

Aquarium Instructions

Logging in to Apex Fusion

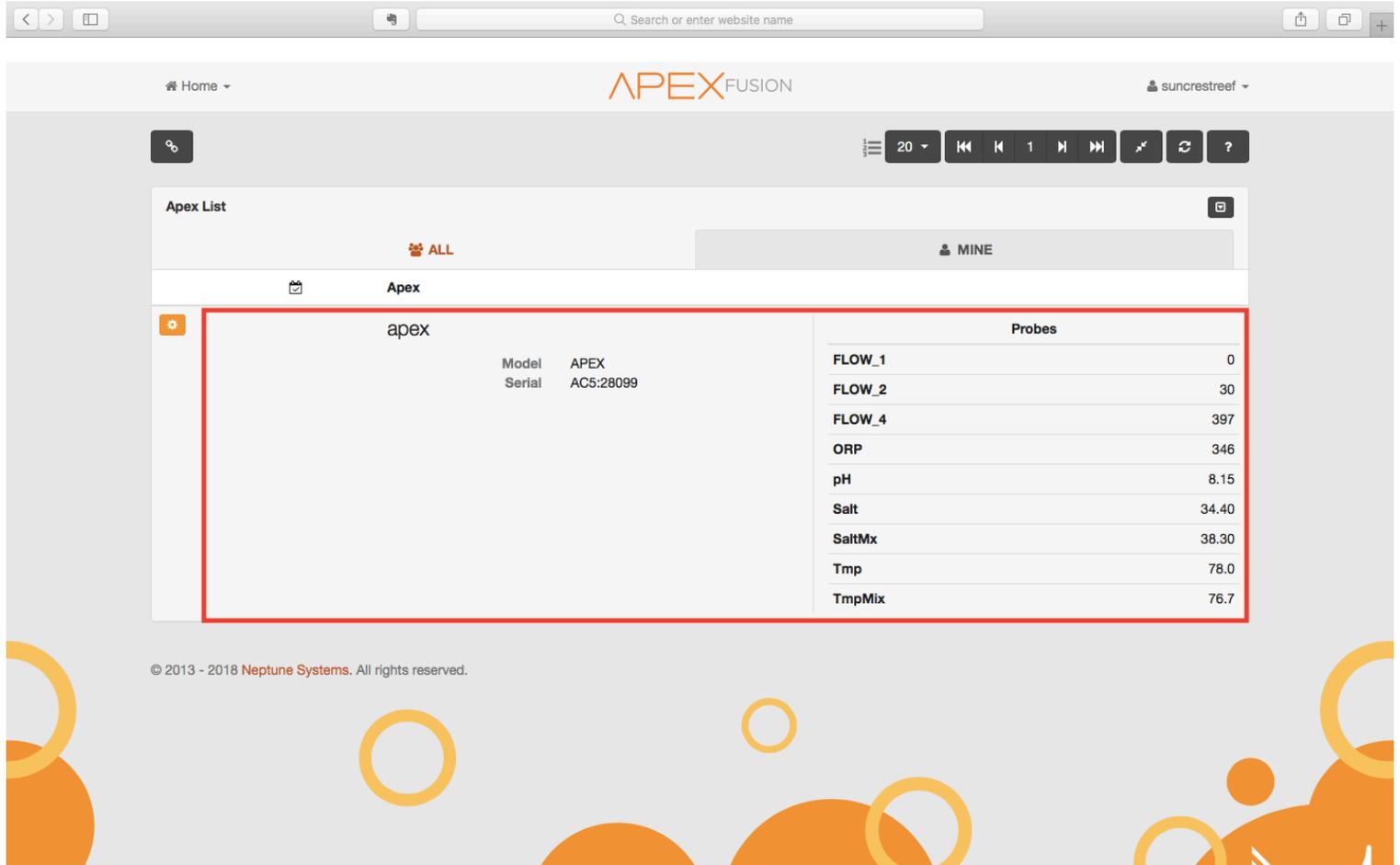
Apex Fusion controls all the equipment on the aquarium. It is a web site that links to the Apex controller under the aquarium cabinet. To access Apex Fusion, browse to this site on a computer, tablet, or smartphone:

<https://apexfusion.com/login>

Username: *****

Password: *****

Once logged in, it will show this screen. Click anywhere in the area outlined in red below to get to the main “dashboard”.

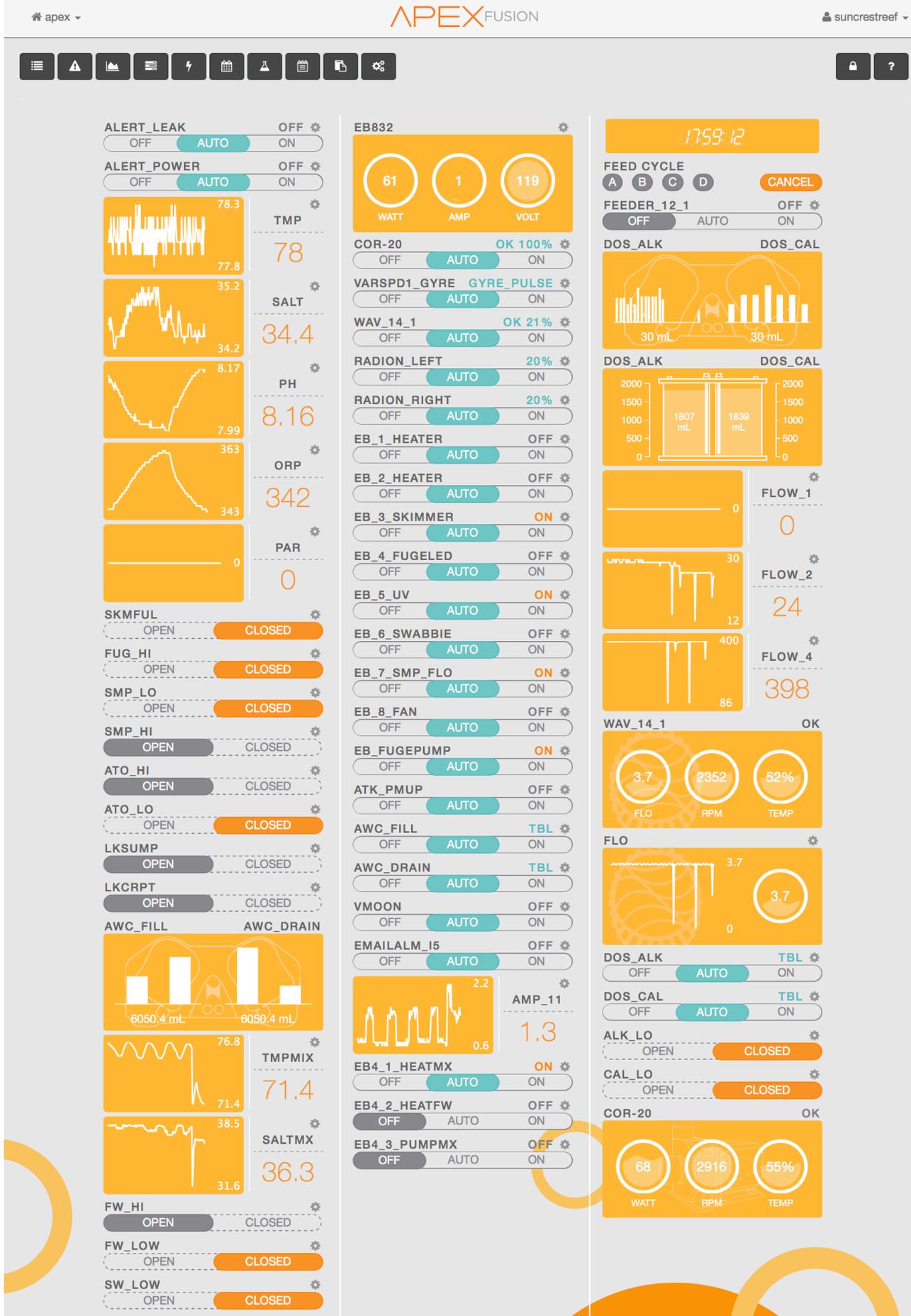


The screenshot shows the Apex Fusion web interface. At the top, there is a navigation bar with "Home" and "suncrestreef" user information. The main content area is titled "Apex List" and features a tabbed interface with "ALL" and "MINE" tabs. The "ALL" tab is active, showing a list of Apex units. One unit, named "apex", is highlighted with a red border. This unit's details are shown in a table with columns for "Model" (APEX) and "Serial" (AC5:28099). To the right of the unit details is a "Probes" table listing various sensors and their values.

Apex		Probes	
Model	APEX	FLOW_1	0
Serial	AC5:28099	FLOW_2	30
		FLOW_4	397
		ORP	346
		pH	8.15
		Salt	34.40
		SaltMx	38.30
		Tmp	78.0
		TmpMix	76.7

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The Apex Fusion dashboard displays all the system components, measurements, and outlets:



I will be keeping an eye on the dashboard remotely, so there's no need for you to analyze anything. Just be sure all outlets are set to **Auto** as shown above.

You will only need to use the Apex Fusion dashboard for the following routine tasks:

1. **Fish feeding**
2. **Coral feeding**
3. **Emptying the skimmate locker**
4. **Responding to alerts.** If you get an alert, the chart below will provide specific instructions on certain outlets in Apex Fusion.

Routine Tasks:

Feeding fish

1. Thaw one square of LRS Reef Frenzy frozen food in a small bowl with 1 syringe full of water
2. Chop up the thawed food with a spoon
3. In Apex Fusion, click the **Feed Cycle A** button to turn off the pumps for 5 minutes
4. Lift the aquarium lid and dump the food in
5. After 5 minutes, the pumps will automatically resume. After another 5 minutes, the skimmer will start back up. During this time, the water level will be slightly higher than normal. Once the skimmer is running, the water level should return to normal.

Feeding coral

1. Combine 1/2 teaspoon of Reef Roids powder with 1 syringe of tank water in a small bowl and stir to dissolve
2. In Apex Fusion, click the **Feed Cycle B** button to turn off the pumps for 10 minutes
3. Remove the lid from the aquarium
4. Use the long feeding syringe tool to suck up about 1/2 of the coral food from the bowl and gently disperse a small cloud of food directly onto each coral. A little push of the syringe goes a long way. Be careful when moving the long syringe in the tank as the corals are very fragile and easy to break if you bump them.
5. Repeat with remaining coral food
6. Carefully place the lid back onto the aquarium.

Adding seaweed

The Kole Tang (large fish with yellow eyes) really likes to snack on seaweed.

1. Remove 1 sheet of seaweed from the package and tear it in half.
2. Remove the lid from the aquarium
3. Use the seaweed clip magnet to drag the clip up to the surface of the water
4. Fold the half sheet into thirds
5. Clip the folded seaweed into the clip
6. Slide the clip magnet back down about 6" above the sand
7. Carefully place the lid back onto the aquarium.

Cleaning corals

Some of the corals may accumulate debris. Use the long feeding syringe tool to suck up water and blow it out across the surface of the coral to wash away the debris.

Changing filter fiber

Follow the directions in this video: <https://www.youtube.com/watch?v=wh95yEnKTRI>

Emptying skimmate locker

Follow the directions in this video: <https://www.youtube.com/watch?v=vdHzXfeumMg>

NOTE: I have recently added one extra step which is not in the video. After emptying the skimmate locker, add 1 gallon of fresh saltwater from the garage storage tank into the aquarium sump to prevent the aquarium salinity from decreasing since the skimmate contains saltwater. Use the white bucket which has gallon markings on it, and just open the valve at the bottom of the saltwater storage tank.

Cleaning glass

The magnetic glass cleaner is stuck to the rear wall of the aquarium on the left side. Reach behind the tank and slide the magnet to drag the cleaner across the inside of the glass. When you get to the corner, quickly slide the magnet around the corner to the next side of the tank and the wiper will automatically flip around to the next pane of glass. It's best to do this flipping motion with the wiper about 1/2 way down from the top so the movement doesn't splash water over the top of the glass, and doesn't stir up a cloud of sand at the bottom. If you accidentally pull the magnet away and the wiper drifts off, you will need to reach into the tank to retrieve it. A quick motion when going around corners should prevent this mishap.

Apex Alert Messages

The Apex will send email alerts when certain conditions are encountered. Each alert will show the date and time of the event, followed by a "Statement" that describes the condition.

Date: 2018-12-19 14:44:05 -0800
 Status: ON
 Statement: If SMP_HI CLOSED Then ON

When the condition is resolved, the Apex will send a follow up alert with a status of "OFF":

Date: 2018-12-19 14:44:55 -0800
 Status: OFF
 Statement: Set OFF

Use the chart below to identify the cause of each possible alert statement.

Note about sump water level:

I placed some labels on the front of the sump tank to show various water levels. In the event of an alert that depends on water level, keep the following in mind when troubleshooting:

- When all systems are running normally, the water level should be right at the "Normal Water Level" sticker.
- During Feed Mode, the sump water level will be high due to the pumps running at minimal power.
- Each morning between 9am-noon, the automatic water change system removes 1.5 gallons and replaces it with new saltwater. During this time, the sump water level will drop to the "Minimum water level" sticker. Wait until after noon to determine if the level is incorrect.

Statement	Cause	Resolution
If Output Alert_Power = ON Then ON	The wall electrical outlet behind the aquarium has no power.	<p>If the whole house is without power, the outdoor generator should automatically start within 1 minute and supply power to the whole house. This should resolve the problem.</p> <p>If the rest of the house has power, but just the aquarium outlet is dead, check the circuit breaker panel in the garage. The aquarium breaker is labeled. Turn the breaker off, then on.</p> <p>When the power is off, the aquarium should continue to run on backup battery power for a few minutes. During this time the battery unit will beep. You can silence the beeping alarm by pressing the button on the right front panel. (volume icon with slash through it)</p>
If Output Alert_Leak = ON Then ON	Water has been detected either on the floor of the aquarium cabinet (sensor on left side of the sump) or under the carpet.	If only a small splash of water is on the leak sensor, dry it off with a paper towel. If this is an actual leak, try to identify the source of the leak. Contact the LFS for assistance. Contact info is on the last page of this document.
If Error ATK_PMUP Then ON	The automatic tophoff water pump either failed, or could not refill the	Check the sump water level. If it is extremely low, add saltwater to

	evaporated water within the 5 minute time limit.	bring it back to normal water level, then reset the Apex outlet ATK_PMUP to Auto. If the problem persists, then the pump inside the garage RO/DI tank may be jammed or defective. There are several spare Neptune PMUP pumps in the garage. Contact The LFS for assistance.
If Tmp > 79.0 Then ON	Water temperature is too high.	Be sure the Apex outlets EB_1_HEATER and EB_2_HEATER are set to Auto.
If Tmp < 77.0 Then ON	Water temperature is too low.	Be sure the Apex outlets EB_1_HEATER and EB_2_HEATER are set to Auto.
If SkmFul OPEN Then ON	The skimmate locker is full.	Empty the skimmate locker following the video instructions.
If SMP_LO OPEN Then ON	The water level in the sump is too low.	Add saltwater to the sump until the water level reaches the normal water level.
If Output vSmp_Hi = ON Then ON	The water level in the sump is too high.	It's possible the main pump in the sump is off or failed. Verify the Apex outlet COR-20 is set to Auto, and that water is flowing out of the nozzles at the top rear of the aquarium. If there's no water flowing, contact The LFS. There is a spare COR-20 pump in the garage.
If FW_HI CLOSED Then ON	The RO/DI water storage tank is too full.	Turn off the water supply to the RO/DI filter on the garage wall. This is the silver valve connected to the red tube, just left of the hot water heater.
If FUG_HI OPEN Then ON	The refugium drain is clogged, causing the water level to get too high in the refugium.	Remove stray algae or other debris from the drain plug at the rear left side of the refugium. Once the refugium water level drops, the pump will automatically resume.
If Output vATO_Off = ON Then ON	The auto top-off of fresh water isn't running properly.	Be sure the Apex outlet ATK_PMUP is set to Auto. If sump the water level is low, manually add fresh water from the garage RO/DI storage tank into the sump. Contact The LFS if the problem persists.
If Output EB_7_SMP_FLO Watts > 5 Then ON	The small powerhead at the front of the sump is jammed.	<ol style="list-style-type: none"> 1. In Apex Fusion, turn off the outlet named EB_7_SMP_FLO. 2. Reach into the sump and try manually turning the pump's propeller. Remove any obvious debris. 3. In Apex Fusion, turn the EB_7_SMP_FLO outlet back on. 4. Verify the pump is spinning.

Emergency Contact Info:

LFS

Owner: *****

Phone: *****

Email: *****

Address: *****

Feel free to forward this document to them, and give them my Apex username & password. If they need to do a house call, please show them to the shelf of spare parts in the garage. For their reference, here's an inventory of spares I have on hand:

- Neptune PMUP (qty 4)
- Neptune COR-20 return pump
- Neptune WAV powerhead
- Neptune FMM module
- Neptune 24v accessory power adapter (qty 2)
- Maxspect Gyre XF-230 powerhead

Feel free to contact me at any time with questions, problems, or emergencies:
