KH Manager Dosing

‘Follow to Dose’ Method

The KH Manager includes an inbuilt stepper motor pump (KH Rise Pump) for the dosing of KH buffer. Dosing on this pump, when set to ‘Auto Mode’, will be calculated after each successful KH test and added as per the limits set in the ‘Auto Add’ settings page.

For some dosing methods, a second component should be added in unison with the main KH part, such as when using the Reef Zlements Complete and PH Plus in conjunction with Reef Zlements Universal products.

To automate these dosing methods you can effectively extend the number of controlled pump heads on the KH Manger by linking it to a D-D P4 series pump via the E1 Connection box. When using the ‘Follow to Dose’ method this allows you to select one or more of the pump heads on the P4 to copy the actions of the ‘KH Rise’ pump on the KH Manager. These connected pump heads can be set to dose the same amount as the integrated ‘KH Rise Pump’ or a percentage of it, a dosing delay can also be incorporated to prevent unwanted precipitation or a conflict when solutions are added at the same time.

Once you have your KH Manger connected to the app and installed on your aquarium use the steps below to set up the ‘Follow to Dose’ method.

To ensure correct dosing we strongly recommend that the KH Manager is set to carry out a number of KH tests over a few days before commencing any automated dosing to ensure that the unit is calibrated and operating correctly.

If using the Reef Zlements PH Plus or Complete (for KH) in conjunction with Reef Zlements Universal (for Calcium and Magnesium), the KH Component should be dosed via the ‘KH Rise Pump’ on the KH Manager and the Universal component should be dosed using the connected P4 series pump.

Setting Up

1. Connect the KH Manager and D-D P4 series dosing pump using the E1 box, detailed instruction on how to do this are available on the E1 pages on our website www.theaquariumsolution.com.
2. In the ‘Test’ settings pages on the KH Manager create a ‘Automatic’ schedule, this should be set to carry out around **4-8 tests** a day to allow adequate time between tests for the dosing to occur. Detailed instructions for setting up testing is available on the KH Manager pages on our website.
3. Go to ‘Keep KH’ on the ‘Status Page’ and turn the toggle switch to the **‘ON’** position, enter the ‘KH Balance Value’ that you would like to maintain and **accurately** add the ‘Tank Water Volume’.
4. Select ‘Add KH Settings’ turn **‘ON’** both the toggle switch for **‘Use KH Rise Pump to Add’** and **‘Use Other Pumps to Add’**.
5. Enter the ‘Use KH Rise Pump to Add’ settings and select the **‘Auto Add’** method from the drop-down menu at the top of the page. In this page you will also need to set dosing limits to prevent the possibility of changing the KH to quickly in the aquarium and to create a safety net against overdosing should a malfunction occur. It should be set that

it is not possible to increase the KH of the aquarium more than 1dKH in a 24-hour period.

- Total Add Cap – This is the most it is possible to dose after each KH test cycle. To calculate the maximum that can be entered here, use the total volume of PH Plus or Complete needed to increase the KH of your aquarium by 1dKH and divide it by the number of KH tests being performed in a day.
- Single Add Cap – The calculated dosing can be split down so that after each test it is not adding the full addition in one go, i.e. after a test if the KH Manager calculated a 20ml addition is needed, instead of that 20ml being added in one go you can set the 'Single Add Cap' to 5ml so that the dose is split in to 4 doses of 5ml.
- Add KH Interval – This is the time delay between each 'Single Add Cap' addition. Make sure that when setting the delay there is enough time for all potential dosing to be complete at least 30 minutes before the next test.
- KH Rise Reagent Brand- Tap here to enter the strength of the dosing solution you are using, **this must be entered accurately**. It is based on the volume needed to effect 100L of water and this information should be on the manufactures label for the solution you are dosing. When complete use the **'Save'** button in the top right to store your setting.

6. Return to the **'Add KH Settings'** page and select the **'Use Other Pumps to Add'** tile, then tap on the icon for the pump you have connected.
7. From the drop-down menu near the top of the page choose the option **'Follow "KH Carer" to Dose'**.
8. The four connected P4 pump heads should show on the page with **'OFF'** next to them. When the pump head is switched to **'OFF'** in this page the KH manager will have no influence and it will follow settings added on the P4 pump itself. Tap on the pump head that you would like to be controlled by the KH Manger and slide the toggle switch to the **'ON'** position.
9. Options will appear for **'Dosing Proportion'** and **'Dosing Interval'**. The 'Dosing Proportion' is how much you want the selected pump head to dose compared to the 'KH Rise' pump on the KH Manager, for example, at 50% it will dose half the amount, 100% the same and 200% twice the amount. The 'Dosing Interval' is the delay from the 'KH Rise' pump dosing and the connected P4 pump dosing, this is used to prevent interference between the two solutions being doses. As with the setting on the 'KH Rise' pump it is important that the dosing is complete at least 30 minutes before the next KH test commencing.
10. When complete use the **'Save'** button at the top right corner to store the settings. Then return to the KH Manager 'Status' page using the back arrow in the top left corner.

11. The final step is to enter the **'Threshold'** in the KH Manager **'Settings'** tab shown in the bottom right of the screen. This is a secondary safety setting that alerts you should the pH or KH test results fall outside your chosen range, this would indicate a potential malfunction that needs correcting or the need to amend the dosing settings. For the KH threshold we would suggest a setting of +/- 0.5dKH to 1dKH of your setpoint.

The automated dosing should now be set up and ready to commence after the next scheduled KH test.

It is important that the KH Manager and its components are maintained and cleaned at appropriate intervals to ensure accurate testing and dosing.