

ekoral

eKoral Pro

User Manual 2020



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1.0. Creating an eKoral Account

To begin, please download the eKoral app from the App Store (Apple iOS) or the Google Play Store (Android). You may also use the QR codes provided (*Pg. 1*). Search for ‘**eKoral**’, and download the app specified for aquarium use.

Once downloaded, please open the eKoral app and create an account either using your email address or Facebook account.

Please note: there are two settings when you are creating an account, these are explained below.

1.1. International

If you are an international user (i.e. are located outside of mainland China), please be sure to select the “**International**” setting (top right-hand corner) when creating your account and logging into the eKoral app.

1.2. China

If you are a user from mainland China, please be sure to select the “**China**” setting when creating your account (top right-hand corner) and logging into the eKoral app. This will ensure that you are logged into our Chinese servers.

Once an account is created, you are ready to start pairing to a device.

2.0. Packaging Contents

2.1. eK Core

★ Aquarium controller

★ *Specifications:*

- **Adapter Input:** (CN) 100-240V ~50/60Hz 0.3A
- **eK Core Input:** 12V, 1A
- **I/O Port:**
 - pH port x 1
 - ORP port x 1
 - Salinity port x 1
 - Temp port (eK Temp Probe) (red) x 2
 - Level Sensor port (eK Level Sensor) (silver) x 2
 - Pump port (eKoral Sync device 0-10V) (blue) x 4
 - Light port (eKoral Sync device 0-10V) (green) x 2
 - USB port (eKoral Sync device) x 4

The most important part of the eKoral Pro system is the innovative eK Core base unit. It offers both aquarists and hobbyists a wide range of options to customize, control and monitor their aquatic environment. The system does not require any extra user programming to operate,

as it is set to automatically connect to the internet to communicate with both the user and all peripheral devices. The modern aquarium controller is integrated with an extremely user-friendly interface that offers seamless customization via a handy mobile app.

2.2. eK Power 6

★ Smart Power Bar

★ *Specifications:*

- **Size:** (US) 325x198x78mm (12.8"x7.8"x3.1"); (CN) 315x178x63mm (12.4"x7"x2.5")
- **Weight:** (US) 1030g (2.28lb); (CN) 990g (2.18lb)
- **Input:** (US) 100-120V~/60Hz/10A; (CN) 220-240V~ / 50Hz / 10A / 2300W
- **Output:** (US) 100-120V~/60Hz/10A; (CN) 220-240V~ / 50Hz / 10A / 2300W
- **Cable Length:** 1.8m (5.9ft)

The power bar has six color-coded, 10 A sockets that can be wirelessly controlled, independently activated, and individually monitored. The eK Power 6 safety features protect any high-tech equipment connected to this system.

2.3. eK Level Sensor

★ The eK Level sensor uses ultrasound technology to take a precise and continuous water level. Not only is it simple to set up, but it also compiles and digitizes water level change over time, so that you have highly accurate historical data readily available.

★ *Specifications:*

- **Accuracy:** 3mm (0.01ft)
- **Measuring Range:** 5 ~ 400cm (0.16~0.33ft)
- **Measuring Angle:** <15°

2.4. pH Probe

★ Laboratory grade pH probe, treated to prevent corrosion

★ *Specifications:*

- **Accuracy:** ±0.5pH (@25°C /77 °F)
- **Measuring Range:** 0 ~ 14pH.
- **Temp Requirement:** +5°C ~ +60°C (+41~140 °F)
- **Cable Length:** 3m (9.84ft)
- **Dimension:** φ12x165mm (φ0.47"x6.5")

2.5. Temperature Probe

★ Laboratory grade temperature probe, treated to prevent corrosion

★ *Specifications:*

- **Accuracy:** ±0.5°C (@-10°C ~+85°C /+14~185°F)
- **Measuring Range:** -55°C ~ +125°C (-67~+257 °F)

- **Cable Length:** 3m (9.84ft)
- **Dimension:** \varnothing 12x165mm (\varnothing 0.47"x6.5")

2.6. ORP Probe

- ★ Laboratory-grade ORP probe, treated to prevent corrosion
- ★ Specifications:
 - **Accuracy:**
 - **Measuring Range:**
 - **Cable Length:** 3m (9.84ft)
 - **Dimensions:** \varnothing 12x165mm (\varnothing 0.47"x6.5")
 - **Response Time:** \leq 1minute

The ORP measurement in marine aquaria is an important parameter that gives insight into processes that disturb the tank's equilibrium. The **standard BNC** (Bayonet Niell-Concelman) connector allows for excellent compatibility with other equipment.

2.7. Salinity Probe

- ★ Laboratory-grade salinity probe, treated to prevent corrosion
- ★ Specifications:
 - **Accuracy:** \pm 2
 - **Measuring Range:** 2000us ~ 200000us
 - **Temperature Requirement:** +0°C ~ +60°C (+32~140°F)
 - **Cable Length:** 3m (9.84ft)
 - **Dimension:** Φ 12x165mm (Φ 0.47"x6.5")

Laboratory-grade sensor that measures water salinity and alerts the user when the measurement moves out of its ideal range. The electrodes are subject to a special treatment during the production process to reduce any capacitive interference caused by the effects of polarization. This process ensures that the probes will continue to output accurate readings even in a highly conductive environment.

2.8. Power Adapter

- ★ US/CN version available

2.9. eK Probe Holder

- ★ Tempered plastic probe organizer
- ★ Holds four (4) eKoral probes

3.0. Safety Precautions

When using the eKoral Pro system, as is the case for all electronic equipment operated around water, it is essential to take steps to maintain the integrity and functionality of the devices. Standard precautions should be taken to minimize risks:

1. **Ensure that the outlet you are using can support the voltage level required by the eK Power 6 and its associated devices.** Heaters, in particular, may represent a significant source of power consumption when a tank is located in a colder environment. If needed, check with a licensed electrician or your local power company to establish that the power consumption is safe.
2. Choose an outlet that is not within the immediate vicinity of your tank (i.e. within the “**splash zone**”, where water splashes or droplets may land on your devices, or “**salt creep**” may occur).
3. Be sure to “**drip loop**” all power cords emerging from your aquarium so that water that may run down cords will not reach the outlet.
4. Regularly inspect all your electronic equipment to account for “**salt creep**” and algae/sponge buildup.

4.0. eKoral Pro Setup

4.1. eK Core Pairing

Once you have successfully logged into your eKoral account, you will need to pair your eKoral device(s) to your eKoral account using either your mobile phone or tablet. You can establish this pairing while online (Soft AP) or offline (Direct Connect).

4.1.1. Online Pairing (Soft AP)

When you are pairing your device to your eKoral account through Soft AP, you are also configuring the WiFi on your eKoral device.

1. By clicking on the ‘**+**’ **button** at the bottom of the screen, you will be able to select which device you wish to pair. In this case, select the eK Core (*Fig. 1&2, Pg. 15*).
2. To start connecting, follow the instructions shown on the app. Please wait 1-2 minutes for the Status LED to flash white and the WiFi LED to flash blue. Once complete, click *Next* (*Fig. 3, Pg. 15*).
3. Scan the QR code on the back of the device, and wait for validation.
4. Name your tank and set up a security key. The **security key** is used to provide authorization and access to the device, should the user forget their account information or wishes to transfer ownership (*Fig. 5, Pg. 15*).
5. **Select the WiFi network that the device will be connected to.** Enter the correct details and save.

4.1.2. Offline Pairing (Direct Connect)

When pairing with an eK Core via Direct Connect, it is connecting to the device's local hotspot. This hotspot will always be formatted in the form [**eKoral-SERIAL NUMBER**] on your mobile device's WiFi list (e.g. eKoral-AHbAAA000).

In this situation, please note that your mobile device will not be connected to the internet and that it will not be able to control the tank or receive notifications once out of range of the eK Core.

4.1.3. Troubleshooting

If you are having difficulty connecting your mobile device to your eK Core, the following steps are a workaround to re-establish connectivity.

1. Create a new mobile hotspot using your phone, and name it **"mp"**. Set the password to be **"ekoprosolutions"**. On an Android device, you can name your hotspot irrespective of your phone's name. On an iOS (Apple) device, you will have to rename your phone **"mp"** for this workaround to function correctly.
2. Access your eKoral device through the eKoral app. Select the **"i"** icon next to your device name.
3. On the page that follows, select **"Configure WiFi"** (Fig. 3, pg. 16). Proceed with onscreen instructions to configure the WiFi to the **"mp"** hotspot you have just created. Even when you are experiencing connectivity issues, this should allow your eKoral device to come back online.

4.2. eK Power 6

Pairing your eK Power 6 is straightforward once the eK Core controller has been successfully paired to your account. Connecting your eK Power 6 to your eKoral account as well as your eK Core can be done directly in the app.

4.2.1. Pairing (in-app)

1. Tap the **"Device"** icon at the bottom of the screen and direct yourself onto the **"Toggles"** tab (Fig. 2 & 3, Pg. 17). Tap **"+"** (in the top right hand corner) and select the eK Power 6.
2. Plug in your eK Power 6. Once the WiFi LED begins to flash, you can tap **"WiFi LED is flashing"** (Fig. 3 & 4, Pg. 17).

Recommendation: Only pair ONE eK Power 6 at a time. Up to six eK Power 6 units can be safely connected to a single eK Core unit.

3. After it is connected, name the device and assign functions to the individual outlets. This will allow you to keep track of where each aspect of your setup is connected. You can choose between the following: Heater, Lighting, Water Pump, Feeder, Chiller, Powerhead, Others and Empty. (Fig. 6 & 7, Pg. 17)

4.3. eK Probes

To get detailed instructions for your temperature and pH probe calibration, please refer to section 4.3 - eK Probes on the eK Lite User Manual. Instructions on how to arrive at the calibration page are available in the figures page at the end of this manual (Fig. 1 & 2, Pg. 18).

Notes to remember:

- ★ Calibrate your probes when you first set up the eK Core
- ★ Only use the solutions provided once to avoid contamination
- ★ When mounting the probe, place it as deep as you can while keeping the cap dry
- ★ If you are not using your probe, make sure the sensor tip is covered by the electrode storage bottle

For further details and information visit our website for detailed videos with demonstrations.

<https://www.ekoral.io/guide/videos.html>

4.3.1. Calibration

For detailed calibration instructions, please feel free to refer to our [Calibration Manual](#), available on our website at <https://www.ekoral.io/>.

To calibrate your probes, you will need your:

- ★ Temperature probe
- ★ pH probe
- ★ ORP probe
- ★ Salinity probe
- ★ pH 7 and pH 10 calibration solutions
- ★ ORP 400 calibration solution
- ★ RO/DI water
- ★ Clean paper towels or facial tissues

**The temperature probe is factory-calibrated. If you wish, you can use any basic thermometer to verify the readings made by the probe, but this is not required.*

4.3.1.1. Salinity Probe

Calibrating your salinity probe is a two-step process: there is a **dry calibration** and a **wet calibration**. Wet calibration will occur alongside the temperature probe, and you will need the salinity 53.0 mS calibration solution.

1. **Dry Calibration:**

For the dry calibration, rinse the salinity probe with RO/DI water. Gently shake the probe dry, and be sure to avoid the tip of the salinity probe, as the coating on the tip of the salinity probe is extremely delicate. We recommend waiting until you are certain that the salinity probe is **completely dry** before proceeding, as any wetness may affect the accuracy of the calibration.

Place **both the salinity probe and temperature probe** into a dry, clean container. Wait 1-2 minutes to ensure that the readings are stable. Do not move the probes during calibration.

2. **Wet calibration:**

Immerse **both the salinity probe and temperature probe** into the **53.0 mS calibration solution**. Shake the probes a bit to get rid of any air bubbles that may be trapped in the tip, and click **Calibrate** to start calibrating. After the process is complete, select **Save** to record calibration results

4.3.1.2. *ORP Probe*

1. Take the ORP probe out of its electrode storage bottle. When it is not in use, be sure to keep it in this container. **If it dries, it will no longer be accurate or effective.**
2. Rinse the probe clean with RO/DI water and wipe the probe dry with a clean tissue.
3. Tap the probe to eliminate any air bubbles on the sensor tip. Once the probe is dry, **immerse the ORP probe in the ORP 400 calibration solution.**
4. Tap or shake the probe again to eliminate any trapped air bubbles. Do not move the probe once you begin calibrating.

4.3.1.3. *pH Probe*

PLEASE NOTE: you can choose to complete the two-point calibration with the provided pH 7 and 10 calibration solutions, but the app also gives you the option to complete a two-point calibration with pH 4 and pH 7 solutions, or a three-point calibration with pH 4, 7 and 10 solutions.

1. To begin, take your probe out of its electrode storage bottle. When it is not in use, be sure to keep it in the container. **If it dries, it will no longer be accurate or effective.**
2. Rinse your probes thoroughly with RO/DI water before commencing with the calibration. **Once rinsed, dry them carefully and avoid the sensor tip.** Afterwards, tap the probe to eliminate air bubbles or water trapped inside.
3. The first part of the two-point calibration is at pH 7. You can use the sachet to calibrate, or use an external container. Remember, however, to **make sure that the container is clean and well-rinsed with RO/DI water.**
4. When you begin calibration, make sure that both probes are completely submerged in the solution. Tap or shake the container to release trapped bubbles to ensure that they will not interfere with the probe reading. **Do not move the probe during calibration.** Follow the instructions on the app, and wait 1-2 minutes to ensure that the readings are stable.
5. After completing calibration at pH 7, please rinse both probes with RO/DI water. When you dry the probes, be sure to not touch or jostle the sensor tips.
6. You can proceed to repeat the previous steps with the pH 10 solution.

5.0. IF/THEN Rules

Ensure you have controllable devices connected to your eK Core (e.g. eK Doser, eK Power 6, eKoral Sync devices).

1. Select the **“Rules”** function on the homepage and then select **“IF”** (*Fig. 1 & 2, Pg. 19*).
2. Choose the device that the rule is attached to (e.g. eK Core). Then, you can decide which parameter is the independent trigger (e.g. temperature or pH).
3. Select the **“Then”** tab. This is when you select the dependent clause--what will change when the independent clause is triggered (e.g. the eK Power 6, the eK Doser, or any associated eKoral Sync device). From the selection, choose the output (*Fig. 6, Pg. 19*).
4. Now add details to the IF/THEN rule--you can be as specific as you wish. After you finish, click **Save**.
5. You will then be prompted to set a lock time, which is an aspect of our **“Fail-Safe”** feature. For more information on this feature, please refer to section 10.0 of this manual.

Please Note: Remember to check that you have activated the rule.

6.0. Schedule

6.1. eK Core

1. After selecting the schedule icon, choose what type of schedule to create (*Fig. 1 & 2, Page 20*) tap on the “+” icon at the bottom of the page to start a new schedule.
2. Name the schedule and edit the criteria to your needs (it is a different criteria for ‘lights and pumps’) (*Fig. 4-7, Pg. 20*).
3. Choose a time frame you wish for the schedule to take place; ranging anywhere between 12:00am and 11:59pm. You can preview your planned schedule before saving by tapping “**Start**”. (*Fig. 8, Pg. 20*)
4. Select the day(s) of the week you wish for the schedule to occur. This can be as many or as little times as you wish. Tap “**Save**” to finish the schedule.

Please Note: Checked that the saved schedule default setting is correct.

6.2. Toggles

Please note, this is slightly different from setting a schedule for the eK Core. There are a few simple steps at the beginning to help you.

To set a schedule for a toggle, first you need to have a toggle connected.

1. Tap the device icon at the bottom of the screen and direct yourself onto the toggles page. Then select “**Add Device**”.
2. Select the device you wish to pair, in this case it is the eK Power 6.

Please Note: To create a schedule for toggles assign functions to each port on the eK Power 6. (*Fig. 1-3, Pg. 22*)

7.0. Scenes

Scenes allow you to control multiple devices at the same time. To use this feature fully, there must be pumps or lights connected directly to the eK Core.

1. Tap on the scene tab on the control page of your app. Then tap “+” to begin the set up.
2. Select the scene type between “**Maintain**”, “**Feed**” and “**Custom**”. Once you have selected your preferred type, enter the name of your tank. (*Fig. 4, Pg. 23*)
3. On the same page, you will be able to adjust the intensity of your pumps and lighting while the scene is taking place.
4. With your connected Power Bar, you can pause the scene and allocate whichever outlet you wish. (*Fig. 6 & 7, Pg. 23*)
5. You may set a scene duration that can range anywhere between **0 and 6 hours** to ensure safety. It can be chosen to the hour and minute.
6. Once you have created a scene that you are satisfied with, press **Save**.

8.0 Resetting your eK Core.

Attached to your system on delivery will be a reset pin. This is the piece of equipment that enables you to reset your device (*Fig. 1, Pg. 14*).

1. **Ensure that you want** to reset your eK Core before proceeding. Once it is done you cannot restore the settings back to its original form.
2. If certain, insert the reset pin into the reset hole on your device. On the eK Core it is on the top left of the device, next to the Status LED light.
3. Press onto the reset pin for **10 seconds** and wait for the WiFi and Status LED lights to turn off and start flashing slowly.
4. If the lights are flashing quickly (once or twice per second), press down into the hole again for 1-5 seconds, until the WiFi light starts flashing slowly (approximately every 2 seconds).

9.0 Connecting eKoral Sync Supported Third-Party Devices.

The eKoral sync program is an approval process that certifies third-party hardware that has the capability to work flawlessly with the eKoral system. All approved products have to pass a strict testing and validation process by eKoral engineers, and only the very best are certified as eKoral sync approved products.

9.1. Identifying eKoral Sync products

All eKoral certified products come with an identifiable “**eKoral Sync**” logo attached to the product itself, the packaging or in the marketing materials (*Fig. 1, Pg. 24*).

9.2 Connecting an eKoral Sync device to your eKoral account

All eKoral Sync devices have their own entry in the “Devices” tab. Depending on the type of device, adding your eKoral Sync device may require different navigation routes.

10.0. Fail Safe

This feature can be found when creating a rule on any of the eKoral controllers (eK Core and eK Lite). The fail-safe includes two aspects:

- ★ **Run-time protection:** puts a time limit on the execution of a rule as a fail-safe against equipment failure.
- ★ **Lock-out time:** the amount of time before a rule can be executed again after run-time protection is triggered.

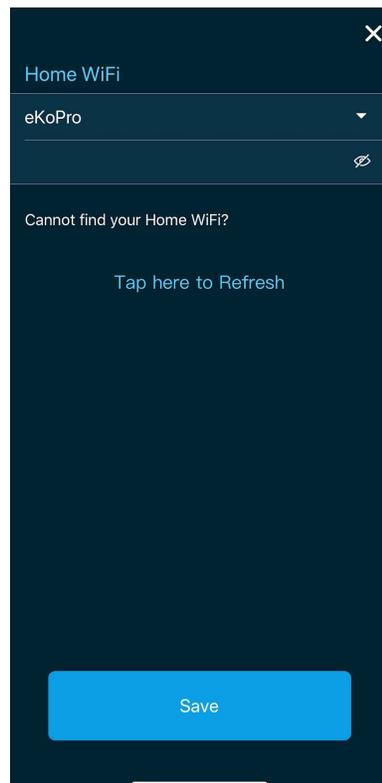
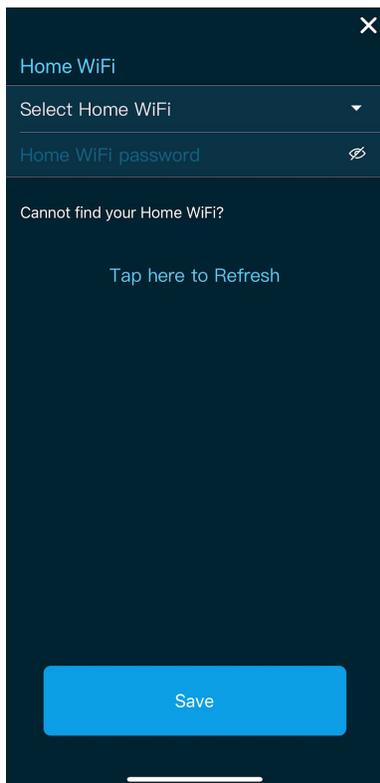
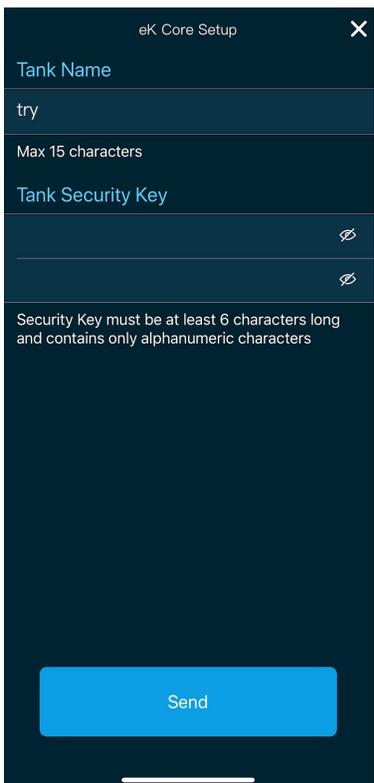
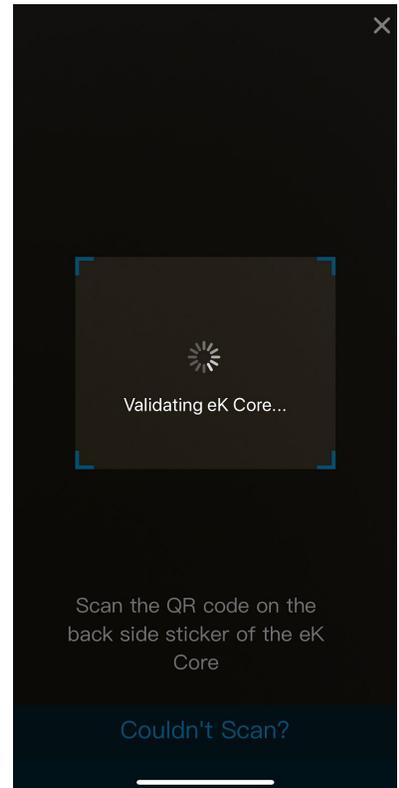
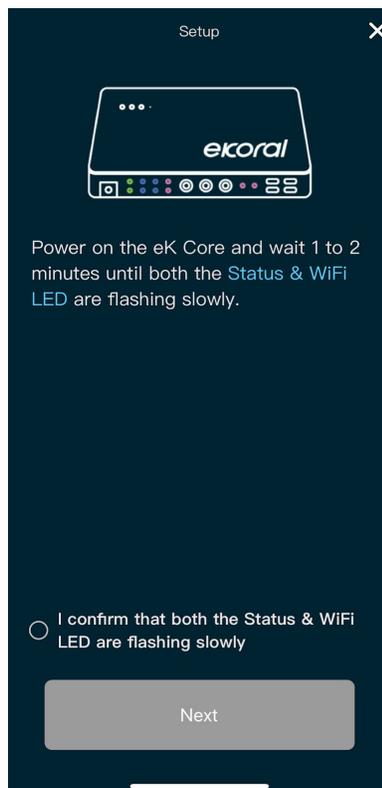
11.0. Figures

1. Reset Pin

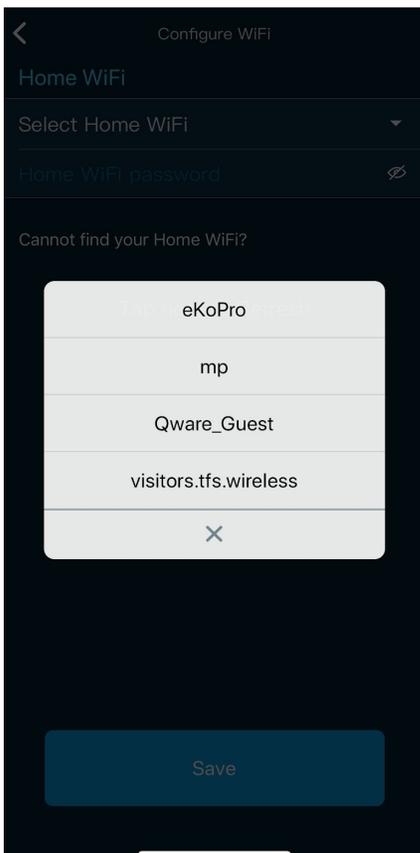
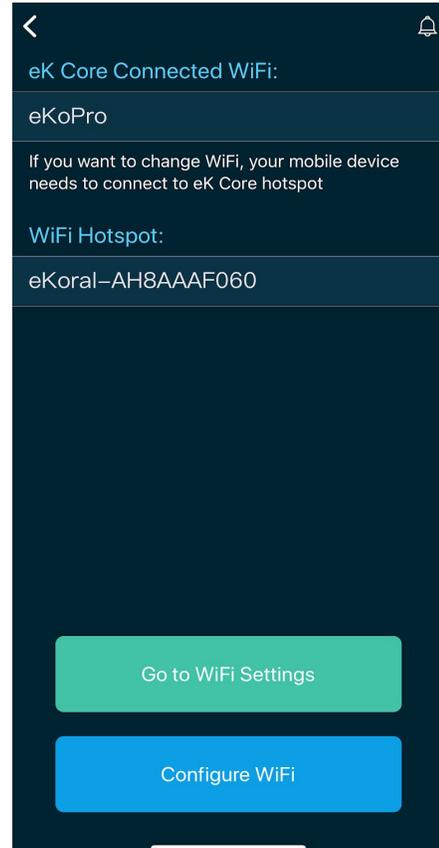
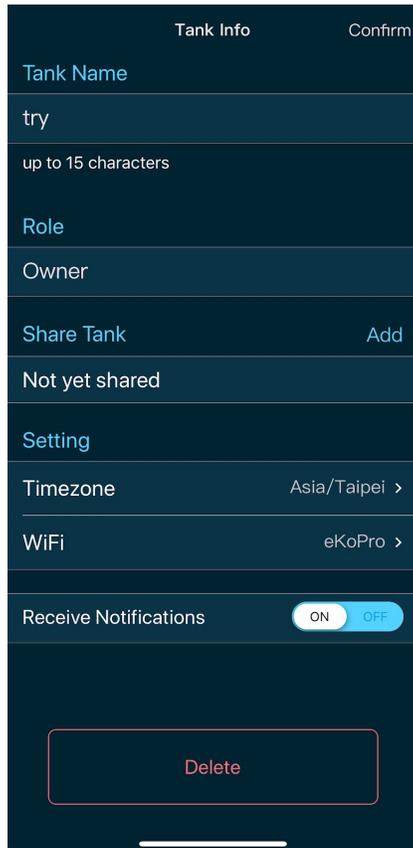
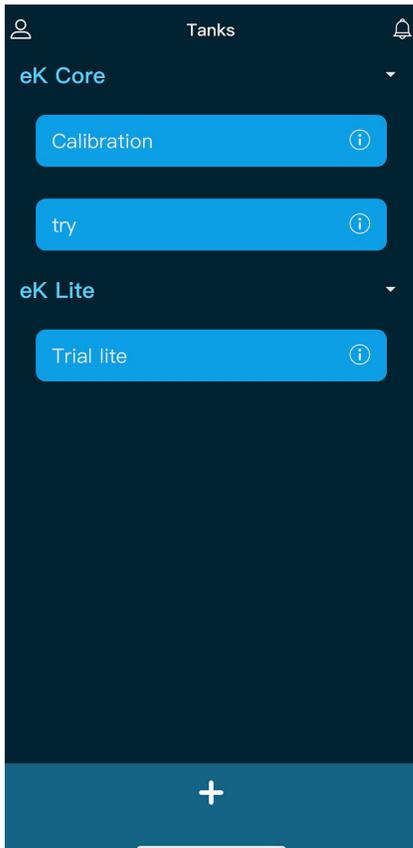


11.0. Figures

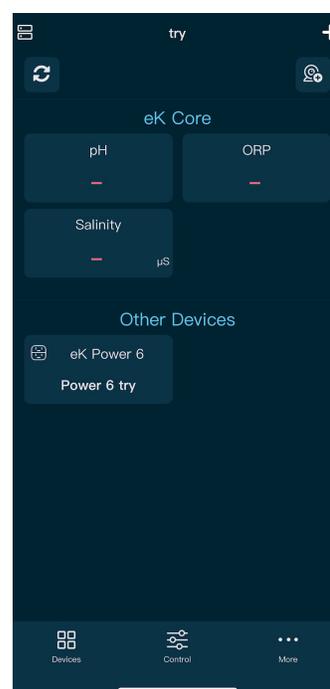
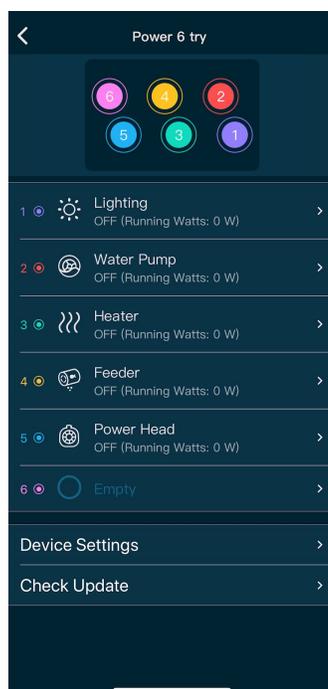
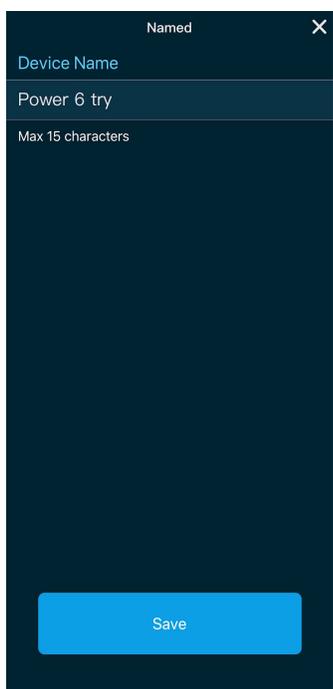
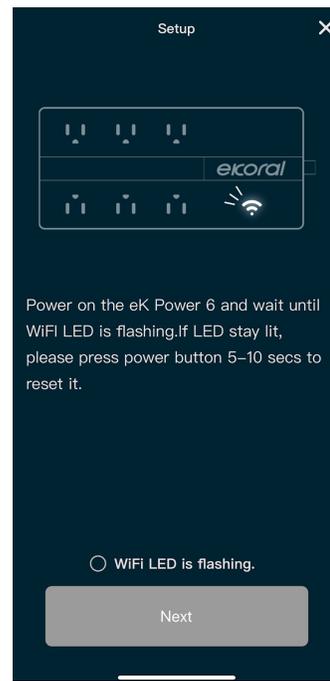
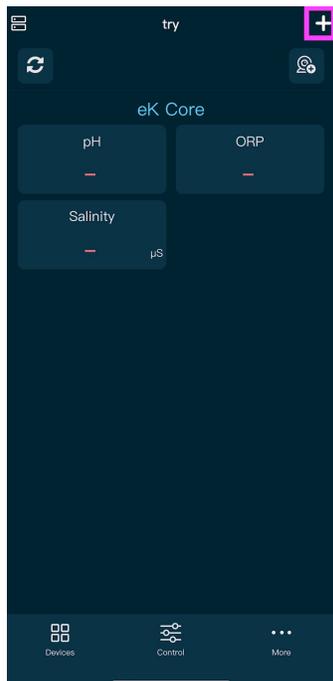
4.1.1. eK Core Soft AP Pairing



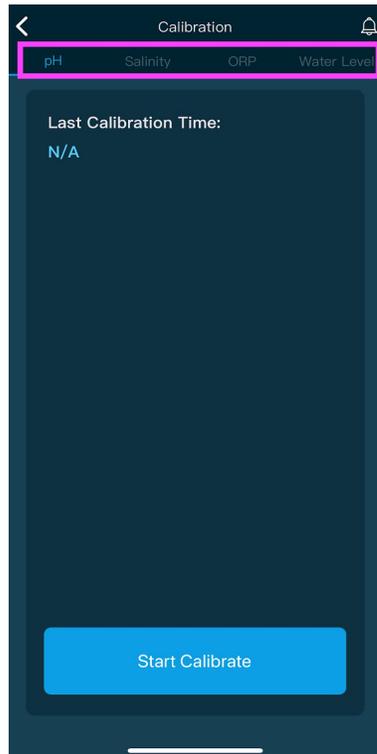
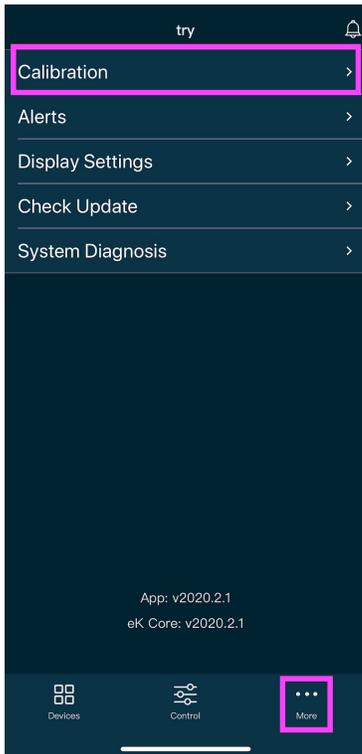
4.1.3. eK Core Troubleshooting



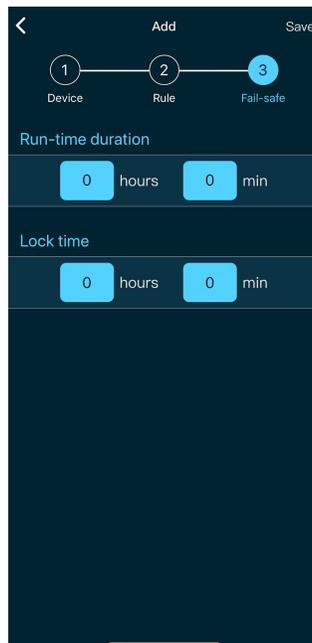
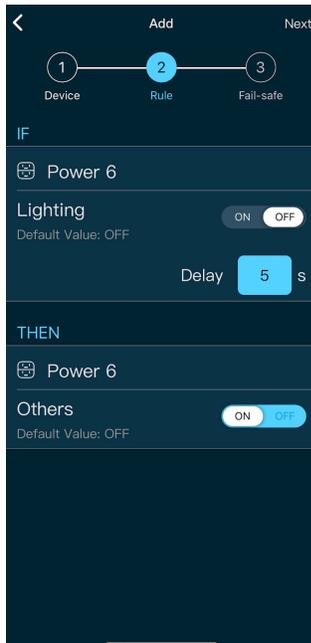
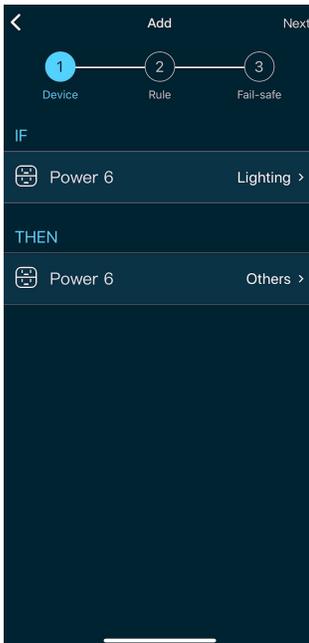
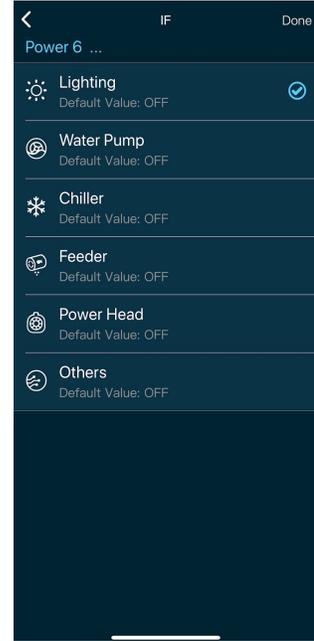
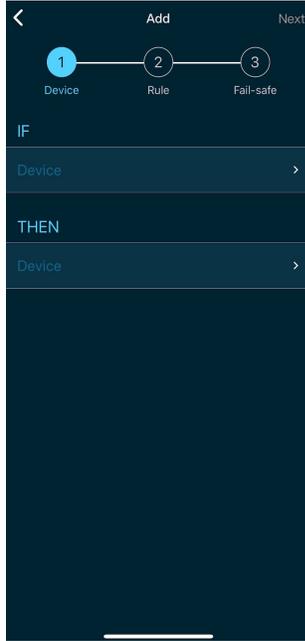
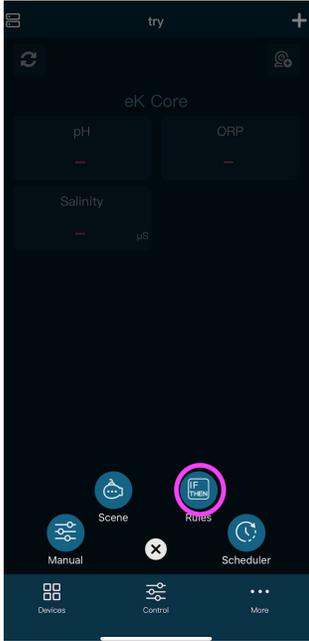
4.2.1. eK Core Pairing (in-app)



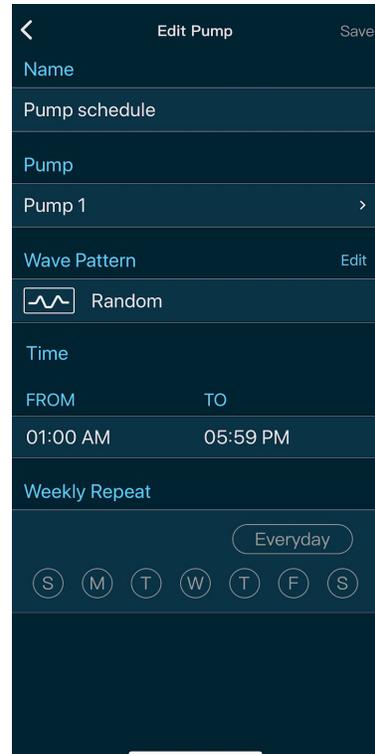
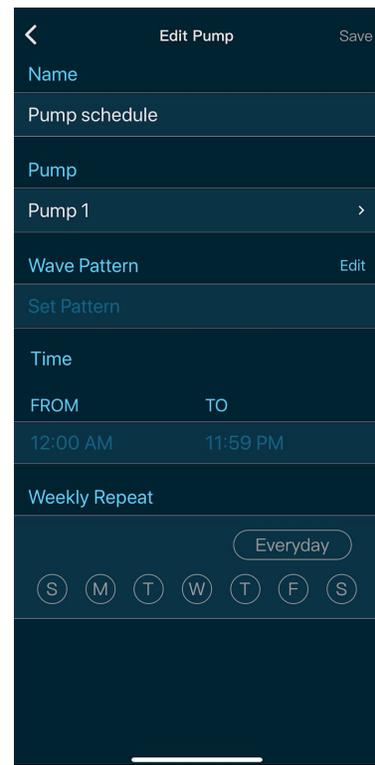
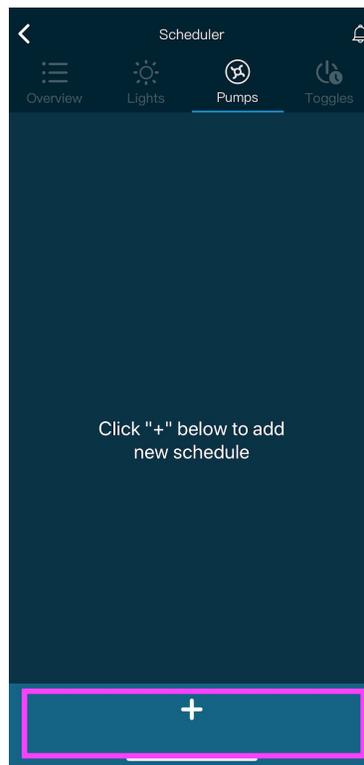
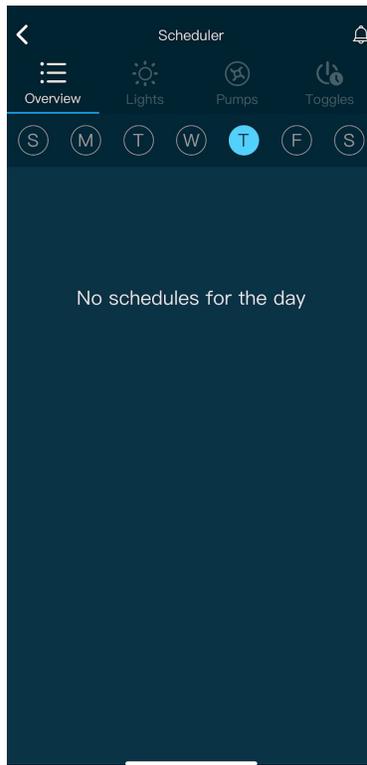
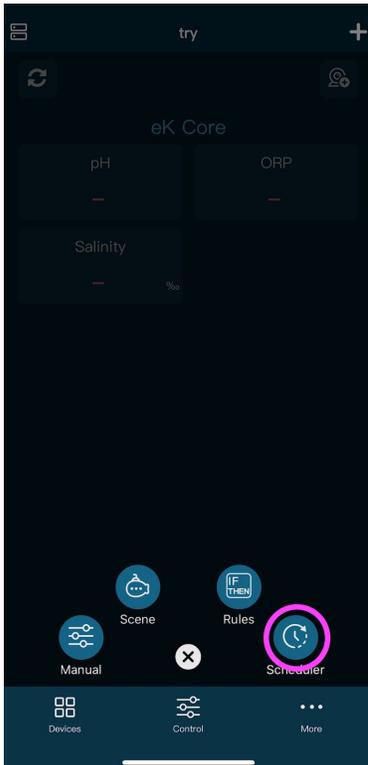
4.3. eK Probes Calibration



5.0. If/Then Rules - eK Core



6.1. eK Core Schedule



← Edit Pump Save

Name

Pump schedule

Pump

Pump 1 >

Wave Pattern Edit

 Random

Time

FROM TO

01:00 AM 05:59 PM

Weekly Repeat

Everyday

S M T W T F S

← Scheduler 

 Overview  Lights  Pumps  Taggles

Pump schedule ON OFF

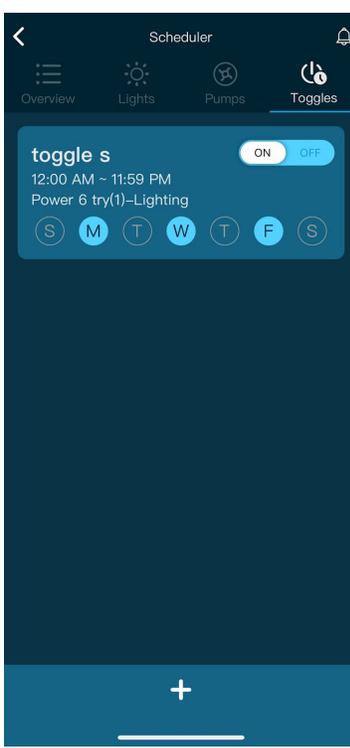
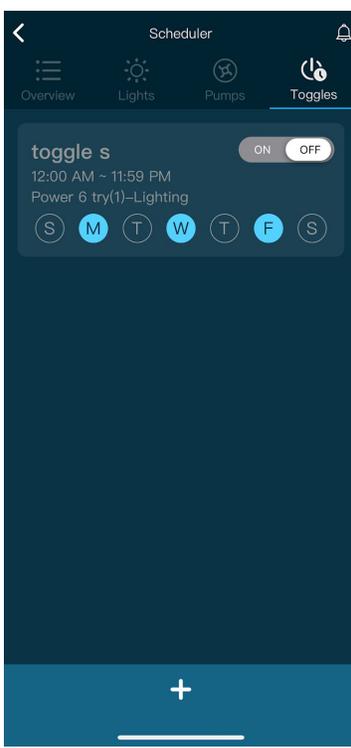
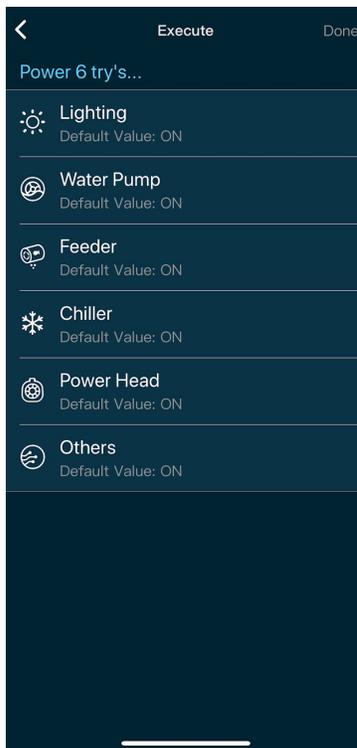
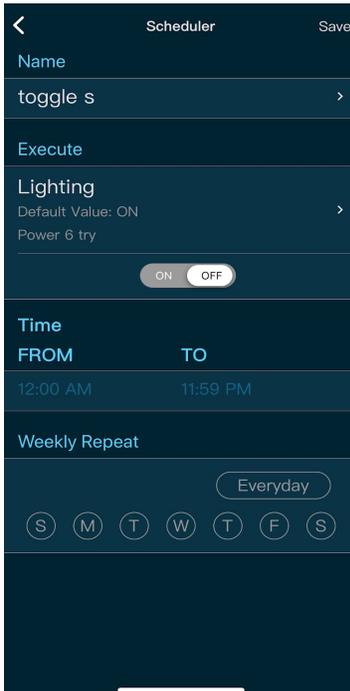
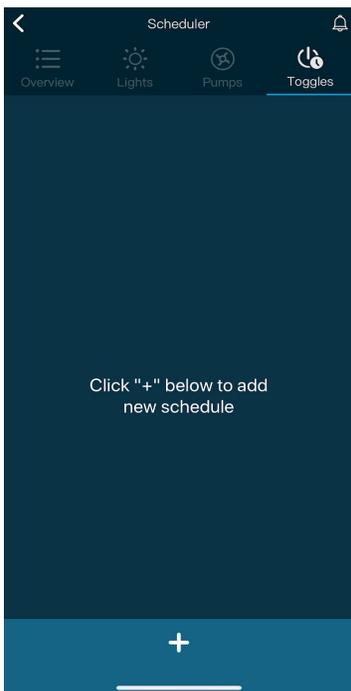
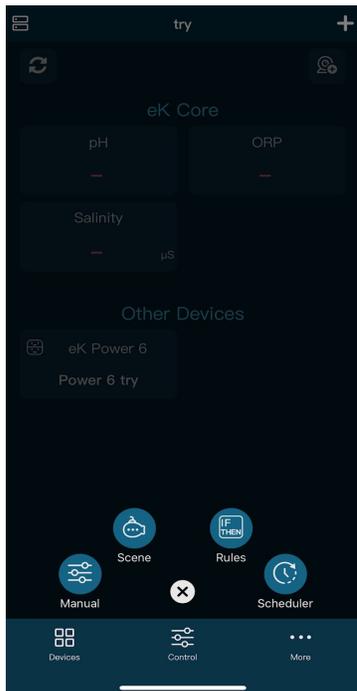
01:00 AM - 05:59 PM

Port 1

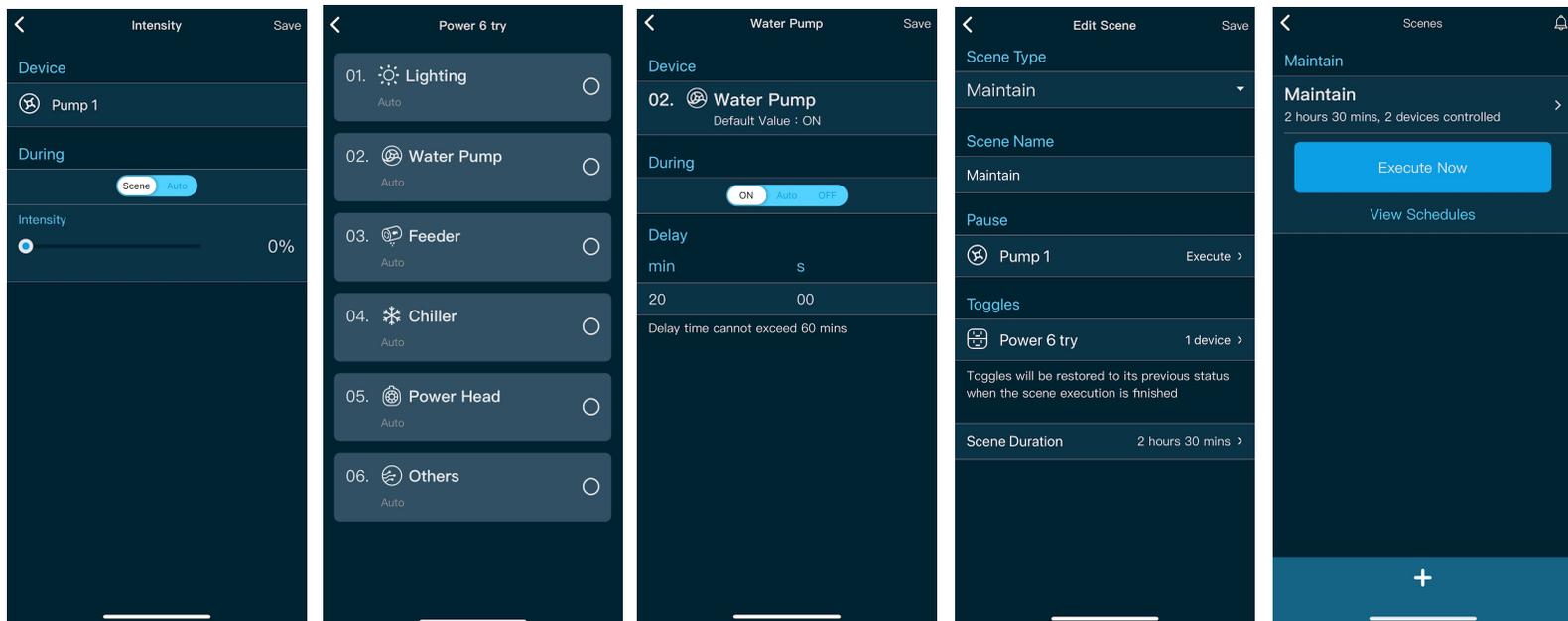
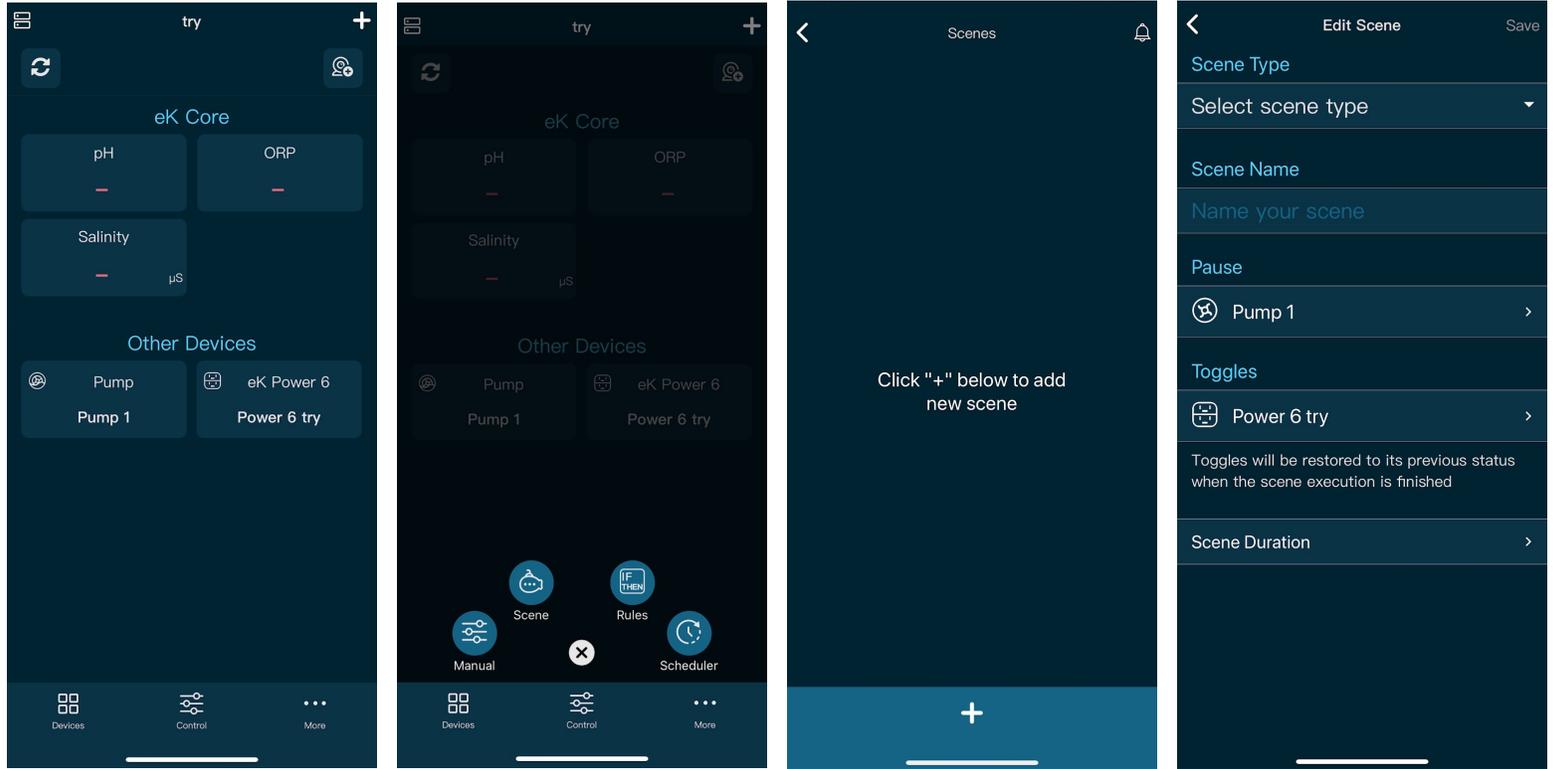
S M T W T F S

+

6.2. Schedule Toggles



7.0. Scene



15.0. Resetting eK Core



23.1. Identifying eKoral Sync Products

