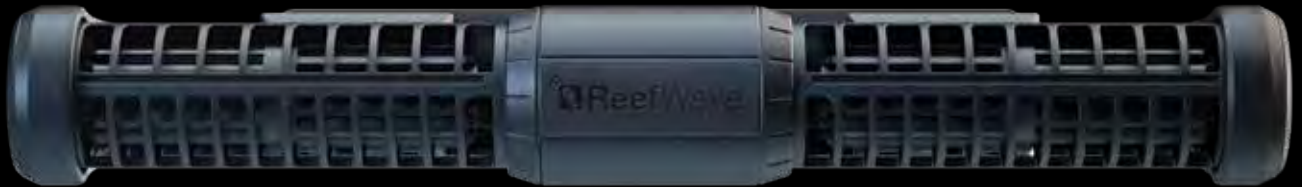




User Manual

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Silent - Smart - Powerful

User Manual



Contents

Introduction.....	5
Safety	6
ReefBeat app.....	7
ReefWave control options.....	8
Installation.....	10
ReefWave Controller.....	12
Using ReefWave without ReefBeat.....	13
ReefWave with ReefBeat - Setting up.....	13
Settings.....	16
Operation with ReefBeat.....	18
Device Manager.....	18
Maintenance.....	21
Troubleshooting.....	22
Spare Parts list.....	24
Warranty.....	26

Introduction

Congratulations on your purchase of Red Sea's ReefWave®.

Developed specifically for Red Sea, the ReefWave pumps feature the unique, patented, Maxspect cross-flow technology and provides a Reef-Spec water motion that's perfect for corals wherever they are placed in your aquarium. The combination of an advanced, smooth running and energy efficient sine-wave motor drive, vibration damping mounts and dual bearings on all models make ReefWave an especially quiet pulsing wave pump.

ReefWave is part of Red Sea's suite of smart devices that can be operated via Wi-Fi by Red Sea's ReefBeat® app which needs to be installed on a smart mobile device with internet connectivity. In addition, the ReefWave can also be operated directly from its on-board controller.

ReefBeat provides a wide range of easy-to-use functions including notifications if there is a loss of communication with your ReefWave – such as in the case of power failure.

ReefBeat® is under constant development and over time will include additional connected devices as well as additional aquarium management tools.

Welcome to Red Sea's smart reef-keeping.

Sincerely,
The Red Sea Team

Specifications	ReefWave® 25	ReefWave® 45
Max Flow Rate	7,500 LPH (1980 GPH)	15,000 LPH (3960 GPH)
Power Consumption	4w - 25w	8w - 45w
Dimension	23cm (9") L x 7cm (2.8") W x 4cm (1.6") H	31.5cm (12.4") L x 8cm (3.2") W x 5cm (2") H
Recommended Aquarium size	45cm – 120cm (1.5-4 ft)	60cm – 200cm (2-6 ft)
Maximum glass thickness	15mm (5/8")	20mm (3/4")
Cable Length	3M (10 ft)	3M (10 ft)

Safety

PLEASE READ AND FOLLOW ALL SAFETY INSTRUCTIONS

THIS DEVICE IS INTENDED FOR INDOOR USE ONLY.

DANGER: To avoid possible electric shock, special care should be taken when handling a wet aquarium. For each of the following situations, do not attempt repairs yourself; return the appliance to an authorized service facility for service or discard the appliance.

WARNING: To guard against injury, basic safety precautions should be observed, including the following:

Do not operate any appliance if it has a damaged cord or plug, if it is malfunctioning, or if it is dropped or damaged in any manner.

To avoid the possibility of the appliance, plug or receptacle getting wet, position the aquarium stand and tank to one side of a wall-mounted receptacle to prevent water from dripping onto the receptacle or plug. You should create a "drip loop" (see Figure 1) for each cord connecting an aquarium appliance to a receptacle. The "drip loop" is that part of the cord below the level of the receptacle, or the connector. Use an extension cord, if necessary, to prevent water traveling along the cord and coming into contact with the receptacle. If the plug or receptacle does get wet, **DO NOT** unplug the cord. Disconnect the fuse or circuit breaker that supplies power to the appliance. Then unplug the device and examine for presence of water in the receptacle.

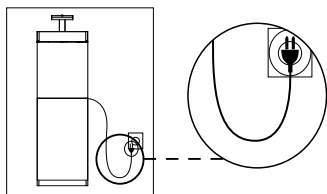


Figure 1: Drip Loop

Close supervision is necessary when any appliance is used by or near children.

To avoid injury, do not contact moving parts.

Always unplug an appliance from an outlet when not in use, before putting on or taking off parts, and before cleaning. Never pull the cord itself to remove the plug from the outlet. Grasp the plug and pull to disconnect.

Do not use an appliance for anything other than its intended use.

The use of attachments not recommended or sold by the appliance manufacturer may cause unsafe conditions.

Do not install or store the appliance where it will be exposed to the weather or to temperatures below freezing point.

Make sure an appliance mounted on a tank is securely installed before operating it.

Read and observe all the important notices on the appliance.

Note: A cord rated for less amperes or watts than the appliance rating may overheat. Care should be taken to arrange the cord so that it cannot be tripped over or pulled accidentally.



ReefWave pump mounts use **STRONG MAGNETIC FIELDS**. Strong magnets can cause personal injury. Keep out of the reach of children. Persons with medical implants should maintain a distance of 30cm/12"

Introduction to the ReefBeat app

All of Red Sea's connected devices can be operated via the ReefBeat app installed on an Android or iOS smart mobile device (SMD) with an internet connection. See the full list of supported mobile phones/tablets on our website.

Through your personal user account on the cloud, ReefBeat enables you to set up and manage any number of aquariums and add multiple devices to each of them.

For full functionality, each ReefWave must have a permanent connection to the internet through your home Wi-Fi network. In this mode of operation, you will be able to see the current status of your ReefWave units, change the settings or receive notifications on your SMD whenever you have access to the internet.

The ReefBeat homepage will show you the current status of all of your connected devices, and links you directly to the Settings Dashboard for each group or for individual units.

You can install the ReefBeat on multiple SMDs by entering the same user account details. All SMDs will have the same rights for operating and changing all of the settings. You should keep this in mind before giving your user details to any 3rd party.

In the event that you do not have a home network or your home network does not have an active internet connection, you will only be able to operate the ReefWave from the controller with limited functionality. More information about operating the ReefWave in "Controller Mode" is provided below.

ReefBeat is constantly under development. For the most up to date operation instructions, view or download the latest user guide from the Red Sea website at www.redseafish.com

If this is your first Red Sea connected device, it is recommended that you complete the physical installation of your ReefWave units before installing the ReefBeat app.

Local Controller Functions

Regular Flow

Pump provides a constant flow of water at the intensity you set in forward or reverse direction.

Uniform Wave

Pump pulses at a uniform rate of 5 seconds between the maximum intensity in the forward or reverse direction you set and a default minimum 10% intensity.

Step Wave

Pump pulses at a uniform rate of 5 seconds at a constantly changing intensity in steps of 10% from the minimum of 20% to the maximum intensity you set in the forward or reverse direction.

Random Wave

Pump pulses at a randomly varying rate and at a randomly changing intensity up to the maximum intensity you set in the forward or reverse direction.

Alternate Wave

Pump will alternate between a uniform wave in the forward and reverse directions every 5 minutes. User sets the maximum intensity for both directions.



ReefBeat Mode

In the event that a ReefWave controller has been programmed by ReefBeat, selecting this mode will implement the last known 24-hour wave schedule even when not connected to the ReefBeat App.



Feed Mode

Pump will stop for 30 minutes and will automatically resume the currently selected wave.



Pause/Play

Stop and start the pump on demand as required for pump or tank maintenance.

ReefBeat Connected Functions



ReefBeat Schedule

User defined 24 hour schedule of up to 10 time slots per day. Each time slot will implement a user defined wave in the forward, reverse or alternating direction. There is also a “no wave” option for periods of no flow.



ReefBeat Wave Library

Multiple customized versions of each of the waves types can be saved in the wave library for implementation in the daily schedule.



Groups

Up to 3 pumps can be grouped together and run a common schedule.



Regular Flow

Pump provides a constant flow of water at the intensity you set in forward or reverse direction.



Uniform Wave

Pump pulses at a user definable uniform pulse rate between the maximum intensity in the forward or reverse direction you set and a default minimum 10% intensity. Grouped pumps can be run in sync or anti-sync.



Step Wave

Pump pulses at a user definable uniform pulse rate with intensity increasing in user definable number of equal steps from the minimum of 20% to the maximum intensity you set in the forward or reverse direction.



Random Wave

Pump provides a constant flow of water at the maximum intensity you set in forward or reverse direction.



Surface Wave

Pump pulses at a user definable uniform pulse rate set in 1/10 of a second to create a standing wave pattern on the water surface. Grouped pumps can be run in sync or anti-sync.



Preview

Test wave settings before saving and including in the Schedule.



On/Off

Stop and start a specific pump on demand for individual pump maintenance.



ReefBeat Feed Mode

All selected ReefBeat connected devices will be stopped for a user defined period and thereafter will automatically resume the schedule.



ReefBeat Maintenance Mode

All selected ReefBeat connected devices will be stopped until the Maintenance mode is disabled and wave schedule will be resumed.



ReefBeat Emergency Shut-down

All selected ReefBeat connected devices will be stopped until the Emergency shut-down is disabled and wave schedule will be resumed.

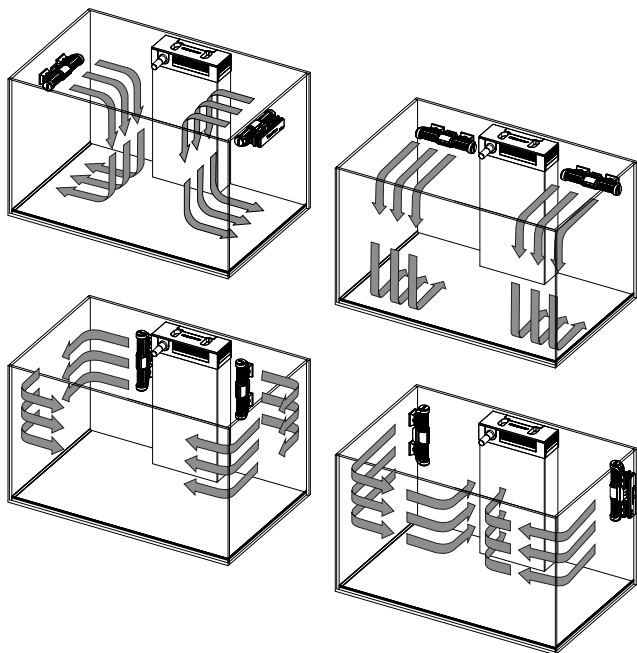


Notifications

A notification will be sent to your SMD whenever internet connection to the ReefWave is lost. Could be due to a power or internet outage, router failure or a fault with a specific device.

Installation

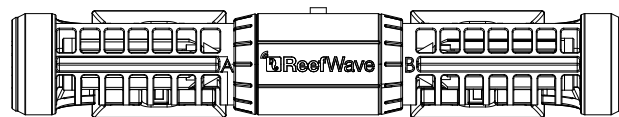
WARNING: Running the pumps outside of the water will damage the bearings and impellor shaft causing noisy operation and a shortened life for these wear parts!



Pump

The ReefWave pumps can be mounted in the horizontal or vertical orientation.

Each of the 2 impellor cages can be rotated 360 degrees within the mounting bracket to adjust the direction of the flow appropriately for your reefscape. Initially set the A and B markings on the cage to be in line with the ReefWave logo.



In this position the flow will be approximately perpendicular to the magnet. The impellers and impellor cages on either side of the pump motor are slightly different and therefore the rubber parts for each side are color coded Red and Green to ensure that parts are reassembled correctly after maintenance.

The impellers of the pumps can rotate both in the forward and reverse direction however the flow in the forward direction is about 3 times stronger than the flow in the reverse direction.

When mounting the pumps in the horizontal direction make sure that the cable is on the top side of the pump. Mount the pumps at least 5cm/2" below the water surface to prevent vortex formation (sucking of air from the water surface).

Mount the pumps in a location where there is easy access for adjustment of flow direction and removal for periodic maintenance.

The internal magnets are a north/south pair (look for the N/S markings) and work together with the external magnet that has a north and south end. The magnets are very strong and care should be taken to prevent injury to fingers!

Before installing the pumps for the first time disassemble and reassemble the pumps as shown in the maintenance section or as shown on our website to properly familiarize yourself with the parts.

Remember to place the snail guards provided over the impellor cages to prevent small animals from getting caught inside.

Controller

Locate the ReefWave controller in a convenient position and attach the mounting bracket using screws or the adhesive tape provided. The controller is designed to operate in a humid environment but it is not waterproof. Please take the appropriate precautions in choosing its location or when removing the controller from the mounting bracket.

Power Supply

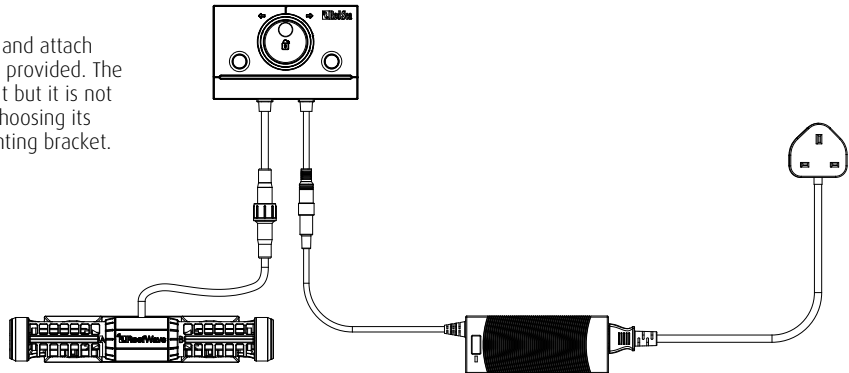
Place the power supply in a dry ventilated area. Only use the power supply provided with the product.

Connect the AC cable to the socket of the power supply and plug it into the wall outlet or other suitable power center and check that the indicator LED on the power supply is working. If the indicator LED is not working, check that the AC cable is properly connected and the wall outlet is switched on.

Connect the DC jack of the ReefWave to the DC jack of the power supply.

After powering on the unit, the Power indicator LED of the ReefWave will switch on, the Setting Indicator LED will be off and the Mode indicator LED will be set to ReefBeat Mode.

NOTE: The pump will not start working until some further action as described below is taken.



ReefWave Controller

Power Indicator LED

Red light when DC power is available.

Wi-Fi Settings Button and Status LED

If indicator LED is off (ReefWave Wi-Fi is off):

Pressing button for 5 seconds (until double blink) activates Wi-Fi AP mode.

If indicator LED is blinking (ReefWave Wi-Fi is in AP mode):

Pressing button for 5 seconds (until double blink) switches Wi-Fi off.

If indicator LED is on (ReefWave Wi-Fi is connected to a Wi-Fi network):

Pressing button for 5 seconds (until double blink) disconnects the ReefWave from the network and switches it to Wi-Fi AP mode. (Note: before disconnecting a ReefWave from a network, delete the specific ReefWave from ReefBeat via the Device Manager.)

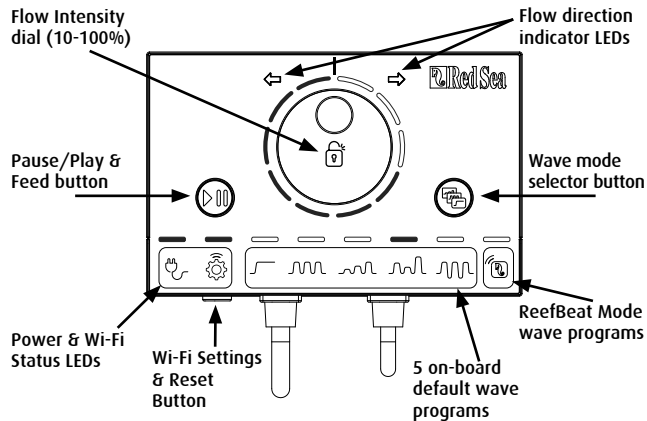
Clear Settings:

Pressing the button for 15 seconds (until double blink) deletes all user settings and switches off the Wi-Fi. Complete the reset process by disconnecting and reconnecting the DC power. (Note: before initiating “clear settings,” delete the specific ReefWave from ReefBeat via Device Manager.)

Wave Mode Button

The Wave Mode settings button toggles the wave program between the 5 built-in Controller Mode waves and the fully programmable ReefBeat mode.

To change the operating mode, activate the mode button by pressing for 1 second, on releasing the button the mode and intensity LEDs will start blinking and will continue blinking while the mode function is active. A short press on the mode button will advance the mode by one step to the right as indicated by the position of the blinking mode indicator LED. Set the desired wave by pressing and holding the mode button until the LEDs stop blinking. Note: If the desired wave is not confirmed by holding the button, after 4 seconds the current position will automatically be selected.



Pause/Play & Feed

Local Feed Mode: To activate the local Feed mode press the Pause/Play button for about 1 second. When active the button will blink on/off once per second. Wave mode, intensity and direction LEDs will switch off for the duration of the feed mode. After 30 minutes the Feed mode will automatically switch off and the chosen wave (and all indicator LEDs) will resume. To switch off the feed mode manually before the end of the 30-minute period, press the Pause/Play button for about 1 second.

Pause/Play: To stop the pump press the Pause/Play button for about 3 seconds. When active the button will blink on/off every 5 seconds. Wave mode, intensity and direction LEDs will switch off. To restart the pump, press the Pause/Play button for about 3 seconds and the chosen wave (and all indicator LEDs) will resume.

Flow Intensity Dial

To change the flow intensity for a Controller Mode wave, press and hold the center of the dial until the intensity indication LEDs start to blink. Rotate the dial to the desired direction and intensity as indicated by the number of blinking LEDs. Press and hold the center of the dial until the LEDs stop blinking to save the setting. If the desired intensity is not saved by pressing the center of the dial, after 10 seconds the current intensity will automatically be selected.

For the Alternating wave, press the center of the dial until the intensity indication LEDs start to blink. Rotate the dial to the desired forward intensity, press the center of the dial and rotate to the desired reverse intensity, press the center of the dial again to return to the forward direction and save the settings by pressing the center of the dial until the LEDs stop blinking.

Using ReefWave without ReefBeat - Controller Mode

To operate the ReefWave directly from the ReefWave controller select the desired wave type using the Wave Mode button and set the intensity and forward/reverse direction of flow that suits your reefscape. The chosen wave and intensity will run continuously. You can adjust the flow path of the pump by rotating the impellor cages. Each cage can be set at a different angle.

Use the Pause/Play button as described above to stop the pump for feeding or maintenance.

Connection and initial setup with ReefBeat

In the event that you do not have an available Wi-Fi network you will not be able to connect the ReefWave unit to the ReefBeat App however you can operate it via the local controller as described above. At any time, the ReefWave can be added to an Online ReefBeat aquarium by completing the onboarding process described below.

If you are already using ReefBeat for a different device (such as ReefLED) and have your aquarium set to “Offline” you will need to reset your aquarium to “Online” before you can connect the ReefWave and implement customized waves and a 24-hour schedule. Once the ReefWave has been set up you can take your aquarium Offline again however the ReefBeat shortcuts and Notifications will be disabled and you will need to take it back online to implement any changes.

Recommendation: Before connecting your ReefWave to the ReefBeat, start in Controller mode to check out the effect that the ReefWave has in various locations in your tank. Rotate the cages to learn how it affects the flow and check out some of the basic waves and learn the strengths of the various intensity settings.

Installing ReefBeat

Download ReefBeat from the app Store or Google Play as appropriate for your SMD. (In countries without access to Google Play an APK file and installation instructions can be downloaded from Red Sea's website.)

After installing ReefBeat, you will be guided through the set-up of your ReefBeat user account and aquariums, and then you can start adding your Red Sea connected devices. All of your user account details can be edited only when your SMD is connected to the internet.

To connect the ReefWave to ReefBeat your aquarium must be set to "Online".

Make sure that you select the correct world time zone for where your aquarium is located. There is also a "Daylight savings Time" (DST) toggle that needs to be manually switched at the beginning and end of DST for your location.

If you've set up more than one aquarium, select the aquarium from the dropdown menu at the top of the screen before proceeding.

Adding your first ReefWave to ReefBeat

Make sure that the controller is in ReefBeat mode i.e. the wave mode indicator LED above the ReefBeat icon is on.

Set your ReefWave to AP mode by pressing the settings button for 5 seconds (until double blink). The indicator LED should be blinking.

Tap the Add Device button (+) from the Device Manager page, select the ReefWave 25/45 icon and follow the instructions on the app. If no ReefWave devices are discovered, check that the ReefWave is in AP

mode and/or refresh the page. If you have installed multiple ReefWave units and you have already activated the AP mode on all of them, you will see a list of all of them. Choose any one of them as the first unit and continue as instructed by the app.

Connecting to the Home Network

ReefBeat will now display a list of Wi-Fi networks and signal strengths that are available to the ReefWave from its current location. Note: if the ReefWave is not in its position on the aquarium, your preferred network may not be accessible when the ReefWave is repositioned.

Select your preferred network and wait a few moments while the ReefWave connects to it. The indicator LED will now be a solid red. Follow the instructions on the app for initial settings.

Initial settings

The unique serial number of each ReefWave is the default name for the device in the app. However, you can set a new name that you prefer such as "Left", "Right" etc. These names can be changed at any time using the "Rename" function from the Device Manager.

For the first ReefWave you connect to your aquarium, you are asked to select from one of the available wave types which for simplicity will be scheduled to run constantly for 24-hours per day. Selecting your desired wave type will open the settings page for this specific wave. By default, all of the RS waves are set to 40% flow intensity in the forward direction and 60% reverse. At this stage you can either accept these default settings or customize them however we recommend that you only

adjust the intensities for now and make other changes later. For a full explanation of wave setting options see “Current Wave Settings” below.

At any time during the setup you can test the unsaved settings currently on your screen by tapping on the Play ► button at the top of the settings page and see the effect it has on your reefscape. You can also adjust the flow path of the pump by rotating the impellor cages. Each cage can be set at a different angle. Stopping the preview will return the pump to the current active wave according to the schedule.

Once you are satisfied with the settings, save your customized wave with a unique name. It will be stored in your personal Wave Library and scheduled for 24 hours a day. ReefBeat will now display the pump Dashboard providing access to all of the advanced settings such as creating additional customized waves, setting a multi-wave daily schedule or the time to switch off the pump when the ReefBeat Feed Mode is activated. All of these settings can be changed at any time as described below. To go to the ReefBeat homepage without editing, press the back arrow.

Adding additional ReefWave units

To connect an additional unit, open the Device Manager page from the Dashboard 3-dot menu and repeat the process as above.

Up to 3 ReefWave units can “Grouped” together and share a common Schedule and customized waves however the forward and reverse flow intensities need to be set for each pump individually. ReefWave 25 and ReefWave 45 can belong to the same group.

After connecting the additional ReefWave to your home network (note: all units should be connected to the same network) you should select if the pump is to be grouped with the first pump or set up as an ungrouped independent unit.

An ungrouped unit will have the same setup process as for the first unit and will have a unique schedule, wave types and its own card in the ReefBeat Homepage.

If you have selected to group the pump, open each of the waves in your schedule and set the forward and reverse intensities for each pump individually.

The Preview function will activate all of the pumps in the group to see the combined effect. If you want to test/set the flows for a specific pump in the group temporarily switch off the other pumps using the OFF function in the Device Manager.

ReefBeat Homepage

The ReefBeat homepage will show you the current status of all of your connected devices. Tapping a device or group card links you directly to the settings Dashboard for each individual device or group. The homepage also has “Shortcut” buttons for implementing frequent or important functions across all of the ReefBeat connected devices. The Shortcut settings page and Device Manager are accessible from the 3-dot menu of the homepage.

ReefWave Dashboard - Settings


ReefWave is designed to operate automatically according to a 24-hour schedule that defines up to 10 time-slots allowing different wave types or intensities during a day.

All of the settings for the ReefWave are viewed/edited from the Dashboard which shows the current settings for the group or for an individual ungrouped unit. Tapping on any of the sections on the dashboard opens the settings page for that feature. Remember to press Apply or Save to implement any changes you make to the settings.

Tapping on the 3-dot page menu provides quick access to additional functions such as Wave Library and the Device Manager.






Current Wave Settings

Tapping on the current wave card opens the wave settings page with all of the user definable parameters. For grouped pumps, open the tab for each pump and set the forward and reverse intensities individually. All other settings are common for all of the pumps.

At any time, you can test the unsaved settings by tapping on the Play  button at the top of the settings page and see the effect it has on your reefscape. Grouped pumps will be activated together to see the combined effect. If you want to test/set the flows for a specific pump in the group temporarily switch off the other pumps using the OFF function in the Device Manager.

Once you are satisfied with the settings, save your customized wave with a unique name. It will be stored in your personal Wave Library and can be used in your 24-hour schedule.

Custom settings that are available for each wave type

Icon	Wave type	Forward Intensity	Reverse Intensity	Pulse time	Alternate Times	Sync / Anti-sync	Steps
	Regular Flow	✓	✓		✓		
	Uniform Wave	✓	✓	✓	✓	✓	
	Step Wave	✓	✓	✓	✓		✓
	Random Wave	✓	✓		✓		
	Surface Wave	✓		✓		✓	

Forward Intensity

Pump flow intensity from 10% to 100% in forward direction.

Reverse Intensity

Pump flow intensity from 10% to 100% in reverse direction.

Pulse time

Pump run time (secs) at maximum and minimum flow for pulsing wave3 types.

Alternate Times

Run time (mins) for automatic cycling between forward and reverse flows.

Sync / Anti-sync

Synced pumps will pulse together. Anti-sync pumps will pulse alternately.

Steps

Number of steps for incremental intensity increases for Step wave.

Wave Library

Any number of Customized Waves can be created in the Wave Library and used on all your pumps or aquariums. From the Wave Library, Customized Waves can be created, edited, deleted, previewed or

selected to be applied directly as the current wave in the 24-hour schedule. The Wave Library can be accessed from the 3-dot page menu of the settings page or from the Schedule settings page

Schedule

The Schedule enables you to implement a range of up to 10 different wave types during the day. The minimum time-slot is 15 minutes. There is also a “no wave” option which will turn the pump off for the specified period of time such as to coordinate with automatic feeders that are not connected to ReefBeat. The schedule implements the Customized Waves that you have created and saved in the Wave Library in Forward, Reverse or Alternating setting. When completing the schedule press the Apply button to save and implement the changes.

Feed Mode

The ReefBeat Feed Mode shortcut provides a quick and simple way to turn off specific connected devices for a user defined period of time while feeding the fish or corals.

Feed Mode can be set either from the ReefWave dashboard or from the ReefBeat Homepage 3-dot> edit shortcut menu.

Open the Feed Mode settings page. Check the pump to be connected to the shortcut and the amount of time the pump will be switched off when the ReefBeat “Feed” shortcut button is activated. Press the Apply button to save and implement the changes.

Operation with ReefBeat

The ReefWave will run automatically according to the 24-hour schedule of customized waves that you have created. Grouped ReefWave units will all work together with a common schedule but with their individual flow intensities.

To enjoy all of the functionality that the ReefBeat system has to offer, the ReefWave units should be connected to the internet at all times. With an active internet connection, the ReefBeat homepage will show all of the current settings of the ReefWave group or for each ungrouped unit individually.

When in ReefBeat mode the Intensity & Direction indicator LEDs on the controller will display the setting of the current wave according to the schedule.

Activating any of the ReefBeat shortcuts or activating the On/Off function from the Device Manager as described below will suspend the active schedule and put the pump into a “no wave” state and switch off all of the Intensity & Direction indicator LEDs on the controller. Deactivating the function will return the pump to the schedule.

Pressing the Mode button on the controller will take the ReefWave out of the ReefBeat mode and will implement whatever local wave options will be selected. The ReefBeat homepage will indicate that the specific unit is now in “Controller Mode”. ReefBeat Shortcuts will not be implemented on this specific unit however ReefBeat will still receive notifications as normal.

Pressing the Pause/Play button on the controller will take the ReefWave out of the ReefBeat mode and will implement either the Feed or Pause function. The ReefBeat homepage will indicate that the specific unit is now in “Controller Mode”. ReefBeat Shortcuts will not be implemented on this specific unit however ReefBeat will still receive notifications as normal.

Device Manager

The Device Manager is accessible from the Page menu in both the ReefBeat homepage and the ReefWave Dashboard, and contains a list of all of the Red Sea connected devices that are installed on each aquarium. The devices are listed according to type and in the order in which they were added to the aquarium. Tapping the 3-dot menu for each device type opens a list of advanced functions such as firmware updates that will be implemented on all devices of this type. Tapping the 3-dot menu for each device opens a list of advanced settings/functions for each device individually.

Group / Ungroup status

The grouped/ungrouped status of each ReefWave is shown in the Device Manager.

Up to 3 ReefWave units can be operated together as a group, a 4th or more ReefWave units can be added to the aquarium however they can only be operated as ungrouped individual units. The first ReefWave connected to ReefBeat will automatically be set as grouped, even if it remains the only member of the group. Subsequent units can be added to the group and share a common schedule and basic wave settings. An individual unit can be ungrouped or re-grouped at any time. When a unit is ungrouped, it will maintain the same settings it had when it was grouped until changes are made. Once added to a group, the previously ungrouped unit will automatically get the settings of the group.

To change the status: *Device Manager > Device Line menu > Group/Ungroup*

Firmware Updates

From time to time you may receive a notification that a new firmware version is available for your ReefWave. It is important to keep your ReefWave firmware updated to ensure compatibility with updates to the ReefBeat app. If your ReefWave is not permanently connected to the internet, you will need to connect it temporarily in order to update the firmware.

Device Manager > Device Type Line and Device Manager > Device Line – will show the “new firmware available” icon. You can decide to do the update for all of the devices together or one at a time.

Do not unplug the ReefWave while it is downloading and installing the new Firmware.

When the firmware update is complete, the “About” page will show the new version as the current version together with the date and time that the update was performed. *Device Manager > Device Line menu > About*. All of your previous settings will remain as before.

If the firmware update is not successful, the ReefWave will automatically revert to the previous version. Repeat the process a few minutes later. If your ReefWave does not seem to be performing correctly after the update, disconnect and reconnect the power by the DC jack and wait for the ReefWave to restart.

Removing a ReefWave - Temporary

When switching off or physically removing a ReefWave temporarily such as when doing reef-scaping or other maintenance on the aquarium or pump, set the unit to “Out-of-service” through the Device Manager to

prevent ReefBeat from giving you notifications that communication with the unit has been lost. When returning the unit and/or switching it back on, remember to return its status to “In-service”. To change the status: *Device Manager > Device Line menu > In-service / Out-of-service*.

Removing a ReefWave - Permanent

When permanently removing a ReefWave from an aquarium or before resetting the unit’s memory, delete the unit from the ReefBeat app: *Device Manager > Device Line menu > Delete*.

Deleting before it is switched off will prevent unnecessary notifications that communication with the unit has been lost.

Clear ReefWave settings

To permanently remove all user settings from the memory of the ReefWave and return it to its initial default state, perform the following steps.

Permanently remove (Delete) the specific ReefWave from ReefBeat. Press the Settings button on the device for about 15 seconds (until the indicator LED shows a double blink), release the button and wait for about 10 seconds until a second double blink of the indicator LED appears. Disconnect and reconnect the power by the DC jack and wait for the ReefWave to restart. The unit will restart without any user settings and with the Wi-Fi switched off, exactly as shipped from the factory. The unit will retain the latest installed version of the firmware.

Changing aquarium from Online to Offline

On/Off

All units of a particular device type or each individual unit can be switched On/Off as required. This does not disconnect the unit or put it out of service. It just sets the intensity to zero. For ReefWave it puts the pumps into a "No-Wave" state.

Device Manager > Device Type Line and Device Manager > Device Line – On/Off

Notifications

When the ReefWave has a permanent connection to the internet, a notification will be sent to your SMD whenever connection to the unit is lost.

A "No communication" message could be due to a power or internet outage, router failure or a fault with a specific connected device.

If you have more than one Red Sea connected device and connection to one or more (but not all) devices are lost, you will receive a "Partial communication" message. You will then be able to see the current status of all devices from the Device Manager.

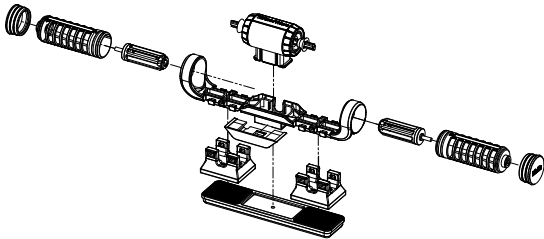
In addition to the connectivity ReefBeat will also notify you if you have activated the Maintenance or Emergency shortcuts and have forgotten to disable them.

You can set how you wish to receive some of the messages from "Notifications" in the homepage main menu.

When changing the connectivity state of an Online aquarium with ReefWave to Offline the Reefwave unit can continue to run the last implemented 24-hour schedule with all of its customized waves however the ReefBeat App will not be able to communicate with the device. Shortcuts and Notifications are disabled and the App will show all ReefWave units on that aquarium on the homepage as "Controller Mode" without access to the settings dashboard. All settings however are stored and returning the aquarium to Online will restore full ReefBeat functionality with all of the previous settings providing the ReefWave was not disconnected from the home network.

Maintenance

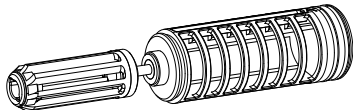
For continued, quiet and trouble-free running of the ReefWave, we recommended a regular maintenance routine for the pump.



Impellers and Impellor cages - monthly or whenever you see a buildup of organic matter or reduction in flow.

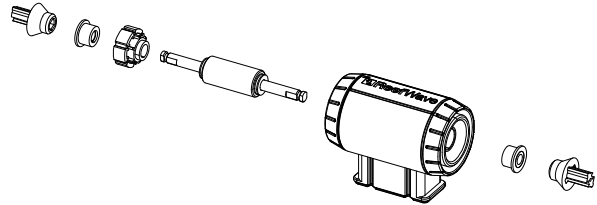
Switch off the pump from the App or Controller.

Disassemble the end caps, impellor cages and impellers in that order and remove the buildup of organic matter. Hold each of the parts under running water and clean with a small brush, especially the impellor blades. If this does not remove all of the organics, soak the parts for about 1 hour in a 10% bleach solution (1 part of household bleach dissolved in 9 parts of water). Rinse the parts well after soaking. Make sure that the ceramic tips of the impellers and the ceramic bushings in the cages are smooth and free from damage. Assemble the parts temporarily as shown to check that the impellor rotates smoothly.



Inspect the silicone and plastic parts that connect the impellers to the motor. These are wear-parts and may need to be replaced occasionally.

Motor and shaft - half yearly or whenever you see a reduction in flow that was not resolved by cleaning the impellers.



Switch off the pump from the App or Controller and remove the end caps, impellor cages and impellers.

Remove the motor from the mounting bracket and disassemble it as follows:

Pull the plastic connectors off both ends of the ceramic shaft. This may require the use of pliers however make sure to pull in a straight line to avoid snapping the shaft.

Push the shaft out of the motor from the green side. Some force may be required to release the plastic insert that holds the shaft inside the motor assembly.

Soak all of the parts for about 1 hour in a 10% bleach solution to remove any organics and brush clean. If there are any calcium deposits remove them by using a 1:1 diluted solution of vinegar (nothing stronger).

Don't soak the parts in the diluted vinegar solution for more than a few minutes. Use a small bottle brush to clean the inside of the motor. Rinse the parts well after cleaning. Make sure that the ceramic shaft and bushings are smooth and free from damage before reassembly. Note that there are grooves around the outer circumference of the plastic insert. These need to be properly aligned with the guides on the inside of the motor.

Reassembly after cleaning

Return all of the cleaned parts to the pump mount and switch it back on. If the pumps make any mechanical noise, disassemble again and make sure that all of the bushings are seated properly in the impellor cage and that the impellor is properly aligned and try again.

Controller

Periodically wipe the external surfaces of the controller with a cloth to remove and moisture or salt build up.

The ReefWave controller has a back-up battery to maintain the correct time when the unit is disconnected from the power supply. This battery will need to be replaced once every few years. To replace the battery, unscrew the 4 screws on the back of the controller and remove the back cover. Replace with a new 3V Lithium cell Battery CR1220 reassemble the back cover and tighten the 4 screws back into place. After reassembling the unit and switching it on, the internal time will be reset as soon as the internet connection is restored.

Troubleshooting

A full and up to date FAQ for the ReefWave and the ReefBeat app is available in the app (*Homepage Main Menu > Help > FAQ*) and on our website.

Q. I am having trouble installing the ReefBeat app or it crashes or does not seem to be working as described in the manual.

A. Check that your specific smart mobile device is on the list of supported devices on our website.

Q. My smart mobile device is on the list of supported devices but keeps crashing.

A. Uninstall and reinstall the app and sign in again with your username and password. If this does not help, contact customer support.

Q. I've plugged in a new unit and the pump is not working.

A. The ReefWave is shipped with the controller in ReefBeat Mode and with a no wave schedule. It will only work after it has been connected to the ReefBeat app or moved into controller mode.

Q. I'm having difficulty connecting the ReefWave to my home network.

A. Check that the ReefWave Wi-Fi is working correctly by connecting to the hot-spot of a mobile phone in the same room: *Device Manager > Add Device*

If this does not work, contact customer support. If they do work, the problem is likely with the router signal strength or its configuration, or it may be overloaded with devices.

- Check that the signal strength of your router is sufficient for a stable connection exactly where the ReefWave is located. You may need to install a suitable Wi-Fi extender closer to the aquarium.
- The router may have too many devices already connected to it.

- Your router may be configured not to allow devices like the ReefWave to be connected. This situation is common in an office environment, contact your IT professional.

Q. I keep getting notifications that my ReefWave units are not connected.

- A. If your network router is not permanently connected to the internet, set your Aquarium as “Offline” *My Aquariums > Device Line Menu > Offline*. If your network router is meant to be permanently connected, check the quality of the Wi-Fi connection between the units and your router or the stability of your internet connection.

Q. I have connected the ReefWave to the ReefBeat and the pump is working but does not respond to the ReefBeat App.

- A. Check that the controller is set to ReefBeat Mode. If not reset the controller to ReefBeat Mode by using the Mode button. If the unit was already in ReefBeat mode disconnect and reconnect the power by the DC jack to restart the controller.

Q. I have connected the ReefWave to the ReefBeat but the pump does not seem to be working as expected.

- A. If you did not “Apply” the last changes you made to the schedule it gets lost. Check your schedule and make sure that your timeslots as set as you want them.

Q. I have connected the ReefWave to the ReefBeat but the intensity LEDs on the controller are not working.

- A. Check that the Pause/Play switch on the controller has not been activated. Check that none of the ReefBeat Shortcuts has been activated. Check that the current wave in the schedule is not set to “no-wave” If none of the above resolves the issue disconnect and reconnect the power by the DC jack to restart the controller. If this still does not resolve the issue contact customer support.

Q. I have connected the ReefWave to the ReefBeat or I am working in controller mode and the intensity LEDs on the controller are working but the pump is not working.

- A. Check that the pump cable is properly connected to the controller. If you have both RW25 and RW45 units check that the correct power supply and/or controller are connected to the correct pump. Check that the pump has not become jammed due to foreign matter getting stuck in the impellor, if necessary clean the pump and try again. If none of the above resolves the issue and you have more than one of the same model of ReefWave, switch between the controllers to determine which part needs to be replaced and then contact customer support.

Q. My pump is sucking air from the water surface.

- A. Either lower the pump slightly below the water surface or slightly rotate the impellor cages to change the flow direction or reduce the flow intensity.

Q. My pump has very low flow in the forward direction and high flow in the reverse direction.

- A. The impellor and/or cages have been assembled back to front.

Q. My pump is making a “buzzing/ humming” noise.

- A. Check that there aren’t any interfering objects such as snails, gravel, coralline algae that are touching the impellor. Clean impellor and cages as recommended above.

Q. The flow rate of the pump seems to have significantly reduced.

- A. The gradual buildup of organics and algae on the impellor blades reduce the flow rate. Clean the blades according to the maintenance instructions above.

Spare Parts list

Part Description	RW25	RW45	
Pump Assembly	R35228	R35229	
Controller	R35230	R35241	
Power Supply	R35231	R35242	
Motor assembly	R35232	R35243	
Rotor (shaft/magnet)	R35233	R35244	
Impeller set	R35234	R35245	
Impeller Cage set	R35235	R35246	
Mounting Bracket	R35236	R35247	

Part Description	RW25	RW45	
Internal magnet set	R35237	R35248	
External magnet	R35238	R35249	
End Caps	R35239	R35250	
Snail Guards (4 units)	R35240	R35251	
Controller Mounting Bracket	R35252		
RW 25/45 Pump Extension cable 2m/79"	R35253		
RW Pump Service Pack	R35254	R35255	

Certificate of Warranty

Thank you for purchasing a Red Sea aquarium product (hereunder “the product”).

RED SEA AQUATICS (UK) Ltd. warrants the product against manufacturer’s defects in material and workmanship, for a period of 24 months from your date of purchase.

The warranty provided by Red Sea is NOT TRANSFERABLE AND IS LIMITED TO THE ORIGINAL PURCHASER. If the product is eligible under this warranty, Red Sea will either repair this product free of charge (not including shipping costs) with new or refurbished parts or replace the product with a new or refurbished product (or the relevant part thereof), at Red Sea’s sole discretion.

This warranty DOES NOT COVER normal wear and tear, or items that have a limited natural life or are consumable, such as but not limited to rotor shafts, impellers, bushings, rubber parts etc. It also DOES NOT COVER damage which occurs in shipment and/or failures or defects resulting outside of normal use, from natural disasters, accidents, power line surges, neglect, improper installation, operation or maintenance; or failure to use the product in accordance with any instructions provided (in the product manual or otherwise) or the technical and/or safety standards of the country where the product is used. Additionally, this warranty will not apply to defects that occur due to alteration of the product or servicing of the product conducted by anyone other than an authorized Red Sea service center.

In order to affect this warranty, please contact your local service center. For your convenience, details of authorized service centers can be found on Red Sea’s website. Proof of purchase will be required before warranty performance is rendered.

The sole and exclusive remedy against Red Sea shall be for the repair or replacement of the product, as provided above. NO OTHER REMEDY (including but not limited to, incidental or consequential damages for lost profits, lost sales, or any other incidental or consequential loss) shall be available. Some jurisdictions do not allow the exclusion of incidental or consequential damage, so the above limitation may not apply to you. To the full extent allowed by applicable law, in no event shall Red Sea be liable for any loss or damage to marine life, and/or damage to other property and/or individuals resulting from the use of the product or arising out of any breach of this. All implied warranties are excluded to the full extent allowed by applicable law, and to the extent that they may not be excluded, are limited to the applicable warranty period set forth above. Some jurisdictions do not allow limitations on how long an implied warranty or condition lasts, so this limitation may not apply to you. The express warranties made in this warranty are exclusive and may not be altered, enlarged or changed by any distributor, dealer, or other person, whatsoever.

European Union – Disposal Information:

This symbol means that, according to local laws and regulations, your product should be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Some collection points accept products for free. The separate collection and recycling of your product at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

FCC Compliance Statement:

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation. Any changes or modifications not expressly approved by Red Sea could void the user's authority to operate the RF Module and/or the product that incorporates the RF Module. The user is cautioned to maintain a 20cm (8 inch) spacing from the product to ensure compliance with FCC regulations.

CE Declaration of Conformity:

The equipment complies with the RF Exposure Requirement 1999/5/EEC, Council Recommendation on the limitation of exposure of the general public to electromagnetic fields (0-300 GHz). This equipment meets the following conformance standards: EN 300 328, EN 301 489-17.

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