



DÖS Dual Reservoir (DDR)



Setup Guide

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D \bar{O} S DUAL RESERVOIR – INTRODUCTION

Congratulations on your purchase of this Apex AquaController expansion accessory. This accessory has two separate 2-liter cylinders for holding your additives. It also has optical sensors at the bottom that tell the Apex when it is time to refill and it then can send you an email or text alert. Features include:

- Easily connects to the D \bar{O} S Fluid Delivery System
- High Quality optical level sensors
- Quick Disconnect fittings for tubing
- Compact footprint with a 4-Liter capacity
- Compatible with all Apex Systems using the D \bar{O} S

PHYSICAL INSTALLATION



WARNING: Your Apex Base Unit must be running firmware version 4.34 or higher to support the D \bar{O} S Dual Reservoir (DDR). The current firmware version can be checked from the Apex Display on the Self-Test screen. If needed, please upgrade the Apex Base Unit firmware to 4.34 or higher before proceeding with the installation. See the *Apex Setup and Programming Guide* for firmware upgrade instructions.

INITIAL CONNECTIONS

Plug the DDR cable into the jack on the side of the D \bar{O} S module. There's a 6-pin modular jack and a 4-pin modular jack on the side of the D \bar{O} S. The DDR connects to the 6-pin jack



VERIFY THE INSTALLATION

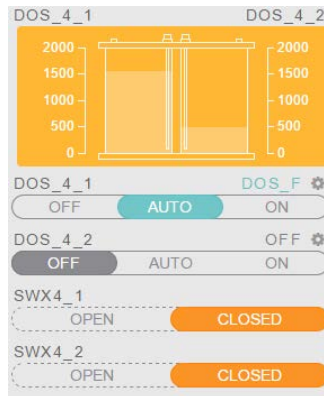
Verify the DDR was added to the Apex configuration:

Apex Display: Setup – Module Setup – Config Module.

Web Interface: Configuration – Module Setup.

Two (2) switch inputs will also be created. Their names are dependent on the Aquabus module number that was assigned to the D \bar{O} S but follow the same syntax as any other switch on an expansion module: SwxY_1 and SwxY_2 where 'Y' is the Aquabus module # assigned to the D \bar{O} S (the program examples below assume an Aquabus # of 4 was assigned. Your number may be different).

Switch #1 corresponds to the optical sensor in the left side container (when looking at the DDR with the wires exiting the rear of the unit) and switch #2 corresponds to the right side container. By default these will be placed in the unused tiles area of the dashboards. To move them to an active dashboard, put the dashboard in 'edit' mode (Native interface) or unlock the padlock icon (Fusion) and drag the switch tiles to the dashboard, then save/lock the dashboard. Below are examples from the native dashboard and Fusion of what this will look like. Note that the name of the containers in Fusion will mirror the names of the D \bar{O} S pumps – if you change the name of the pumps the container names will change as well:



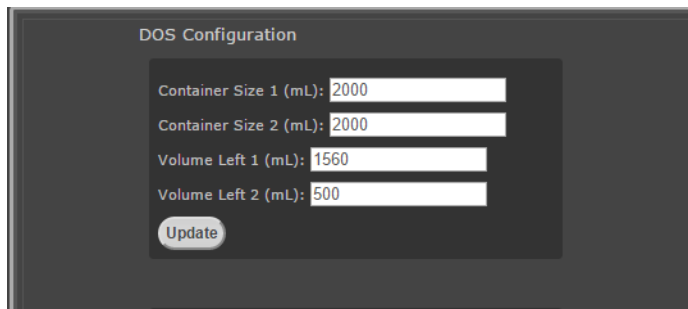
CONFIGURING THE DDR

The DDR container volumes need to be configured. There are three ways you can do this. In Fusion, click on the name of the container on the dashboard; in the native interface via the Module Setup web page or via the Display module navigating to Setup – Module Setup – Config Module.

When you select the container (Fusion) or the D \bar{O} S module (native interface or Display module) you will see some new fields. In Fusion: Total Volume and Volume Left. In the Native interface: Container 1 & 2 size and Container 1 & 2 volume left. With the Display module: Volume Pump 1 & 2 and Volume Remaining 1 & 2.

While the field names might vary, the purpose is the same – indicate the total volume of each container and the amount of fluid currently in them.

The capacity of each DDR container is 2 Liters or 2,000 ml. By entering values here (1 – 150,000), Fusion will automatically keep track of your container volume and display that on a graphical tile on the Fusion dashboard. Note that you can use this for a container up to 150,000ml (approximately 40 gallons). This supplements the purpose of the optical level sensors in the DDR which are positioned in the reservoir to notify you when approximately 500ml of solution remains. These fields when properly completed will enable Fusion to give you additional information about fluid levels in the containers.



DOS Configuration

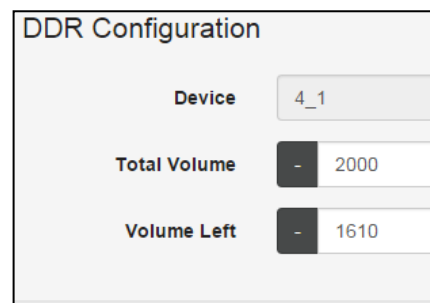
Container Size 1 (mL): 2000

Container Size 2 (mL): 2000

Volume Left 1 (mL): 1560

Volume Left 2 (mL): 500

Update



DDR Configuration

Device: 4_1

Total Volume: 2000

Volume Left: 1610

Note that if you have a D \bar{O} S but not the DDR you still can use this feature with your own reservoir, just substitute your values for those noted above. However the depiction of the containers in Fusion is only available with the DDR.

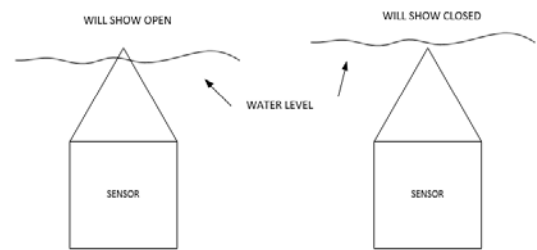
The following table summarizes approximate volumes in a container based on a measurement up from the bottom of the container:

ml	200	400	600	800	1000	1200	1400	1600	1800	2000
inch (frac)	7/8	1 3/4	2 1/2	3 1/4	4	4 3/4	5 1/2	6 1/4	7	7 3/4
inch (dec)	0.875	1.75	2.5	3.25	4	4.75	5.5	6.25	7	7.75
millimeter	22	44	64	83	102	121	140	159	178	197

PROGRAMMING EXAMPLES

Refer to the Apex Setup and Programming Guide or the Comprehensive Reference Manual for instructions on how to configure and program switches. These examples will help you quickly program your system to use the DDR to alert you of a potential problem. In the following examples, the D \bar{O} S module was assigned an Aquabus address of #4 so the DDR switches are numbered 4_1 and 4_2. Your D \bar{O} S/DDR likely will have a different address number.

Once the level of a container falls below the top of the optical sensor, that switch will show as OPEN. If the fluid level is above the top of the optical sensor the switch will show as CLOSED.



SIMPLE EMAIL OR SOUND ALARM EXAMPLE

Add to your email and/or sound alarm outlet: If Swx4_1 OPEN Then ON

REDUCE ALARM FREQUENCY

When the optical level sensor goes OPEN there is still approximately 500ml of fluid remaining in the container. Depending on your dosing frequency/amount this could last for days before being fully depleted. Normally email alarms are repeated hourly or whatever your 'Re-email Delay' setting is (see your Network configuration web page). This could quickly become annoying if you have days left of fluid. To get

around this you can create a virtual outlet to function as the alarm trigger and limit the number of times per day it triggers.

First create a virtual outlet. For instructions on how to do this, refer to the Comprehensive Reference Manual or the Programming Forum where there's a ['sticky'](#) with the instructions. The easiest way to add a single virtual outlet is via the Apex Display Module.

Apex Display: Setup – Outlet Setup – Add Outlet.

In this example the virtual outlet was named 'DDR_Low' and configured as:

Set OFF

If Swx4_1 OPEN Then ON

If Swx4_2 OPEN Then ON

If Time 08:01 to 17:59 Then OFF

If Time 18:01 to 07:59 Then OFF

Then in your email/sound alarm outlet add:

If Outlet DDR_Low = ON Then ON

This will prevent a low container level alarm from being emailed to you except at 8am and 6pm daily.

SIMPLE PUMP SHUT DOWN EXAMPLE



If you want to shut-down your D \bar{O} S from additional dosing, you would add the following to the end of your D \bar{O} S program or TBL data (substitute your switch name if different):

If Swx4_1 OPEN Then OFF



NEPTUNE SYSTEMS LIMITED WARRANTY

Neptune Systems warrants this product to be free from defects in material and workmanship for a period of 1 year from the date of purchase. If repair or adjustment is necessary and has not been the result of abuse, Neptune Systems warrants this product to be free from defects in material and workmanship for a period of 1 year from the date of purchase. If repair or adjustment is necessary and has not been the result of abuse, misuse, or accidental damage, within the 1-year period, please return the product with proof of purchase, and correction of the defect will be made without charge.

For your protection, items being returned must be carefully packed to prevent damage in shipment and insured against possible damage or loss. Neptune Systems will not be responsible for damage resulting from careless or insufficient packaging. Before returning please obtain a return authorization (RMA) number from Neptune Systems. Returned merchandise will not be accepted without a RMA number. To obtain assistance with your Neptune Systems product, contact Neptune Systems technical support by phone or via the [Technical Support Contact Web Page](https://www.neptunesystems.com) at <https://www.neptunesystems.com>.

Except for the warranty set forth above, Neptune Systems is not responsible for any damages including, but not limited to, consequential damage occurring out of or relating to the delivery, use or performance of Neptune Systems' products. Buyer's remedies for breach of warranty shall be limited to repair, or replacement and full or partial adjustment to purchase price.

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Dual DOS Reservoir (DDR) Setup Guide v1.1



The symbols to the right mean 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.

