

eKoral

eKoral Lite

User Manual 2020



Available on the
App Store



ANDROID APP ON
Google play



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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). Search for “**eKoral**”, and download the app specified for aquarium use. You may also use the QR codes provided (Pg. 1).

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

Please note that there are two settings when you are creating an eKoral account. These are as follows:

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 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 and logging into the eKoral app. This will ensure that you are logged into our Chinese servers.

Please note: The version of the app is displayed in the top right-hand corner once downloaded.

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

2.0. Packaging Contents

2.1. eK Lite

Description:

★ Aquarium controller

★ *Specifications:*

- **Adapter Input:** (US) 100-240V ~50/60Hz 0.3A
- **eK Core Input:** 12V, 1A
- **I/O Port:**
 - pH/ORP port x1
 - Temperature port x1
 - Level Sensor port (eK Level Sensor) x2\
 - Pump port (eKoral Sync device 0-10V) x4
 - Light port (eKoral Sync device 0-10V) x2

**The eK Lite also supports Bluetooth and WiFi devices, with new compatible devices being added all the time.*

2.2. eK Power Lite

Description:

- ★ Smart Wi-Fi power bar
- ★ Specifications: US/AU/CN
 - **Input:** 15A / 1650W - 2000W /
 - **USB Total Power:** 5V / 2.1A / 12W /
 - **Max Output:** 1650W - 2000W
 - **Cable length:** 1.5m (5ft)

2.3. eK Probe Holder

Description:

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

2.4. pH Probe

Description:

- ★ 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

Description:

- ★ 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:** φ12x165mm (φ0.47"x6.5")

2.6. USB Power Adapter

Description:

- ★ US/UK/AU versions available
 - Type A and B (100-120 V) - (US) North and South America, Taiwan
 - Type I (230 V) - (AU) Australia
 - Type G (220-240 V) - (UK) UK, Malaysia, Hong Kong, etc.

3.0. Safety Precautions

When using the eKoral Lite 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 Lite 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).
3. Be sure to “**drip loop**” all power cords emerging from your aquarium (i.e. loop the power cord for all your devices) 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.

**The eK Probes are extremely sensitive pieces of equipment and should be cared for to ensure that they will last for their projected lifespan.*

For all probes:

1. Avoid full submersion in water; keep the cap above the water surface at all times
2. As the sensor tips are delicate, avoid knocking them and do not attempt to clean with hands, cloth, or alcohol
3. Regularly inspect for algae/sponge buildup

4.0. eK Lite Setup

4.1. eK Lite Pairing

Once you have successfully logged into your eKoral account, you will need to pair your eK Lite to your eKoral account using a mobile device.

4.1.1. Online Pairing (Soft AP)

When you pair your eK Lite to your eKoral account through Soft AP, you will also be configuring its WiFi.

1. Log into the eKoral app. On the homepage, click on the “+” button at the bottom of the screen. You will be able to select which device you wish to pair. Select the eK Lite (*Fig. 1 & 2, pg. 14*).
2. To start connecting, follow the instructions shown on the app to put your eK Lite in pairing mode. Wait 1-2 minutes for the device to start flashing green. Once complete, click “Next” (*Fig. 3, pg. 14*).
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 a safety net in case the pairing device password is forgotten; be sure to keep it in a safe place.
5. Select the WiFi network that the device will be connected to. Enter the correct details and save.

4.1.2. Troubleshooting

If you are having difficulty connecting your eK Lite to your home WiFi, you may follow the following steps to re-establish connectivity:

1. Create a new mobile hotspot using your mobile device. Name it “**mp**”. Set the password to be “**ekoprosolutions**”, all lower-case. 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 method to work as intended.
2. Access your eKoral device through the eKoral app. Select the “**i**” icon next to your device’s name.
3. On the page that follows, select WiFi, and then “**Configure WiFi**” (*Fig. 2, pg. 15*). Proceed with the onscreen instructions to connect your eKoral device 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. If you continue to experience difficulties, please feel free to contact eKoral Support at support@ekoral.io or via our Facebook page at <https://facebook.com/eKoral>.

4.2. eK Power Lite

Pairing your eK Power Lite should be conducted once your eK Lite controller has been successfully paired. Connecting your eK Power Lite to your eKoral account as well as your eK Lite is a simple process that can be done directly through the app.

4.2.1. Pairing (in-app)

1. Tap the “**Device**” icon at the bottom of the screen and direct yourself to the “**Toggles**” tab (Fig. 1, Pg. 16).
Tap “**Add Device**” and select the eK Power Lite.
2. Tap “**Go to WiFi Settings**”. It will direct you to your phone’s WiFi settings page, where you can select the hotspot of your eK Lite. This hotspot will always be formatted in the form of [eKoral-SERIAL NUMBER].
3. Plug in your eK Power Lite and press down on the power button at the top of your power bar. Wait for the LED light to flash blue. Once it begins to do so, you can tick the confirmation box in the app and tap “**Next**”. (Fig. 4, pg. 16)
4. You can now name your eK Power Lite 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 labels: *Heater, Lighting, Water Pump, Feeder, Chiller, Powerhead, Others, and Empty*. Each outlet can also be assigned a custom title.

4.3. eK Probes

4.3.1. Calibration

Temperature Probe

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.

pH Probe

You will need:

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

1. Click “Device” on your eK Lite homepage, and select “pH”. At the bottom of the screen, you will find the calibration tab. If you have calibrated before, they will show the last date and time in which you successfully calibrated (Fig. 1 & 2, pg. 17).
2. Select “Calibration”. Be sure to heed the safety precautions screen before moving on.

PLEASE NOTE: you can choose to complete the two-point calibration with 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 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. Then, you can proceed to repeat the previous steps with pH 10 solution.

Final notes to remember:

- ★ Calibrate your probes when **you first set up** the eKoral Lite
- ★ **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 information, please visit our website or YouTube channel, where video demonstrations are available: <https://www.ekoral.io/guide/videos.html>

5.0. If/Then Rules

If/Then Rules are designed to automatically turn devices on and off based on changes in sensor data. Please ensure you have successfully connected peripheral devices (e.g. the eK Power Lite) to your eK Lite controller before commencing.

1. Select the “**Rules**” function on the homepage and then select “**IF**”
2. Choose which device the rule is attached to. For example, you can choose any of the probes connected to the eK Lite--i.e. temperature or pH. You can also choose any of the devices connected to your controller via eKoral Sync or the eK Power Lite.
3. Select the “**Then**” tab. This is when you now select either the eK Power Lite or eK Doser. Out of the selection choose which output would best rectify the situation that will be in place for this rule e.g. heat and alkalinity (*Fig. 8, pg. 18*).
4. Now you add details to the IF/THEN rule, including sensor measurements as needed. After you finish, click save, and you can configure **Run-time Protection** and **Lock-out Time**.
 - **Run-time Protection:** This feature is designed to ensure that there is a time limit on the execution of a rule.
 - **Lock-out Time:** Lock-out time is the amount of time before a rule can be executed again. Both of these features will protect the user against faulty sensory input as well as repeated triggering of the rule.
5. Remember to **set the IF/THEN rule to ON** to ensure that it will execute. (*Fig. 12, pg. 18*)

6.0. Schedule

6.1. eK Lite

1. After selecting the schedule tab, tap on the (+) icon at the bottom of the page to start a new schedule.
2. Name the schedule, and then tap on the edit button in the **top right-hand corner of the graph** (*Fig. 3, pg. 18*). Here, you can program your lighting setup to adjust its intensity with the time of day. The graph lines are moveable to ensure the schedule is to your exact requirements.
3. You can then add a time frame for the schedule to take place. It can **range anywhere between 12:00 am and 11:59 pm** and for any length of time. Before saving, you can preview your set schedule by tapping “**Start**” (*Fig. 5, pg. 20*).
4. Now you can select the days of the week that you wish for this schedule to occur. This can be **as many or as few** as you require.

5. Tap “Save” to finish setting the schedule.
6. Your new schedule will now appear on your schedule list. Before moving on to another tab, please ensure that it is **turned on so that it will execute**.

6.2. Toggles (eK Power Lite)

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

1. Tap the device icon at the bottom of the screen and direct yourself onto the toggles page. Then select “Add Device” (*Fig. 1, pg. 21*).
2. Select the device you wish to pair. In this case, it is the eK Power Lite.

Note: to connect the eK Power Lite to the eK Lite, you will need to connect directly to the eK Lite’s hotspot network.

3. Tap “Go to WiFi Settings”, where it will direct you to your mobile device’s WiFi settings and there you select the hotspot of the device.
4. Plug in your eK Power Lite and wait for the power button to start flashing blue. You are now connected to your eK Power Lite.
5. Assign functions to each of the outlets on your eK Power Lite as shown in (*Fig. 4, pg. 21*).

You can now refer to part 6.1 (*Schedules*) and set the schedule as normal. Ensure you select the correct device (*Fig. 5, pg. 21*).

7.0. Scene

This feature allows you to **manually control multiple devices at the same time**.

Using this feature will automatically override any other settings you have in place, including Rules, Alerts and Schedules. To use this feature fully, there must be a 0-10 V pump or light plugged directly into the eK Lite.

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 selected, name the scene (*Fig. 3, pg. 22*).
3. On the same page, you will be able to adjust the intensity of Pump 1 and Lighting 1.

4. Allocate the “**Scene Duration**” time. This can be anywhere between **0 and 6 hours**, which ensures the safety of your tank. Scene timing can be chosen down to the hour and minute for maximum precision (*Fig. 4 & 5, pg. 22*) .
5. Once complete, press “**Save**”.

8.0. Resetting your eK Lite

Included with your system will be a reset pin. This is the piece of equipment that enables you to reset and change the mode of your device (*Fig. 1, pg. 13*).

1. **Ensure that you want to reset** your eK Lite before proceeding with the next steps. As once it is done you cannot restore the settings back to the original form.
2. Get the reset pin and locate the reset hole on your device. On the eK Lite, it is on the side by the power source. (*Fig. 1, pg. 23*)
3. Press down the reset pin into the hole for **10 seconds** and wait for the Wi-Fi and status light to turn off and then start flashing.
4. If the lights are still flashing, quickly press down into the hole again for 1-5 seconds for the WiFi light to start flashing slowly. It will be flashing **once 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. If you require any assistance, feel free to contact eKoral Support, or refer to our website.

10.0. Fail-Safe

These features can be found when creating a rule on any eKoral controller (i.e. the eK Core and eK Lite).

1. **Run-time protection:** puts a time limit on the execution of a rule as a fail-safe against equipment failure. If the “IF” clause is repeatedly triggered, it will limit the run-time to the preset value.
2. **Lock-out time:** the amount of time before a rule can be executed again after run-time protection is triggered.

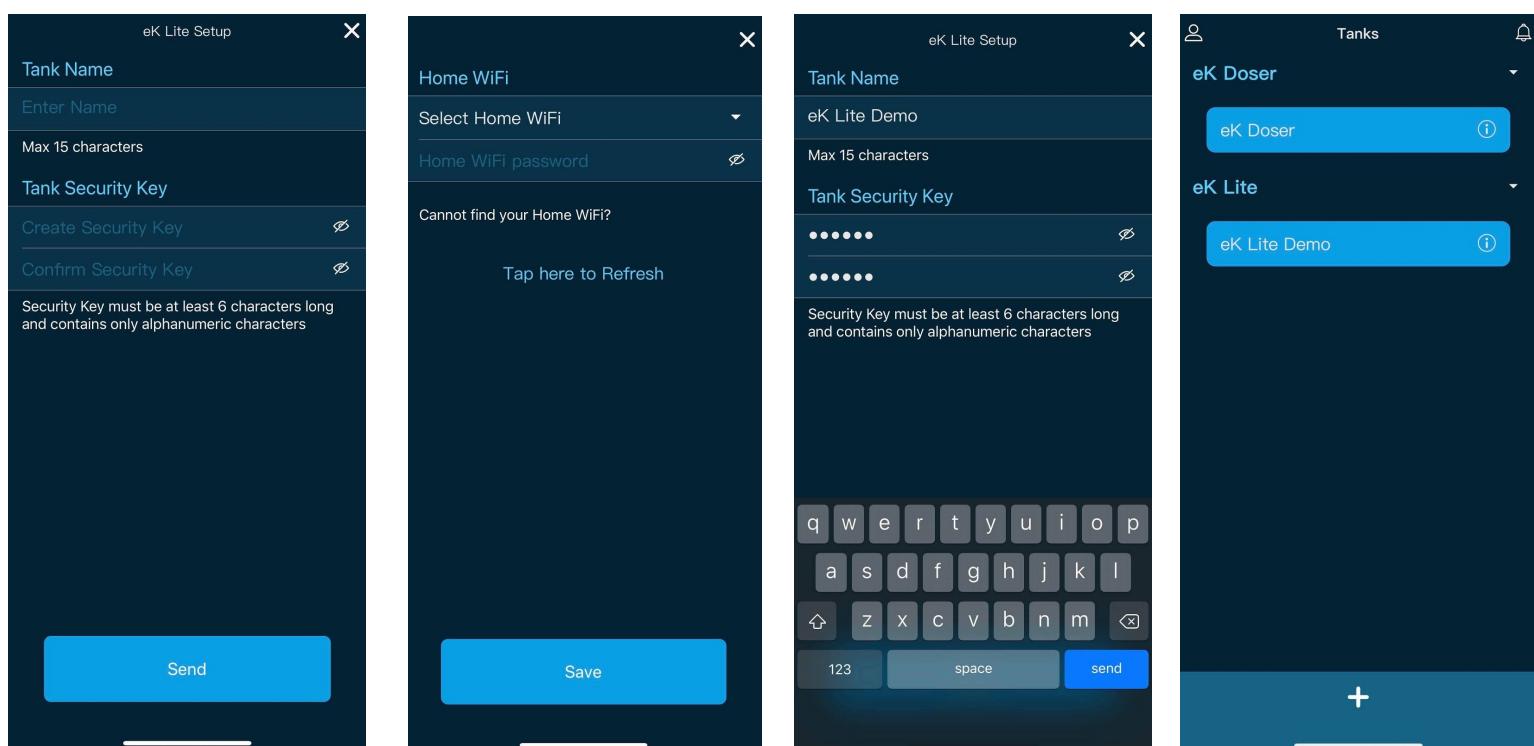
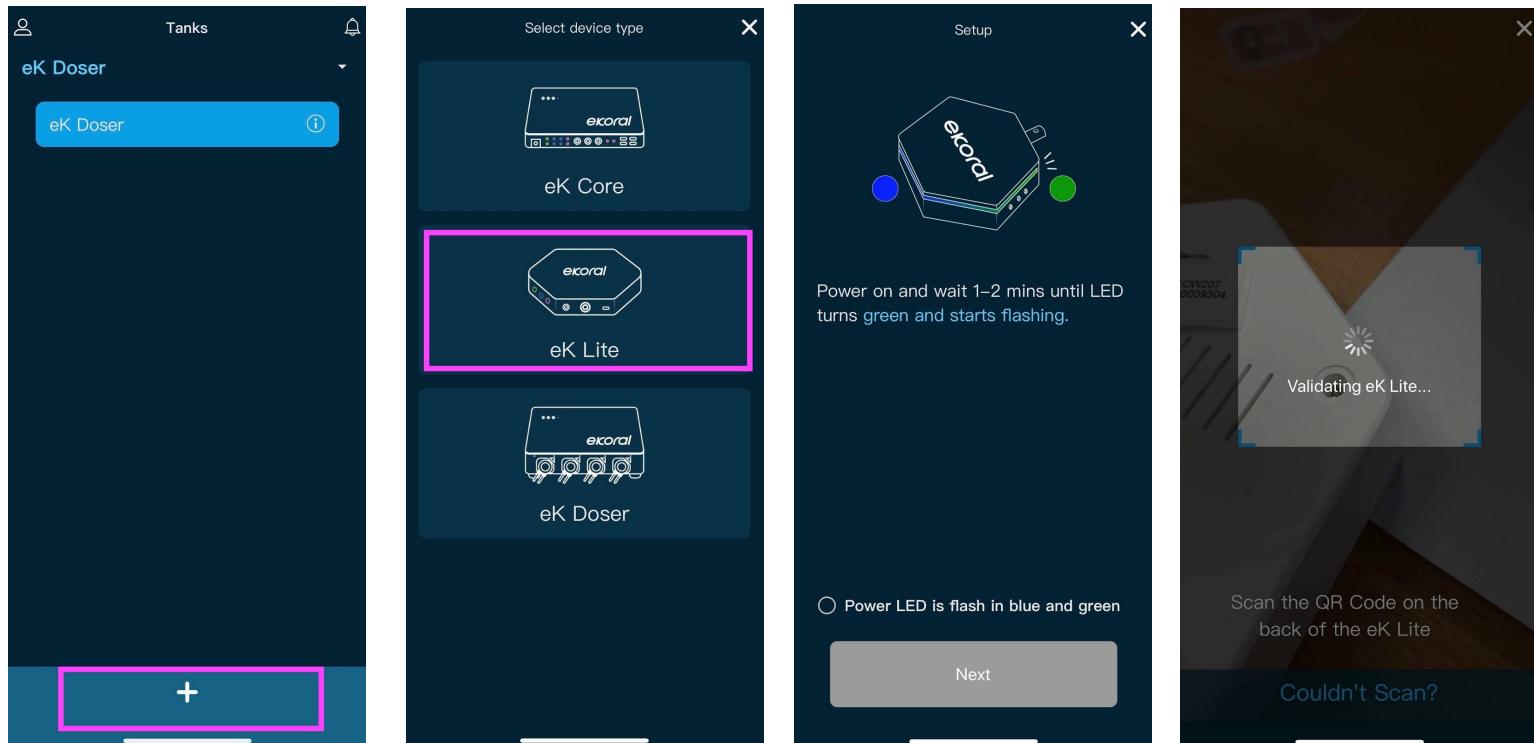
11.0. Figures

1. *Reset Pin*

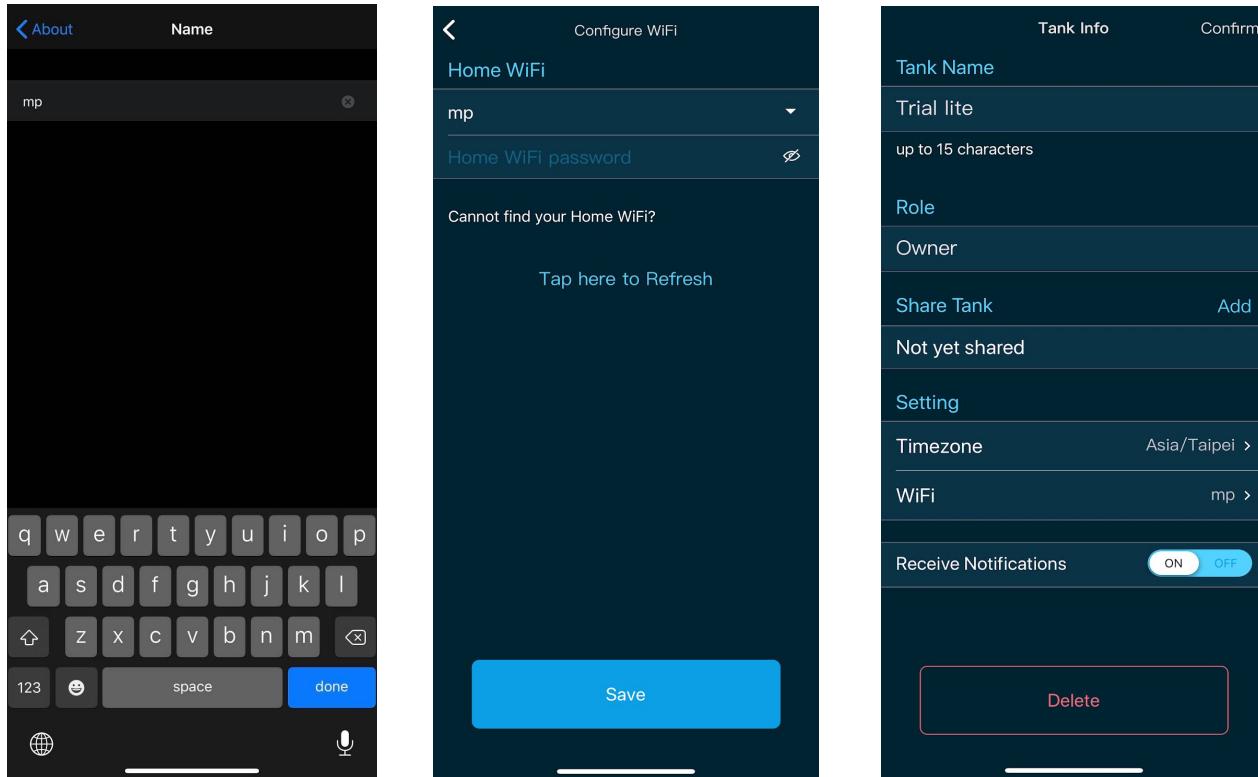


11.0. Figures

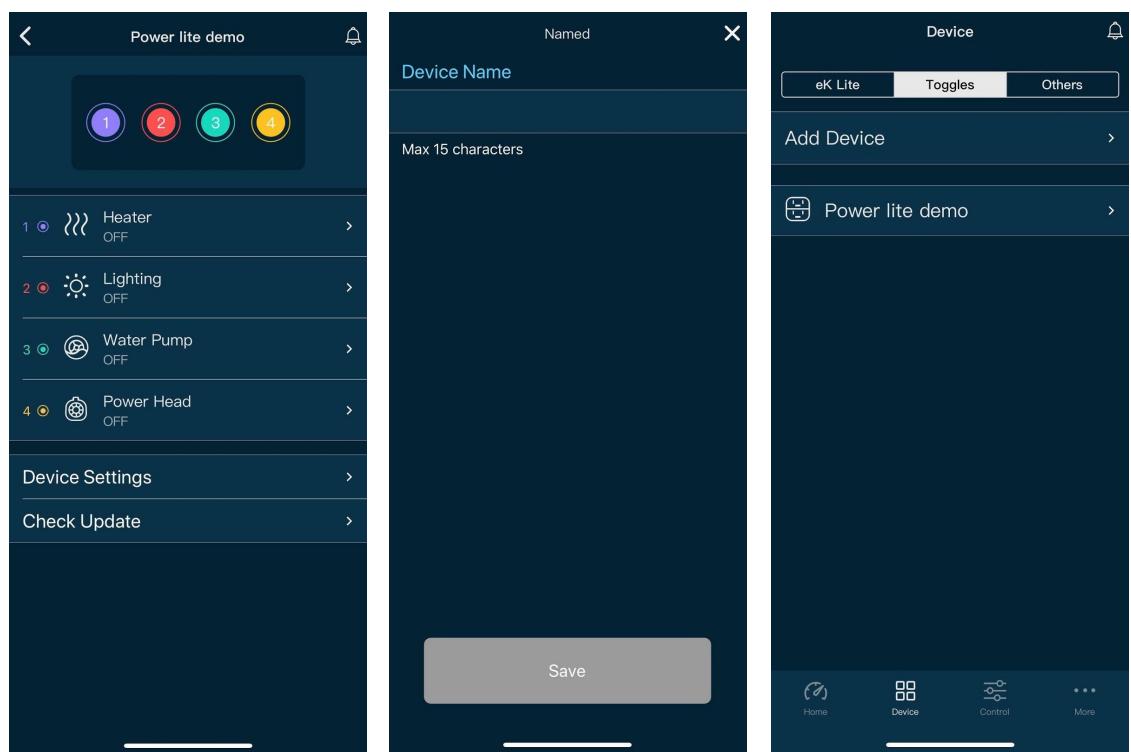
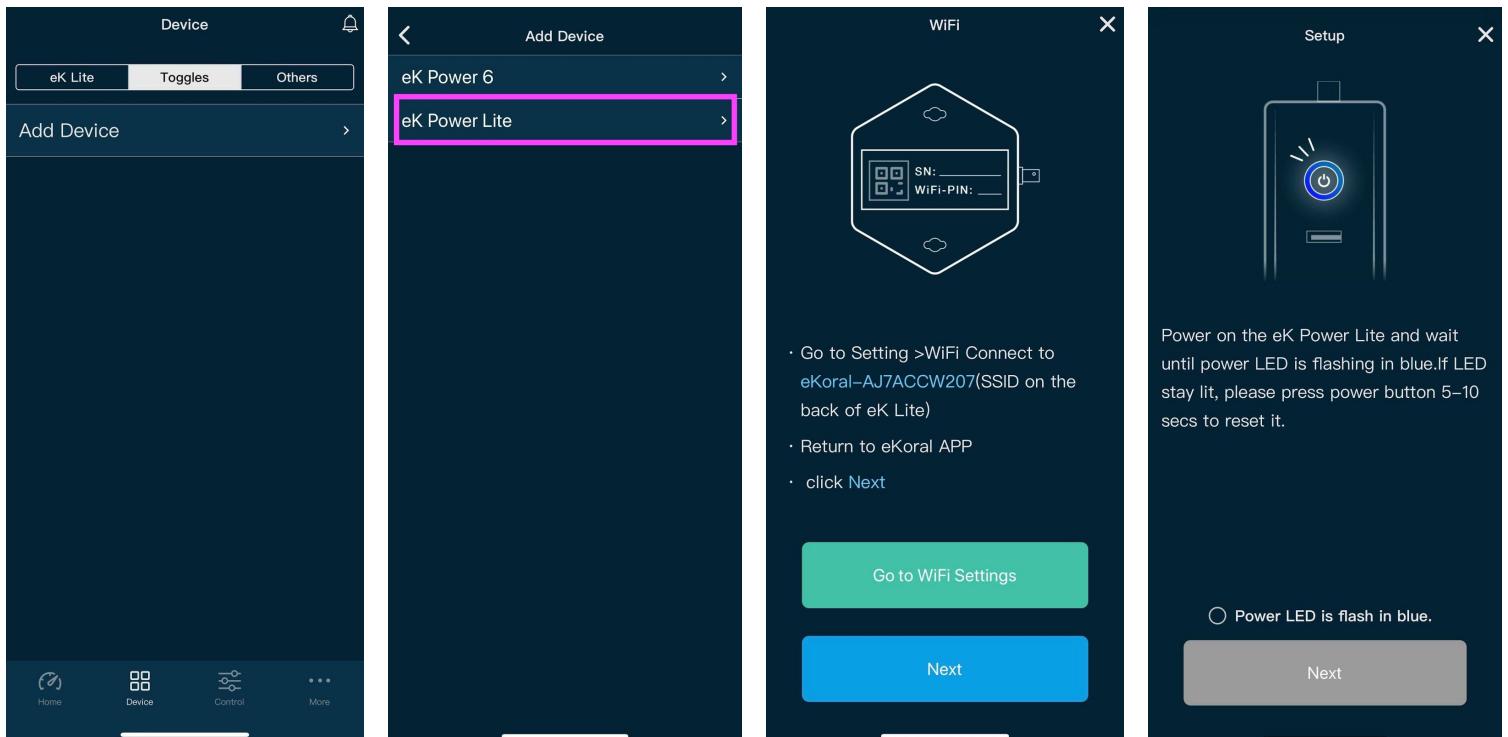
4.1.1. eK Lite Pairing



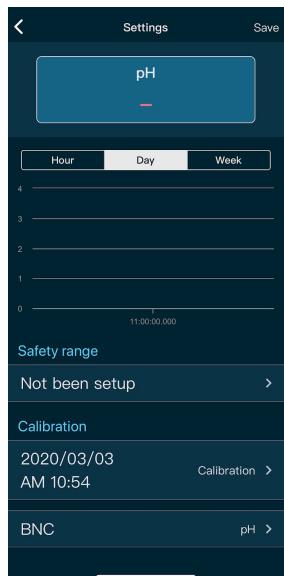
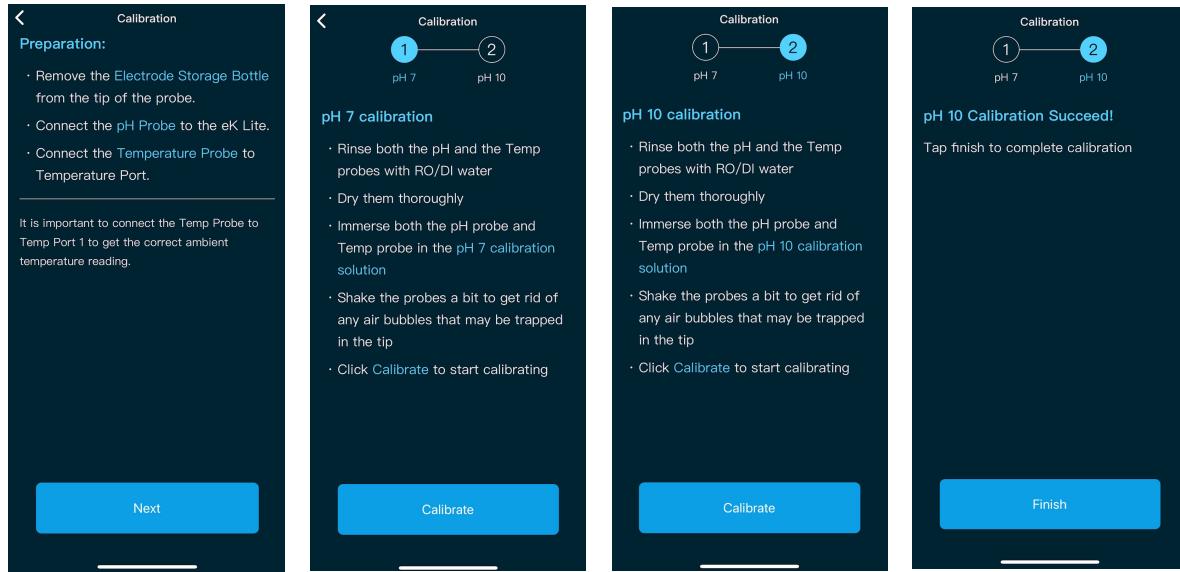
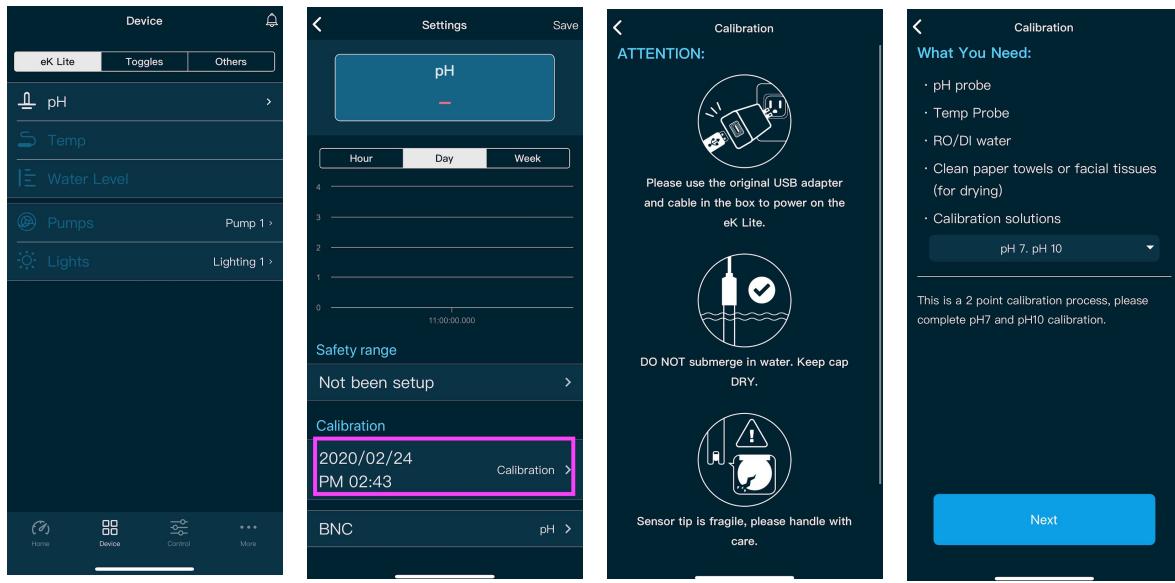
4.1.2. Troubleshooting



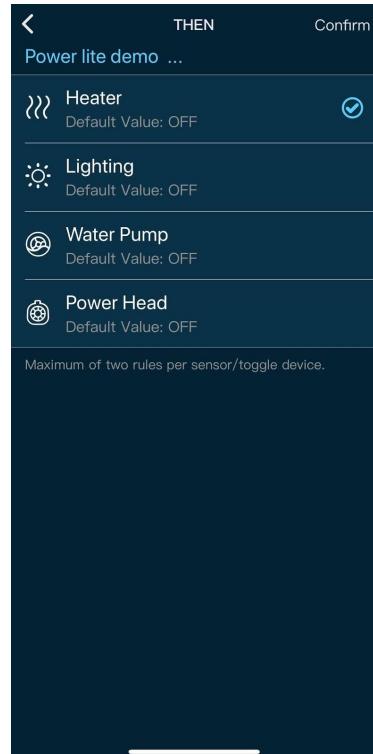
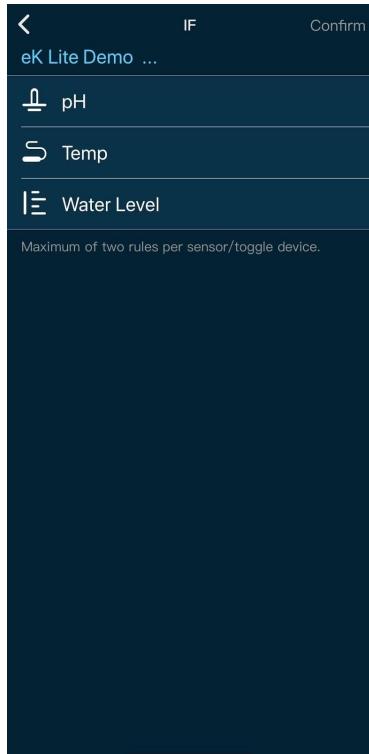
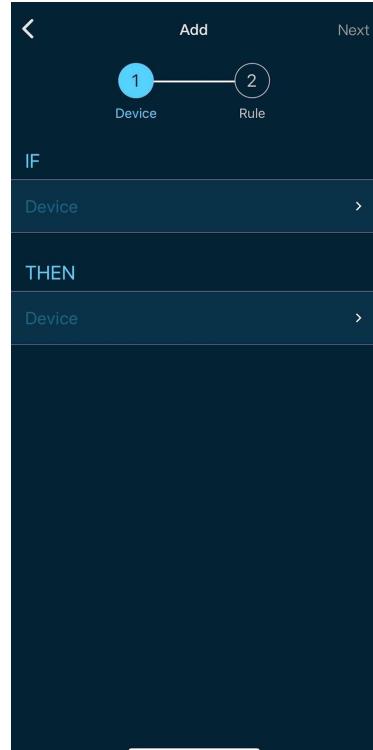
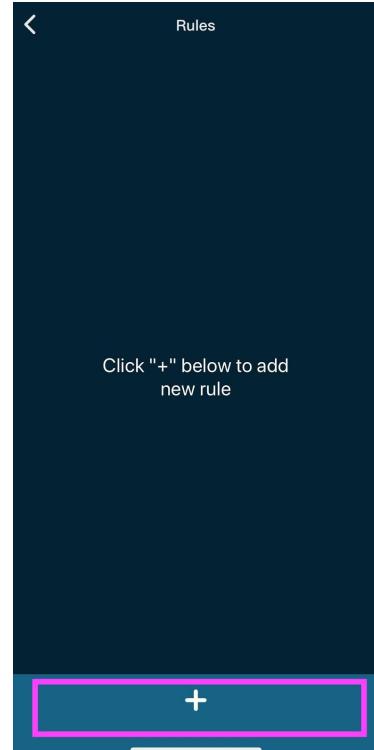
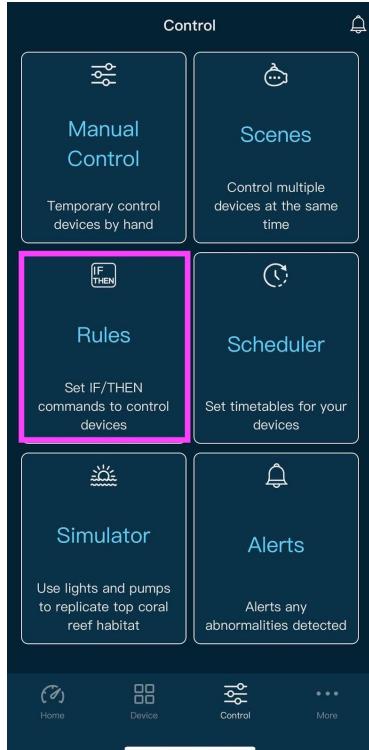
4.2.1. eK Power Lite Pairing (in-app)

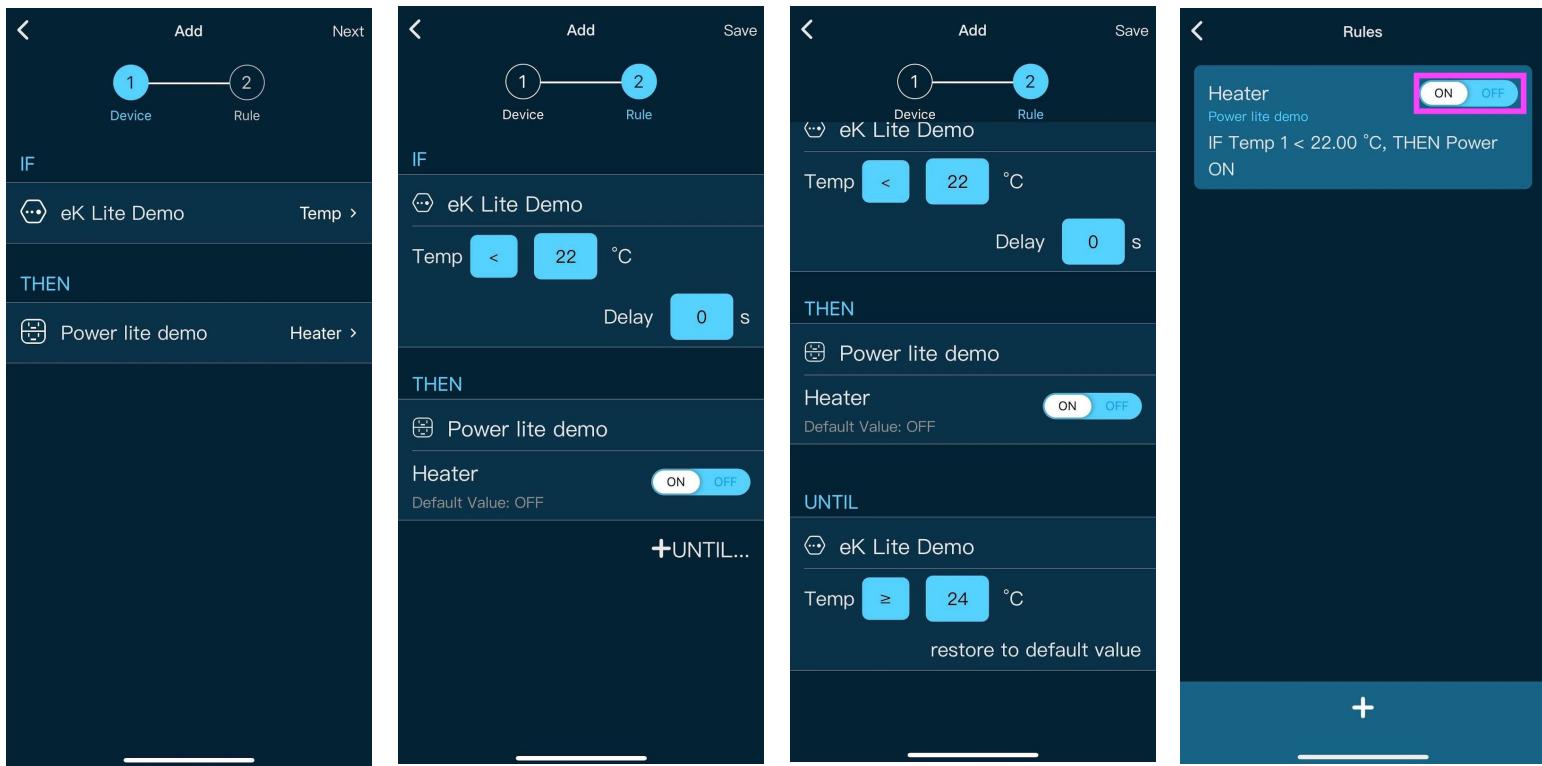


4.3.1. Probe Calibration (eK Lite)



5.0. eK Lite If/Then Rules





6.1. eK Lite Schedule

Control Screen:

- Manual Control:** Temporary control devices by hand.
- Scenes:** Control multiple devices at the same time.
- Rules:** Set IF/THEN commands to control devices.
- Scheduler:** Set timetables for your devices. This option is highlighted with a pink rectangle.
- Simulator:** Use lights and pumps to replicate top coral reef habitat.
- Alerts:** Alerts any abnormalities detected.

Scheduler Selection Screen:

Click "+" below to add new schedule

Add Schedule Screen:

Name: Lights demo

Lights: Lighting 1

Schedule:

Time	Channel 1 (%)	Channel 2 (%)
12:00 AM	0%	0%
11:59 PM	100%	100%

Total Preview 10 s Start

Weekly Repeat: Everyday (S, M, T, W, T, F, S)

Schedule Screen:

12:00 AM ~ 11:59 PM

ON OFF

Preview Start

Schedule Screen:

12:00 AM ~ 11:59 PM

ON OFF

Preview Start

Time Selection Screen:

12:00 AM 11:59 PM +Add Time

Scheduler Summary Screen:

Lights demo

12:00 AM ~ 11:59 PM Lighting 1

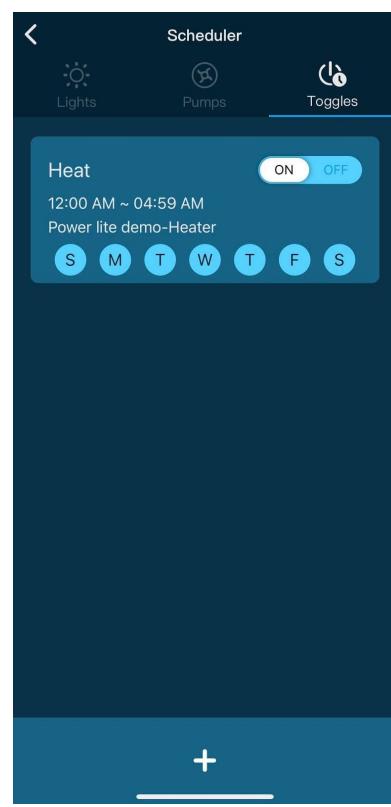
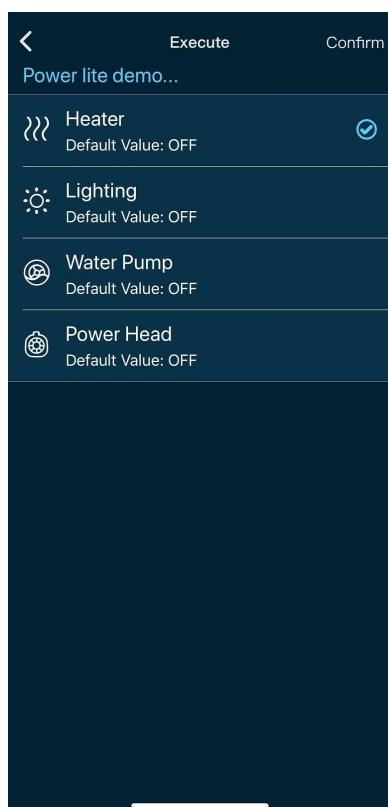
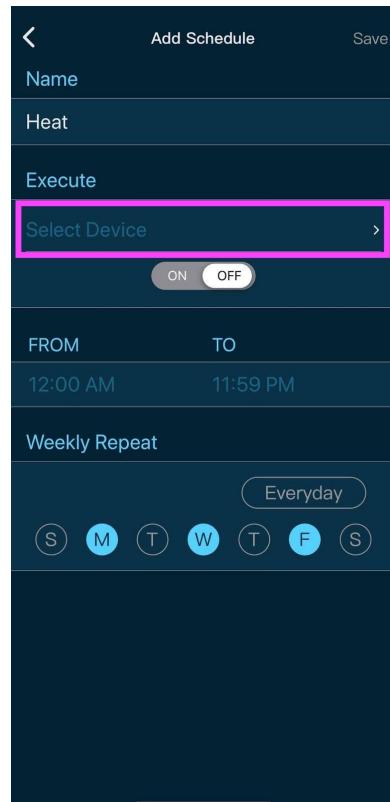
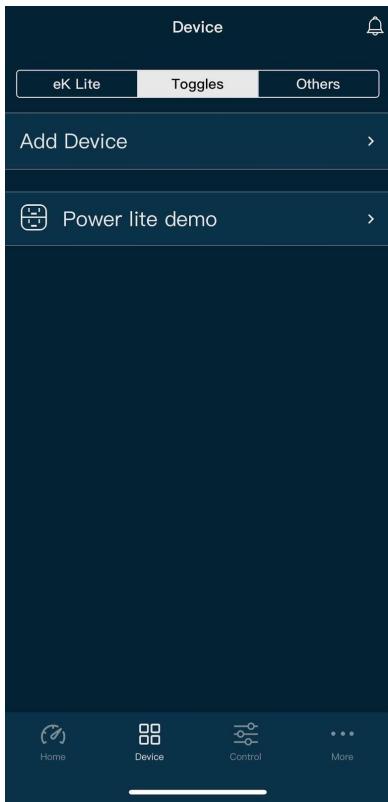
Schedule Edit

Time	Channel 1 (%)	Channel 2 (%)
12:00 AM	0%	0%
11:59 PM	100%	100%

Total Preview 10 s Start

Weekly Repeat: Everyday (S, M, T, W, T, F, S)

6.2. Toggles Schedule



7.0. Scene (eK Lite)

The image consists of three screenshots of the eK Lite mobile application interface.

Control Screen: This screen provides access to various control features. It includes:

- Manual Control:** Temporary control devices by hand.
- Scenes:** Control multiple devices at the same time.
- Rules:** Set IF/THEN commands to control devices.
- Scheduler:** Set timetables for your devices.
- Simulator:** Use lights and pumps to replicate top coral reef habitat.
- Alerts:** Alerts any abnormalities detected.

Scene Creation Screen: This screen allows users to add new scenes. It features a large central area with the text "Click '+' below to add new scene" and a prominent blue "+" button at the bottom center. Navigation icons for Home, Device, Control, and More are at the bottom.

Scene Details Screen: This screen shows the configuration for a specific scene named "Lite 123". It includes:

- Scene Type:** Maintained.
- Scene Name:** Lite 123.
- Intensity adjustment:** Set to 5 hours 30 mins, 1 device controlled.
- Devices:** Pump 1 and Lighting 1.
- Scene Duration:** 5 hours 30 mins.

The image consists of two screenshots of the eK Lite mobile application interface.

Scene Type Selection Screen: This screen shows the configuration for a specific scene named "Lite 123". It includes:

- Scene Type:** Maintained.
- Scene Name:** Lite 123.
- Intensity adjustment:** Set to 5 hours 30 mins, 1 device controlled.
- Devices:** Pump 1 and Lighting 1.
- Scene Duration:** 5 hours 30 mins.

Scene Details Screen: This screen shows the configuration for a specific scene named "Lite 123". It includes:

- Scene Type:** Maintained.
- Scene Name:** Lite 123.
- Intensity adjustment:** Set to 5 hours 30 mins, 1 device controlled.
- Devices:** Pump 1 and Lighting 1.
- Scene Duration:** 5 hours 30 mins.

8.0. Resetting (eK Lite)



9.1. Identifying eKoral Sync Products

