device functions.

1. After completing the configuration (pressing the "END" button), the current status of the device will be displayed on the screen. Pay attention to the additional functions of your new smart kH meter. It will be described later in this manual.

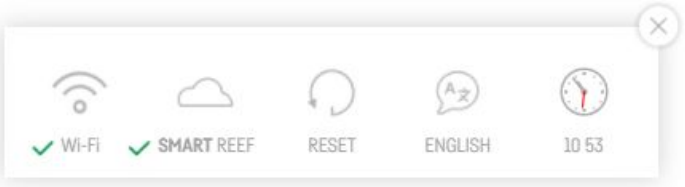


At any moment, you can correct the kH range appropriate for your tank by clicking on the red dots and moving them left or right to set the minimum and maximum value of the kH range. The range scale automatically changes and adjusts in size to the range you specify. The measurement is performed with an accuracy of two decimal places, to 0.01 dKh.

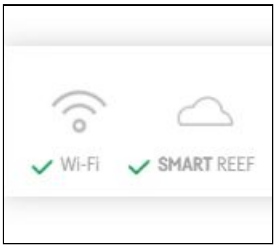
2. In the central part of the screen, is displayed the current kH value from the last measurement, below there is information about the difference with the measurement in relation to the previous measurement (+0.20) and the date of the last measurement. After pressing the button “show more”, the history of measurements is presented, as in the graphic below. Measurement statuses are also presented:
    - **OK** - the measurement is within the set range, below the range - the measurement value is outside the measuring range of the device,
    - **too low** - the measurement is below the set range,
    - **too high** - the measurement is above the set range,
    - **too rapid** - the value change is above the set allowable change between measurements (details will be described further in this manual). In case the change is too abrupt, the device performs another control measurement - see the measurement column. When its result is the same, the device considers it correct.



3. History button HISTORY - displays historical measurements that are no longer published on the list in the "show more ..." function. This function is available after logging in to your Smart Reef. If the device is not logged in, this function is not available.
4. There is a drop-down menu icon in the top right corner of the screen.



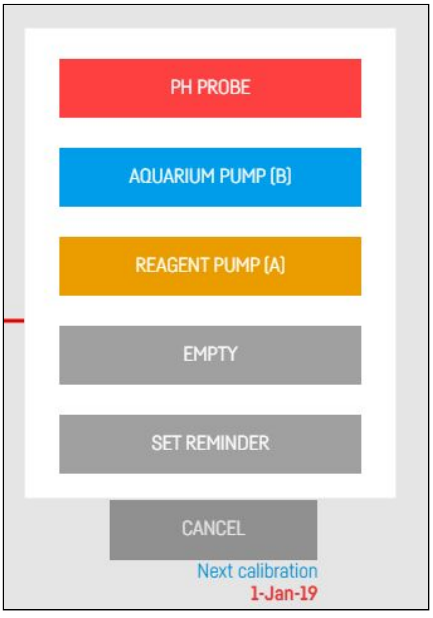
By selecting this menu, you can change or reconfigure the device. There are also additional functions, such as support for Wi-Fi wireless networks, the ability to set a password for the device network so that nobody but you can remotely connect to it, support for your Smart Reef account, the ability to set the current date and time, change the language and the function of restoring the device to factory settings. In addition, the icons show the current connection status with your wireless network and the Smart Reef system.



The symbol ✓ means a valid connection, while the symbol ! means no connection.

VII. Calibration procedure.

1. In the lower right corner of the screen you will find the device calibration function CALIBRATE. Performing a calibration is very important as it affects the precision of the measurement. Remember to perform the calibration process immediately after installing a new device and always after changing its installation location and changing the installation connection to it (length of hoses, additional filters or valves, etc.). The calibration process should be repeated periodically, in accordance with the device prompting "next calibration". Calibration takes three steps as it is necessary to calibrate the pH probe and the two pumps.

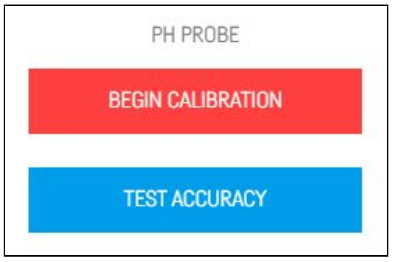


2. The pH probe calibration PH PROBE - for this purpose, uses the pH4 and pH7 testers included in the kit. You may use liquid or powder solutions by other manufacturers. Sachet testers are used to prepare ready-made buffer solutions. The contents of the sachet should

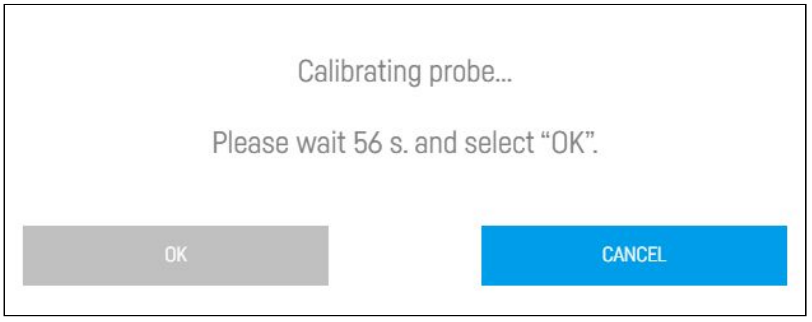
be poured into 250 ml of Reverse osmosis water (with a temperature close to 25 ° C), please do not begin the calibration process until the contents of the sachets have been completely dissolved. Also check the sachet containing the powder is empty. Then press the button to start calibration.

WARNING: Remove pH probe from the water and rinse it with RO water, then pat dry.

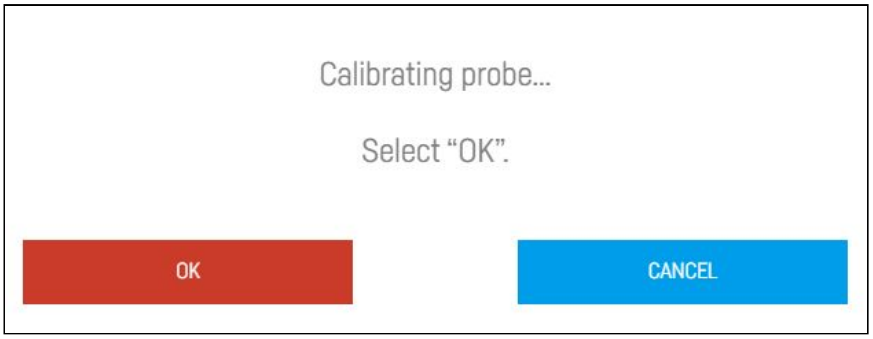
Press the button to start the pH probe calibration process.



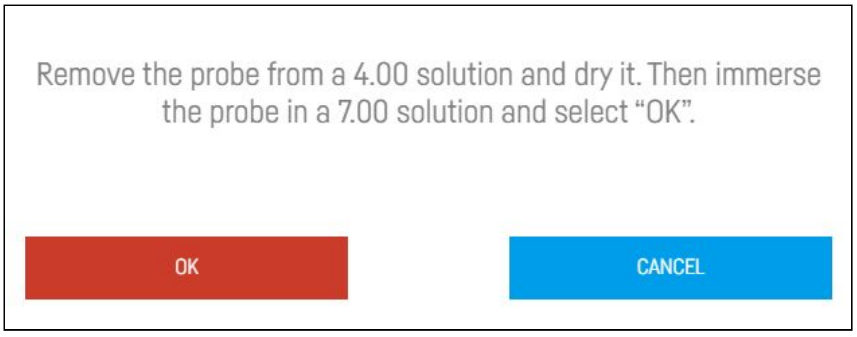
Immerse the probe in the PH4 solution and wait 60 seconds (stabilization process before measurement).



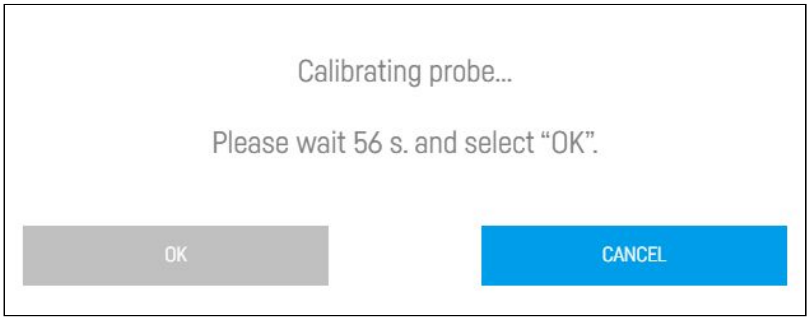
After this time, a confirmation button for starting the calibration process will appear on the screen.



Then remove the probe from the PH4 solution and rinse it with RO water, pat dry then immerse the probe into the PH7 solution.



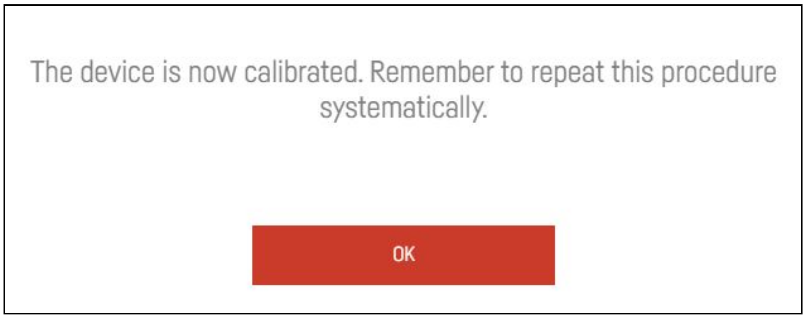
Wait 60 seconds (stabilization process before measurement).



After this time, a confirmation button for starting the calibration process will appear on the screen.

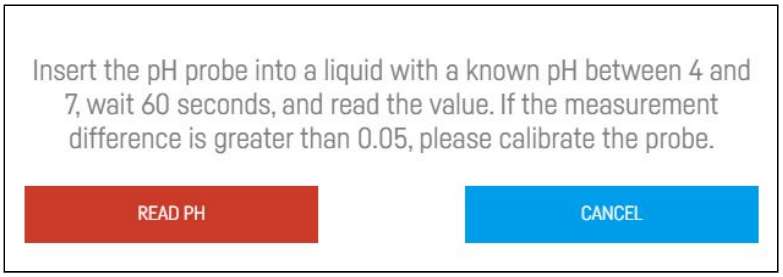
The calibration process is complete.

Do not throw away your pH 4.0 and 7.0 solutions as you will be able to test accuracy at the end of the calibration process



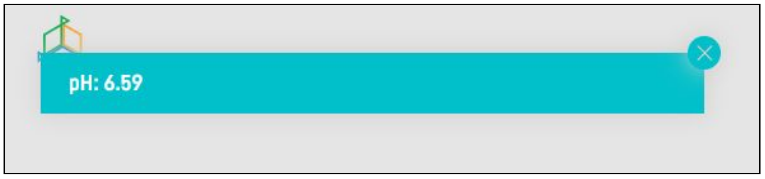
An additional function of checking the pH probe is 

.



After pressing the button 

in the upper left corner, information about the measured pH value will appear.

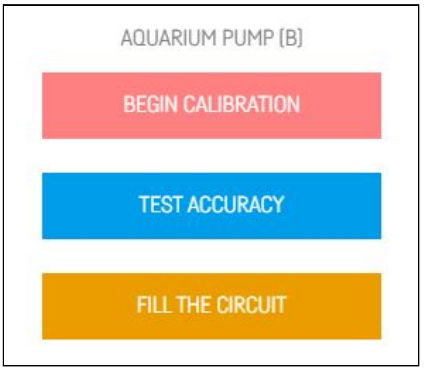


If the difference between the measurement result and the pH value of the solution is greater than 0.05, the calibration process should be repeated.

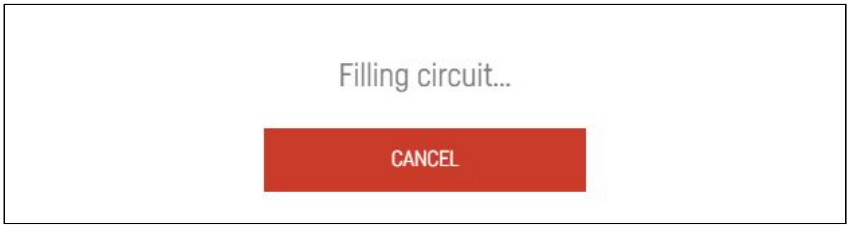
WARNING: In case that the measurement still differs significantly during the calibration, the reason for this may be a faulty pH probe. The probe has a lifetime from 6 to 24 months, depending on the operating conditions and frequency of measurement. It is a consumable element that is subject to periodic replacement.

3. Calibration of the aquarium pump (B) 

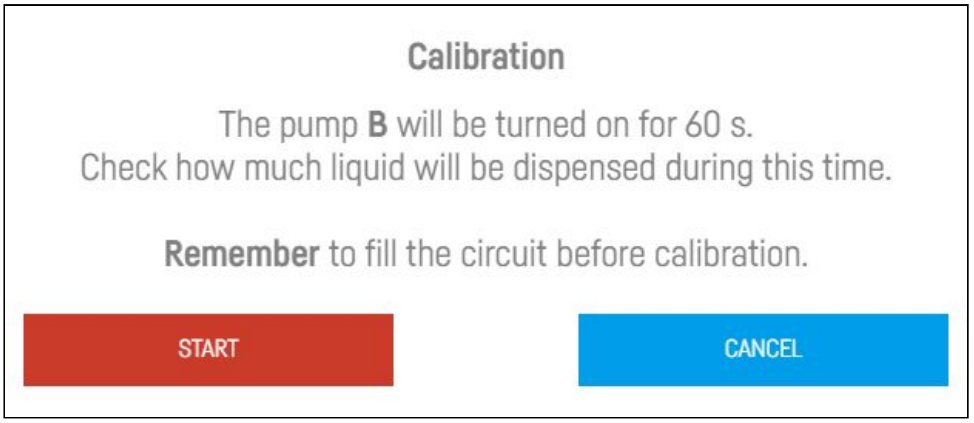
- it is a pump that doses water from the aquarium in the amount of exactly 50 ml. This amount of water from the tank is required for the correct KH measurement, therefore the correct calibration of this pump is very important. After pressing the button aquarium pump B, additional functions are displayed.



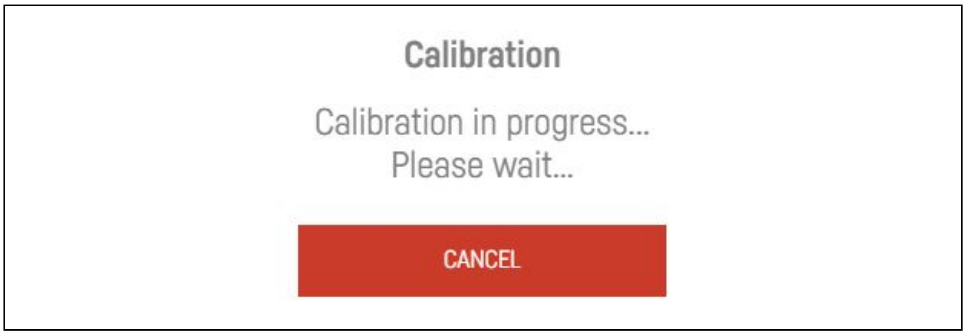
To properly calibrate the pump, fill the hose that takes the water from the aquarium with water from the tank using the function FILL THE CIRCUIT. The pump will automatically run for 15 seconds to fill the hose. Make sure that the entire hose is filled with water and that there are no air bubbles inside, in addition, a small amount of water should be poured into the glass spout via a tube. This process can be repeated numerous times until it is certain the silicon tubes are fully primed.



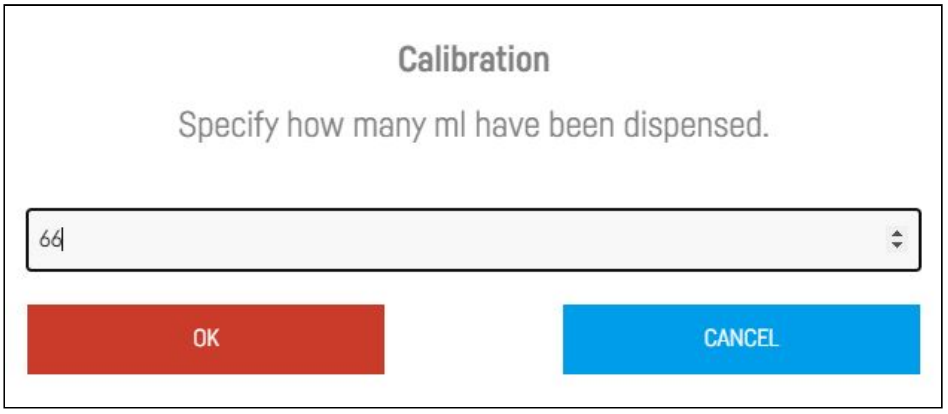
Pull out the excess water collected in the beaker (to do this, follow point III of the instructions on installation and removal of the glass beaker), and dry the beaker. Next, disassemble the beaker and insert a 100 ml measuring cup into the tube from the water filling pump, and then start the pump calibration process by pressing the button BEGIN CALIBRATION. After pressing it, a message will be displayed on the screen informing about the readiness to perform the calibration and the time during which the pump will pour water from the aquarium.



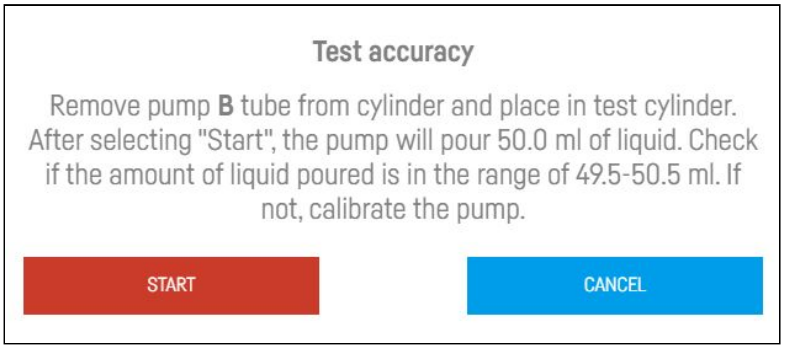
To start the calibration press button START.



After that measure the amount of water poured into the measuring cup and enter the value in milliliters into the table, then confirm. Alternatively, you can use a precise scale with a measurement accuracy of 0.01 grams, this will allow a much more accurate pump calibration.

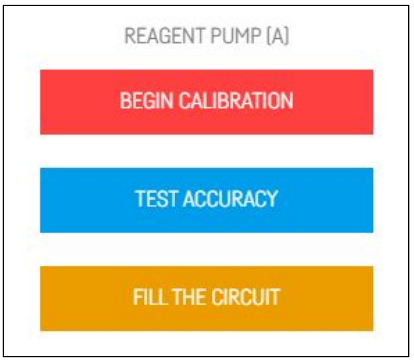


At any time you can check dosing correctness via function TEST ACCURACY. After turning it on will display information on how to proceed.

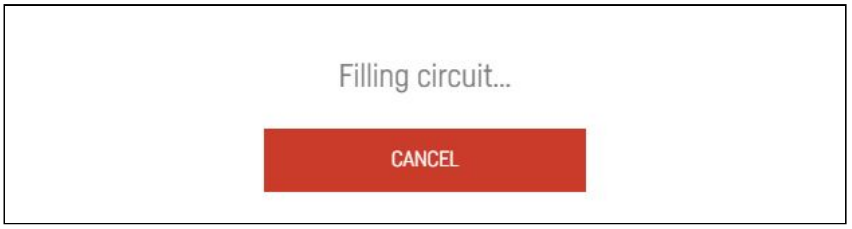


After pressing the start button, the pump should pour 50 ml of the liquid with an accuracy of +/- 0.5 ml. If the amount of liquid added is lower or higher, it is necessary to recalibrate pump B.

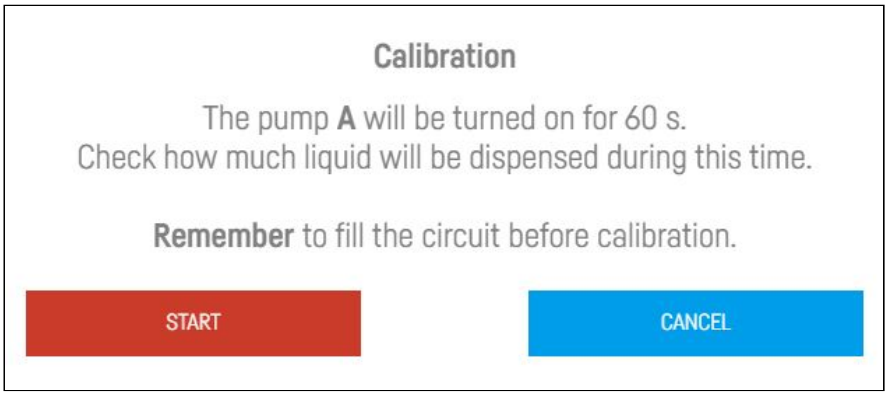
4. Reagent pump calibration (A) REAGENT PUMP [A] - it is a reagent dosing pump. Correct and precise dosing is crucial for the proper measurement process, therefore proper calibration of this pump is very important. After pressing the button aquarium pump B, additional functions are displayed.



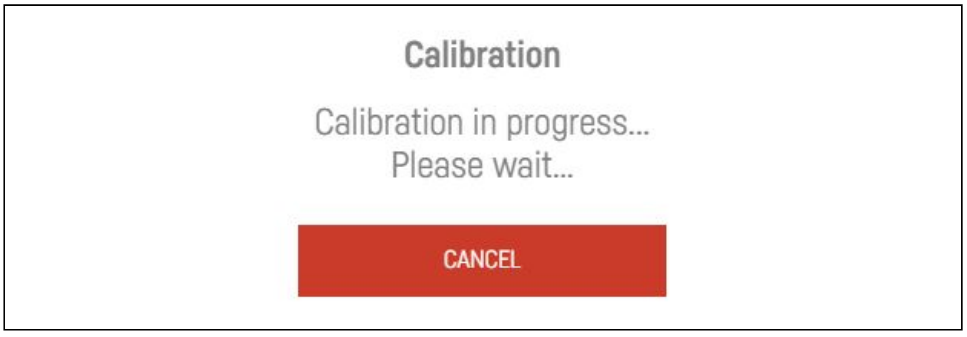
To properly calibrate the pump, fill the reagent uptake hose by using the function FILL THE CIRCUIT. The pump will automatically run for 15 seconds to fill the tubing. Make sure that the entire tube is filled with the reagent and that there are no air bubbles inside it, in addition, a small amount of the reagent (a few drops) should be poured into the glass spout through the red pipette.



Pull out the excess water collected in the beaker (to do this, follow point III of the instructions on Installation and removal of the glass beaker), and dry the beaker. Next, disassemble the beaker and into the tube from the pump pouring the reagent (plastic red needle behind the pH probe), insert a 10 ml beaker, then start the pump calibration process by pressing the button BEGIN CALIBRATION. After pressing it, a message will be displayed on the screen informing about the readiness for calibration and the time in which the pump will fill the reagent.

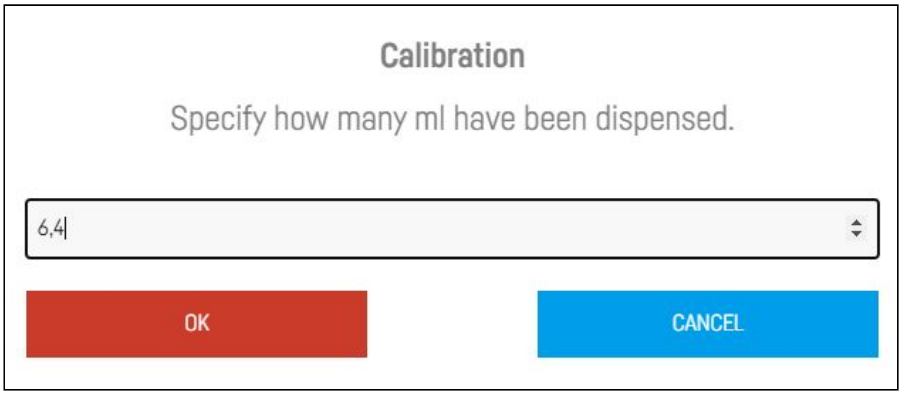


Press the button START to start calibration.

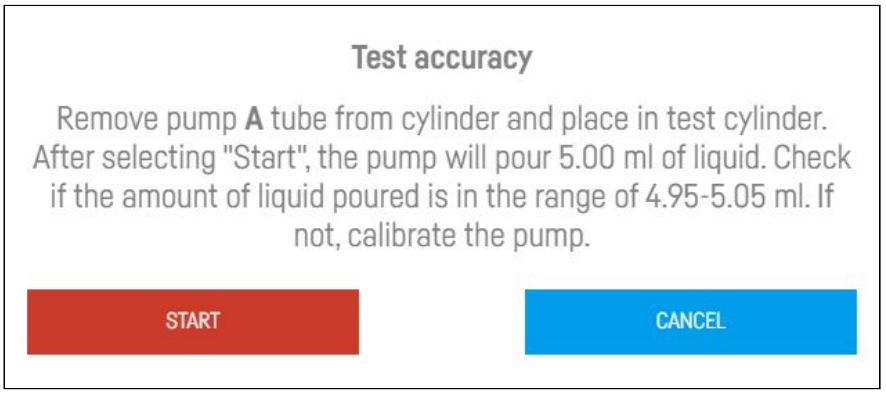


After this time, measure the amount of reagent poured in in milliliters using the enclosed 10 ml measuring tube and enter the value in the table, then confirm. Try to make the indicated

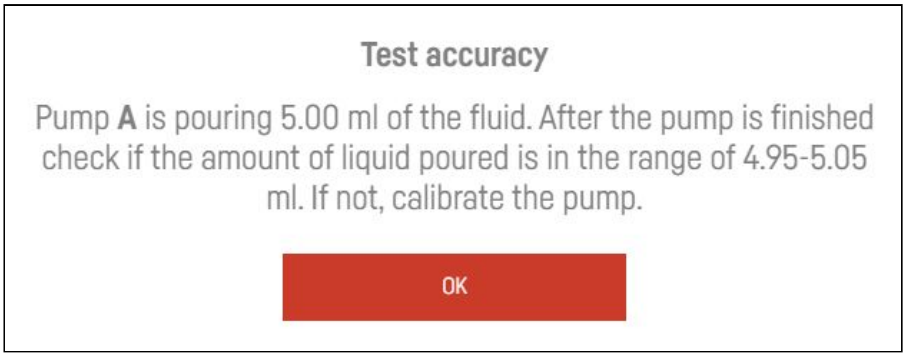
value as accurate as possible, e.g. given with one decimal place. Alternatively, you can use a precise scale with a measurement accuracy of 0.01 grams, this will allow a much more accurate pump calibration.



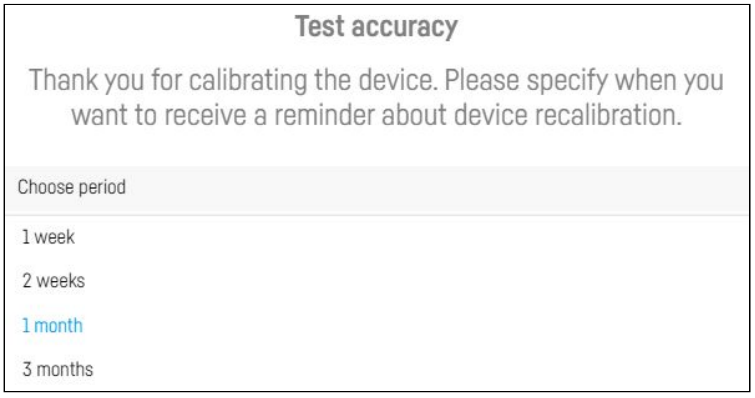
You can check the correct dosing of the pump at any time using the function TEST ACCURACY . After launching it, a message will appear in which further steps are described in accordance with the graphics below.



After pressing the start button, the pump should pour 5 ml of the liquid with an accuracy of +/– 0.05 ml. If the amount of fluid added is lower or higher, it is necessary to recalibrate pump A.



5. The empty function EMPTY - is created to pull out water from the glass beaker. **WARNING: This function should only be used when you want to change the installation location of the KH meter or when you want to perform service activities such as device inspection or replacement of dosing pump heads. Otherwise, do not empty the glass beaker because the pH probe is immersed in the liquid and it should not be dry.**
6. Set reminder function SET REMINDER - allows you to set a reminder about the need to recalibrate the device, according to the graphic below.



WARNING: It is recommended to calibrate the pumps once a month. PLEASE NOTE. The first few measurements are unlikely to be accurate. We recommend that a number of tests are carried out before changing the dosing program or adding any supplements to correct. We also recommend to make the first calibration after 7 days from the original set up. After the initial bedding in period the device will demonstrate a high level of accuracy.

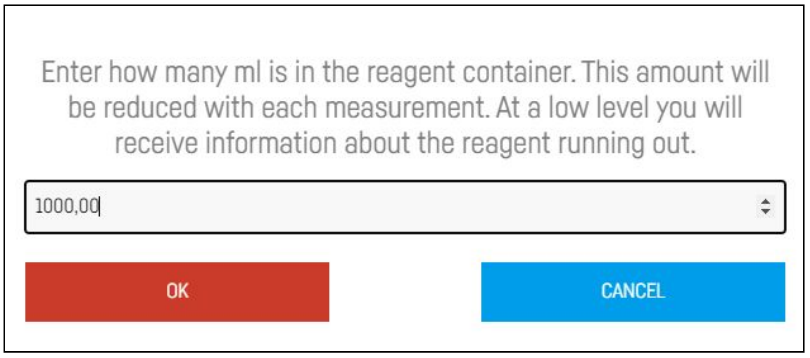
7. In the lower left corner of the screen you will find options for configuring the measurement functions MEASUREMENT. After pressing it, additional functions will appear.

8. Take now button 

- invokes the measurement function on demand. This means that after pressing the button, the device starts measuring.

9. Reagent amount button 

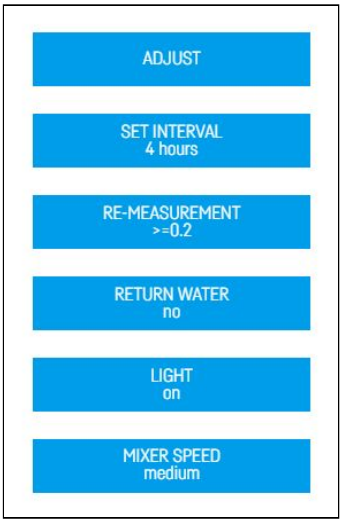
- informs about the amount of reagent remaining and the number of days until it is used. After pressing it, a window will be displayed in which you can enter the current amount of the reagent after its replenishment. During one measurement, the device uses from 5 to 15 ml of reagent depending on the kH level in the tank.



The remaining reagent value will be reduced by the amount used for each measurement, so you always know how much reagent is left in the container. Additionally, based on consumption kh keeper tells you how many days there is enough reagent to perform the measurement. Five days before the end, the kh keeper will inform you when the reagent is running out, so you have time to refill it.

10. Settings button 

- expands the additional configuration menu related to the kH measurement.



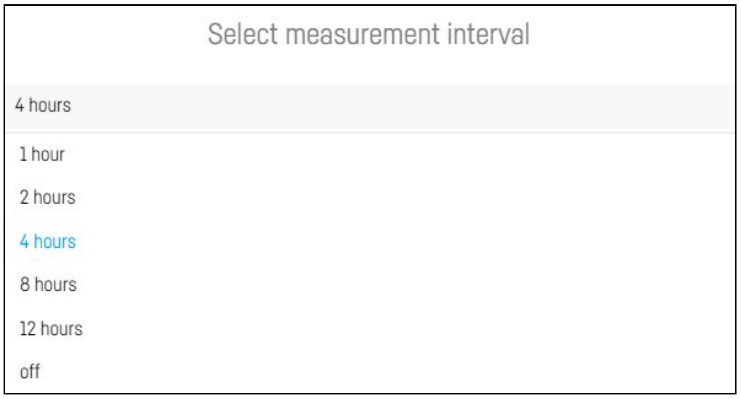
11. Adjust function 

- allows to adjust the kH measurement value to the value from another reference measurement, if the kH measurement from the device differs significantly from the measurement made with another reference (e.g. by the drop method), it is possible to provide the reference value of the obtained measurement based on the test performed , which will cause the kH to match its measurement to the reference value entered (its results will be consistent with the reference measurement).

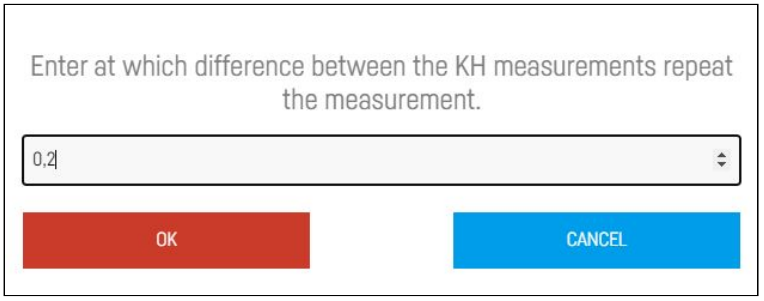
WARNING: If there is a difference in the measurement between the KH meter and another reference measurement, you should recalibrate the kH keeper first, then use the Measurement Fit feature if there are still differences.

12. Set interval function 

- allows you to define how often the device is to perform the kH measurement. The measurement always takes place at the full time (e.g. 12:00). After pressing the button, an additional selection menu appears, as shown in the graphic below.



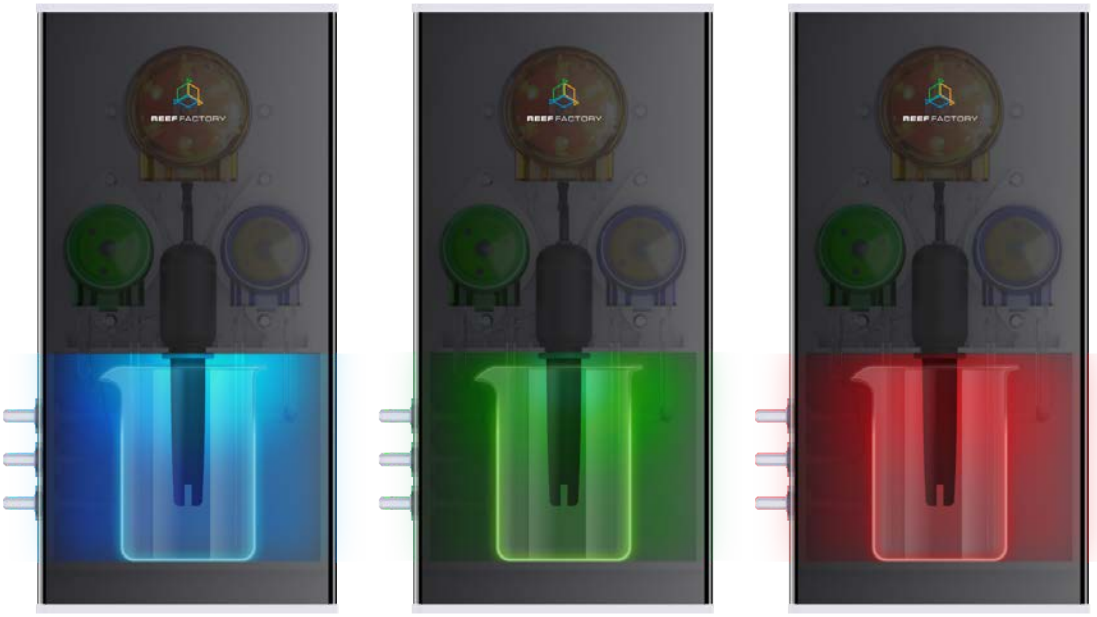
13. Re-measurement function  - enables automatic re-measurement of kH in case when the difference between the last two measurements is greater than the set value. After pressing it, an additional field appears, as in the graphic below, where you can enter the difference value at which the function is to be automatically started. If the measured value is still outside of the indicated range after re-measurement, your KH keeper will notify of a sudden change in kH.



14. Return water function  - enables or disables the function of pouring water from the glass beaker after taking the measurement to a waste container. Turning on the return water function returns the water with the reagent back to the aquarium. This function is very useful when you do not have the option of pouring the water from the measurement "outside" or when the measurement is carried out in a tank with a small capacity to reduce water loss and sudden changes in salinity. The amount of reagent that is used during the measurements is small and depends on the kH level in the tank (from 5 to 15 ml). The reagent is also diluted 9/1 too. 1 part reagent 9 parts water so less than 1ml of concentrated reagent.

15. Light function 

- turns on or off the light signaling related to the implementation and measurement result (green - measurement correct, red - measurement incorrect, blue - during measurement). The graphic below shows the way of signaling the operating mode and the measurement result.



Measurement in progress Positive measurement Negative measurement

16. Mixer speed 

- allows you to select the operating mode of the magnetic stirrer (slow, medium and fast mode). We recommend to set to the slow mode. After selecting and confirming the selection, the stirrer will be turned on for 10 seconds in order to simulate the set operating mode.

WARNING: the correct mixing of the reagent with the water from the tank during the measurement has a very significant impact on the kH measurement result. In some cases, the speed of the stirrer in the fast mode may cause it to stop / hang. In this case, choose a slower blending mode. For this purpose, it is recommended to perform a few or a dozen tests of the mixer operation at the installation site of the kH keeper.

VIII. Error signalisation and irregularities during the operation.

In the case of an error or irregularity in the measurements, see below summary of messages that the KH Keeper can send to the user:

- The KH level is too low - the level of kH measured is below the declared value,
- The KH level is too high - the measured kH level is above the declared value,
- The kH measurement value is below the measuring range - the measured kH level is below the value of 5.00 dKh,
- The kH measurement value is above the measuring range - the measured kH level is above the value of 15.00 dKh,
- The reagent running out - the amount of reagent remaining is low and it will enough for about 5 days, refill the reagent and enter the amount that is currently in the tank,
- Reagent ran out / no reagent - refill the reagent and enter the amount that is currently in the tank, if necessary, fill the circuit,
- PH probe measurement error - the pH probe measures incorrectly, check the connection of the probe and then calibrate it using pH4 and pH7 calibration buffers,
- Rapid change in kH level - the change in kH level between measurements is too rapid (it is higher than the acceptable value of the change between two consecutive measurements).

IX. Additional functions.

1. The device reset.

   If Your device is not working properly, you want to reconfigure it, or you cannot connect to it despite several attempts, you can restore the device to the factory settings by putting the magnet (included in the kit) in the designated place (according to the graphic at the beginning of the manual).

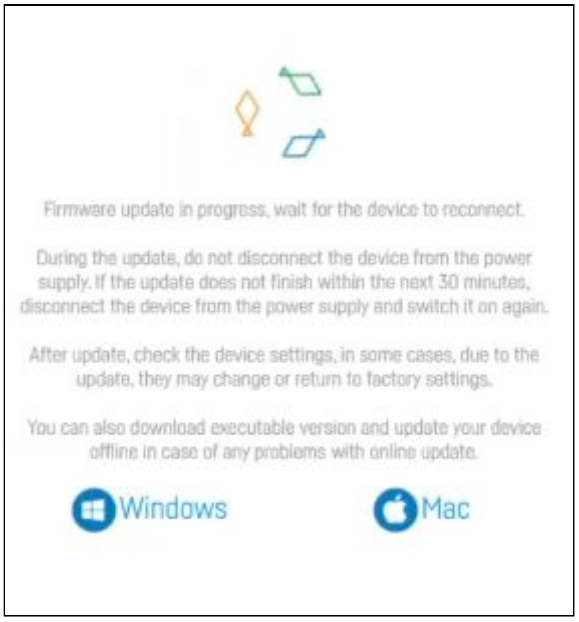
2. Device operation from the Smart Reef system.

   Connect to your internet network using a computer or mobile device. Then go to www.reeffactory.com and log into your Smart Reef account. Check that the device has been correctly added to the list of your devices. You can rename the device and assign it to the selected aquarium. In the lower right corner of the screen you will find your device serial number and software version. As our devices are SMART and we are constantly developing them, from time to time you will receive information about the possibility of updating the

software to the latest version, thanks to which your device will work even better. Pay attention to the icons in the upper right corner of the screen. They allow you to change the language, view the history of notifications that the device has registered, contact us and access many other interesting functions that are worth learning about.

All our devices are constantly improved and developed. Every time a new version of the firmware is released. You will find information about the possibility of updating the device in the Smart Reef system. An update icon will appear next to the device  .

When you confirm that you want to update, the following message will appear on the screen:



If the update fails for technical reasons, it is possible to update the device from the computer. To do this, download the update file by selecting the operating system icon  or  . Updating from a computer requires logging in to the device directly via the device's Wi-Fi network and then running the update program. Then follow the prompts on the monitor screen.

X. Technical problems and troubleshoot guide.

The table below presents the problems that you may run into while using the device, and proposes what to do to eliminate them yourself.

Description of the problem	Possible cause	Procedure
The pH level remains constant during the calibration of the pH probe	Probe incorrectly connected	Unscrew the back of the cover, disconnect and then reconnect the BNC connector of the pH probe. Screw on the rear part of the cover. Check if the problem is resolved.
The pH level remains constant during the calibration of the pH probe	PH probe failure	Unscrew the back part of the cover, replace the pH probe with a new one. To do this, disconnect the power harness from the reagent pump, disconnect the BNC connector on the probe, unscrew the reagent pump, pass the cable from the pH probe and remove it. Install a new probe, pass the signal cable, then screw on the reagent pump. Connect the reagent pump power harness and the pH probe BNC connector. Check if the problem is resolved.
The pump does not draw liquids	System leak	Check that all connectors are connected together, then check that the hose is not damaged, e.g. frayed or broken. In the last step, check if the hose in the pump head is not chafed and if the tubes in the beaker are properly installed (inserted into the plastic connectors. If the hose in the head is worn, replace the head with a new one (replaceable part).
The pump is not running (is not spinning)	Head worn out	Remove the head from the pump and then start the pump without it,

		if the pump works properly without the head, it means that it must be replaced with a new one.
The device does not generate a Wi-Fi network or it is impossible to log into the device	The device may need to be reset	Briefly apply the magnet to the cover at the point marked RESET. Wait 5 seconds and find your device's Wi-Fi network, then log in to the device.
The magnetic stirrer is not spinning	Stirrer speed is too high and / or has moved too much in the beaker	Push the beaker all the way to the back of the casing, then move the magnetic stirrer to the center of the beaker. Pour water into the beaker about half its height (approx. 50 ml), and then start the stirrer.
NOTIFICATION: No reagent or water from the aquarium	Suspected system leak	Check that all connectors are connected together, then check that the tubing is not damaged, e.g. frayed or broken. In the last step, check if the tubing in the pump head is not chafed and if the tubes in the beaker are properly installed (inserted into the plastic connectors. If the tubing in the head is worn, replace the head with a new one (replaceable part).
NOTIFICATION: Probe error	Probe incorrectly connected or probe defective	Unscrew the back of the cover, disconnect and then reconnect the BNC connector of the pH probe. Screw on the rear part of the cover. Recalibrate the pH probe. Check if the problem is resolved.
NOTIFICATION: Reagent running out, please refill!	Refill the reagent	Pour in the properly prepared reagent. Remember that the purchased reagent is concentrated and requires mixing with RO water.

Additional and most up-to-date information about the operation and configuration of the device can be found on our website www.reeffactory.com in the product sheet.