

Reefmaster - PIPER -



Instruction manual





– PIPER –

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– PIPER –

Important note for using this guide

Please read this instruction manual carefully and completely before operating the Reefmaster PIPER. It contains important information on the safe use, installation and maintenance of the device. Incorrect handling can lead to damage to the device or inaccurate measurement results. Keep the instructions for future reference, and make sure everyone using the device is familiar with the instructions. If you have any questions or uncertainties, please contact us at support@reefmaster.tech or visit www.reefmaster.tech for more information.

1. Warnings

The PIPER may only be operated with the reagents intended for this purpose.

The use may only be carried out with the hoses supplied. The hoses must not be shortened, extended or kinked.

The PIPER may only be operated with the supplied power supply.

Use only in closed rooms for aquarium purposes.

Instructions for safe use:

- Do not expose the PIPER to any heat source.
- The PIPER is designed for reliable operation at normal room temperatures.
- Do not cover the vents on both sides during use.
- During use, place the PIPER on a stable, flat and, above all, straight surface.
- Be careful when handling the PIPER to avoid mechanical damage to the connectors.
- Avoid moving the PIPER during operation
- Do not expose the PIPER or power supply to direct water.
- Wear the nitrile gloves supplied during all work steps with the PIPER reagents

2. Scope of Delivery

Accessories:

Reefmaster PIPER

Power Supply

(12V)

1 hose holder for aquarium with 2 silicone hoses installed 3

additional coloured silicone hoses

3 screw caps with hole 1 pair of

gloves

Consumables:

1 set of test reagents each (Ca, KH, Mg, PO₄, NO₃)

1 bottle each of "Cleaning Solution" and "Cleaning Solution

2" 1 bottle of reference solution (multi-reference solution)

3. Technical data

Electrical data

Power supply	Specification
Input voltage	100 – 240 V AC
Output voltage	12 V DC
Frequency	50 / 60 Hz
Performance	36 W

Dimensions

Gauge	Dimension
Length	259.5 mm
Width	250 mm
Height	213.5 mm

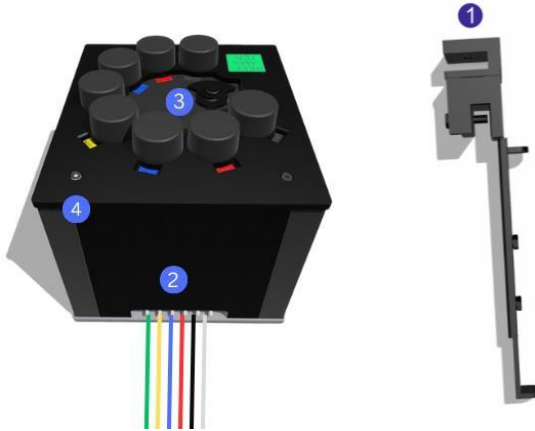
Measuring range

Measured value	Measuring range	Resolution	Accuracy
KH*	4.5 – 11 °KH	0.13 °KH	± 0.3% ± 5%
Calcium*	290 – 600 mg/l	9 mg/l	± 9ppm ± 5%
Magnesium*	1000 – 1700 mg/l	10 mg/l	± 10 mg/l ± 5%
Phosphate	0.00 – 0.4 mg/l	0.01 mg/l	± 0.02 mg/l ± 10%
Nitrate	0.00 – 50 mg/l	0.01 mg/l	± 2 mg/l ± 10%

*The concentrations of KH, calcium and magnesium are determined by means of a color change reaction by titration. The storage of device-specific correction factors by measuring the reference solutions at the initial setup can affect the measurement ranges, resolutions and accuracies. The measuring ranges are therefore redefined to a small extent with each reference measurement. The values pre-installed on the device are stored in the table.

4. Initial Setup

4.1 Connect PIPER



Important: Only use the supplied hoses and do not shorten or lengthen them!

Connect aquarium water hose

- Pass the short end of the yellow silicone hose through the top hole in the hose holder slider and connect it to the connector at the bottom of the slider (1).
- Use the screws to align the hose holder so that the silicone hose is 3cm below the water surface of the technical pool. Make sure that the hose is not bent at any point.

- Screw the holder with the long screw to the desired position of the technical pool. There is a mounting option for both pool aquariums (screw on the side) and aquariums with a horizontal glass bridge (screw at the top).
- Then connect the long end of the yellow silicone hose to the "AW" (aquarium water) connection and the white silicone hose to the "SV" (safety valve) connection on the PIPER (2).

Osmosis Water Hose Connect

- Attach the blue silicone hose to the osmosis water reservoir so that the hose is just above the bottom of the reservoir. Connect the other end of the hose to the "OW" (osmosis water) connector on the PIPER (2).

Connecting the sewage hose

- Attach the black silicone hose to a suitable wastewater container and connect the other end of the hose to the "DR" (Drain) connector on the PIPER (2). Containers made of polyethylene (HDPE, LDPE), polypropylene, PVC, acrylic or polycarbonate are suitable. Note that the container should not be sealed airtight, otherwise excess pressure will build up.

Drag for the both Subsequent Work steps the enclosed gloves.

Connect the Cleaning Solution Hose

- Replace the lid of the "Cleaning Solution" bottle with the included screw cap with hole. Pass the red silicone tube through the hole to the bottom of the bottle.

Connect the other end of the red silicone hose to the "CL" (Cleaning) connection on the PIPER (2).

Perform the same step with the "Cleaning Solution 2" and the green hose.

Filling in test reagents

- Fill the test reagents into the containers provided in the PIPER (3). **The NO₃ capsules go into the oddly shaped container with the black lid, next to the silica gel.** Open only one container at a time to avoid contact between two reagents and incorrect filling. A minimum fill level of a few millimeters is necessary in the reagent bottles. Falling below this level will result in an error message being sent and the test being aborted.
- Connect the power adapter to the port marked (4) and connect to the power supply.

Please note that a reference measurement for KH, Ca and Mg must be carried out before the first use to ensure correct measurement results (see 6.4).

4.2 Install the smartphone app



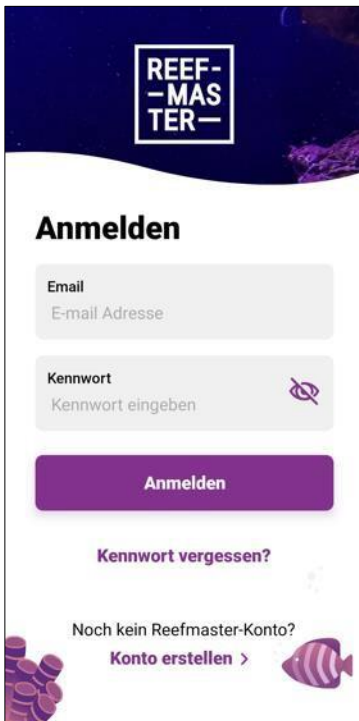
The PIPER is easily controlled and the measurement results are viewed via the Reefmaster app.

Once you've plugged in the PIPER and the logo light turns purple, you're ready to connect to your PIPER.



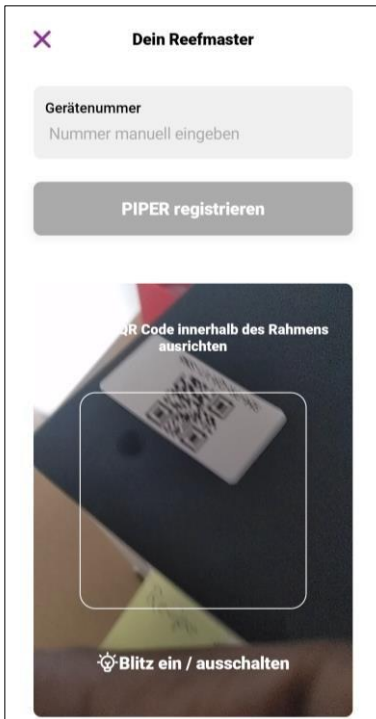
To do this, download the Reefmaster app from the iOS or Android app store to your smartphone.

4.3 Register users



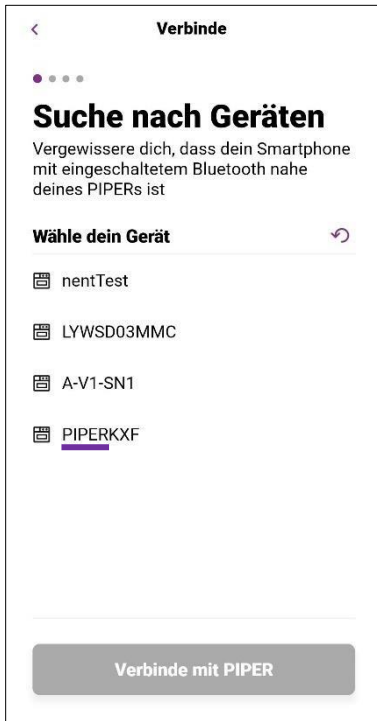
When you open the app, a login mask appears. If you don't have an account, click on "Create Account" to register. Enter your email address and a password. You will then receive a confirmation code by email, which you will have to enter in the app. Once this is done, your Reefmaster account is created and you can log in. Once you are registered and logged in, you can connect the PIPER to the internet.

4.4 Register PIPER



In the first step, you will be asked to scan the QR code on the back of the PIPER. Alternatively, you can enter the serial number manually.

4.5 Connecting PIPER to Wi-Fi



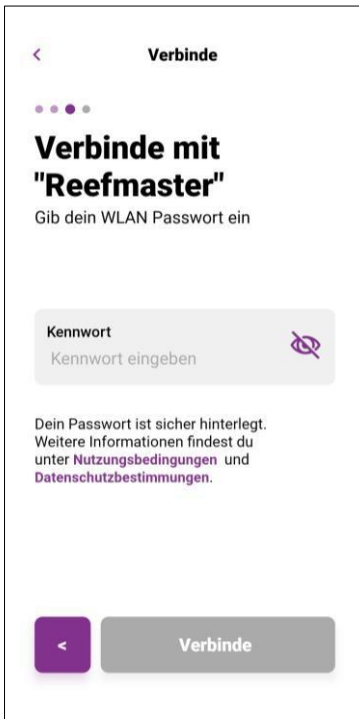
In the next step, the Bluetooth function and location services are required. Please make sure that both services are enabled and the necessary authorisations have been granted. Now the app searches for the Reefmaster PIPER. All available Bluetooth devices are displayed within range. Select your PIPER, you can recognize it by the fact that the device name starts with "PIPER".

4.6 Select Wi-Fi



In the next step, select the desired Wi-Fi network to which you want to connect the PIPER.

4.7 Enter your Wi-Fi password



The screenshot shows a mobile app interface for connecting to a Wi-Fi network. At the top, there is a back arrow and the title "Verbinde". Below the title are three colored dots (red, green, blue). The main heading is "Verbinde mit 'Reefmaster'" in bold black text, followed by the instruction "Gib dein WLAN Passwort ein". A text input field is labeled "Kennwort" and contains the placeholder text "Kennwort eingeben". To the right of the input field is a purple eye icon. Below the input field, there is a security notice: "Dein Passwort ist sicher hinterlegt. Weitere Informationen findest du unter [Nutzungsbedingungen](#) und [Datenschutzbestimmungen](#)." At the bottom, there is a purple back arrow button and a grey "Verbinde" button.

Enter the password of the Wi-Fi network you want to use, then tap Connect. Once the PIPER is successfully connected to the Wi-Fi, the logo on the device will glow green. In the app, you will then be redirected to the overview of measurements.

5. Logo Licht Status

The color of the logo light indicates the current status of your PIPER.

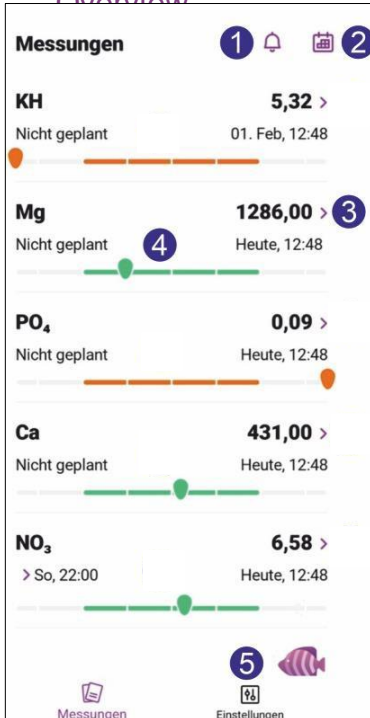
Please do not disconnect the PIPER from the power supply while it is in operating mode. This applies to both ongoing measurements (blue), erroneous measurements (red) and measurements during offline mode (purple).

Color	Significance
White	The PIPER is switched on but not with the WLAN Related
Green	The PIPER is connected to Wi-Fi
Blue	The PIPER performs a measurement or automatic Calibration through.
Violet	The PIPER is configured for Wi-Fi, but is currently not connected (offline mode). In this mode, it continues to work with the last saved settings and transmits the results to the smartphone as soon as the Connection to Wi-Fi is restored.
Red	The PIPER detected an error during a test and is now terminating the test. Once the test is complete, check the notifications in your Reefmaster app and follow the instructions. Disconnect the PIPER in this status from the power grid.

6. Use of the app

6.1 Measurements

Overview



The overview screen shows the result and date of the last measurement as well as the time of the next planned measurement

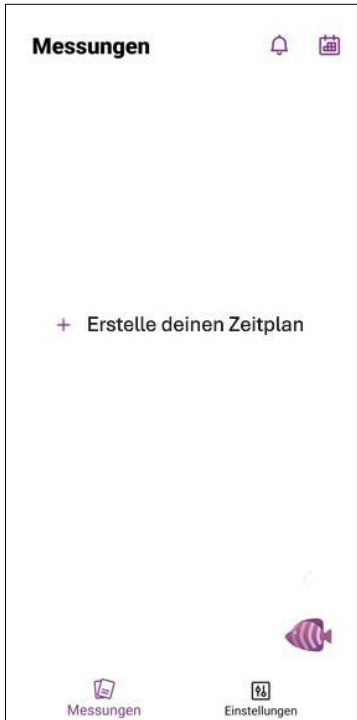
(1) Notification Center.

(2) Settings the Measurement times (see 6.2).

(3) Details of the measurement results (see 6.3).

(4) Shows , whether the last measurement result is in the ideal range.

(5) More Settings (see 6.6).

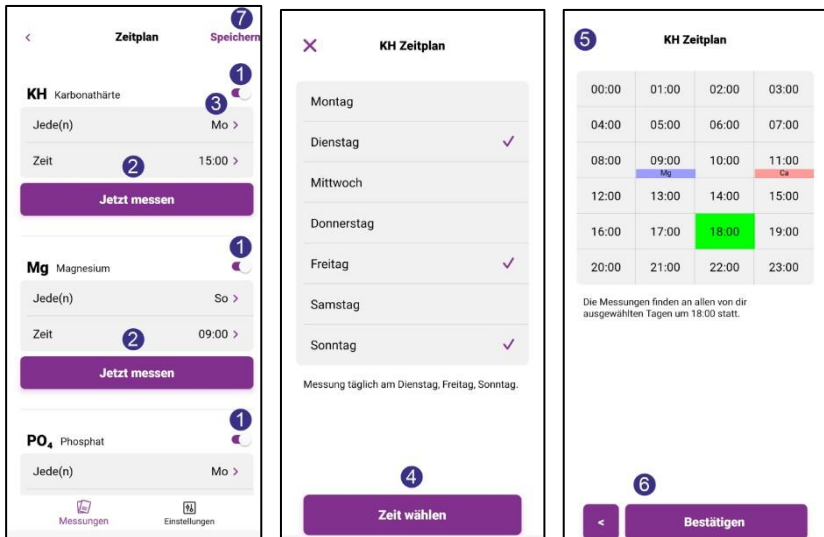


Important: Note that you will see a blank screen the first time you use the PIPER, as there are no metrics yet.

So it's best to stop the first tests right away.

Please note that reference measurements must be taken before using the PIPER for the first time to ensure correct results (see 6.4).

6.2 Measurements - Schedule



- (1) With the switch, you can specify for each water value whether it should be measured or not.
- (2) If you want to measure a water value right away, click on "Measure now".
- (3) Here you can choose on which days of the week the measurement should take place. Clicking on it navigates you to the drop-down list of the days on which you would like to measure.
- (4) Select the days of the week on which you want to take the corresponding measurement. By clicking on "Choose time" you navigate to the time of day at which the measurement is taken. The time of day is the same for all days of the week.
- (5) The daily schedule provides an overview of all planned measurements. Measurements can be set every hour and take about 30 – 75 minutes each.

- (6) Once you've set the desired time for each metric, confirm it by clicking the button "Confirm".
- (7) To activate the new schedule, click Save.

6.3 Measurements Details



If you click on a measured value in the overview, you will be taken to the detailed view, which shows you the time course of the selected measured value.

(1) Here you can see the measurement interval, for example in a daily, weekly or monthly view. In the weekly and monthly view, the daily averages are displayed.

(2) You can switch between days, weeks and months to view previous measurement results

(3) The data is displayed either as a chart

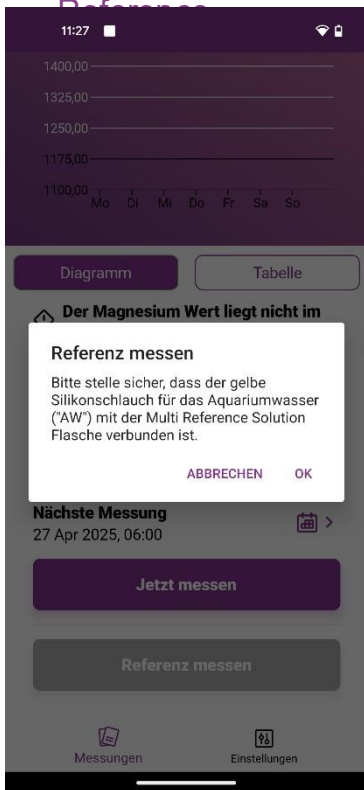
(4) or in tabular form.

you to the schedule.

"show" gives you the opportunity to start a measurement immediately.

(7) Here you can start a reference measurement for this parameter (see 6.4).

6.4 Measurements



Please note that a reference measurement must be taken before using the PIPER for the first time in order to achieve accurate measurement results.

Regular reference measurements must be carried out for exact measurement results. To do this, follow these steps:

(1) Replace the lid of the desired reference solution (Multi-Reference for KH, Ca, Mg) with one of the lids with a hole.

(2) Pass the short end of the yellow "AW" (aquarium water) hose through the opening to the bottom of the bottle.

(3) Be sure to check that all required test reagents are replenished.

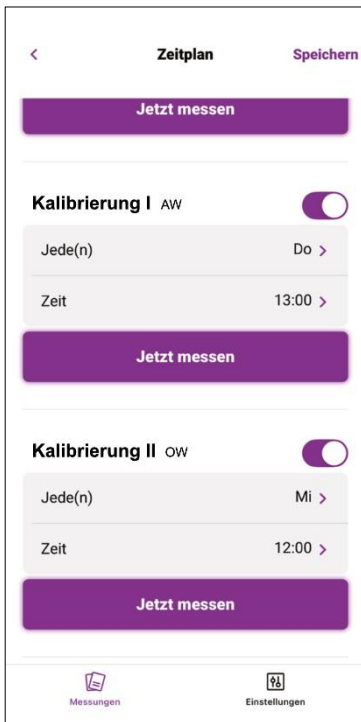
(4) Start the reference measurement in the app. You will receive a notification as soon as the reference measurement has been taken.

In order to Accuracy of to maintain test results, take regular reference measurements. Especially after filling up the

Test reagents, a reference measurement should be carried out to avoid production-related fluctuations.

In general, we recommend a reference measurement for KH, Ca and Mg every 4-6 weeks. No reference measurement needs to be carried out for PO₄ and NO₃.

6.5 Measurements - Pump Calibration

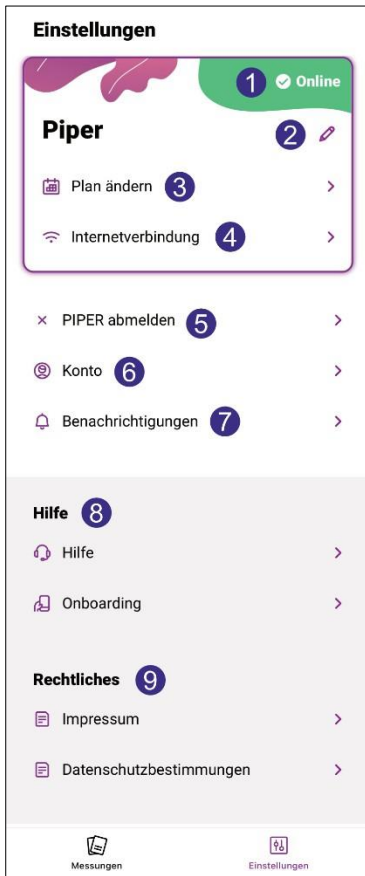


As mechanical components, the pumps for aquarium water and osmosis water can change their flow rate over time. To prevent inaccuracies caused by this, regular pump calibrations must be performed.

The timing of the pump calibrations is done in the app, just like that of the tests. Please enable the two calibrations, Calibration I – AW and Calibration II – OW, in your schedule and set the day and time for a weekly calibration.

If weekly calibrations are not set, accurate measurement results cannot be guaranteed.

6.6 Settings



(1) The current status of your PIPER is displayed here:

Online: The PIPER is connected to Wi-Fi.

Offline: The PIPER is not connected to Wi-Fi.

Measurement in progress: The PIPER is currently performing a measurement or automated maintenance.

Error: The PIPER has detected an error and ends the test.

(2) With a click on the pen you can rename the PIPER and give it any name you want.

(3) Here you can determine when which water value is measured.

(4) Here you can set up or change your internet connection.

(5) Each account can only be connected to one PIPER. When you connect a new PIPER

, you must first deregister the previously connected PIPER.

(6) You can manage your account settings here:

- view your email address
- change your password
- Delete your account
- Log out of the app

Please note that for data protection reasons, an e-mail must be sent to us to delete your account.

(7) Here you will find all push notifications sent by PIPER such as: start of a test, your test result or problems such as an empty reagent.

(8) Here you can get further help and support. You can also connect your PIPER to the internet again.

(9) In this area you will find the imprint and the privacy policy.

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