



Wave App Instruction Guide





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* Available for iPhone and iPad only



Introduction

Wave™ can address luminaires individually or in groups, utilizing Bluetooth® Mesh protocols. This advanced and easy to use control system operates using the Wave Application on a mobile device without requiring a gateway. This state-of-the-art wireless control system is operated in conjunction with various sensors, wall switches, power packs, and controller nodes. The system components are easily commissioned using the Wave APP. The mesh network enables wireless communication up to 30 m (100 ft) or more between devices, and commissioning does not require any internet access.

Security is important to us which is why the Wave App employs data encryption to ensure mesh network security. The configuration settings for each device are stored in encrypted QR codes and each network device cannot be accessed without the QR code. Our solutions make it easy to install the right smart fixture into a new development project or upgrade an existing building and convert it to an energy efficient smart building which will save you in energy consumption costs and allow you to adapt to the needs of the future.



Luminaire level lighting control refers to a type of lighting control system where each individual light fixture is equipped with its own control device or integrated control system, allowing for independent control and management of each fixture. LLLC luminaires can detect human movements, ambient light level, and automatically turn on/off or dim the lights to provide comfort, safety, and energy savings.

System Capabilities

Wave platform LLLC luminaires have the following capabilities:

- **1st Time Delay (T1):** Lights will maintain WORKING LIGHT LEVEL during the T1 period (in minutes) each time they detect human motion.
- **2nd Time Delay (T2):** After lights have not detected any movement during the time period set in T1, T2 (in minutes) will start.

The brightness of lights can be reduced to DIM LEVEL during the T2 period to remind users that the lights will soon turn off.

At the end of T2, lights will turn off
- **Dim Level:** Defines the brightness of lights during T2 period. Set as a percentage (%) of WORKING LIGHT LEVEL
- **Linkage light Level:** If no movement is detected during T1, but other lights in the same group detect movement, and the linkage is turned on in this group, this light will dim to linkage light level. Linkage light level is calculated as a percentage of the WORKING LIGHT LEVEL. Note: Linkage can override T2
- **Working Light level:** Defines the light level when a light's sensor detects human movements. The WORKING LIGHT LEVEL of a light is automatically controlled by a photosensor (if it is equipped with one). The WORKING LIGHT LEVEL may change according to the level of ambient light.
- **Auto Calibrate:** It is suggested to use AUTO CALIBRATE to set the WORKING LIGHT LEVEL, which has a self-learning process to remove ambient light interference for more precise results.
- **Manual Set:** A user may choose to manually set the WORKING LIGHT LEVEL. When making this setting, it is critical to exclude the ambient light by shielding the lights from sunlight or user can make this setting during night time.

Parameter Settings by Space Type*

Suggested settings for zone type						
Zone	1st Time Delay (T1) [minutes]	2nd Time Delay (T2) [minutes]	Dim Level [%]	Linkage light level [%]	Scenes	Wall Switches
Open office area	20 min	1 min	50%	50%	No Scene	Button programmed to ALL OFF for quickly turning off lights when leaving office
Meeting room	20 min	1 min	80%	80%	Configure PPT / Lecture scenes	Associate PPT / Lecture scenes to SCENE button on wall switch
Classroom	30-40 min	5 min	80%	80%	Configure PPT / Lecture scenes	Associate PPT / Lecture scenes to SCENE button on wall switch
Storage Room	10 min	1 min	30%	80%	No Scene	No switch
Corridor	10 min	1 - Infinity mins	30%	50%	No Scene	No switch

* Recommended by the manufacturer

Capacity Limits

The following chart provides the capacity limits of the Wave platform:

Luminaires	Up to 100 lights (nodes) per zone. Unlimited zones available with each zone having its own sharable QR code with commands and setting info assignable for administrative or user level
Luminaire / Group	A light can be a member of up to 20 groups.
Scene	Up to 32 scenes can be set to a light. Up to 127 scenes can be set to a zone.
Schedule	Up to 32 schedules can be set to a zone.
Switch	Up to 32 switches can be set to a zone. Note: switches and lights are calculated separately. Adding switches to a zone does not affect the maximum number of lights.

Control Intent Narrative and Sequences of Operations

Before purchasing and installing any control systems, facility managers should first define the project's requirements and the objectives of the control system through a document called **"Control Intent Narrative and Sequences of Operations"**. This document outlines the operational goals and requirements for the lighting control system, including the following key elements:

- The purpose of the facility or space and how it will be used.
- Operating schedules and hours of use.
- Relevant building codes and standards that need to be followed.
- System integration requirements with other building systems.
- Project-specific goals and any preferred vendors or manufacturers.

To assist in creating this document, the following industry standards can be referenced:

- ANSI/IES LP-6-20: Lighting Control Systems: Properties, Selection, and Specification.
- ANSI/IES LP-16-22: Documenting Control Intent Narratives and Sequences of Operations.

At a minimum, it should contain the following information:

- Floor Plan and Zone Definitions: A detailed floor plan showing the building layout and defining the different lighting zones.
- Light Specifications: Information on each light fixture, including model numbers, quantities, and exact locations.
- Zone Layouts: A breakdown of lighting zones, each containing no more than 100 fixtures. Ensure that the zones avoid obstructions like concrete walls or large metal structures that could interfere with wireless signal transmission.
- Groupings and Scenes: Details for each zone, including group numbers, group names, scene numbers, scene names, and approximate scene designs for lighting scenes and schedules.
- Switch Configurations: Specifications for the types and quantities of switches controlling each zone, along with the functions of each button or control element.

Cautions

1. Do not use more than one mobile device during the commissioning process.

- Using multiple mobile devices may cause unexpected results such as data corruption, duplicate light addresses, etc.

2. Ensure commissioning data has been synchronized to the cloud before sharing QR code.

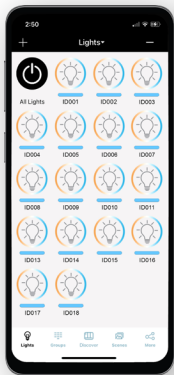
- Access rights to the zone can be shared to other users by sharing the QR code. Before sharing the QR code, please make sure the zone data has been uploaded to the cloud (requires internet connection). The APP will try to sync the data automatically in the background to the server (cloud) whenever an update has been made to the zone. You may also click 'Force Sync' on the 'More' page to sync manually.

Note: During the commissioning process, or whenever an update has been made to the zone, the APP will try to save and sync the commissioning data to the cloud. This requires an internet connection, either by WIFI or data connection.

- The mobile device must have a good internet connection during commissioning to save/update the commissioning data to the corresponding QR code. If the internet connection is functioning properly, the APP will sync the data to the cloud in the background. You may share the QR code to other users immediately after commissioning is completed.
- If the mobile device does not have a good internet connection during commissioning, the user will see an error prompt in the 'More' page but may continue the commissioning process. Please remember to 'Force Sync' the data to the cloud when the mobile device has a good internet connection.
Do NOT share the QR code to others before you successfully sync the data.
- If the mobile device has a poor internet connection, the APP will attempt to sync commissioning data to the cloud, but each communication may take longer or may fail after a long delay due to the poor connection. In such conditions, it will be difficult to continue the commissioning process.
It is suggested to turn off WIFI (or put the phone in AIRPLANE MODE) and complete the commissioning process. At a time later when a good internet connection is available, the user can sync commissioning data to the cloud.
DO NOT share the QR code to others before you successfully sync the data.

How to Download the App

To download the Wave APP, scan the QR code below, which corresponds to the type of smart phone that will be downloading the APP:

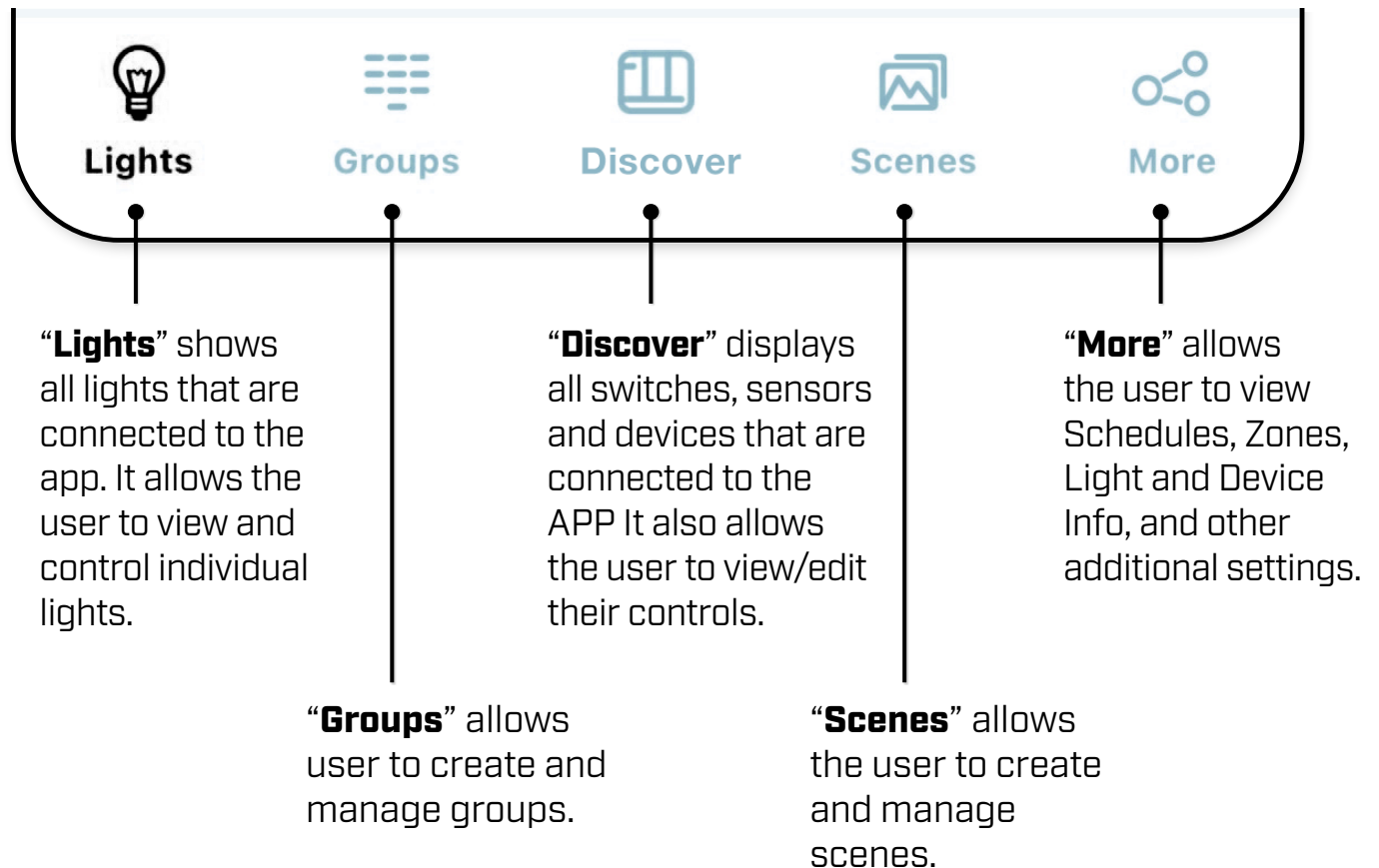
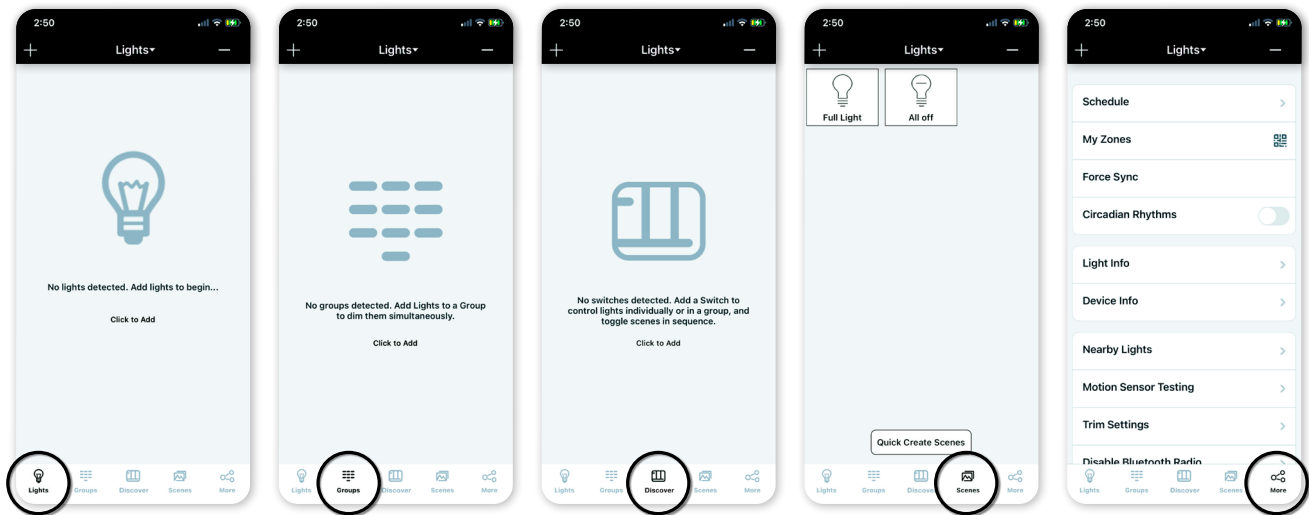


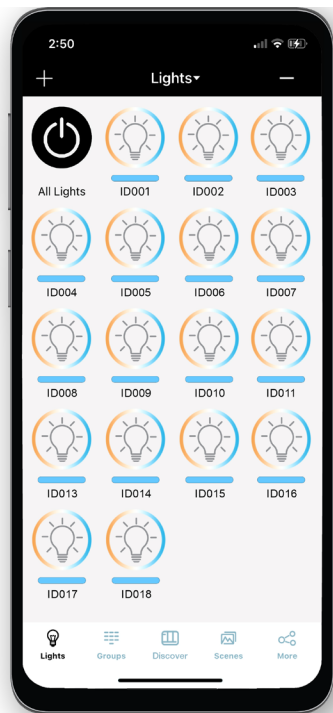
The APP supports most Android smart phones. Some Android phone models may not be supported due to issues with the phone's hardware or firmware. The APP requires access to the network and Bluetooth®, so please approve access requests from the APP. The APP will not collect user's private data. Accept the prompt to allow access to photos for QR codes to be automatically saved in your album.

Wave will update the APP when there are new features or bug fixes. Please enable the auto update of the APP so that new version of the APP will be pushed to your mobile phone.



How to Navigate the App

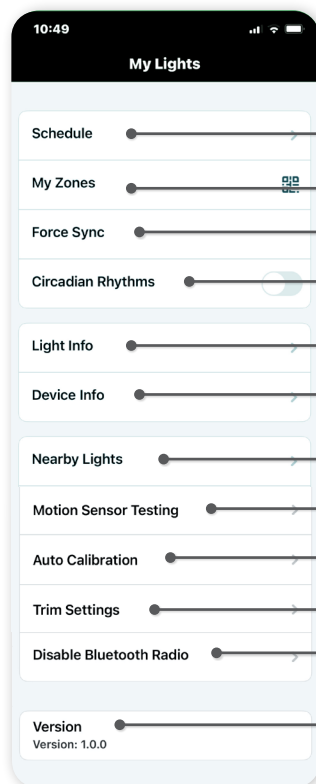




Light Icons

Every light connected to the APP will be listed on the Lights page. Each light can display different icons to indicate the state of the device:

- A. Auto-off** – Light output is off, and will be triggered to auto-on if motion is detected.
- B. Auto-on** – Light output is on, and light is operating in auto mode.
- C. Manual-off** – Light output is off, and light output stays off until a scheduled event or manual command overrides this.
- D. Manual-on** – Light output is set to a manual override level via a scene trigger or manual override command. It will return to auto-off mode automatically after the sum of the motion sensor delays.
- E. Offline** – Controller is most likely either not getting power or is out of range of the mesh network.
- F. Blue Light Name** – This is the light which the phone/tablet is using to connect to the mesh network.
- G. All Lights** – A default full system on/off switch, toggles all lights in the region between auto-on and manual-off.



More Page

The More Page contains additional settings and features of the app.

- Schedule** – Not applicable to emergency lighting, see page 22 for emergency lighting device scheduling.
- My Zones** – Create, edit and delete zones Generate and share QR codes
- Force Sync** – Sync data and settings across devices
- Circadian Rhythms** – Not applicable to emergency lighting
- Light Info** – Check info on all connected lights, groups and scenes in a zone
- Device Info** – Not applicable to emergency lighting
- Nearby Lights** – See a list of all online lights nearby
- Motion Sensor Testing** – Not applicable to emergency lighting
- Auto Calibration** – Not applicable to emergency lighting
- Trim Settings** – Not applicable to emergency lighting
- Disable Bluetooth Radio** – Disables all bluetooth connections to the app for quick control transfer
- Version** – Displays current app version

Smart Lighting Features



LIGHTS

Instantly control the color temperature, wattage, lumen output and dimming.



GROUPS

Easily group luminaires together and control them as a single unit.



SCENES

Customize your lighting through scenes and create different atmospheres for occasions and activities.



SCHEDULES

Set schedules to specify dates, times and recurrence patterns for changing the settings of your lighting.



SENSOR

Adjust the integrated PIR motion sensor and daylight harvesting settings.

Commercial Applications

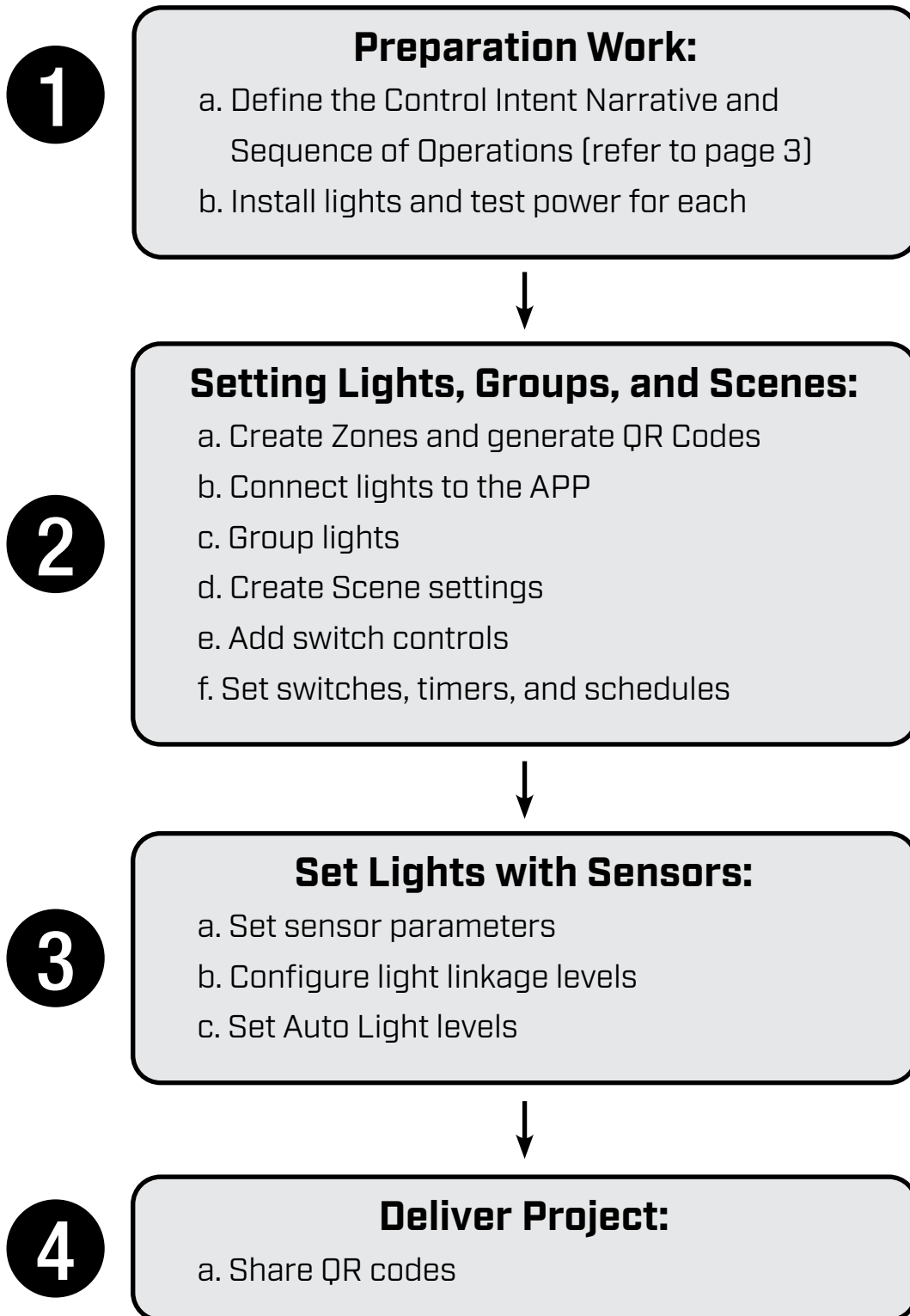


GO WIRELESS!

Control your lighting from your smart device

Commissioning

The following commissioning procedure is recommended:

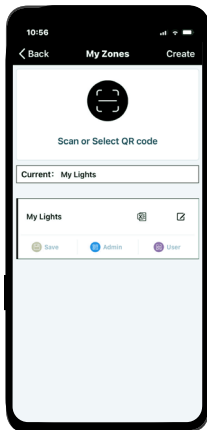




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Quick Set Up Guide

Page 16



Zones

- Create
- Rename
- Delete

Page 17



Lights

- Add
- Name or Rename
- Dimming and Color Tuning
- Delete
- Sensor Settings
- Manual OFF Override
- Daylight Harvesting Strategy

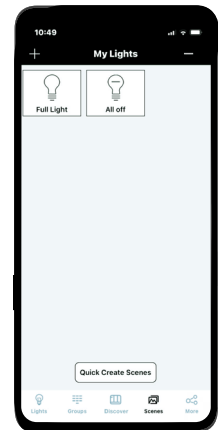
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Groups

- Create
- Rename
- Delete
- Add or Remove Lights
- Adjust Group Linkage Level
- Turn On/Off
- Adjust Group Dimming
- Activate Auto Mode

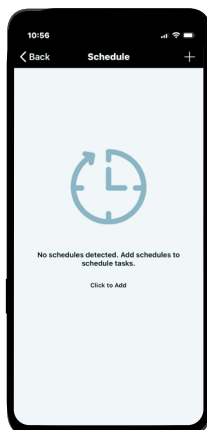
Page 27



Scenes

- Create Scene
- Create Quick Scene
- Edit
- Delete

Page 30



Schedules

- Creating
- Associate a Schedule To Lights, Groups, or Scenes
- Set a Repeating
- Set Fade Time
- Delete
- Enable Or Disable

Page 32



Discover

- Add
- Rename
- Delete
- Edit
- Associate Lights and Groups To Switches
- Ceiling Sensors

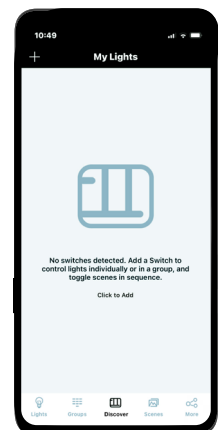
Page 37



QR codes

- Scan
- Save
- Share

Page 39



Auto mode

- Set Using Auto Calibration
- Set Using Manual Setting
- Set Scheduled Auto Calibration

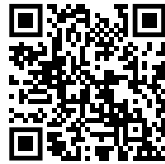


Easy Setup

1

DOWNLOAD THE APP

Very simple! Thanks to Bluetooth® Mesh Enabled Luminaires and optional field installable Plug&Play Sensor.



Download on the
App Store

GET IT ON
Google Play

2

COMMISSIONING

Fast and simple via smart phone app



3

CONTROL

Intuitively either via phone or dedicated wireless wall switch



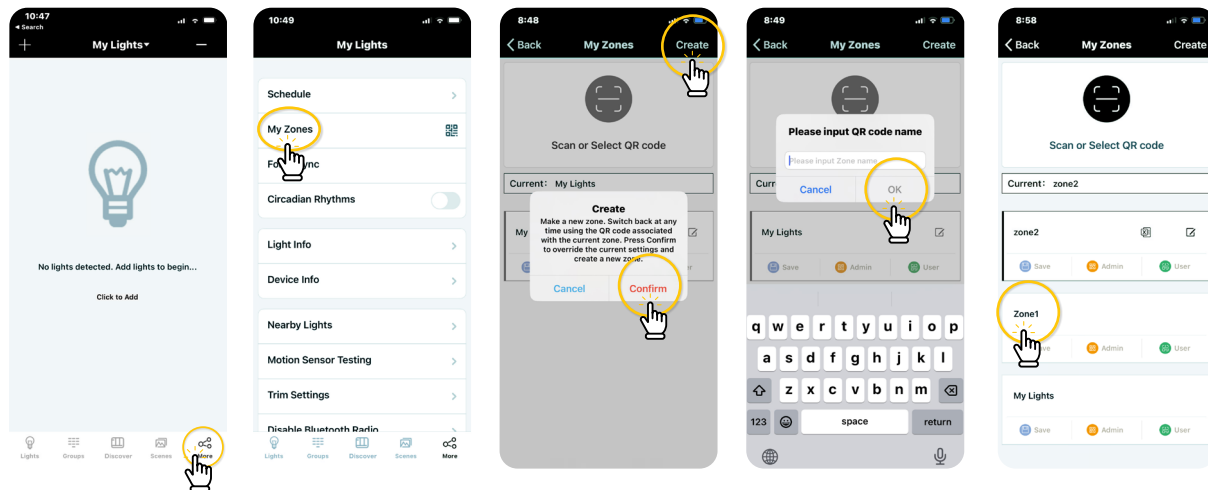


Zones

Zones

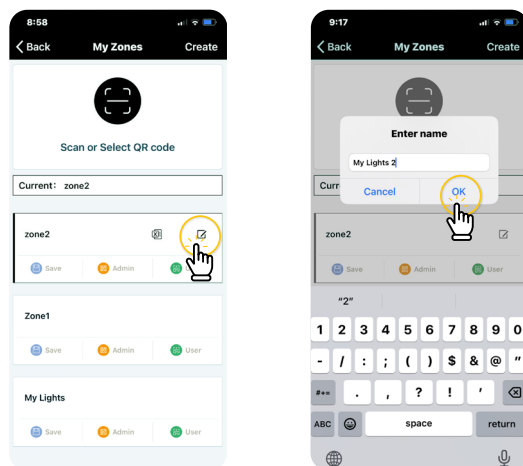
It is recommended to create QR codes for all zones and pre-define all groups, scenes, and their names prior to commissioning in order to reduce work on site. A QR code represents a zone and all of the lights, switches, and other devices in that zone. For more information on scanning, creating, and sharing QR Codes, see the QR Code chapter, on [page 35](#).

Creating Zones



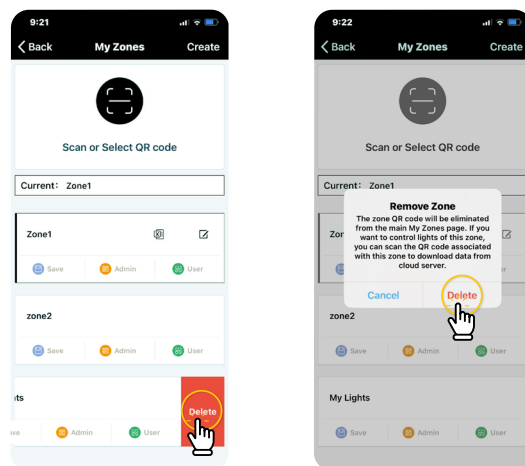
1. Start the Wave APP and click the “More” page.
2. Then click the “My Zones” button.
3. Click “Create” in the top-right and then click “Confirm.”
4. Input the name of the QR code and then click “OK.”
5. All zones can be found in the “My Zones” list and you can switch between them by clicking on them.

Renaming Zones



1. On the **My Zones** page, press the edit button located to the right of the zone name.
2. Enter preferred zone name as prompted.
3. Press “OK” to save.

Deleting Zones



1. Select the **Zone** to delete and slide finger from right to left over that Zone.
- Press the red delete button that appears.
Confirm by pressing “Delete”.
Note: User cannot delete the zone in which they are currently active

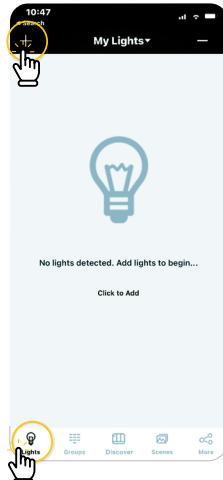


Lights

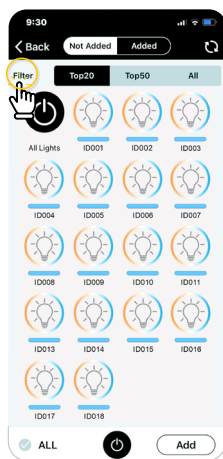
Lights

The Lights page is the first page you'll see upon opening the APP. It is the primary page for controlling individual lights. Add lights by zone, and **do not turn on more than 100 lights at the same time**. To prevent wireless communication jamming, turn off lights that are not in the current zone.

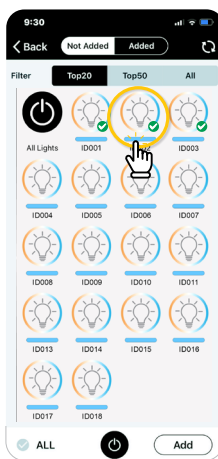
To Add Lights Into The APP



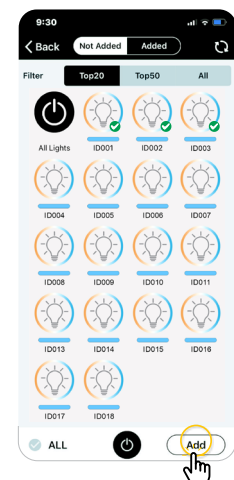
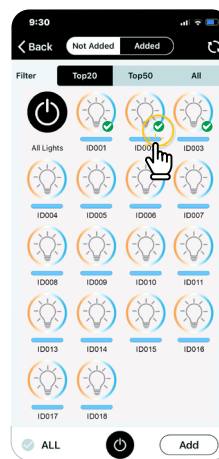
1. From the Lights page, click the “+” button in the upper left corner.
2. The APP will scan for lights that can be added to the zone. Lights can be identified in a room by pressing the icons to turn it on and off.



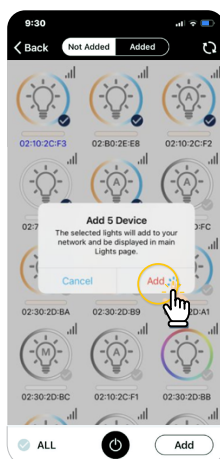
3. Select **Top20**, **Top50** or **All** from the filter at top of screen to show lights with the strongest Bluetooth® signal



4. Select the lights you want to add by pressing the check mark located in the lower right corner of desired light icons.



5. Click “Add” to associate all of the selected lights into the zone.



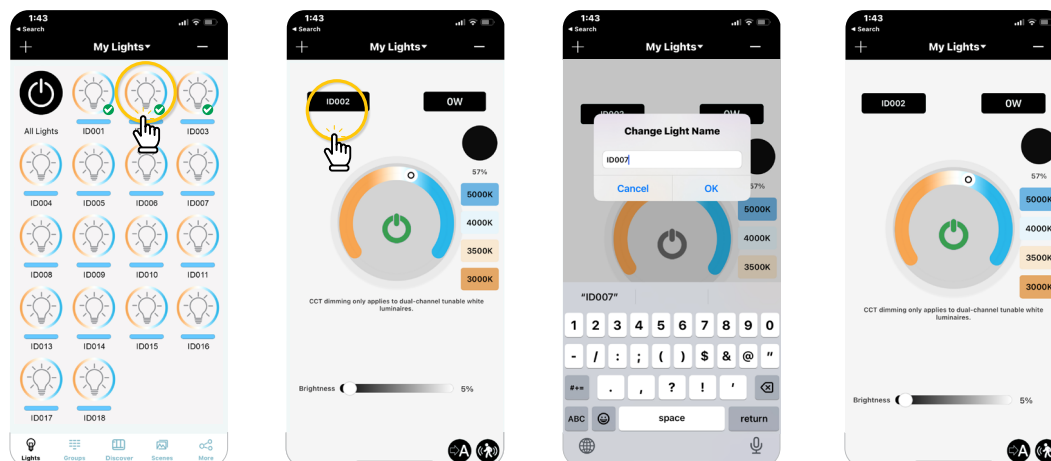
6. Confirm by clicking the “Add” button in the dialog box. A light will blink to indicate a successful connection.



Click the “Back” button to return to the Lights page. Confirm that all lights have been added and successfully connected with the APP.

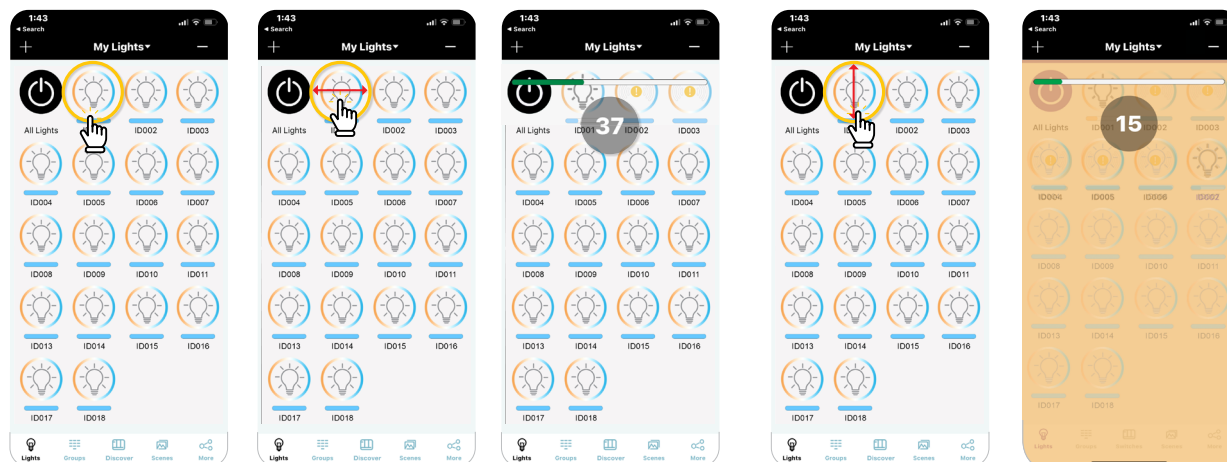
Note: Commissioning performance may deteriorate if there are more than 150 factory-setting lights powered up at the same site. Please power off some factory-setting lights before continuing.

To Name or Rename Lights



1. From the Lights page, do an extended press on a selected light to go to the Dimming page.
2. Click on the light's name located in the upper left of the dimming/tuning slider.
3. Enter the light's new name in the dialog box.
4. Press "OK" to save.

Quick Dimming and Color Tuning



1. From the Lights page, a quick click on a light's icon will turn it on or off.
2. Lightly slide a finger left or right across the light's icon to adjust brightness.
3. Lightly slide a finger up or down over a light's icon to adjust the color temperature.

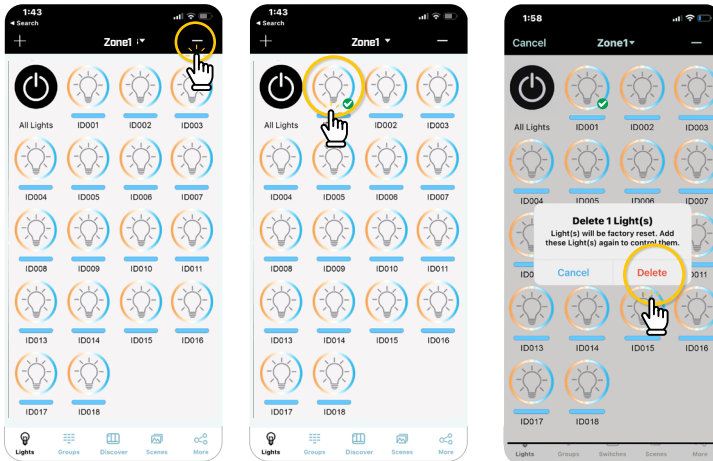
Dimming Settings

Here are examples of the dimming capabilities for mono-dimmable, tunable white, RGB dimmable and for a direct/in-direct dimmable light.



1. From the Lights page, do an extended press and hold on a light's icon to open the Light Dimming settings page.
2. The Light Dimming settings page appearance will vary according to the light's capabilities.
3. Set to the desired dimming and tuning levels.
4. Click the **"Back"** button to save settings.

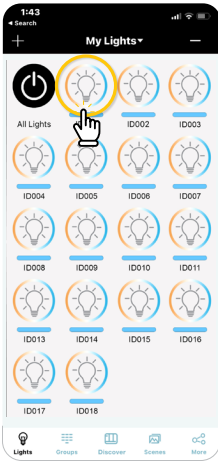
To Delete Lights



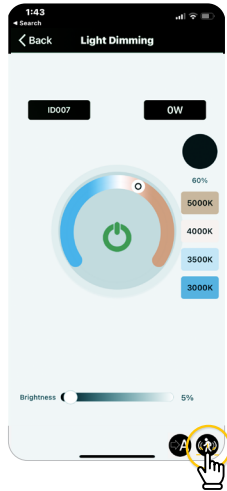
1. From the Lights page, click the **"-"** button in the upper right corner.
2. Select the lights you want to delete, by giving it a tap and check mark.
3. Click **"delete"** in the upper right corner.
4. Click **"delete"** in the dialog box to confirm.

Note: To successfully delete the lights, the smartphone must be within the Bluetooth® Mesh range

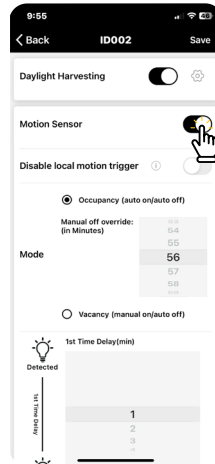
Sensor Settings



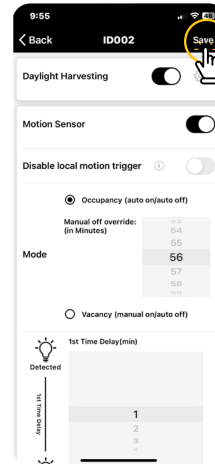
1. From the Lights page, do an extended press and hold on a light's icon to open the Light Dimming settings page.



2. Click the “Sensor Settings” icon in the lower right corner.



3. Enable or disable motion sensors, and set levels as desired.



4. Click the “Save” button in the upper right to save sensor settings.

Manual OFF Override

The user may set manual OFF override time in Occupancy mode. When the light is turned OFF manually, either by the Wave app, wall switch or by a schedule, it remains OFF and won't be triggered by motion during the 'Manual OFF override time' period. If motion is detected during this period, it will restart the time counter.

After 'Manual OFF override time' timer runs out, the lights will remain OFF but will be ready to be triggered by motion.

Default is set to 'Infinite'.

Note: This function only works with firmware later than 231013

There are two working modes of motion sensors. Their behaviors in Auto Mode are defined as follows - please see product spec for more details:

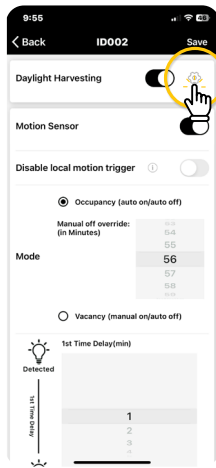
- Occupancy sensor: auto turns ON when motion is detected, and auto turns OFF when T1/T2 timers run out.
- Vacancy sensor, manual turns ON with switch and auto turns OFF when T1/T2 timers time out.

Note: T1 and T2 time delays may set an “Infinite Time Delay” to prevent lights from turning off to meet special requirements for applications.

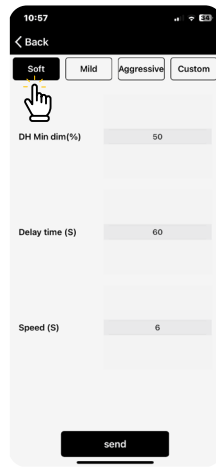
Daylight harvesting sensor is disabled by default. Enable it on the Wave app and set appropriate auto set point threshold (auto-calibration) or manual ON/OFF threshold without auto-calibration.

Note: Do not enable 'Daylight Harvesting' if no photo sensor is installed or connected, otherwise it may keep dimming randomly because it can't get the correct ambient light level.

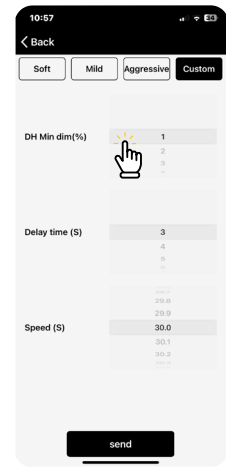
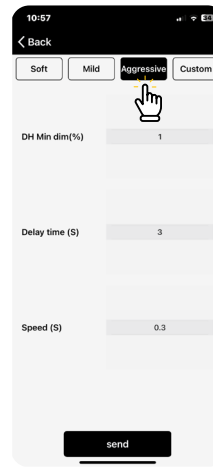
Daylight Harvesting Strategy



1. Select the setting button beside Daylight harvesting toggle button to set daylight harvesting



2. There are three pre-defined strategies, select the one that best fits application.



3. Custom will allow user to fine-tune the daylight harvesting parameters.

Adjustable parameters for daylight harvesting strategy include:

- DH Min dim [%]

It is the minimum light level that daylight harvesting sensor can dim a luminaire to. Set this parameter higher if you want to keep the luminaire brighter and set it lower if you want to save more energy. If you set the value lower than the 'low-end-trim' then 'low-end-trim' is actually working.

- Delay time [S]

The time the sensor will wait to dim down the luminaire when ambient light has gone up. The unit of this parameter is in seconds. Set this value larger if you want the luminaire to hold the level longer even when the ambient light has gone up.

- Speed [100ms]

How quick the sensor should dim the luminaire. The unit of this parameter is in 100 milliseconds. Set this value larger if you want the dimming process to be more gentle and softer.

Name	Response speed to ambient light changes	Minimum daylight harvesting light level	Suggested applications
Soft	Slow	50%	Independent office, parlor, concierge area
Mild	Medium	30%	Open office, classroom, meeting room
Aggressive	Quick	= low-end-trim (1% or 10%)	Tea room, storage room, warehouse



Groups

Groups

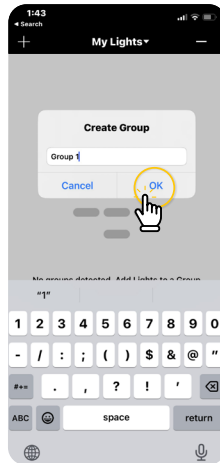
Groups enable control of a defined set of lights, in a small area.

The APP provides a default group named “All Lights” which gives the user control over all lights in the zone.

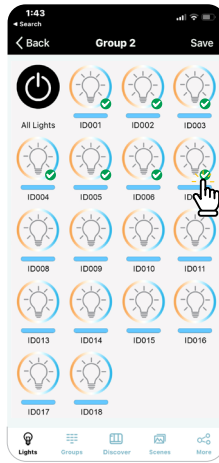
Create a Group



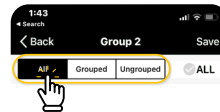
1. Select the “Groups” page in the bottom menu.
2. Click the “+” in the top left corner.



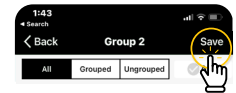
Type the group name and then press **OK**.



4. Select the **lights** that you want to add in the group by clicking the checkbox in the bottom right of the desired Light icon.

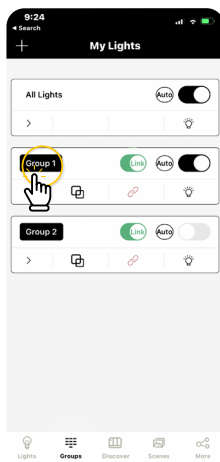


5. Use the filter at the top of the screen to help add proper lights to the group:
 - **All:** All lights are shown
 - **Grouped:** Only lights added to at least 1 group are shown
 - **Ungrouped:** Only lights that have NOT been added to a group are shown

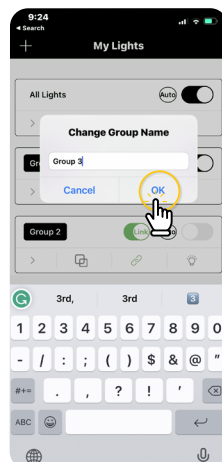


6. After all Lights have been selected, press “**Save**” to save the Group.

Rename a Group

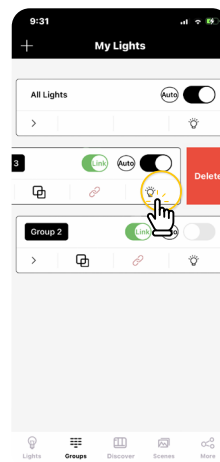


1. Click the Group that you wish to rename.

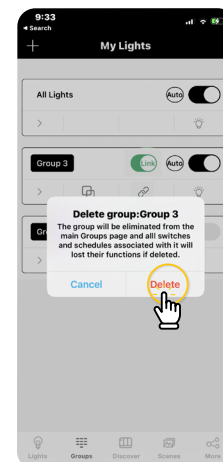


2. Enter new group name as prompted
3. Click “**OK**” to confirm.

Deleting a Group

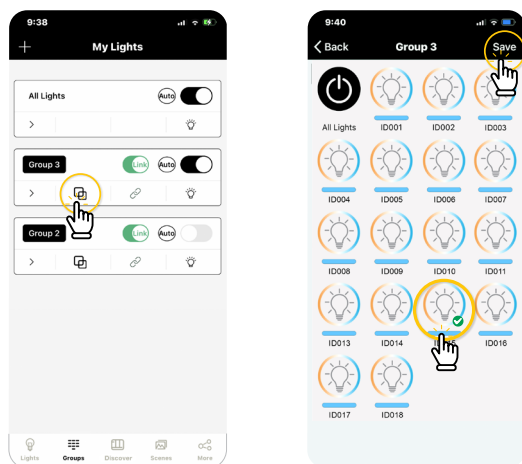


1. Select the Group to delete and slide finger from right to left over that Group.



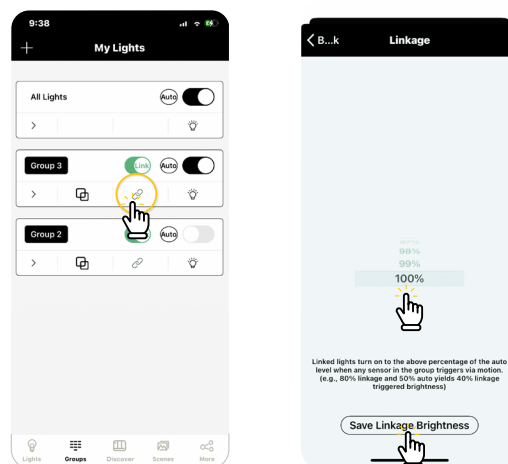
- Press the red delete button that appears. Confirm by pressing “**Delete**”

Add or Remove Lights In a Group



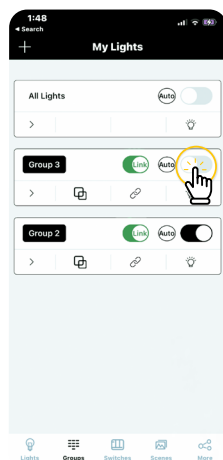
1. Select which group to add or remove lights, from the Groups page.
2. Tap **"Members"** to see all current lights in the group.
3. Select which lights you want to add or remove.
4. Press **"Save"** to confirm changes.

Adjust Group Linkage Level



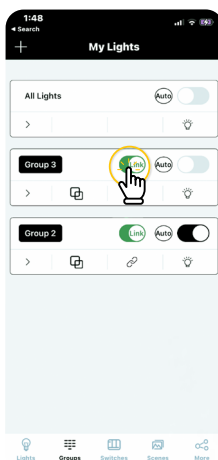
1. Choose which group to change linkage settings, from the Groups page.
2. Click **"Linkage"** to access the group linkage controls.
3. Set linkage brightness level according to preference.
4. Press **"Save Linkage Brightness"** to confirm changes.

Turn Group Lights On/Off



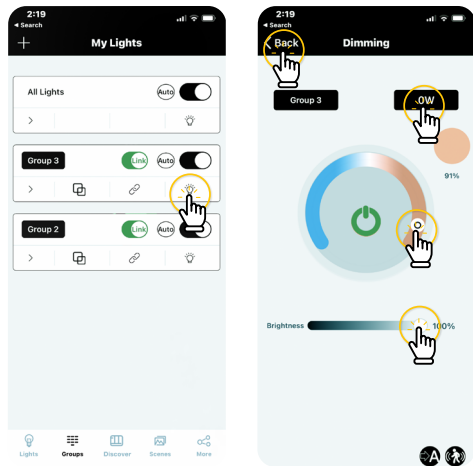
1. Choose which group to turn ON or OFF.
 2. Click the ON/OFF switch in the upper right corner of the Group.
- Note: Clicking this toggle button will send ON/OFF commands to the group, however, it does not reflect the current ON/OFF status of the group.*

Turn On/Off Group Linkage



1. Choose which group to turn on/off linkage, on the Groups page.
 2. Toggle the **"Link"** button to turn linkage on or off.
- Note: For a light to respond to the 'Link' command from other lights in the same group, the 'Motion Sensor' function must be enabled for this light, even if the light does not have a motion sensor connected to it.*

Adjust Group Dimming



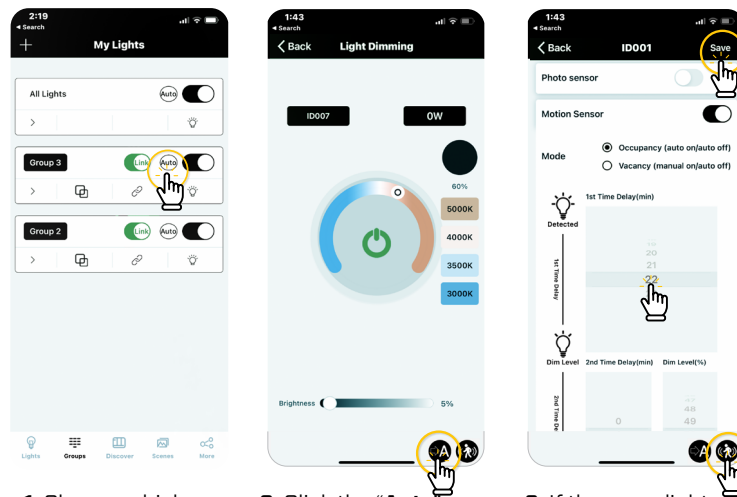
1. Choose which Group to change dimming settings, on the Groups page.
2. Tap “Dimming” in the lower right corner.
3. Select which dimming settings to change.
4. Set dimming and/or tuning levels.
5. Set wattage levels.
6. Press “Back” to save changes.

The available dimming control on the dimming page depends on the light types in this group.

The light types in the group are shown on the bottom of the dimming page. The user can choose to dim certain type of lights in this group.

Activate Auto Mode

To set all of the Lights in a Group to Auto mode, that are controlled by sensors:



1. Choose which group to turn on/off Auto mode, on the Groups page.

2. Click the “Auto” button to turn auto mode on or off, for all of the Lights in this Group.

3. If there are lights with sensors in a group, you may set the sensor's parameter by clicking the sensor icon on the bottom right corner of the Dimming page.

Click “Save” to save sensor parameters.

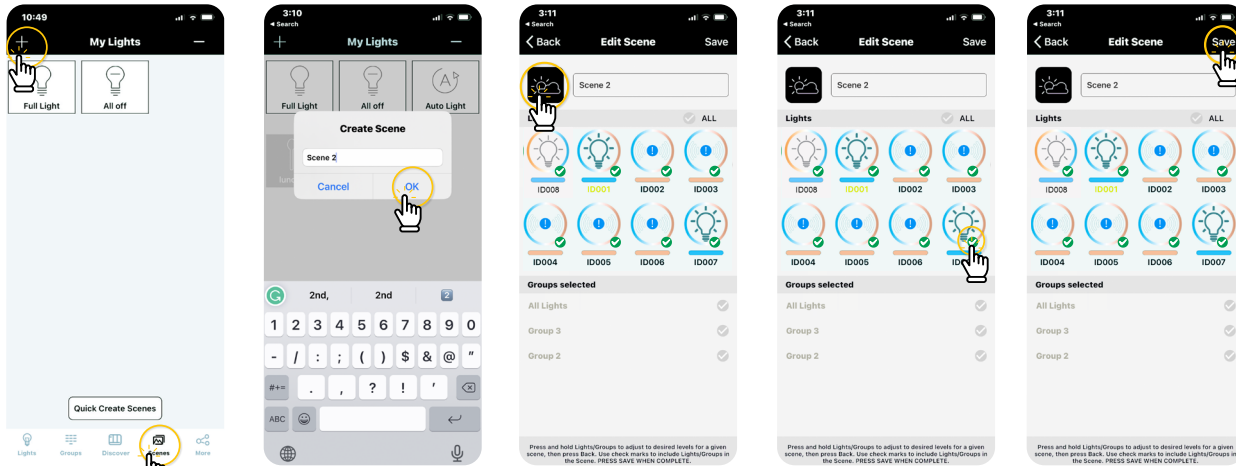


Scenes

Scenes

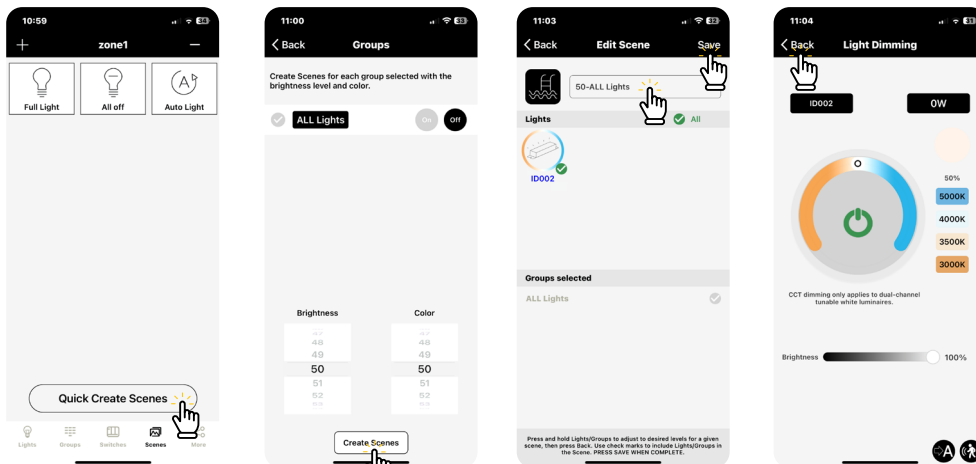
Scenes establish programmed settings for individual lights or groups of lights. The Scenes can be set manually by users. The APP also has three default Scenes defined: All Off, Full Light, and Auto Light. Activating a scene will cause all members to adopt the settings to the selected scene. Users must add lights first, then the next step is sensor setting before creating groups and scenes.

Create a Scene



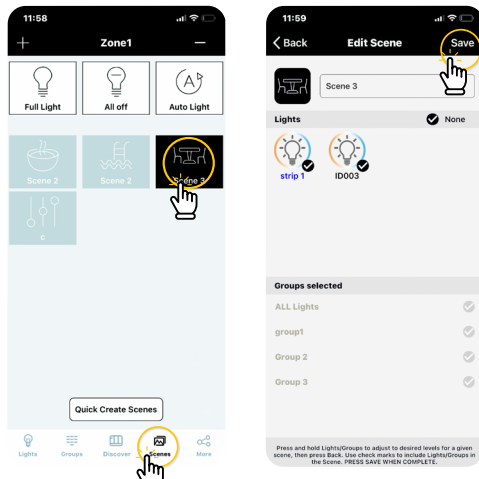
1. Select the **"Scenes"** page in the APP.
2. Click the **"+"** button in the upper left corner.
3. Type in the scene name and press **"OK"**.
4. Select a desired icon to be the scene icon.
5. Select the individual lights or groups that will participate in the scene. An extended press on a light or a group will dim the light or group.
6. Click **"Save"** to save the scene settings.

Create a Quick Scene



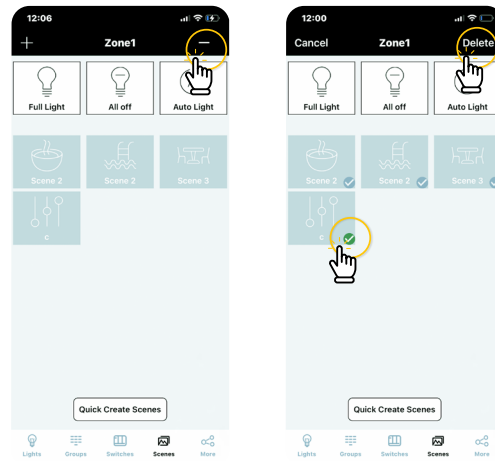
1. Select the **"Quick Scenes"**.
2. Select the **"Group"** to adjust Brightness and Color.
3. Select the **"Create Scenes"**.
4. Select the scene to name and edit. Press and hold the **"Group"** to edit Brightness and Color.
5. Make any edits and press Back and then Save.

Edit Scene Settings



1. Select the scene icon of the scene to edit/program.
2. Press and hold the scene icon to edit scene settings.
3. Press and hold Lights/ Groups and define settings desired.
4. Click **"Save"** to save the scene settings.

To Delete a Scene



1. Press the **"-"** button in the upper right corner.
2. Select which scene(s) to delete.
3. Press **"delete"** to confirm.

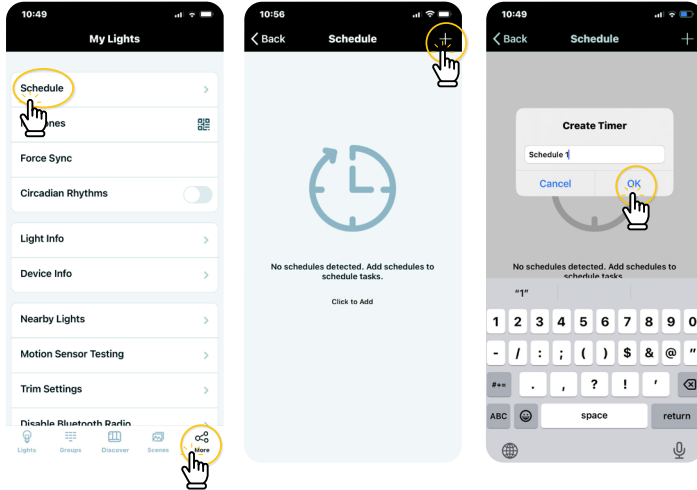


Schedules

Schedules

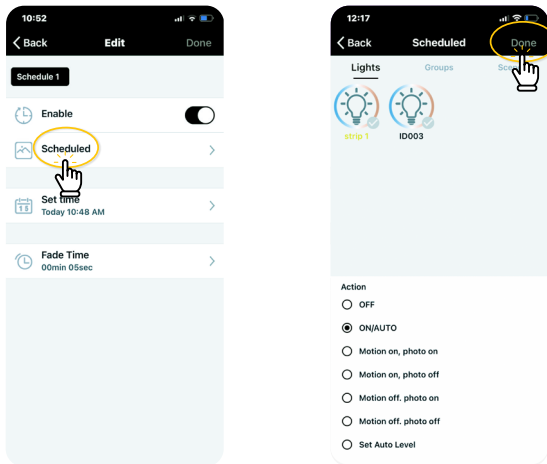
Schedules allow the user to program lighting changes for specific dates and times. Schedules can be applied to an individual light, a group, or a scene.

Create a Schedule



1. From the “**More**” page, press “**Schedule**”.
2. Click the “+” in the upper right corner.
3. Type in a name for the schedule.
4. Press “**OK**” to continue.
5. The user will need to associate the Schedule to lights, groups, or scenes, as well as set the schedule’s time, before saving the Schedule.

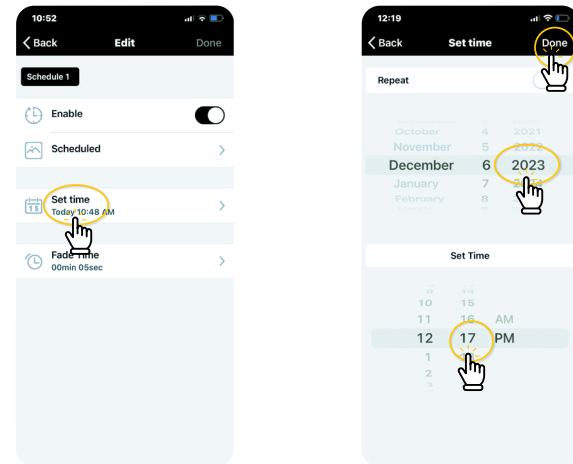
Associate a Schedule to Lights, Groups, or Scenes



1. On the Edit screen of a selected schedule, press “**Scheduled**”.

Choose between “**Lights**”, “**Groups**”, or “**Scenes**”. Select one light/group/scene to schedule. Press “**Done**” to continue.

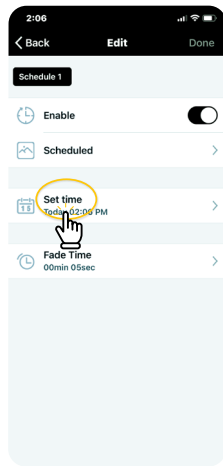
Set the Schedule’s Date and Time



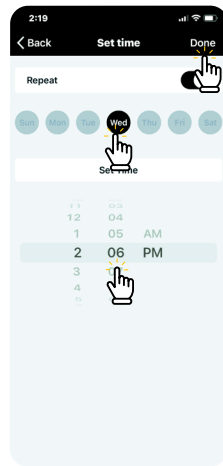
1. On the Edit screen of a selected schedule, press “**Set time**”.

2. Choose preferred date for the schedule.
3. Choose preferred time for the schedule.
4. Press “**Done**” to continue.

Set a Repeating Schedule

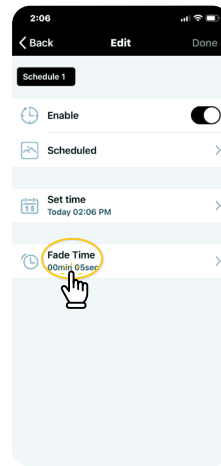


1. On the Edit screen of a selected schedule, press **"Set time"**.
2. Click to enable the Repeat switch.

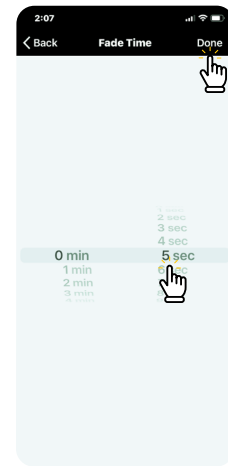


3. Choose which days of the week you want the schedule to repeat.
4. Set desired time for the schedule.
5. Press **"Done"** to continue.

Set Fade Time for a Schedule

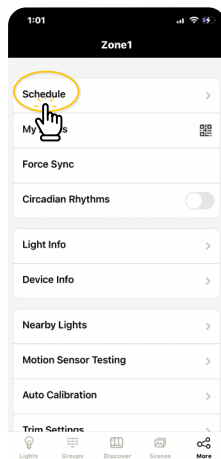


1. On the Edit screen of the selected schedule, press **"Fade Time"**.

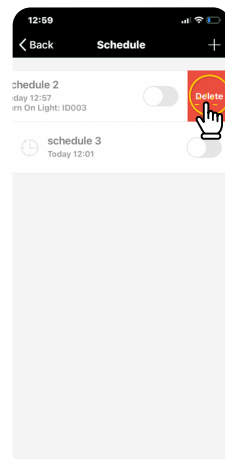


2. Set Fade Time to a desired duration.
3. Click **"Done"** to continue.

To Delete a Schedule

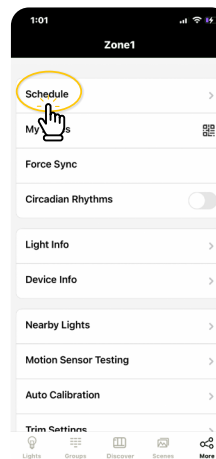


1. From the More screen, click **"Schedule"** to see a list of all schedules.

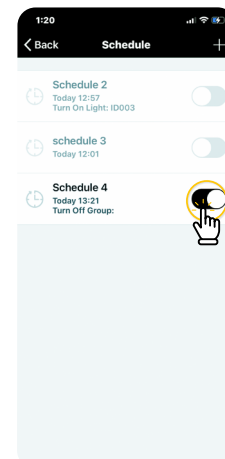


2. Select which schedule to delete and swipe finger to the left.
3. Press the red **"Delete"** button that appears.
4. Press **"Delete"** to confirm.

Enable or Disable a Schedule



1. From the More screen, click **"Schedule"** to see a list of all schedules.

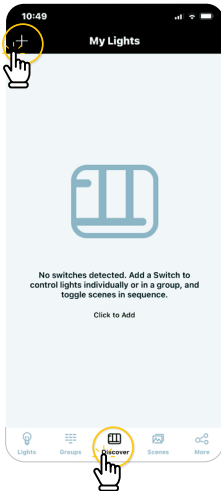


2. Select which schedule to enable/disable and click the enable/disable button on the right.

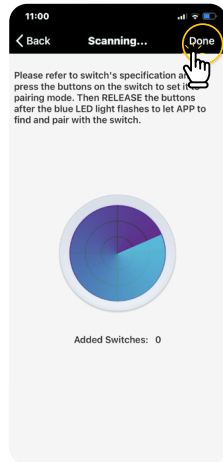
Switches

Wave smart switches can be added to the APP to control individual lights or groups. Depending on the type of switch, up to 3 scenes can be associated with a button. Switches will automatically stop pairing after 30 seconds or when a button is pressed. Switches are added into the Zones in which they are located.

Add a Switch



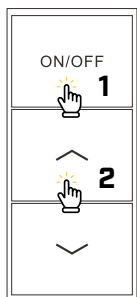
1. Select the “**Discover**” page of the APP. Press the “+” button in the upper left corner.



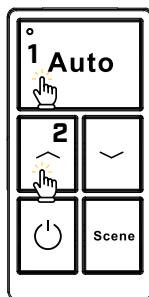
2. The APP will search for nearby switches.

Note: Please set the switch to pairing mode, then click ‘+’ on the APP to add the switch to the ZONE.

3. Follow the instructions below in order to pair the specific Switch type.

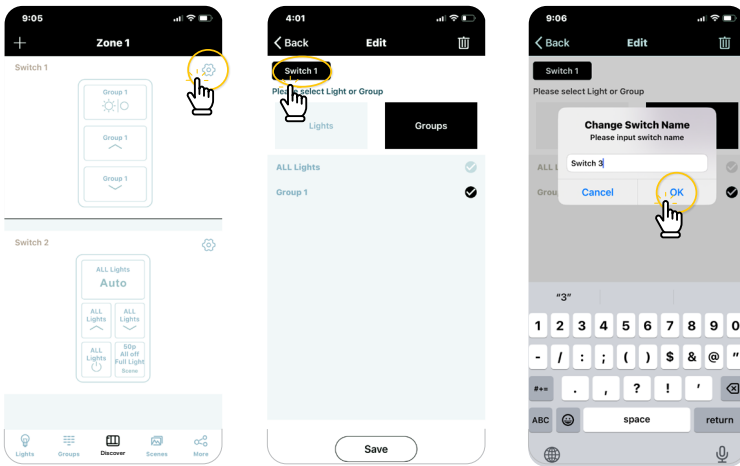


Press the **button 1 and 2** together and hold for 2 seconds and then release.



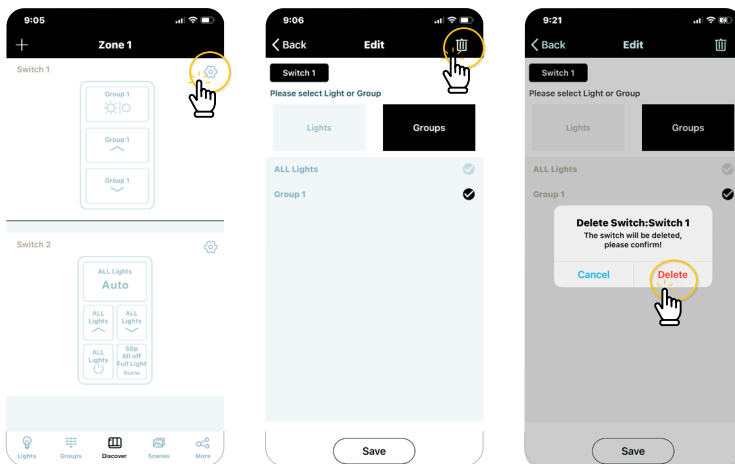
Press the **button 1 and 2** together and hold for 2 seconds and then release.

Rename a Switch



1. From the “**Discover**” page of the APP, select a switch to rename.
2. Press the settings button in the upper right corner to access switch settings.
3. Click the current switch name displayed in the upper left.
4. Enter the new switch name and press “**OK**” to save.

Delete a Switch



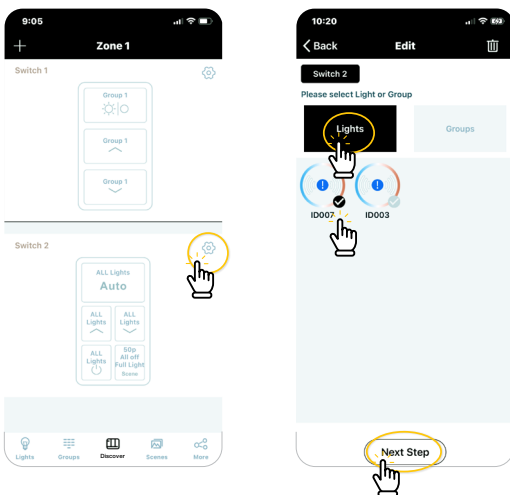
1. From the “**Discover**” page of the APP, select which switch(es) to delete.
2. Press the settings button in the upper right to access switch settings.
3. Tap the trash icon in the upper right corner.
4. Click “**Delete**” to confirm.
5. Click the “**Back**” button in the upper left corner to return to the “**Discover**” page.

Edit Switch Settings

Button functions vary for different types of switches. For some switch models, buttons have pre-defined functions and can't be associated to scenes. Set the functions of the switches based on the type.

Associate Lights to Switches

Associate a button to a light and the user will be able to turn the light on or off by pressing this button.

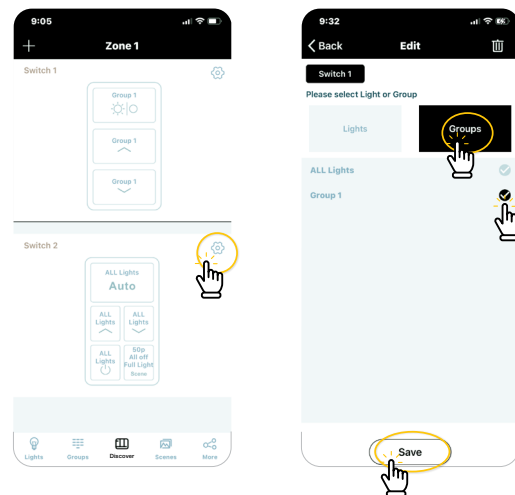


1. From the “**Discover**” page of the APP, select the switch to assign lights.
2. Press the settings button in the upper right to access switch settings.

3. Click “**Lights**” to see a list of individual lights.
4. Select only one light to assign to the switch.
5. Click “**Next Step**” at the bottom to continue.

Associate Groups to Switches

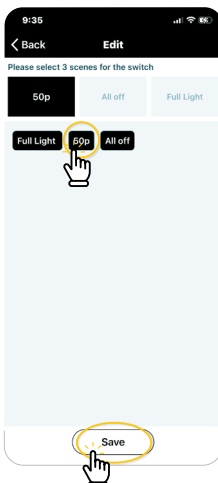
Associate a button to a group and then the user can turn the group on or off by pressing this button.



From the “**Discover**” page, select a switch to assign a group. Press the settings button in the upper right to access switch settings.

3. Click “**Groups**” to see a list of groups.
4. Select only one group to assign to the switch.
5. Click “**Save**” at the bottom to continue.

Associate Scenes to Switches



Associate scenes to a button and the user will be able to change between these scenes when the user presses this button. Usually, a button can be associated with up to 3 scenes.

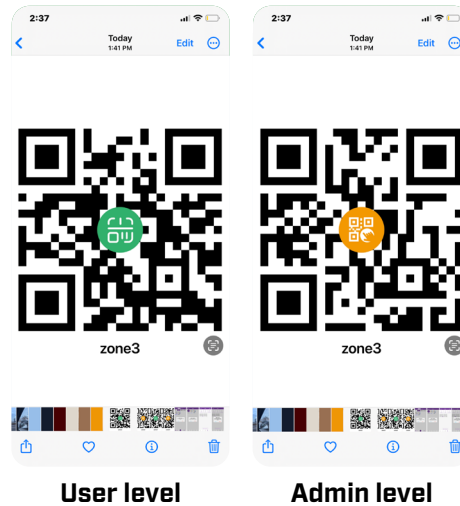
1. After associating one light OR group to the switch, there will be a prompt to select scenes next.
2. Select up to three scenes.
3. Click “**Save**” to confirm.

Note: Whenever a group or scene has been updated, please edit and save the switch settings again to make sure all settings are synchronized so that the switch can work as expected.

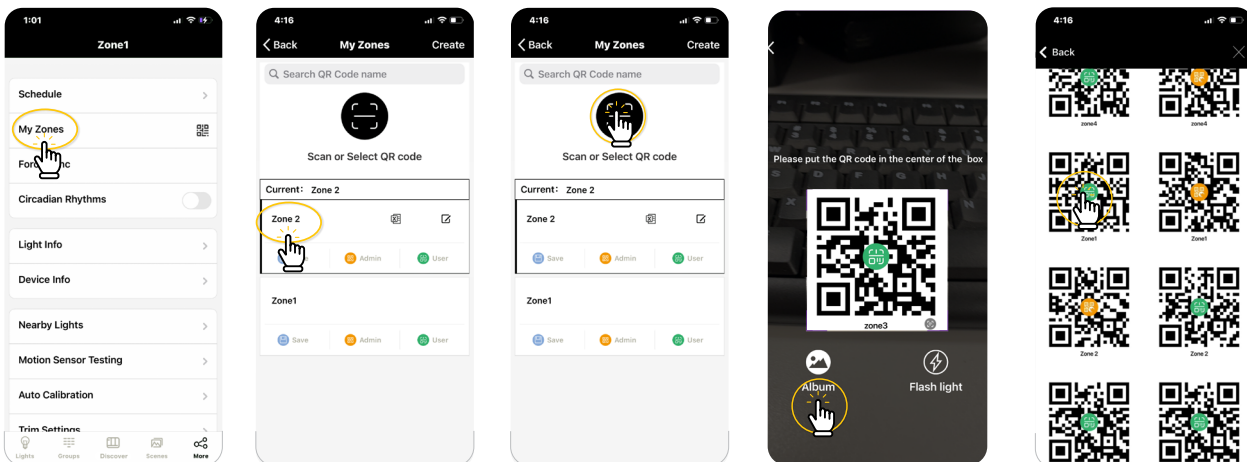
QR Codes

Whenever a zone is created, two QR codes are automatically generated, one for the **Admin level** and one for the **User level**. The QR codes represent the zone, as well as all of the lights, switches, and groups associated with that zone.

The **User** QR code allows the user to dim, activate a scene, or control lights on that zone, but it does not allow the user to add, delete, or change lights, groups, or scenes. The **Admin** QR code allows a user to control and edit all settings within the APP. Only users with the Admin QR codes can share Admin QR codes.



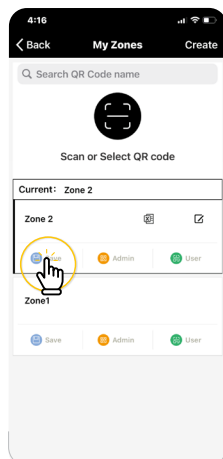
To Scan QR Codes and Share Zones



1. On the More page, click on **My Zones**.
2. Select a zone in the list or click “**Scan or Select QR code**”.

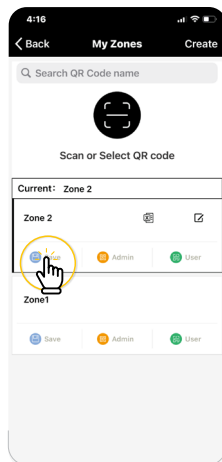
3. Center the boxed camera frame around the QR code and scan it.

4. You can also select QR codes saved in the phone by pressing the “**Album**” button.



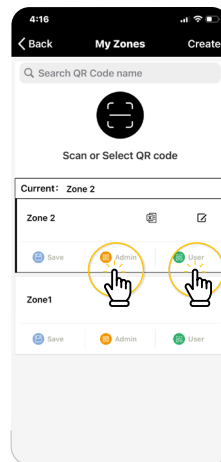
5. The APP will automatically add a new scanned Zone after the QR code has been scanned.

To Save QR Codes



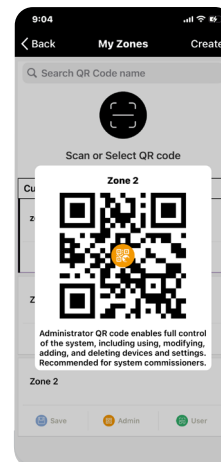
1. Allow the APP access to photos for QR codes to be saved to the phone.
2. Press the **“Save”** button located under the zone name.
3. QR codes will be saved on an autogenerated album folder **“MyQRCode”** in your phone.

To Share QR Codes



1. From the **My Zones** page, select the Zone to share and click on either Admin or User.

*Note: A second method to share is to go to your photo library **“MyQRCode”**, select the QR Code for the desired project, and send it via email to the party for the project.*



2. A QR code will be displayed on the app. It can then be scanned by another for sharing or you can screenshot it and send it to another for scanning.

Auto Mode

Lights with sensors can:

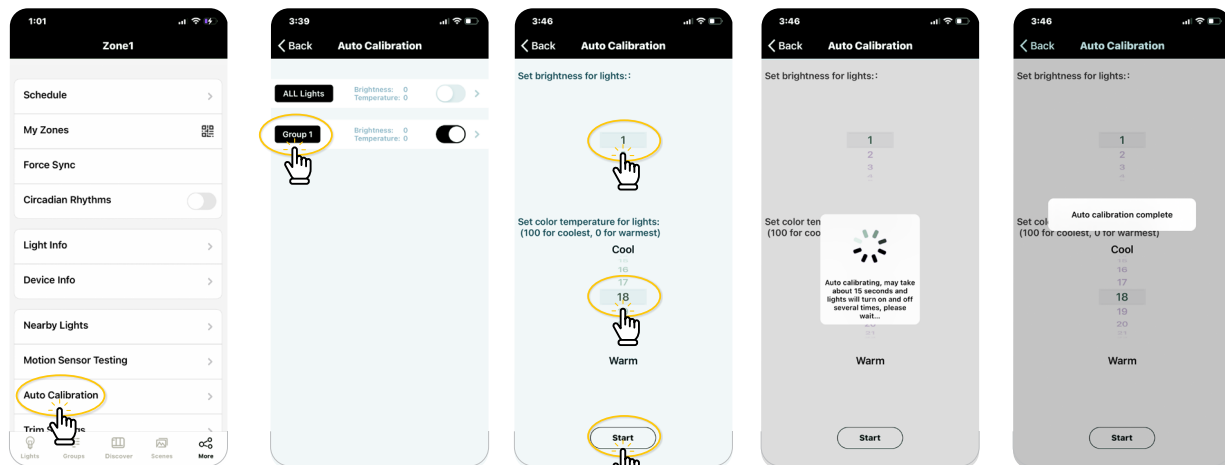
1. **Detect human movements** with a motion sensor, and automatically turn on or off the light.
2. **Detect ambient light** using a photo sensor to automatically dim up or down the light while providing sufficient and comfortable lighting, and energy savings. Such functionality is also referred to as “daylight harvesting.”

There will be an “**A**” in the center of a light’s icon if the light is in Auto mode. Auto mode indicates that light’s level is automatically controlled by sensors. A light with a sensor will store the data from the sensor in the APP. This enables a light to fully ‘harvest’ natural light to dim itself, while maintaining a comfortable, safe, and energy saving light level.

There are two ways to set the Auto light level in the APP: “**Auto Calibration**” and “**Manual Setting**.” To maximize energy savings, it is important to eliminate ambient light interference when setting the Auto mode light levels.

Set Auto Mode Using Auto Calibration

A user specifies parameters and the lights will automatically remove the ambient light interference by a self-learning process to determine the appropriate Auto mode light level. It is recommended to test with one light in a real or simulated environment to find the appropriate parameters and then quickly batch set the lights using “Auto Calibration.” During the Auto Calibration process, the lights will turn on and off several times.



1. From the “**More**” page, click “**Auto Calibration**”.

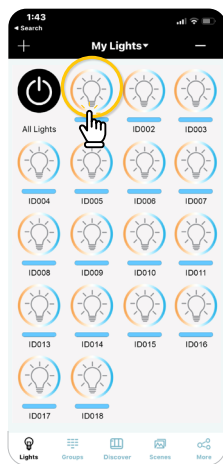
2. Select a group for Auto Calibration by clicking the group name.

3. Adjust parameters as desired.

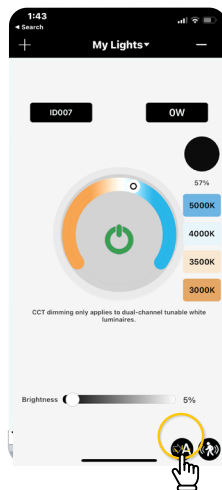
4. Click the “**Start**” button to start Auto Calibration.

Set Auto Mode Using Manual Setting

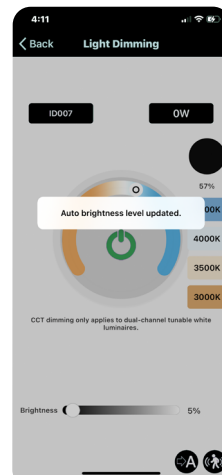
“Manually setting” allows users to customize the Auto mode light level. The light will remember the light reading from the sensor directly without considering the ambient light. It is the user’s responsibility to make sure the light level is correct by setting it at night or with the sunlight (or ambient light) shielded. By default, the Auto mode brightness starts at 100%.



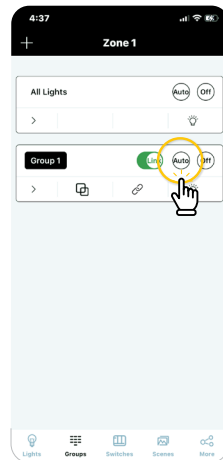
1. On the Lights page, click and hold a light icon to access the “Light Dimming”



2. Adjust the dimming levels and color temperature as desired.
3. Enable Auto Mode by pressing the Auto button in the lower right.



4. A confirmation will appear that the Auto Mode brightness level has been updated.

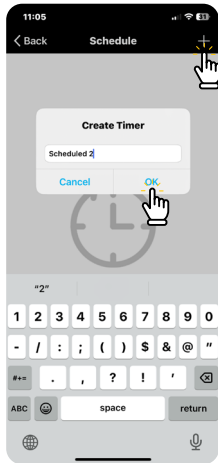


It is also possible to set a group to Auto Mode from the Groups page, using the Auto button to the right of a group name.

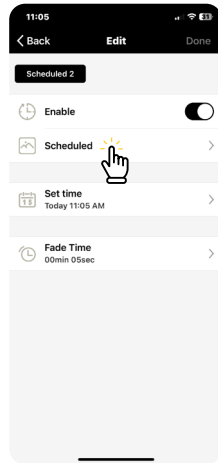
Note: Auto mode only applies to lights with sensor functions enabled, either motion sensor and/or photo sensor. When Auto light level has been set, the lights will return to the brightness/color each time it is powered on, or turned on by the APP, switch, or schedule. Auto light level does not apply to lights with sensor functions disabled, even when it has a sensor connected to it. Each time it is powered on, it will return to the last brightness/color.

Set Scheduled Auto Calibration

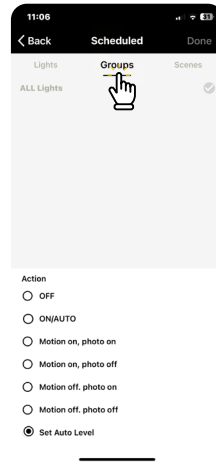
The scheduled Auto Calibration feature allows users to set this function to operate at times when natural daylight will not affect ambient light levels in the room.



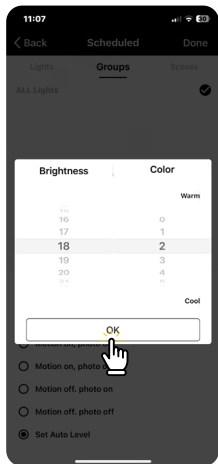
1. On the “**More**” page, select “**Schedule**”, then select the “+” button to add a scheduled calibration. Input a name and select “**OK**”.



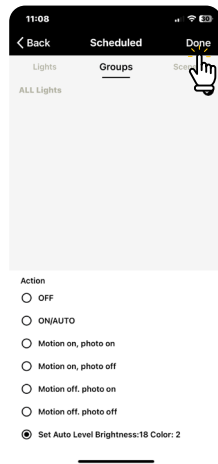
2. Select “**Scheduled**”.



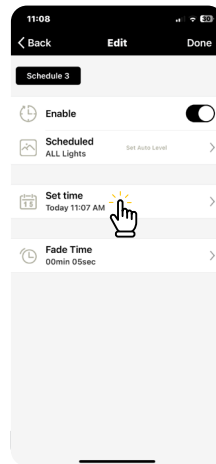
3. Select the group desired to calibrate. Then select “**Set Auto Level**” at the bottom.



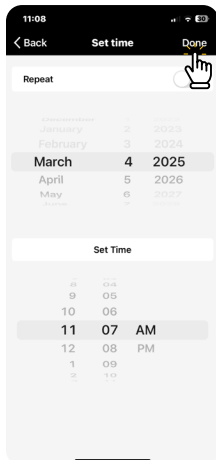
4. Then choose the appropriate brightness value and the color CCT in the prompt box and select “**OK**”.



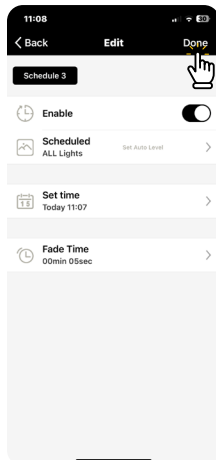
5. Then select “**Done**”.



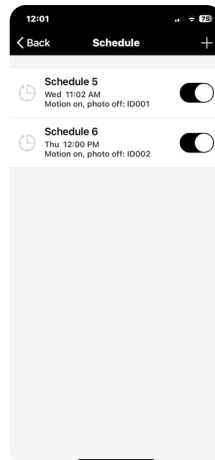
6. Select “**Set Time**” to set the appropriate Date/Time of the Schedule Calibration.



7. Select **“Done”**.



8. Select **“Done”** to save the schedule.



9. Schedules will show on **“Schedule”** list.

*Note: Lights must be powered during Scheduled Calibration. Sensors must be firmware versions **“230426”** or later. Select **“Set Time”** to set the appropriate Date/Time of the Schedule Calibration.*

Default Sensor Settings

Integrated Sensors

Models: OSI-PIR108E-WAVE, OSI-PIR106-WAVE

Motion sensor = ON

Photo sensor = OFF

T1 = 20 min

T2 = 1 min

Dim level = 50%

Sensitivity = 100%

High trim = 100%

Low end trim = 1% or 10%, depends on products

Daylight min dim = Low end trim

Occupancy/Vacancy mode = Occupancy

Linkage = OFF

Linkage level = 100%

Photocell ON threshold = 50FC

Photocell OFF threshold = 150FC

Integrated Sensors (Outdoor Wet Location)

Models: OSI-PIR106-W-WAVE, OSI-PIR106-W2-WAVE

Motion sensor: ON

Photocell: Off

T1 = 20 min

T2 = 1 min

Dim level = 50%

Sensitivity = 100%

High trim = 100%

Low end trim = 1% or 10%, depend on products

Occupancy/Vacancy mode = Occupancy Linkage = OFF

Linkage level = 100%

Photocell ON threshold = 50FC

Photocell OFF threshold = 150FC

Sensor-Ready Controllers

Models: CTRL-KBC1-001-WAVE, CTRL-KBPW-001-WAVE

Note: Controllers without integrated sensors, may later connect to Eco-Sensors

Motion sensor = OFF

Photo sensor = OFF

T1 = 20 min

T2 = 1 min

Dim level = 50%

Sensitivity = 100%

High trim = 100%

Low end trim = 1% or 10%, depends on products

Daylight min dim = Low end trim

Occupancy/Vacancy mode = Occupancy

Linkage = OFF

Linkage level = 100%

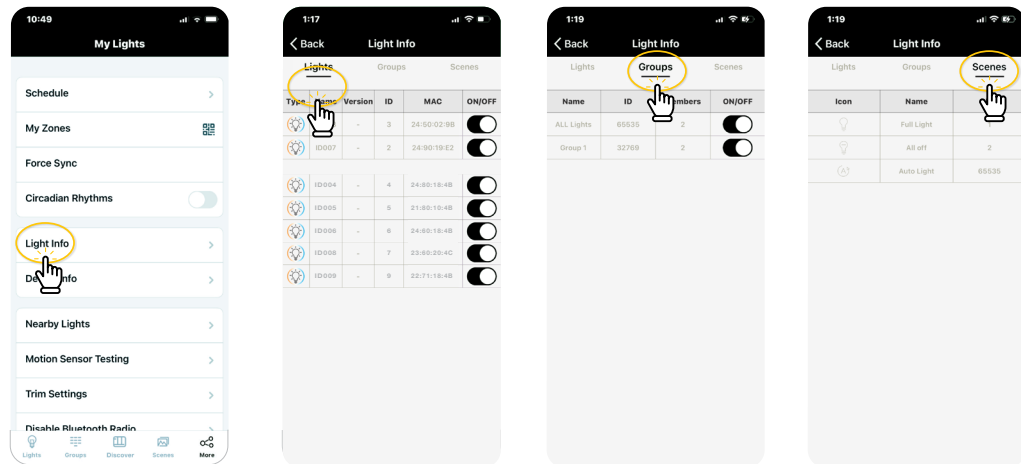
Photocell ON threshold = 50FC

Photocell OFF threshold = 150FC

Additional Settings

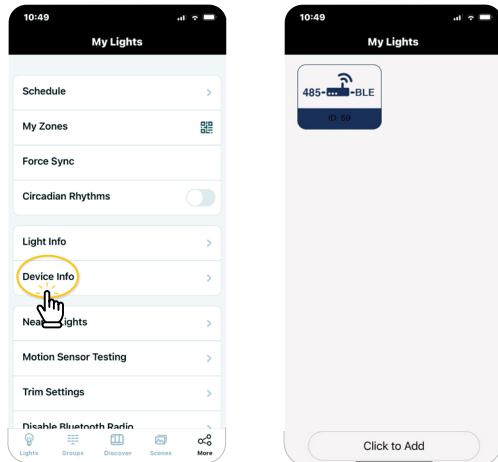
Checking Lights, Groups, and Scenes Information

From the **More** page, The **Light Info** tab will display a list of all of the information for lights, groups and scenes in a zone.



1. From the **More** page, click on **"Light Info"**
2. Switch between **Lights**, **Groups**, or **Scenes** to display the desired information.

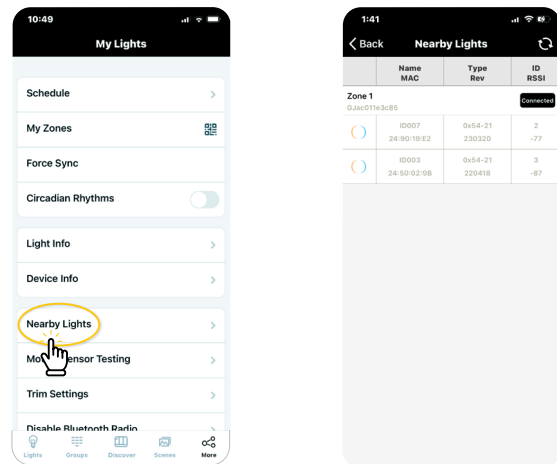
Checking Other Devices Information



1. From the **More** page, click **"Device Info"** to check all gateway, transformer and sensor information.

To Check Nearby Lights

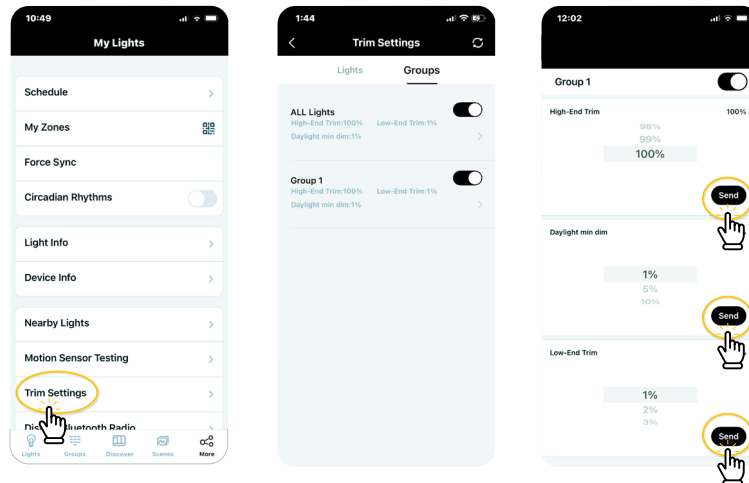
On the **More** page, the **Nearby Lights** tab is useful in the commissioning process because it lists all online lights that are connected and not connected to the APP.



1. From the **More** page, click **"Nearby Lights"**.
2. Press the **Refresh** button if lights don't show up.

Trim Settings

Users can set the High Trim and Low-End Trim that defines a maximum and minimum power for lights and groups.

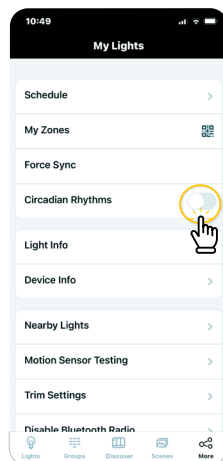


Note: There is a 'Daylight min dim', which is the minimum level that daylight harvesting sensor can go when it is enabled.

1. From the More page, click **"Trim Settings"**.
2. Select Lights or Groups to change settings.
3. Set to desired trim settings.
4. Click **"Send"** to send trim settings to the light or group.

Circadian Rhythms

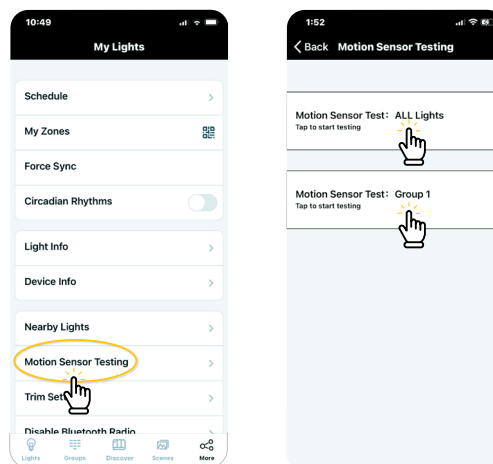
Circadian Rhythm synchronizes all of the lights' color temperature, and adjusts them based on the time of the day, in order to mimic natural daylight. This only applies to tunable white lights that are set in Auto mode.



1. From the More page, click the enable/disable button next to Circadian Rhythms.
2. Enabling Circadian Rhythms will automatically sync color temperature across all color tunable lights in Auto mode.

Motion Sensor Testing

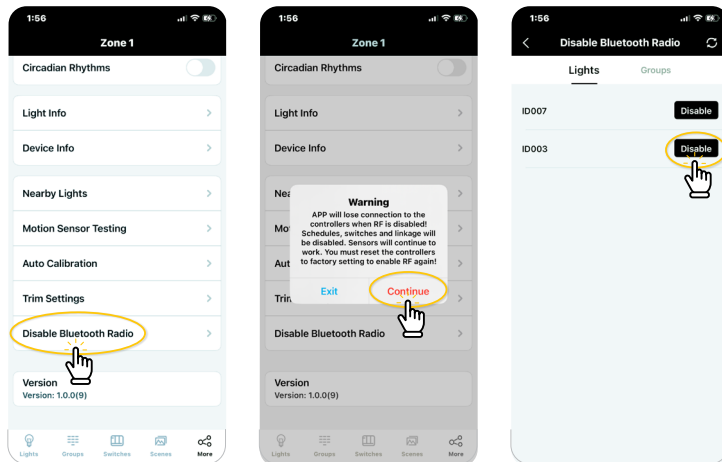
Motion Sensor Testing allows users to test if motion sensors are working properly. Lights must first be set to Auto mode before running the test.



1. From the More page, click **"Motion Sensor Testing"**.
2. Click to start the test. Lights with motion sensors should turn off as soon as the test is started.
3. Walk around to test the sensors and trigger the lights to turn on. Please wait for 6 seconds to trigger the sensor.

To Disable Bluetooth® Radio

Disabling the Bluetooth® Radio disconnects all of the lights' connections to the APP to easily transfer control. **To restore, sensors will need to be reset.**

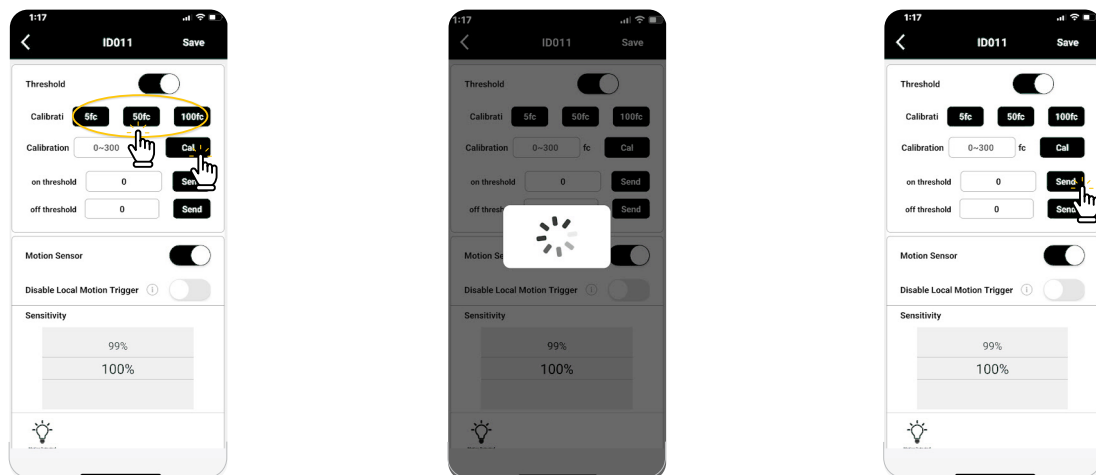


1. From the More page, tap “Disable Bluetooth® Radio”.

2. A warning dialog box will appear. Click “Continue” to accept.

Select which Lights or Groups, to disable their Bluetooth® connection. Press “Disable”. The APP will automatically refresh and sync settings.

Photocell Setting



1. For photocell sensors, the default ON/OFF threshold is 10/60 fc. User may change the thresholds. Click the button of 5fc/50fc/100fc will set 5/50/100 fc as ON threshold respectively and the lights will turn on/off several times to auto-calculate the OFF threshold. User may input a specified fc value as ON threshold and select the “Cal” button to calculate the OFF threshold based on it.

2. It will prompt a notice message during the calibration process. Please wait until the calibration ends. The light will quick flash several times if it failed to calculate the OFF threshold successfully. Please try to calibrate in another time. One possible reason for calibration failure is there are too much ambient light.

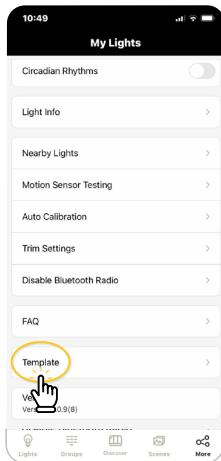
3. You may also manually input the On/Off threshold and select the “Send” button to set the value to the sensor without calibration.

Templates

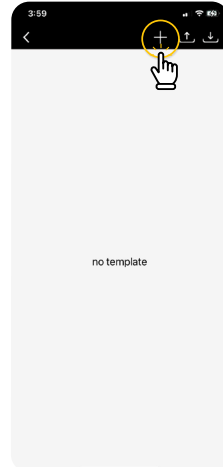
* Available for iPhone and iPad only

Templates allow you to save, manage, and apply consistent lighting settings across groups.

Template Management

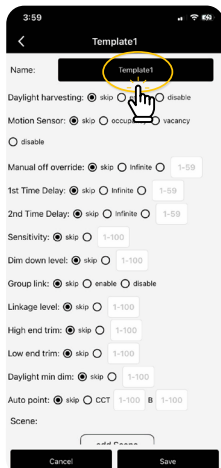


1. “Template” in “More” page to bring out the template management page.

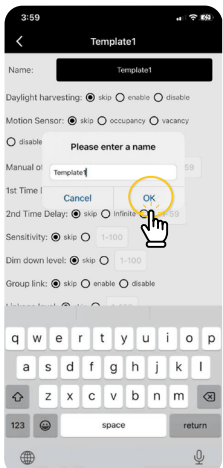


2. Click “+” to add a template.

Add / Update a Template

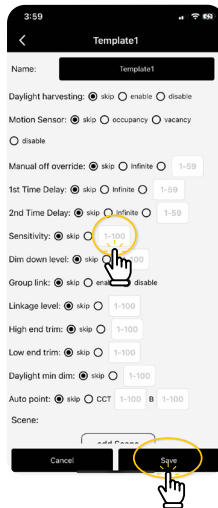


1. Click the “Name” module to change the template’s name.



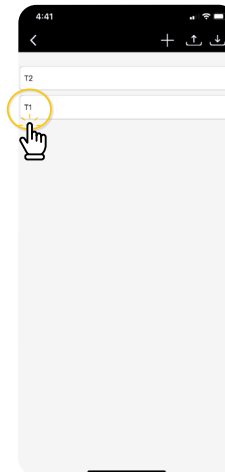
2. Input template name and click “OK” to save.

Update / Delete a Template

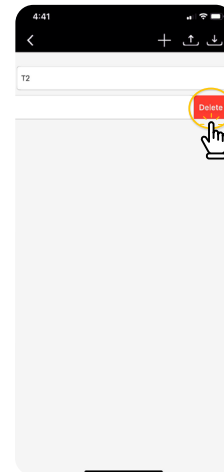


*Scenes and schedule will be created when a lights group apply this template.

1. Input template parameters and you may create scenes and schedule for current zone. Click **"Save"** to save it to local storage. **"Cancel"** to return to template list without saving.

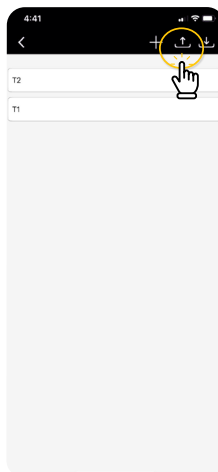


2. ALL the templates will display in the template list. Choose one template and click it to update.

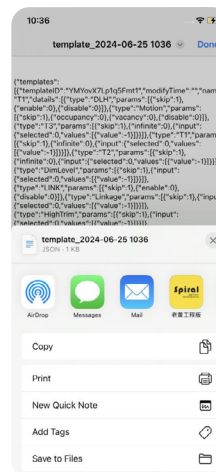


3. Swipe the template to left to delete the template.

Export

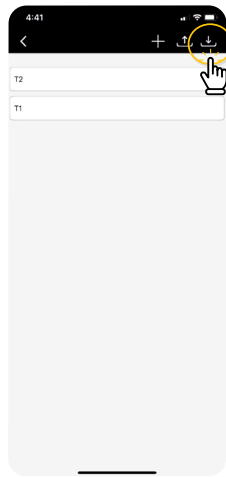


1. Check the templates you want to export, then click **"Export"** to generate file and prompt user to save / share it. **"Cancel"** to return to template list without saving.

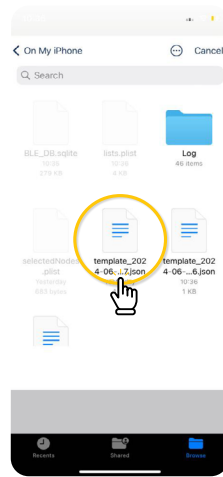


2. App will prompt you to choose where to save the generated report. You may save it to the mobile phone's storage or send it to other apps

Import

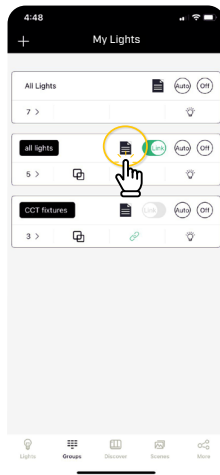


1. Click Import button to import templates from device's storage

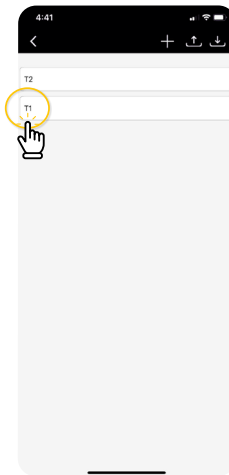


2. Choose the template file, app will read the file and import it to database.

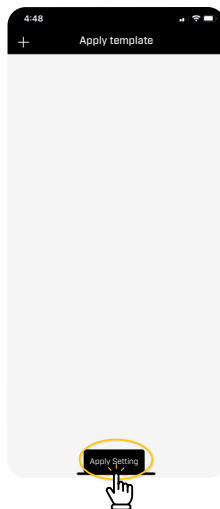
Apply Template



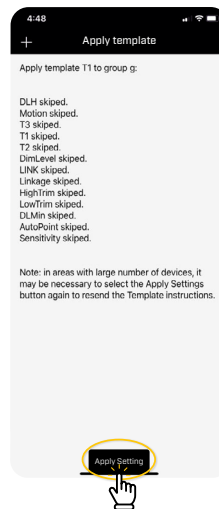
1. Click the icon to bring out the template list.



2. Choose one to apply it to this group.



3. Click “**Apply settings**” to send the parameters.



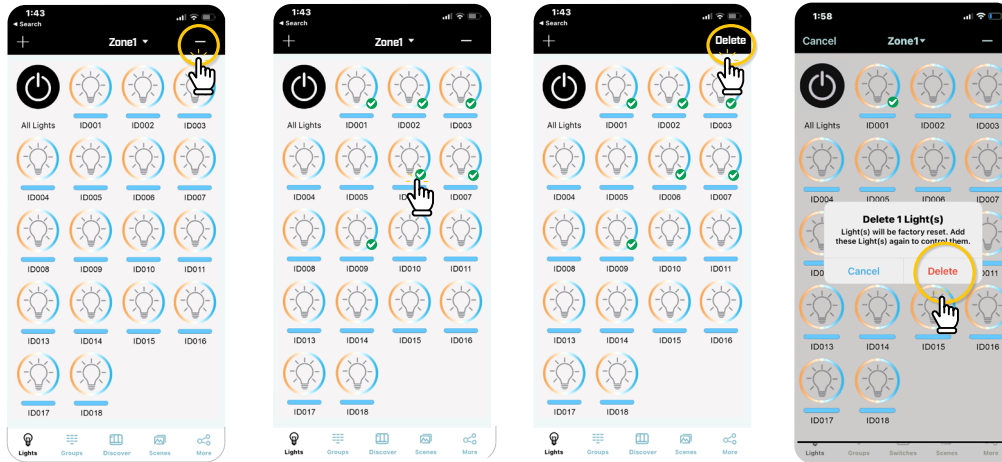
4. In case of failed to send parameters, click “**Apply settings**” to re-do the process and sent the parameters again.

Restoring Factory Settings

There are three ways to restore factory settings for the lights.

1 - Restore By Deleting Lights

The first way is by deleting lights from the APP. This is the easiest way.



Note: To successfully delete the lights, the smartphone must be within the Bluetooth® Mesh range

1. From the Lights page, select the “-” button in the upper right corner.
2. Click the check for each light that you want to delete and reset.
3. Click the “Delete” button in the upper right corner to delete and reset all selected lights.
4. Click “Delete” in the dialog box to confirm.

2 - Restore By Power Reset

The second way to restore factory settings is to do the following power reset sequence:

1. Confirm all lights are off.
2. Turn on lights for 8 seconds; then turn the power off for 10 seconds.
3. Immediately turn the lights on and off, then wait for another 10 seconds. Repeat 3 times.
4. Turn the lights on for 8 seconds, then turn the power off for another 10 seconds. Repeat 2 times.
5. Turn the lights back on. Blinking Lights indicate a successful factory reset. All previous settings and data for these lights have now been deleted.

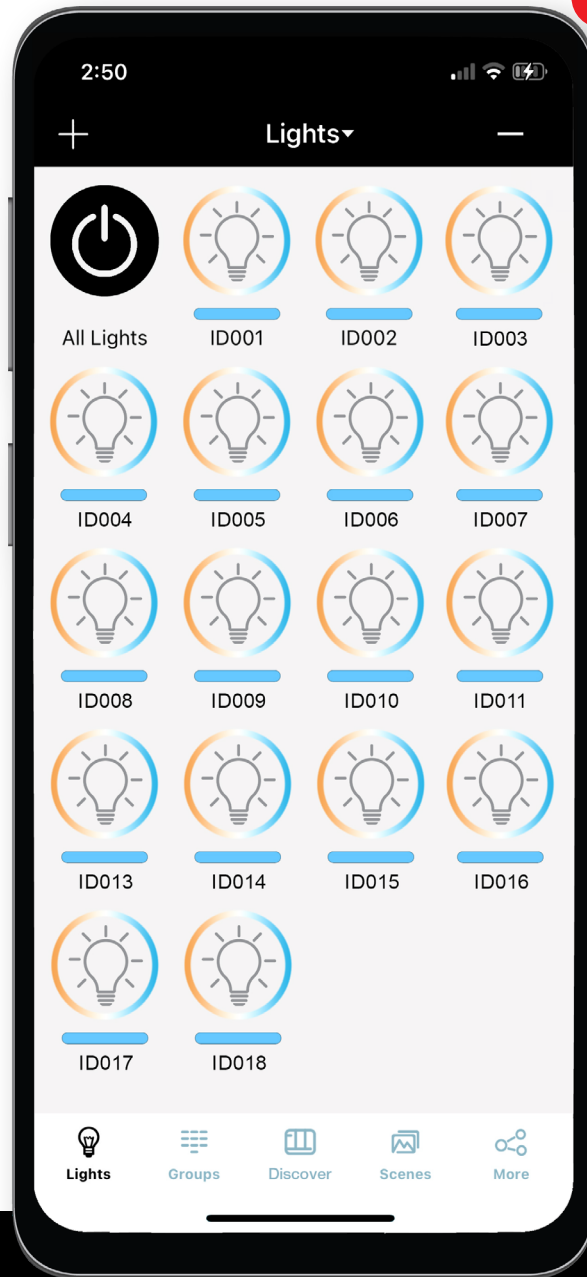
Waiting for at least 10 seconds will ensure that the fixture is completely powered off.

The duration will vary depending on the driver and the power supply. If the driver can cut power to the fixture within 3 seconds, then you may change the waiting period from 10 to 3 seconds to facilitate a faster reset time.

3 - Restore By Hard Reset

The third way to restore factory settings is to press the RESET button located on the Bluetooth® devices. Please refer to the instructions sheets available on the Wave website: <https://www.standardpro.com/wave/>

1. Choose between SMART LIGHTING or SMART CONTROL ACCESSORIES.
2. Select the fixture or accessory you want.
3. Scroll down to INFORMATION AND DOWNLOADS and on the Installation row, click on “View” or “Download”.



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