



## Setup Instructions for Auto Top-off Kit, Digital I/O version

Congratulations on your purchase of an AVAST Auto Top-off Kit! By following these simple instructions, you will have your evaporation replacement system up and running in a short time:

1. Connect the I/O cable to your aquarium controller. The Neptune-specific cable (minidin-8) plugs directly into the AquaController or Apex I/O port. Similarly, the Profilux minidin-6 plugs into its I/O port. If you are using the bare-wire version, connect the red & black wires to your controller's input channel. For example, you would connect the red wire to a numbered pin and the black wire to the common pin on a Neptune Systems' Apex breakout box. For the ReefKeeper (Digital Aquatics), use an SW5, SL1, or SL2, and their switch cable, and connect per their instructions. For the Vertex Cerebra, see notes below.
2. Program your controller to recognize the new switch. The boxes are wired to be normally closed; i.e., when unpressurized, the switch reports a closed, or activated, state. Typically, this logic would activate your ATO pump to refill a sump, etc.<sup>1</sup>
3. Test the system by blowing on the pressure sensor tube; this will cause the switch to open and report to the controller the open state. Normally, this will signal your controller to turn off the associated pump outlet.
4. Insert pressure sensor tube into magnetic bracket c-clamp, and situate the sensor & bracket at the desired water level in your sump or main tank. You may need to slide the sensor tube up and down to see where it activates the switch.
5. Install rubber grommet into the other space in the magnetic bracket. Depending on the diameter of the tubing from your ATO pump, install the secondary rubber bushing. This second bushing slips into the grommet and will securely hold 1/4" polyethylene tubing. The grommet will hold 1/2" ID tubing or a probe.
6. Plug in ATO pump to an open outlet on your controller's outlet box. The sensor will now control the pump appropriately as the water level fluctuates.

<sup>1</sup> The programming can easily be reversed so that a pump is turned off instead, in the case of a low water level alarm such as turning off a return pump if sump water level falls. For example, the following code can be used on the Neptune Apex for standard ATO functions:

Fallback OFF

Set OFF

If SW1 CLOSED Then ON

This will tell the Apex to keep the associated outlet OFF if the switch is open (pressurized state), and turn the outlet on when the switch becomes unpressurized (i.e., water level falls). This logic can be reversed if you want to use the ATO as a run-dry detector instead. Note that on older Apex firmware revisions, the switch may be named 'Switch1'

### **Optional backup float valve installation**

The backup float is designed to prevent the ATO feed pump from adding too much water to the system should the main switchbox fail. If the pump somehow remains active, the water level will rise high enough for the float to seal the end of the ATO feed tube. This is a mechanical seal which can hold back considerable pressure from a pump, or even a pressurized water source. Care should be taken to test the hookup to the valve, mostly to ensure that when the tube is closed, backpressure from the pump does not blow off a tube or fitting somewhere between the pump and float valve. This is especially important for peristaltic (dosing) pumps, which can often produce considerable pressure. Note that we do not recommend using an unsealed kalkwasser stirrer (such as our K1 or K2 models) with the backup valve. This is because the valve will shut off flow to the aquarium, but the water pump will continue to add water to the kalk stirrer, possibly causing an overflow at the stirrer.

1. Remove the rubber grommet from the ATO magnetic mounting bracket, and replace with the float valve.
2. Insert 1/4" polyethylene or similar size & material tubing into the top of the float valve. This should be connected directly to your ATO feed pump. Check to ensure that all tubing connections are secured against pressure buildup.
3. Test the ability of the float valve to safely cut off the water flow from the ATO pump. With the ATO switch activated, simply lift up on the float valve and check that all water input stops.

### **Maintenance**

1. The ATO kit is designed to require no regular maintenance. The tube should be checked a few times per year to ensure that any sponges or algae are not growing large enough to completely block airflow.
2. The optional float valve contains a narrow opening for water flow. Every few months, check that this opening is free of debris or buildup, and perform a simple emergency shutoff test as detailed in step #4 above.

### **Vertex Cerebra Installation Notes**

The sensor connects to one of the level inputs on the multibar. On the controller, add a rule on the outlet where the ATO pump is plugged in. On "designation", use the outlet for the pump. On "function", use the level input where the sensor is connected. Set the outlet to AUTO.