

CAS  MBI

**APP USER  
MANUAL**

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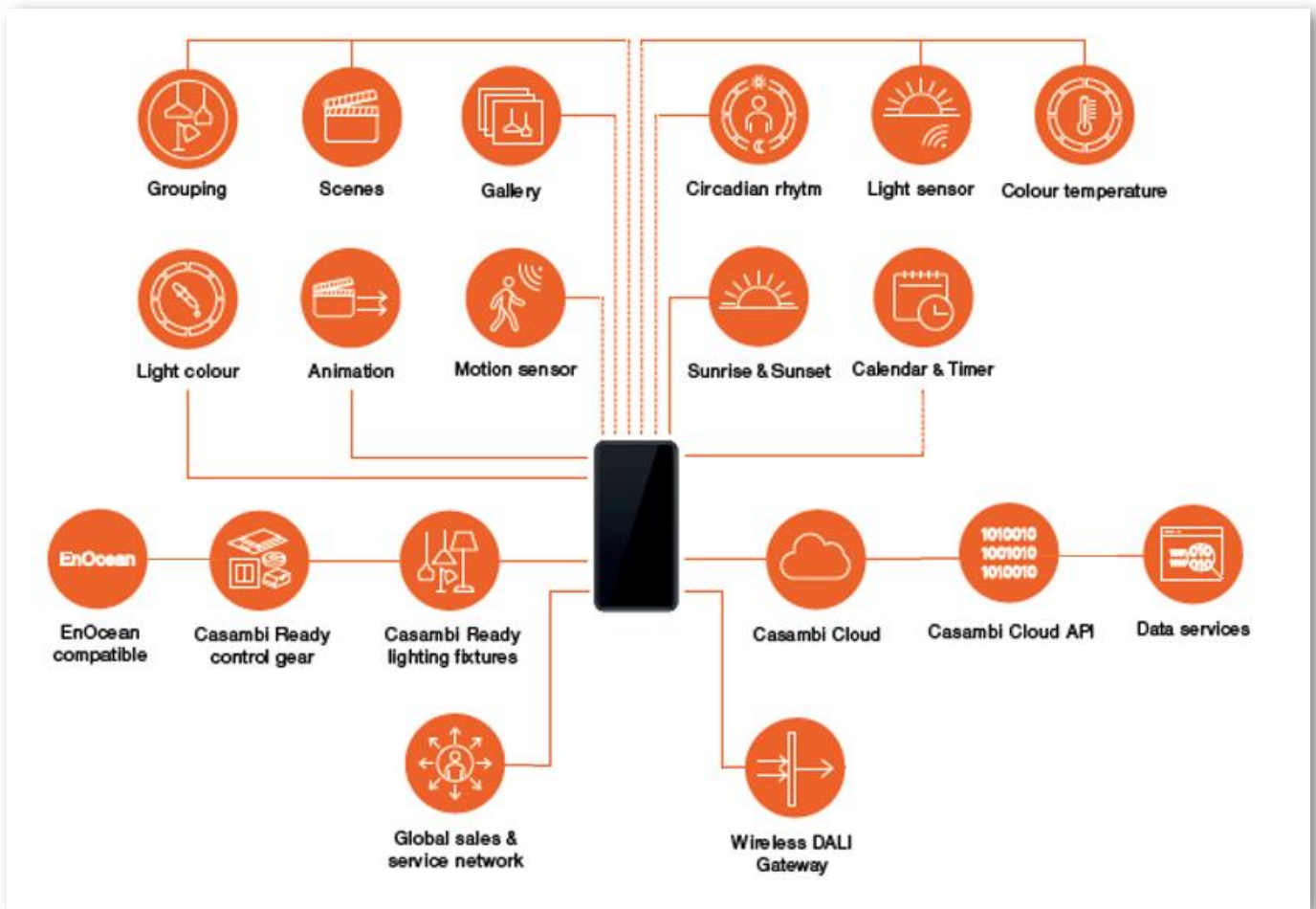
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## LIGHTING CONTROL FOR THE MODERN WORLD



## System overview



Casambi is an advanced lighting control solution based on Bluetooth Low Energy (BLE). Bluetooth Low Energy is the only low power wireless technology in all modern smartphones, tablets, and even smart watches, making it the only mainstream and future proof low power radio technology in the world.

Casambi technology can be integrated into fixtures, LED-drivers, LED-modules, switches, sensors, and different kinds of control modules creating an optimal solution in terms of ease of installation and functionality with minimal additional hardware and deployment costs. Casambi ready products, that are produced by Casambi partners and are 100% compatible with Casambi's native products.

Casambi technology provides a mesh network where all the intelligence of the system is replicated in every node and, in such a way, creates a system with no single points of failure.

The Casambi app works as one of the user interfaces in a Casambi lighting control solution, as the commissioning tool and as well as a remote gateway. The Casambi app works with iOS as well as Android devices, like smartphones, tablets, and smartwatches. The app is free to download from Google Play and Apple App Store.



## First time Casambi App use

When first taking devices into use they need to first be added to a network. All luminaires in the same network can be easily controlled from the Luminaires tab. Other devices appear in the relevant section of the More tab. One device can only be part of one network at a time. When a device is part of a network it is in a 'paired' state and cannot be added to any other network unless it is first 'unpaired'. i.e., removed from the network. All Casambi devices are normally supplied in an unpaired state. If a brand-new device is already paired, please contact your supplier or the FAQ section of our website knowledge base (<https://support.casambi.com/support/home>).

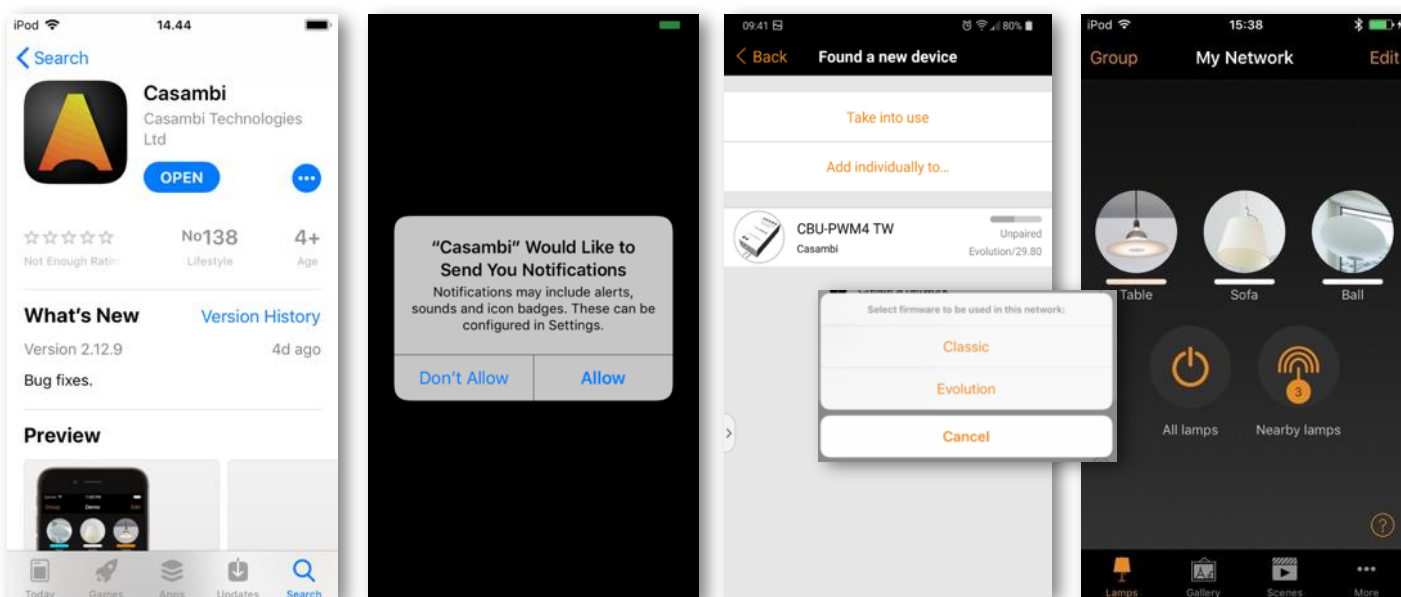
Download the app from Apple App Store or Google Play Store and allow notifications if prompted.

1. Switch on your Casambi enabled devices and open the Casambi app.
2. The app will search for all powered Casambi enabled devices within Bluetooth range of your mobile device. These will then be displayed in a list with the options to **Take into use** or **Add individually to...**
  - a. **Take into use** will automatically add all devices to a new network. Depending on the firmware of devices you may first be prompted to choose if the network should be a **Classic** or **Evolution** type. Only Casambi devices with the same firmware type (Classic or Evolution) can be added to the same network. See Create a network section of this user guide for more information).
  - b. **Add individually to...** will enable each device to be identified and added to a network individually (see Add devices section of this guide for more information).
3. When devices have been added to a network you can control and program them from the app.

By default, a new network is 'Not Shared', which means that its configuration is only stored on the device used to create it, and only that specific device can control the luminaires. If you reset, delete, or reinstall the Casambi app, or damage or lose the mobile device, you will no longer be able to access the network. If you wish to ensure possibilities for future access to the network, Casambi recommend that you share the network. This can be done at any time after initially creating the network. Please see the Sharing Settings section of this user guide for more information. Sharing should also be done if you want to have the possibility for multiple mobile devices to control the same Casambi network. To be able to recover lost passwords, a valid administrator email address and password must always be used.

The Casambi app has four tabs: Luminaires, Gallery, Scenes and More. All of these will be covered in this user guide.

The app displays help text under most configurable options to provide clarification of the purpose of each setting. There is also an additional Help option in the More tab. A general help button can be found in the bottom right of many screens. This can be disabled in the App settings.





## Luminaires tab

Luminaires that are paired to your network will be displayed in the Luminaires tab. Each will have an icon picture and name. Luminaires that are online (i.e., powered) will also show a bar indicating the current brightness level and light colour.

Luminaire or Group icons shown in the Luminaires tab can be rearranged by pushing **Edit**, selecting and holding the icon, then dragging it to a different position. Release the icon in its new position. Push **Done** when finished.

## Basic Gestures

The basic gestures used to control the luminaires are:

- Tap the luminaire icon to turn the luminaire on or off.
- Pan left or right on the luminaire icon adjust the luminaire light level. The app remembers the set level so, if you turn on the luminaire off and on again using the tap gesture, it will return to that level.
- Pan up or down on the luminaire icon to adjust the colour temperature of a tuneable white luminaire.
- Push and hold the luminaire icon to open the main adjustable parameters.
- For colour changing luminaires you can set the desired colour. It is possible to save your favourite colours to the palette. Set the colour and then select and hold an empty palette space to save it. The colour palette cannot be reset but saved colours can be over-written with new colours.
- If your luminaire supports more than one channel, you can adjust the channels separately.

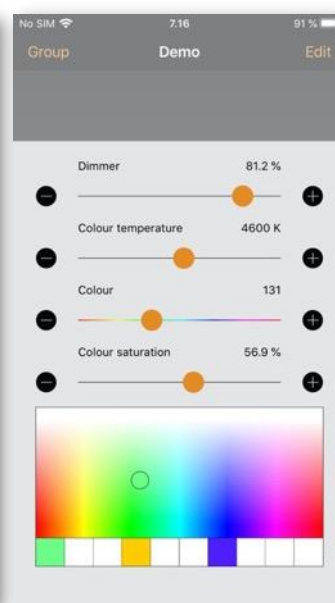
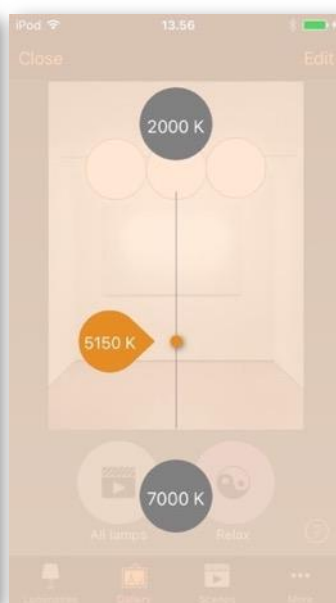
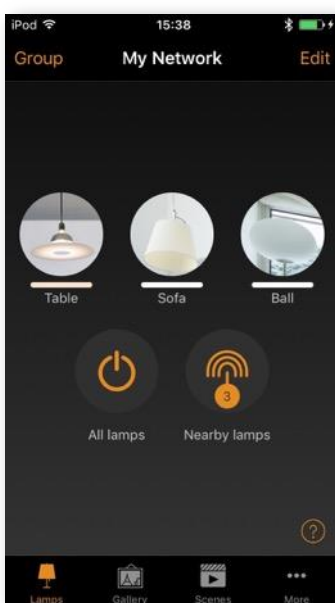
Tip: Use the same gestures on the All luminaires icon to control all of your luminaires simultaneously or use the Nearby luminaires icon to only control those devices within range of your mobile device.



Pan left

Pan up / down

P





## Grouping

Grouping is a method of organizing luminaire icons in the Luminaires tab. This can make it easier to find the correct luminaires later (especially if you have a large network). Groups can be considered as physical collections of luminaires in an area (e.g. all luminaires in a row or in one room). One luminaire can only be part of one group. You can name groups and set common dimming levels, colour, or colour temperature for all luminaires in a group.

Groups are predominantly intended for manual control, whereas scenes are designed primarily for automation. See the Scenes section for more information.

## Creating and editing a group

There are two ways to create a group:

1. Select **Group** (top left of the screen). Select the luminaires for the group by tapping them. The **+ / -** icons (top right) can be used to select or deselect all luminaires that are not already in another group. Create the group by tapping the folder icon . Name the . Tap **Add a new group**. Tap **Done** to save the changes.
2. Select **Edit** at the top of the screen. Drag luminaire icons on top of each other to create a group. Double tap on the group to open it. Tap on the Group name to rename it. Tap **Done** to save the changes.

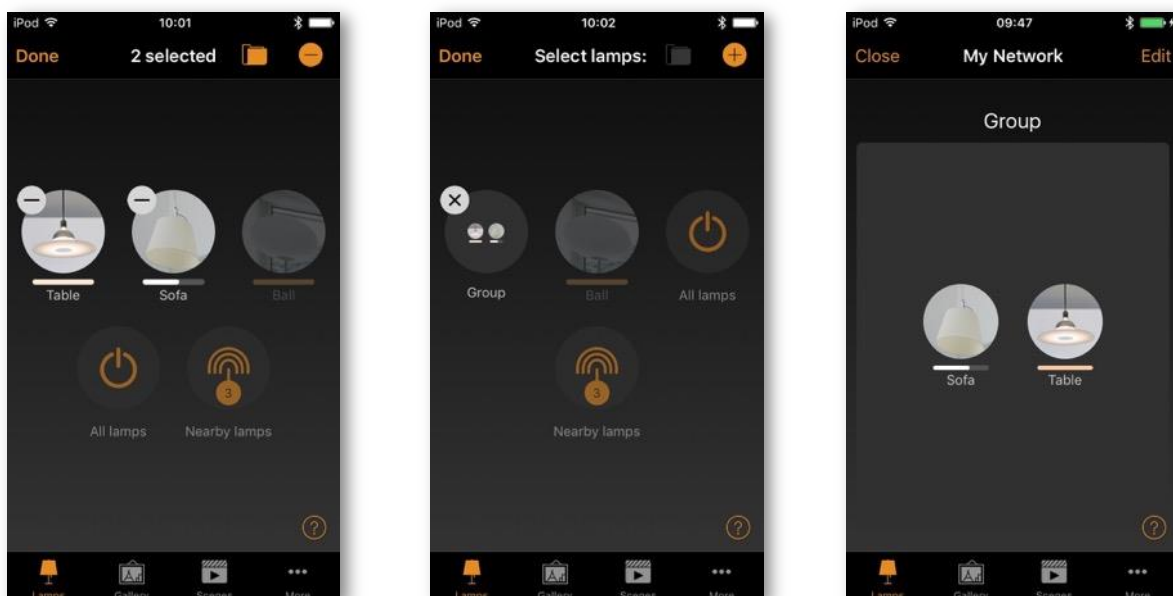
To add more luminaires into a group, select **Edit** and then drag and drop luminaire icons into the relevant group.

If you want to edit a group, select **Edit** and then the group to open it for editing. You can rename the group or remove luminaires by dragging and dropping them outside the group area. When you have finished editing the group, select **Done** and **Close**.

If you want to remove a group, select **Edit** or **Group** and then select the "X" in the corner of the group icon. This will remove the group and the luminaires will appear again as individual devices in the Luminaires tab.

## Using a group

You can control all luminaires in a group simultaneously using the same basic app gestures on the relevant group icon. You can also still control individual luminaires separately, even if they are part of a group. Double tap the group to open it. You can then use the basic gestures on individual luminaires.



## Editing luminaire control properties

To edit individual luminaire control properties, double tap the luminaire icon you want to edit or tap **Edit** at the top of the screen and select the luminaire to edit. A separate window then shows the configurable properties. Note that the available options list may vary depending on the used Casambi enable device.

**STATE** Here you can open the luminaire main adjustable parameters view.

**MODES** Modes can be used to store different dimming levels, colours or colour temperatures that can be recalled using Switches or the Smart Switching option. To edit a mode, select and hold the **Default** or Mode 'X' (1-3) text and Edit/Cancel options will appear. Select Edit and adjust the luminaire settings as needed. The mode is automatically saved after exiting the view (tap outside the window to close it). **Default** can be used to set the desired luminaire start up state after a power cut. If you wish to clear a set mode, select and hold the desired Mode 'X' and Edit/Clear/Cancel options will appear. Select Clear to deactivate the mode. Note that the **Default** mode cannot be cleared.

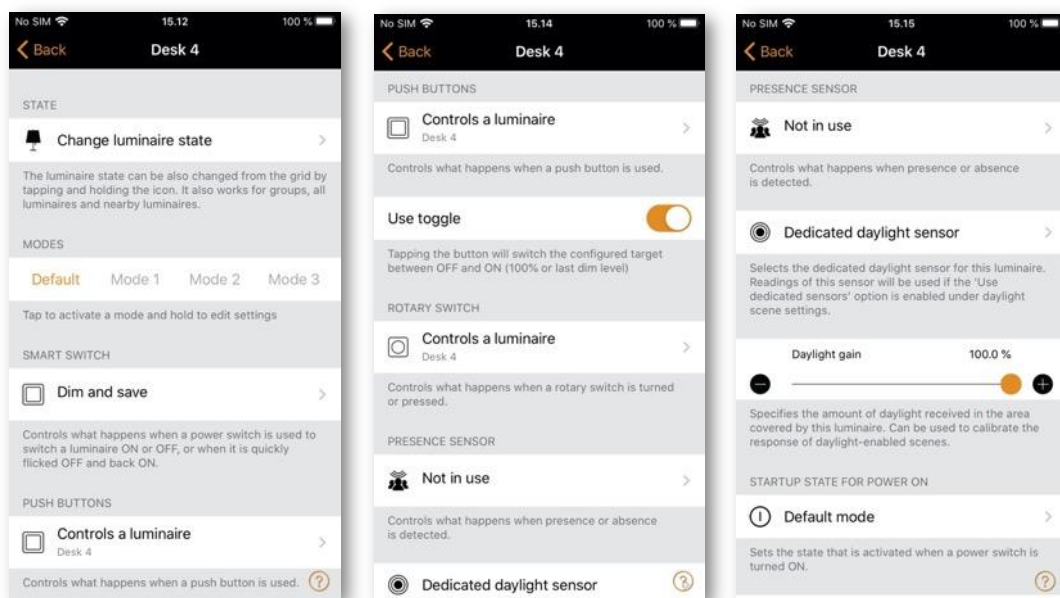
**SMART SWITCH** Allows you to define functionality that occurs if the luminaires power is turned off/on. It is a method of achieving simple lighting control. Note that the smart switch option is only available on certain Casambi enabled devices. For detailed information about smart switching please see the Smart Switching section in the Appendix.

**PUSH BUTTONS** and **ROTARY SWITCH** Allows you to select the function of a luminaire's inbuilt switch (if fitted), depending on the type of Casambi device which is being used. For detailed information push buttons please see the Push Buttons section in the Appendix.

**Use toggle** This option is only displayed if the luminaire has a push button. It allows the button to toggle the command on and off each time the button is pressed. If disabled, the push button will only activate the assigned push button function.

**PRESENCE SENSOR** Allows you to select the function of a luminaire's inbuilt sensor (if fitted).

**Dedicated daylight sensor** This option allows you to select a daylight sensor which can affect the luminaire. You can also adjust the Daylight gain for this luminaire using the slider.



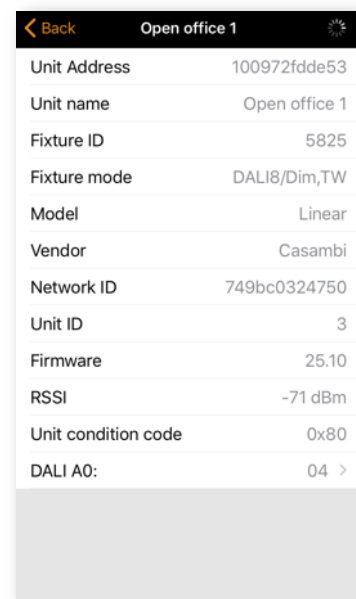
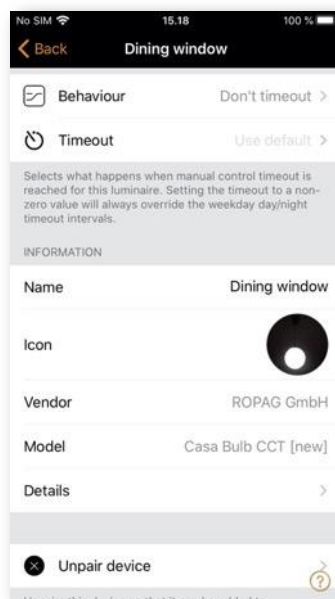
**STARTUP STATE FOR POWER ON** Allows you to set the luminaire to use either the Default mode (default light level) or Last state when switching on the luminaire. The Last state option will cause a luminaire to go to the same dimming level and colour which were previously in use before the luminaire was switched off. Note that if the Last state option is selected and the luminaire was OFF when power was switched off, then the luminaire will stay off when power is reapplied. If you wish to prevent this, you can set a minimum dimmed level for the last state so that the luminaire will always illuminate at that minimum level even if its last state was actually OFF.

**Minimum dim level** and **Maximum dim level** You can also configure minimum and maximum dimming levels for the luminaire. The luminaire will always operate within these restrictions, although dimming to 0% will always turn off the luminaire.

**MANUAL CONTROL** The Behaviour and Timeout options allow you to over-ride the network’s default manual control settings and create individual options for an individual luminaire. Select Behaviour to change how manual control should work for the luminaire and select Timeout to over-ride the default timeout value. Note that the Manual Control option will only appear if Use control hierarchy has been enabled in the Control options section of the network settings.

**INFORMATION** Within this section you can change the luminaire’s name and create a new icon which replaces the luminaire’s default image. The icon can be an existing picture from your device’s photo gallery, or you can take a new photo. The Details section also displays further technical information about the luminaire.

**Unpair device / Replace device** Use the Unpair device option to remove a luminaire from a network. If a luminaire has become damaged and is powered off, the Replace device option can then be used to replace a luminaire. When using the Replace device option, an identical luminaire device must be used. This allows all the previous settings for the luminaire to be used by the new luminaire device.



## Gallery tab

The Gallery in the Casambi app is an intuitive way of controlling your luminaires. Place luminaire control icons (circles from which you can control a luminaire) in a picture to enable simple visual control of the luminaires in the image.

To add a picture, select the black and white image (for adding the first picture only) or select **Edit** and then **+**. Then choose if you want to **Take photo** or **Choose existing** picture from your device's gallery. After you have taken a photo or selected a photograph it is added to the Casambi Gallery.

Next, add luminaire control icons to the picture by tapping the **+** sign to open the selection screen containing your luminaires.

Select a luminaire that is in the picture and confirm your selection using **Done**. If the required luminaire is in a group, first double tap the group and you can then select the required luminaire.

A luminaire control circle will then be shown in the centre of the picture. Drag the control circle to where you wish it to be in the picture (this is usually over the actual luminaire to be controlled, or over whatever the luminaire is highlighting). You can resize the circle by using a two-finger pinching action.

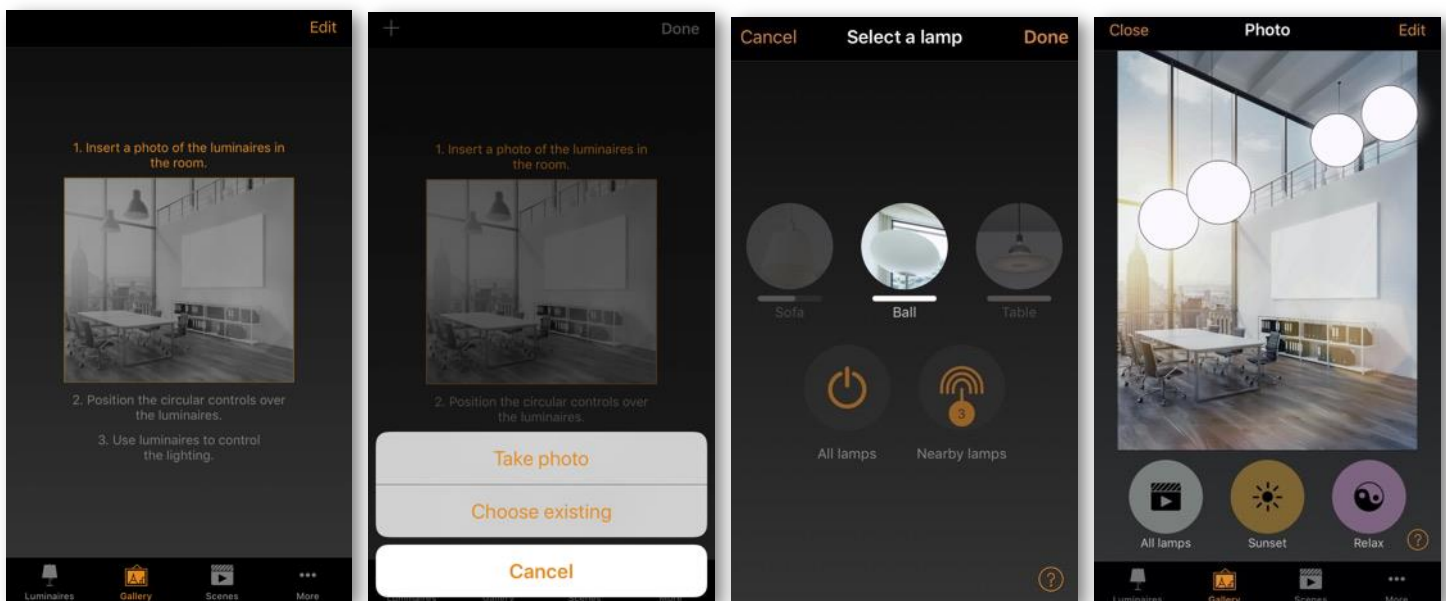
To add more luminaire controls to the picture tap on the **+** sign and select another luminaire.

You can rename the picture by selecting the picture and tapping the picture title at the top of the screen. The text can then be edited.

When you have added all desired luminaire controls to the picture, select **Done**. Note: Any scenes or groups associated with luminaires in the picture will be displayed under the picture.

To return to the Gallery and add more photographs, select **Close**.

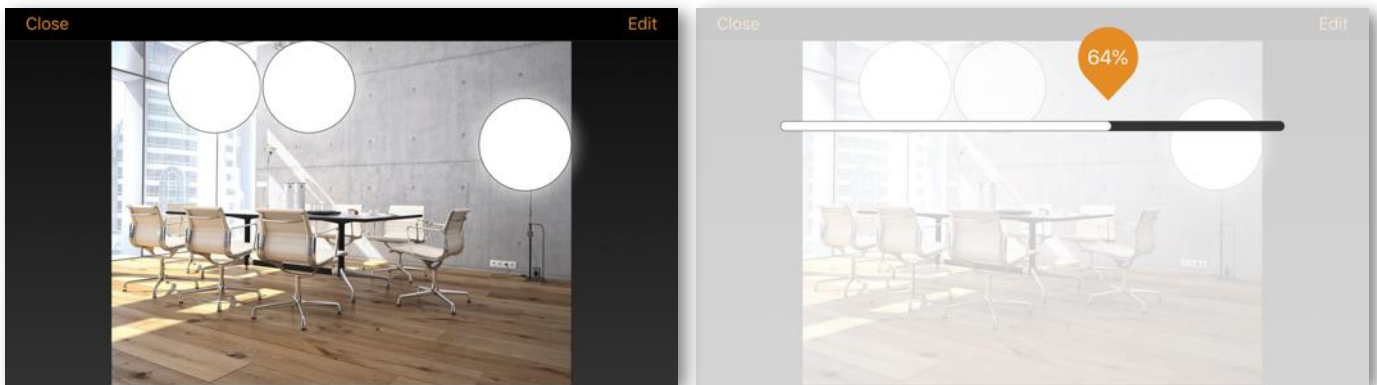
Tip: Use a panorama picture to capture more luminaires in one photo. Alternatively, use a graphical floor plan and add luminaire control icons based on luminaire location.



## Controlling luminaires

After adding at least one picture you can open it in the Gallery and control the luminaires in it. Tap on a picture to open it in full screen. Note: Scenes or groups associated with luminaires in the picture will be displayed under the picture. The scene icon is shown even if just one luminaire in the picture is part of the scene.

Use the normal gestures to control the luminaires in the picture. If the gestures are used over individual luminaire icons, then only that luminaire will be controlled. If you use gestures by selecting an area of the picture that does not have icons, then you will control all luminaires in the picture that have icons associated with them.



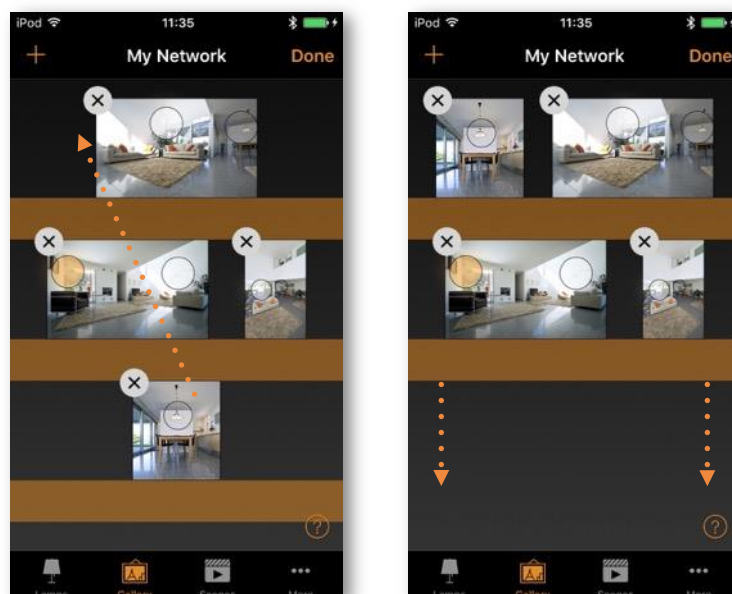
## Arranging gallery pictures

You can change the order and size of pictures in the Gallery.

Select **Edit** at the top of the screen and then drag and drop pictures to arrange them.

If you want to resize pictures, move the thick bar up or down between the pictures. Note that this feature is only available for Apple iOS.

Confirm the changes by selecting **Done**.



## Scenes tab

Scenes allow you to create and recall lighting situations. A scene can control any variation of luminaires in the network. Luminaires can be used in multiple scenes.

Up to 255 scenes can be created.

Scenes never activate by themselves. They must always have something activate them

- **Manually:** For example, by pushing a Casambi enabled button/switch, or by physically selecting the scene icon in the app.
- **Sensor:** For example, configuring a sensor to activate a scene when movement is detected.
- **Timer:** For example, setting a timer to switch lights on at a certain time of day

A scene is active when its icon is highlighted.

## Types of scene

There are three types of “scene” that can be created in the Casambi app. Which to use will depend on what you are trying to achieve.

Note: Basic scenes must first be created before animations or time-based scenes can be used correctly.

**Scene** This is a single lighting scenario (usually containing several luminaires adjusted to different dimmed levels and/or colours) that you wish to be able to recall. Basic scenes can also be configured as Circadian scenes (so that tuneable white luminaires will automatically adjust according to a defined profile graph for as long as the scene is active), or a Daylight scene (which adjusts the luminaires in the scene according to the amount of light measured by a lux sensor).

**Animation scene** Consists of at least one basic scene. When the Animation scene is active, the basic scenes are automatically stepped through one after the other to create a sequence of lighting changes (for example a red, green, blue colour changing sequence, or one scene that is set to dim to different levels).

**Time based scene** Consists of at least two “conditions” with different scenes or scene dimmed levels for each. Depending on when the Time based scene is activated, the relevant lighting scene condition for that time will be actioned.

Please see the following sections for more details about all the scene types

## Creating a basic scene

Select **Edit** and **+** then enter a name for the scene and select **Add a scene**. The scene edit view will open where you can select and adjust the luminaires to be included in the scene.

Select luminaires individually, or use **None**, **Invert** or **All** to remove all luminaires from the scene, change any active luminaires to inactive & visa-versa, or add all network luminaires to the scene. Use **+** or **-** to add or remove all individually visible luminaires, but not luminaires within groups

To add group luminaires to a scene, double tap the group and select the luminaires. Add or remove all group luminaires by tapping **+** or **-**. Adjust selected group luminaires using basic gestures anywhere in the group area.

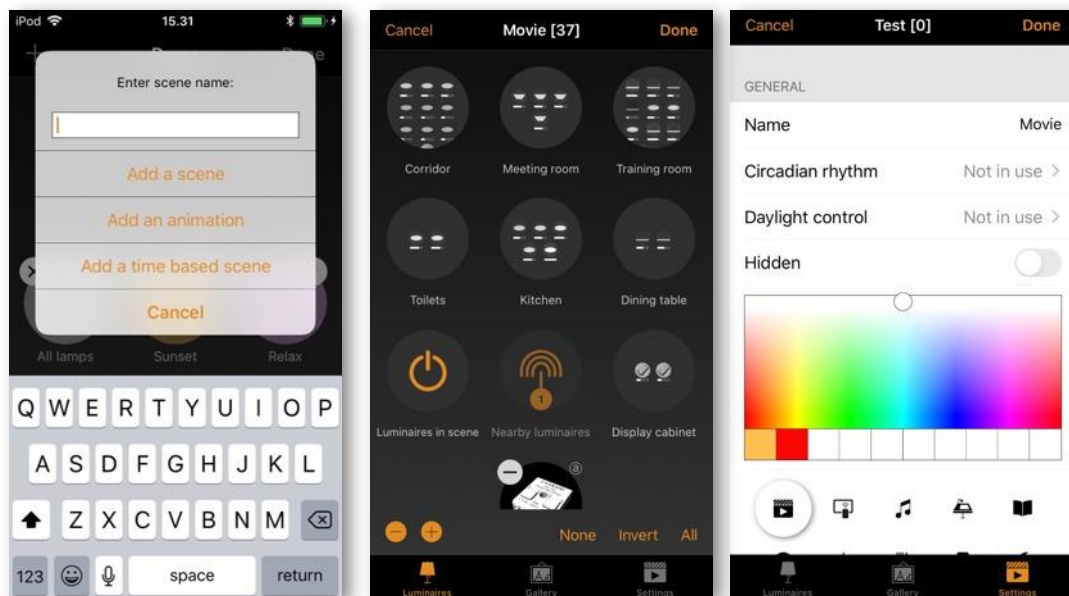
Luminaires can also be added to a scene from a gallery image. Select the Gallery tab, open the appropriate gallery image and select the required luminaire(s).

You can adjust the luminaires separately using the basic gestures, or you can use the **Luminaires in scene** control icon to adjust all of the luminaires in the scene.

To change the name, image, and colour for the scene, select Settings at the bottom of the screen. You can then rename the scene, use the colour palette to define a colour for the scene icon, and choose an icon for the scene. A scene can be hidden from the user view by selecting **Hidden**. To return to the scenes tab, select **Done**.

Add more scenes using the **+** at the top of the scenes tab. Copy scenes by pushing and holding an existing scene. A copy is created in edit mode with an additional number added to the original scene name. You can rename this scene from the scene Settings.

Tip: Remember to include luminaires which must remain off in a scene and adjust them to 0 % dimmed level.





## Circadian scenes

A circadian rhythm allows automatic colour temperature management for basic scenes by using a response graph that displays the hours of the day and colour temperature. When a circadian scene is active it will set the colour-temperature based on the response graph. It will adjust the colour temperature for as long as the scene is active. Note: If desired, a circadian profile can also be used in the same scene as daylight control.

A circadian profile can be added to a scene that you are editing. To add a circadian rhythm to a scene, select the Settings icon in the bottom right corner and then choose Circadian rhythm. Select **Add a new profile** and give it a name and push **OK** or choose an existing profile. Graphs from other networks created on the same mobile device can also be imported. To import a graph from another network, simply select the **Import** option and you will then be presented with a list of circadian rhythms from the other networks on your device.

Select the desired profile name and tap on the response graph. You can then adjust the points on the response graph to your requirements. The time of day bar can also be moved left or right to help you select when your circadian rhythm should start and finish. When moving the bar, the time and colour temperature will be shown in the top left.

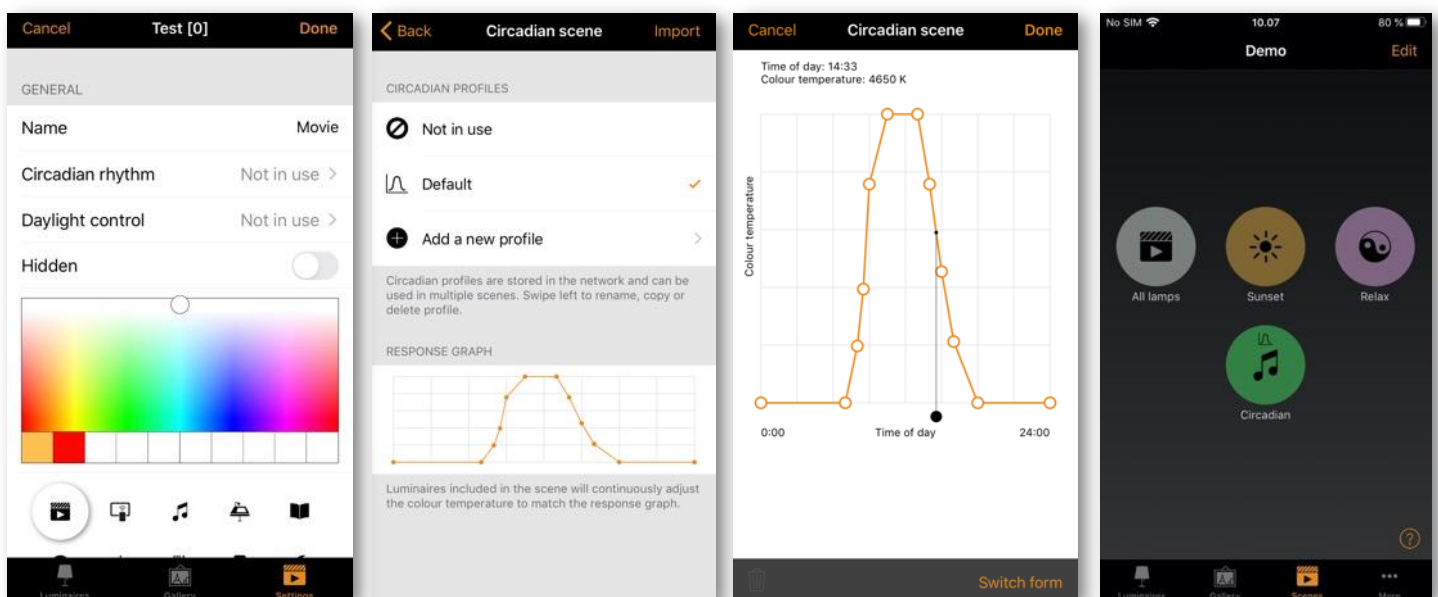
You can add or remove points on the graph. Push and hold on an area on the graph to create a new marker point. Select an existing point to highlight it and then the bin icon in the bottom left to delete the highlighted marker point.

Use the **Switch Form** option to change the response graph form from a smooth graph to a stepped graph.

Select **Done** when your rhythm is complete.

### Notes:

- Only tuneable white luminaires can follow a circadian profile.
- Multiple circadian rhythms can be created, but only one profile can be used per scene.
- If you need to have a different circadian graph defined for another scene then you need to create a new graph. If you select and edit a graph that has been used in a previous scene the change will also affect the original scene.
- Scenes containing a circadian graph will display a small graph in the scene icon image.



## Daylight scenes

Daylight scenes utilise information provided by lux sensors to automatically adjust the scene lighting level based on the amount of light available. Daylight control can be configured when editing a basic scene by selecting Daylight control from the scene Settings. Available settings are described below:

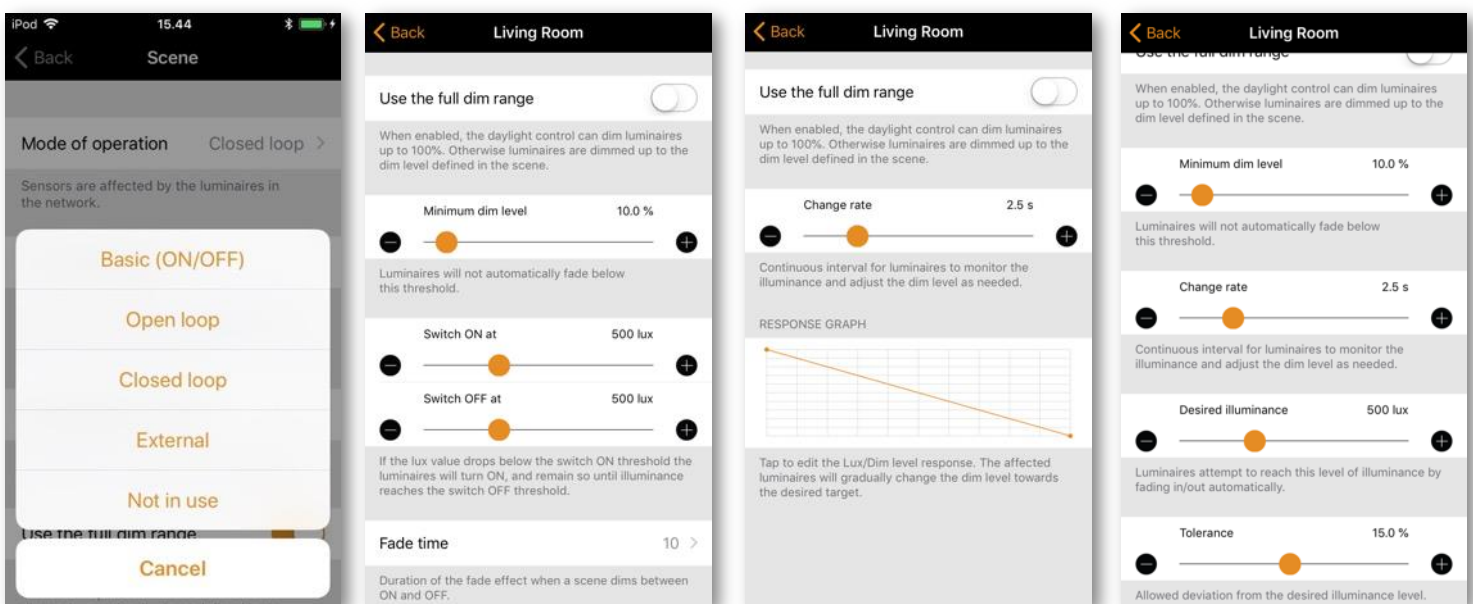
**Basic (ON/OFF)** Luminaires in an active scene will switch ON or OFF based on two configurable Lux threshold levels. Sensors may or may not be affected by light from nearby luminaires and the mode only operates when it is the highest active priority item in the control hierarchy. The scene's output is always defined by the dimming level(s) of the luminaires selected within the scene.

**Open loop** Luminaires in an active scene will have their output level (0-100%) adjusted by comparing the sensor's lux reading against a response graph. Sensors should not be affected by any light from the luminaires in the network. This mode can operate even if it is not the highest priority item in the control hierarchy. Examples: Luminaires controlled by a sensor installed in a separate location to the luminaires (e.g., outdoors) or controlled by a sensor that is facing towards a window away from the luminaires.

**Closed loop** A target lux level is specified. The sensor actively adjusts the luminaires in the active scene to try to reach and maintain that lux level via a feedback loop (by observing the results of its own changes). Sensors are affected by light from the luminaires in the scene. This mode can only operate when it is the highest priority item in the control hierarchy. Example: Luminaires controlled by a daylight sensor that is in the same area as the luminaires.

**External** This is like the open loop option but is based on a 0-100% dimming signal being sent from the sensor rather than a Lux level. This option is designed to be used to combine a Casambi unit with a sensor which is not Casambi-activated. Examples include a CBU-ASD connected to a non-Casambi sensor, or when dimming is performed by an external DALI controller or DALI 2 sensor. Casambi-ready sensors created by our partners already contain the Casambi firmware so do not need to use the External option.

When the desired Mode of operation has been selected, you will then need to select the Controlling sensors and set some other parameters. The parameters to be configured will vary depending on the selected Mode of operation. Explanations of each function are included under each option field in the app. For Open loop or External modes, you can configure the response graph in a similar way to a Circadian profile response graph.



## Animation scenes

Animations consist of multiple existing basic scenes that are activated in a defined sequence. Animation scenes can be activated in the same way as standard scenes.

Select **Edit** and then the **+** in the top right corner. Name the scene and select **Add an animation**. Note: At least one basic scene must already exist in order to create an animation.

Add the animation steps. Steps consist of scenes and wait times. You can add a maximum of about 80 steps (the exact amount will vary depending on what timing settings are used for each animation step). The scenes and wait times can be added in any order. The order can be rearranged by pushing the 3 lines on the right of the relevant animation step and dragging it to a new location in the step list. When the animation scene is activated, the steps will follow the listed order (from top to bottom).

Each scene used in an animation can have a fade in time and a dimmed level set for it. The fade time is how long it will take for the scene to reach its dimmed level set in the animation. The dimmed level is the dimming percentage relative to the set dimmed level of the basic scene.

Examples:

- The basic scene had all luminaires set to 100%. Its dimmed level in the animation scene is set to 50%. When the animation is active the basic scene only come on at 50%.
- The basic scene had all luminaires set to 50%. Its dimmed level in the animation scene is set to 50%. When the animation is active the basic scene only come on at 25%.

An animation can be set to fade off (default), stay on the last step or repeat after the last animation step.

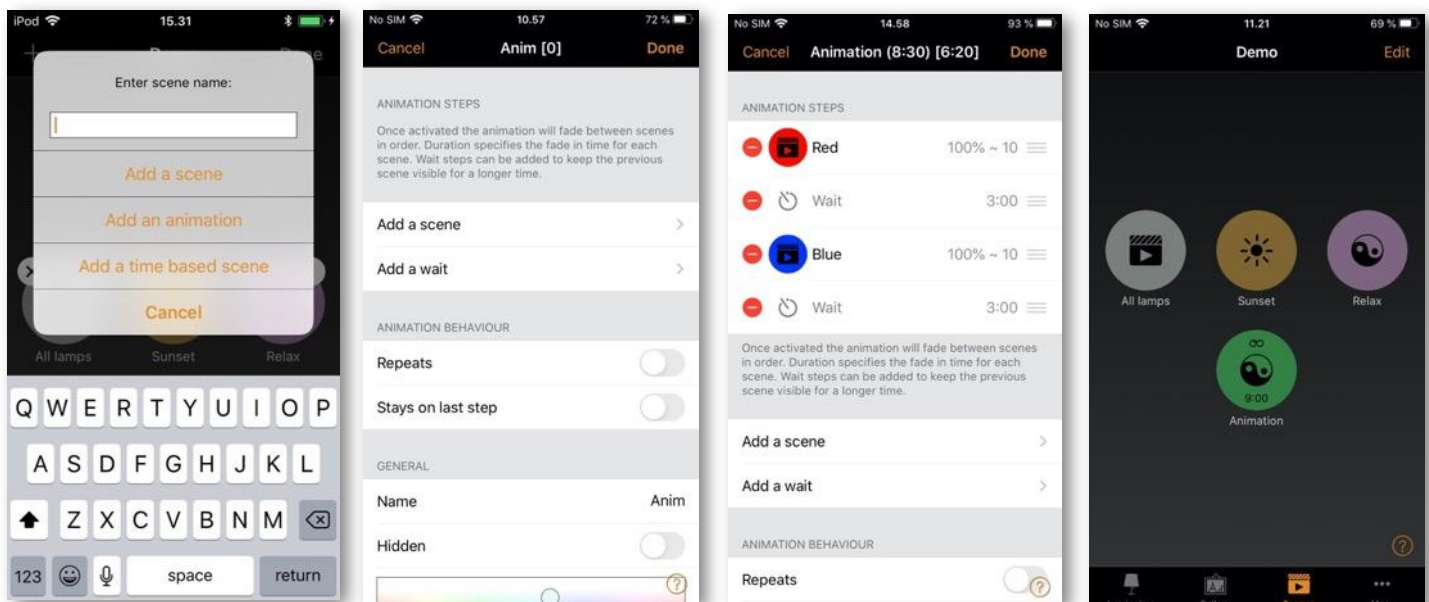
The scene name, icon colour and icon can be set, and the animation scene can also be hidden from the Scenes tab user view if needed. It will reappear if **Edit** has been selected.

When you have finished editing the animation, select **Done**.

The animation scene icon will display the total time length of the animation. If the animation has been set to repeat, an infinity symbol will also be displayed.

Note: Non-repeating animations cannot be used within Time-based scenes.

Tip: Timers can be used to turn an animation on and off based on time.



### Example animations

#### Example 1:

- Add Scene Red, fade time 10 sec
- Add wait 3 min
- Add Scene Blue, fade time 10 sec
- Add wait 5 min
- Add Scene All Off, fade time 10 sec

When activated, the animation scene above will fade into scene Red in 10 seconds. Red will be active for 3 minutes. Then the scene will fade to the scene Blue in 10 seconds. Blue will be active for 5 minutes and then fade out in 10 seconds.

#### Example 2:

- Add Scene SHOWROOM1, 100% fade time 1 sec
- Add wait 15 sec
- Add Scene SHOWROOM1, 0% fade time 1 sec
- Add Scene SHOWROOM2, 100% fade time 1 sec
- Add wait 15 sec
- Add Scene SHOWROOM2, 0% fade time 1 sec
- Add Scene SHOWROOM3, 100% fade time 1 sec
- Add wait 15 sec
- Add Scene SHOWROOM3, 0% fade time 1 sec
- Repeat ON

When activated, the animation scene above will fade into scene SHOWROOM1 in 1 second and be active for 15 seconds before fading off (to 0%) within 1 second. Then the scene SHOWROOM2 will fade on in 1 second and remain active for 15 seconds before fading off (to 0%) within 1 second. Then the scene SHOWROOM3 will fade on in 1 second and remain active for 15 seconds before fading off (to 0%) within 1 second. The whole animation will then repeat itself.

## Time-based scenes

A time-based scene can be used to achieve a different dimmed level of a scene or activate different lighting scenarios depending on when the time based scene is activated. A time based scene has the added advantage over a Timer in that it can be triggered at random times, therefore only activating scenes when needed. Time based scenes are primarily designed to be used in conjunction with presence sensors.

A minimum of two conditions are required for a time based scene to function. A condition is a scenario to be reproduced only if the time based scene is activated during the active period defined for that condition.

To create a time based scene select **Edit** and then the **+** in the top right corner. Name the scene and select **Add a time based scene**. Note: At least one basic scene must already exist in order to create a time based scene.

Select **On all days** and set when the first conditions' active period should start. You can configure from days of the week, time or select based on sunrise or sunset (if you have enabled location). When set, push **Done**.

Set the Fade time for the scene you wish to activate. This will determine how long it takes for the scene to fade in whenever the time-based scene is activated at a time suiting that condition.

Select Add a scene to choose the scene to activate. You can also tap on the scene and alter its dimmed level if desired. Remember that the dimming level will be relative to the dimmed level of the original scene.

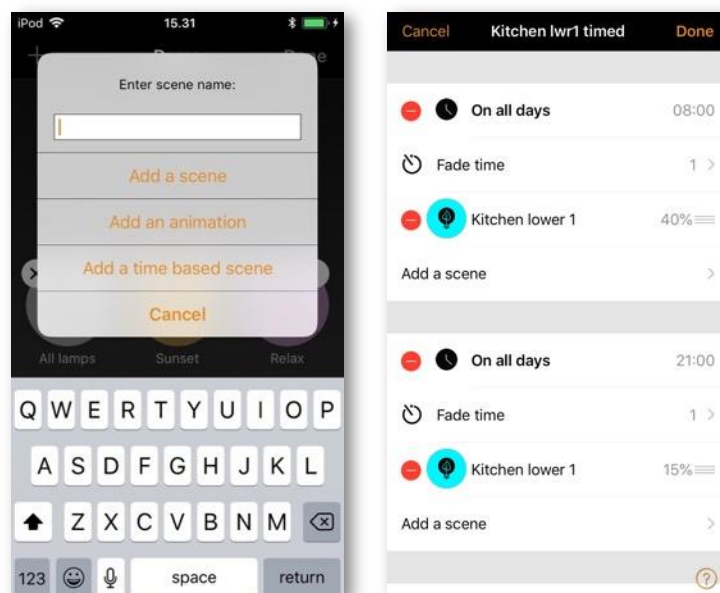
Carry out the same process for the second condition. If you wish to add more conditions, select Add a condition.

The scene name, icon colour and icon can be set, and the time based scene can also be hidden from the Scenes tab user view if needed. It will reappear if **Edit** has been selected.

When you have finished editing the Time based scene, select **Done**.

### Notes:

- Multiple scenes can be part of a single condition. All scenes contained in one condition must have mutually exclusive luminaires (i.e. Every scene that is part of a single time based scene condition must have different luminaires from every other scene used in the same condition. If they don't then operation may not be as expected because luminaires may receive multiple conflicting commands simultaneously).
- Non-repeating animations cannot be used with time based scenes.
- If a time based scene is active during the time period when conditions change, the next condition will be automatically set.

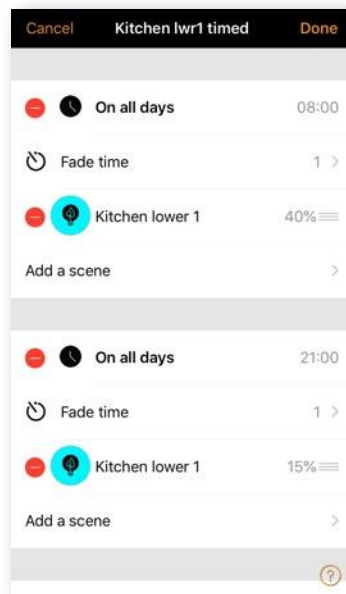


### Example of a Time based scene

A time based scene (“Kitchen lwr1 timed”) is created to set scene “Kitchen lower 1” dimming level at 40% between 08.00 and 21.00. This is the first condition of the time based scene.

Between 21.00 and 08.00, the dimming level of the same “Kitchen lower 1” scene will be set to 15% (so as not to be too bright if the scene is activated during the night). This is the second condition of the time based scene.

The scene is not active 24 hours / day. Instead, a presence sensor is set to trigger the time based scene “Kitchen lwr1 timed” only when presence is detected. Depending on when the time based scene is triggered, it then sets the dimming level of scene Kitchen lower 1 appropriately.



## More tab

### Timers

The timer function is used to create one or more timers that can be configured to turn scenes on and off based on the time or date or sunrise/sunset times. For example, you can set meeting room luminaires to activate during office hours or set corridor lights to dim to a lower level during the night.

To set a timer, go to the More tab and select Timers.

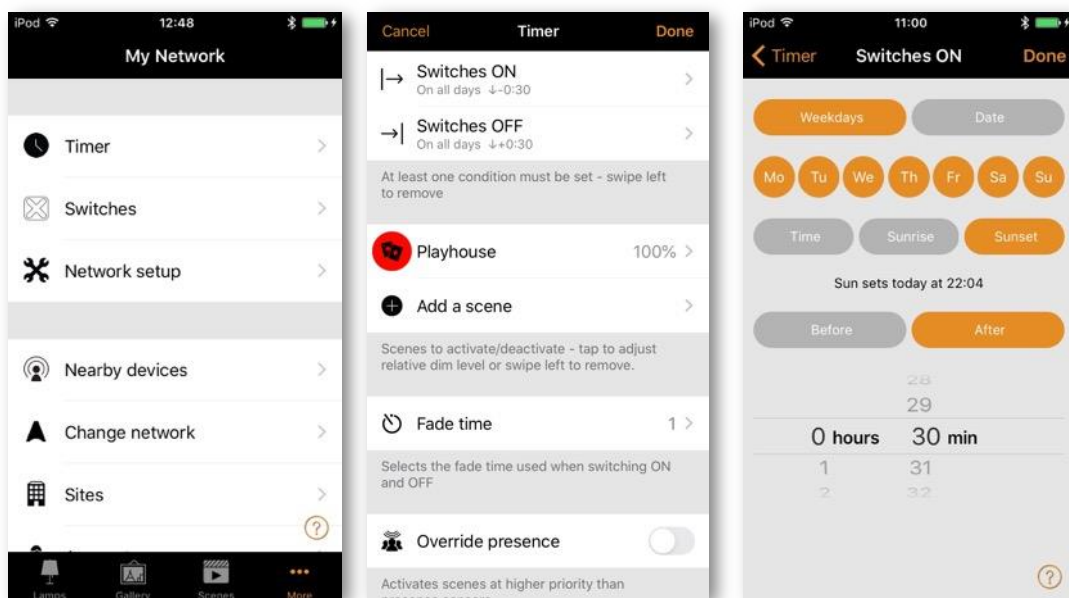
Create a new timer by selecting **Edit** in the top right corner and then **+** in the top left corner.

Select the Switches ON button and set when the scene should activate. You can set the timer to operate on weekdays or a specific date. The time can be set for a specific time of day or can use local sunrise and sunset times to turn the scene on. To use sunrise/sunset the network location needs to be enabled. See the Network setup settings section for detailed instructions. Select **Done** to confirm the changes.

Select the Switches OFF option and select the time when the scene should turn off. The options available are the same as those available for the Switches ON time. You can also select After and set the length of time the scene should remain on for. Select **Done** to confirm the changes.

Select the scene or scenes that you want to control with this timer from the Add a scene option. Note that if multiple scenes are to be activated from the same timer, then they must contain mutually exclusive luminaires (i.e. Every scene that is part of a single timer must have different luminaires from every other scene used for the same timer. If they don't then operation may not be as expected because luminaires will receive multiple conflicting commands simultaneously).

Set the Fade time for the scene. This is the time it will take for the luminaires in the scene to reach their defined light level when the timer is activated. Fading will start when the timer is activated. This means that if you set the scene to come on at 14:05 and you set a fader for 30 seconds then the scene is at full brightness at 14:05:30. The scene also fades to off with the same time, so if the scene goes off at 15:00 the light will be fully off at 15:00:30.



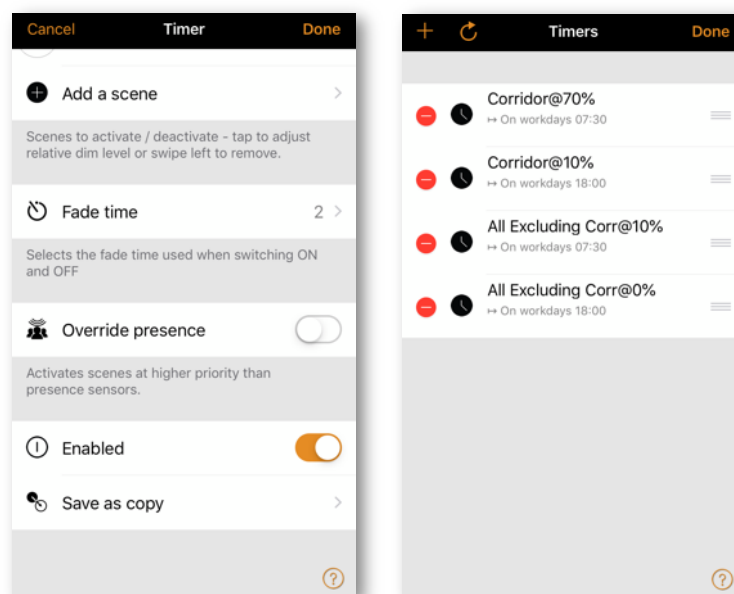
If an application also uses presence detectors and requires that a timer would operate regardless of any movement being detected (i.e., At a higher priority in the Casambi Control Hierarchy), Override presence should be enabled for the timer. Note that a timer using Override presence must always have its own Switches ON and Switches OFF times set because it will operate on a higher level within the Casambi Control Hierarchy. See the Appendix for an explanation of the Control Hierarchy.

It is also possible to Enable/Disable a timer by using the Enabled button. Confirm your settings by selecting **Done**. After saving a timer it is possible to copy that timer. Open the timer again, scroll to the bottom of the settings and select Save as copy.

Refresh a timer Timers only send commands to the network at the specific set times. If you program a timer to activate at a time that is earlier than the current time, it will not activate until the Switches ON time is next reached (e.g. The next day). If you wish a timer to refresh to a state that would currently be active, select **Edit** and then select the refresh button (spiral arrow) in the top left of the Timers screen, next to the **+**.

#### Notes:

- Timers do not always require a Switch ON or Switch OFF time configured. For example, multiple timers could be configured to trigger the same scene to different dimming levels throughout a 24-hour period. Therefore, only start times would be necessary for each timer because one timer automatically overrides the previous timer. To disable an ON or OFF time, swipe left (iOS) or push and hold (Android) on the Switches ON or Switches OFF option. A Delete option will then appear. Select this to disable the ON or OFF option for that timer. The text Not set will then be shown under the Switches ON or Switches OFF option. Note: If using the Override presence option, the timer must have both Switches ON and Switches OFF times set.
- Casambi units will keep track of time if at least one unit in the network remains powered. In a situation where all units have lost power the network time needs to be re-synchronised to the units again. In this situation, please open the Casambi app and connect to the network to set the time again. For a Not shared network this must be done on the same mobile device that was used to originally configure the network. For a shared network you must log in using the network Administrator email and password.
- Timers can occupy different priority levels in the Casambi Control Hierarchy depending on what timer features have been used (e.g., A Weekday timer has a lower priority than a Date timer). Please see the Control Hierarchy section in the Appendix for more details.





## Switches

Within the Switches section, Casambi-enabled switches can be configured. All Casambi-enabled switches, push buttons or rotary controls that are paired to the network will be shown in the Switches page (even if these are integral to a luminaire).

To use switches that only switch the mains power on and off with Casambi, see the Smart Switching section in the Appendix.

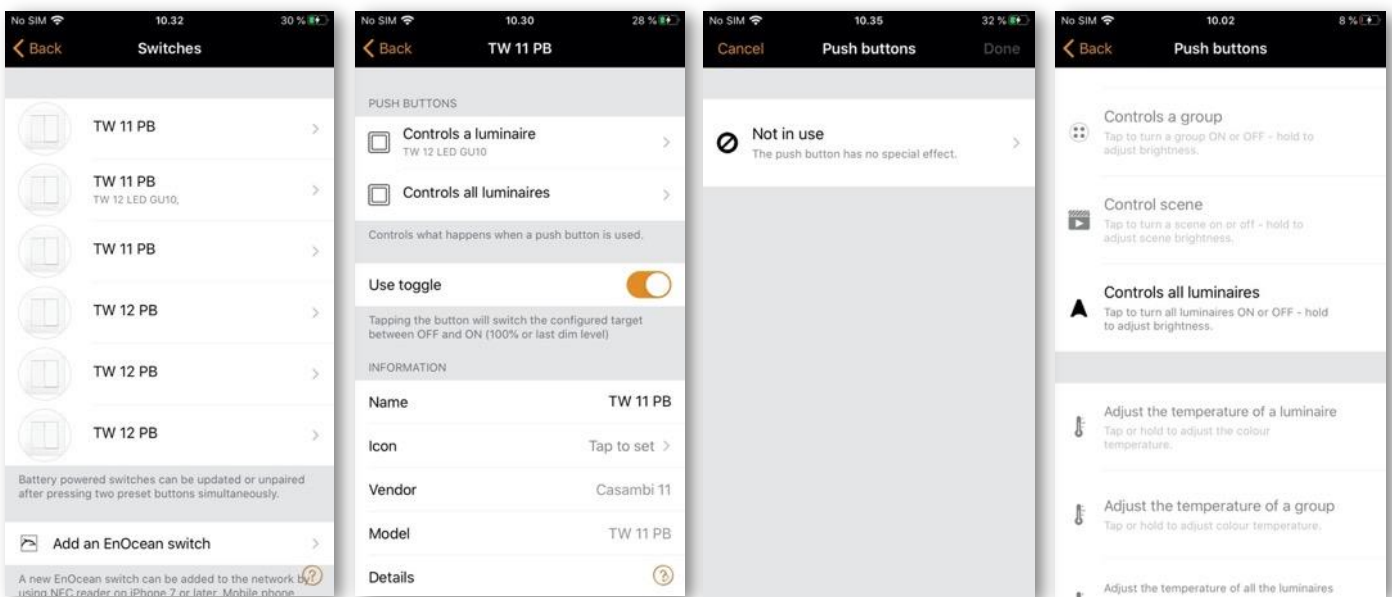
To configure a switch, tap on the desired switch that you wish to configure.

You will be presented with various options depending on the type of Casambi enabled switch (e.g., The amount of push buttons available to configure, or configuration options for a rotary control).

Select the push button or rotary control to configure. Initially, Not in use will be displayed. Select this to open a list of available options. The available options shown will depend on the profile that the Casambi enabled switch has been configured with. Some Casambi enabled switches have more available options than others. Possible options may be:

- Controls a luminaire
- Controls an element
- Controls a group
- Control scene
- Controls all luminaires
- Adjust the temperature of a luminaire
- Adjust the temperature of a group
- Adjust the temperature of all luminaires
- Cycle scenes
- Active/Standby
- Presence
- Presence/Absence
- Absence
- Resume automation (group)
- Resume automation

Select the desired option and review the list of further options then presented that may also need to be configured (e.g., You may need to select the luminaire, group or scene to be controlled). Various other options may be available depending on the profile configuration of devices available in your network.



Note: Elements are single dim channels. If the profile of a unit is for example 4ch/dim,dim,dim,dim, each of the channels can be controlled from four Xpress buttons separately. This could be useful in RGBW applications where Casambi app may not really be convenient to use.

When all settings have been configured push **Done** and then **Done** again.

The Use toggle option can be enabled or disabled. If enabled, one push of a switch will activate the set function (e.g., Select a scene). A second push will deactivate it. Disabling the Use toggle function means that pushing a switch will only activate the selected function.

To rename a switch, scroll to the bottom of the screen and tap on Name.

When finished, push **Back** to return to the main Switches view.

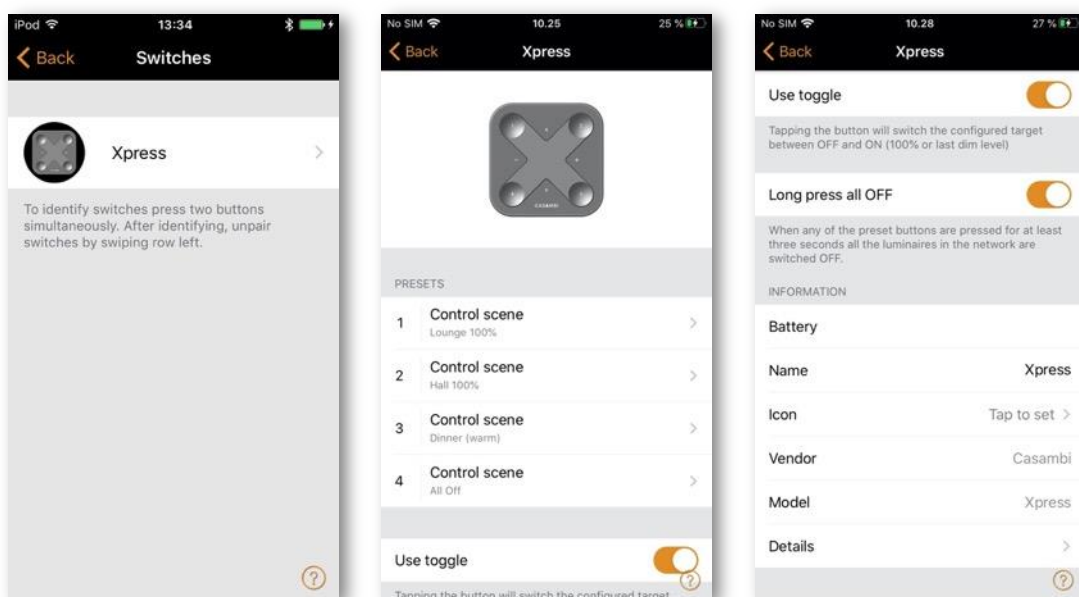
Tip: If you are within Bluetooth range of the switch you wish to program, easily identify it by selecting Switches from the More tab. You will then see a magnifying glass in the top right of the screen. Push the magnifying glass and you will then be prompted to Push a button within 10 second. Push the switch you desire to program and the programming options for that switch will automatically open. You can then configure and rename that specific switch as desired. If you are not within Bluetooth range of any switches the magnifying glass icon will not appear.



## Xpress switch

The Casambi Xpress is a wireless user interface that brings flexibility to interior design. The switch can be kept wherever the user needs it and it gives direct access to all the important Casambi lighting control functionalities.

1. To pair an Xpress, press any two pre-set buttons on the Xpress (for example, buttons 1 and 3). and the Casambi app will automatically open a Found a new device window. You will be prompted to either **Add to “...”** the current network to which you are connected, or to **Add individually to....** If you select **Add individually too...** you will be presented with a list of possible networks (if you have visited multiple networks using your mobile device), or the possibility to Create a network. Note that if you have disabled the Notify unpaired devices option in App settings, you will not see the pop-up window, and will be able to see the Xpress from the list of Nearby devices in the More tab. Select the Xpress from there and choose the network to add it to.
2. After you have added the Xpress switch to the network navigate to the More tab and select Switches to configure the four numbered buttons.
3. Select the Xpress switch from the list of available switches and the configuration page will open. Initially, Not in use will be displayed for each button (1-4). You can then select each numbered button individually and assign it to control a luminaire, scene, group, element, or all luminaires. It is also possible to assign resume automation options either for a group or the whole network.
4. When settings have been configured push **Done** and then **Done** again.
5. The Use toggle function, when activated, will allow each Xpress button to activate/deactivate the programmed action on each button press. When deactivated, it will only allow the assigned action to be activated.
6. Select Long press all OFF function to allow any Xpress configurable button (1-4) to be held down for approximately 5 seconds to turn off all luminaires in the network.
7. You can also rename the Xpress and change its icon to make identification easier. Select **Back** to save the settings and return to the Switches screen.



After configuring the buttons, they will now control the assigned scene, luminaire, group, element, or resume automation (see Control Hierarchy).

The first press will turn on the scene, lamp, or group and second press will turn it off (unless the Use toggle option has been deactivated). The + and - buttons allow you to dim your selected device(s) up or down. The up and down buttons can be used to change colour temperature (of a tuneable white luminaire) or the direct/indirect lighting ratio, provided that your luminaire supports these features.

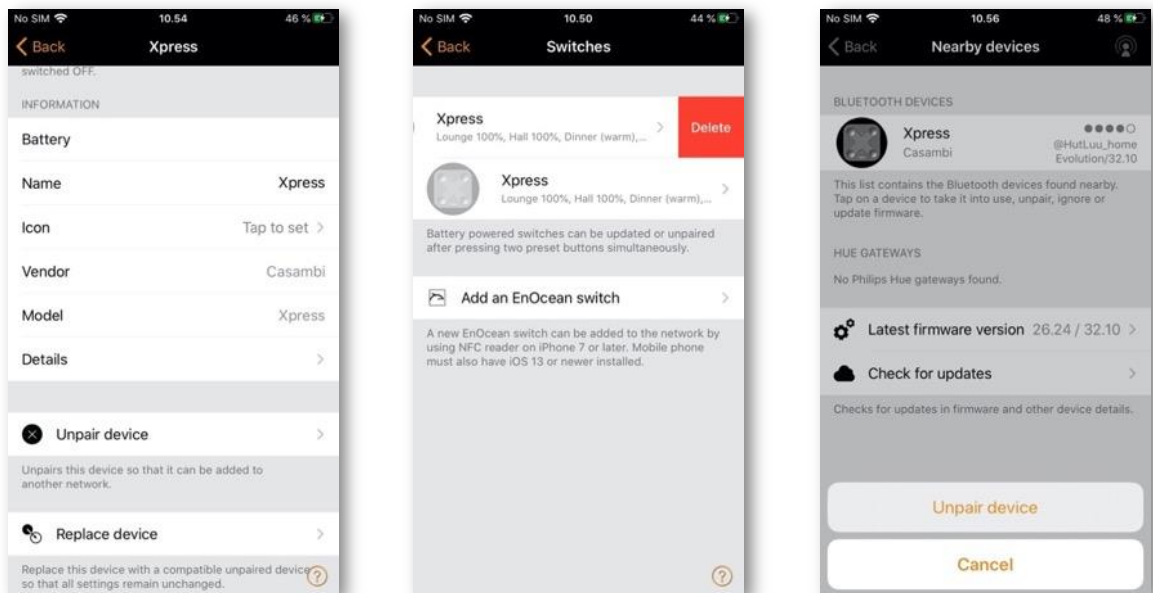
## Unpairing a Xpress

To begin the unpairing process, first press any two pre-set buttons on the switch. There are three ways to unpair a Xpress switch:

1. By selecting the Unpair device option within the switch settings. Tap on the Xpress switch to be unpaired and scroll to the bottom to find the Unpair device option.
2. By swiping the device row to the left (in iOS) or tap and hold on the device (in Android) in the switches main page. Then select Delete.
3. By selecting the switch from the Nearby devices list and choosing the Unpair device option.

Make sure that the Xpress switch has at least one of the amber LEDs on during unpairing. You will also need to perform the unpairing steps quickly before the switch turns itself off (no LEDs on).

If the amber LEDs on an Xpress switch remain on or cycle for longer than 30 seconds when no button is being pushed, then it is advised to remove and reinsert the battery to prevent unnecessary battery drain.



## Sensors

Paired sensors will appear on the Sensors page in the More tab. Presence sensors, Daylight sensors, and combined Presence/Daylight sensors will be shown.

### Presence sensors

To configure a presence sensor, the Use Control Hierarchy option must first be enabled (see Network setup/Control options). For each sensor there are different configuration options which can be chosen:

- Presence
- Presence/Absence
- Absence
- Resume automation (group)
- Resume automation

Presence can activate up to two mutually exclusive scenes when the sensor is triggered.

Presence/Absence Activates up to two mutually exclusive scenes when the sensor is triggered, and then activates up to two mutually exclusive scenes when absence has been detected (i.e., When there is no movement and the linger time has expired – see below). Note: presence and absence scene(s) must contain the same luminaire(s). An absence scene cannot control different luminaires to those configured in the presence scene(s).

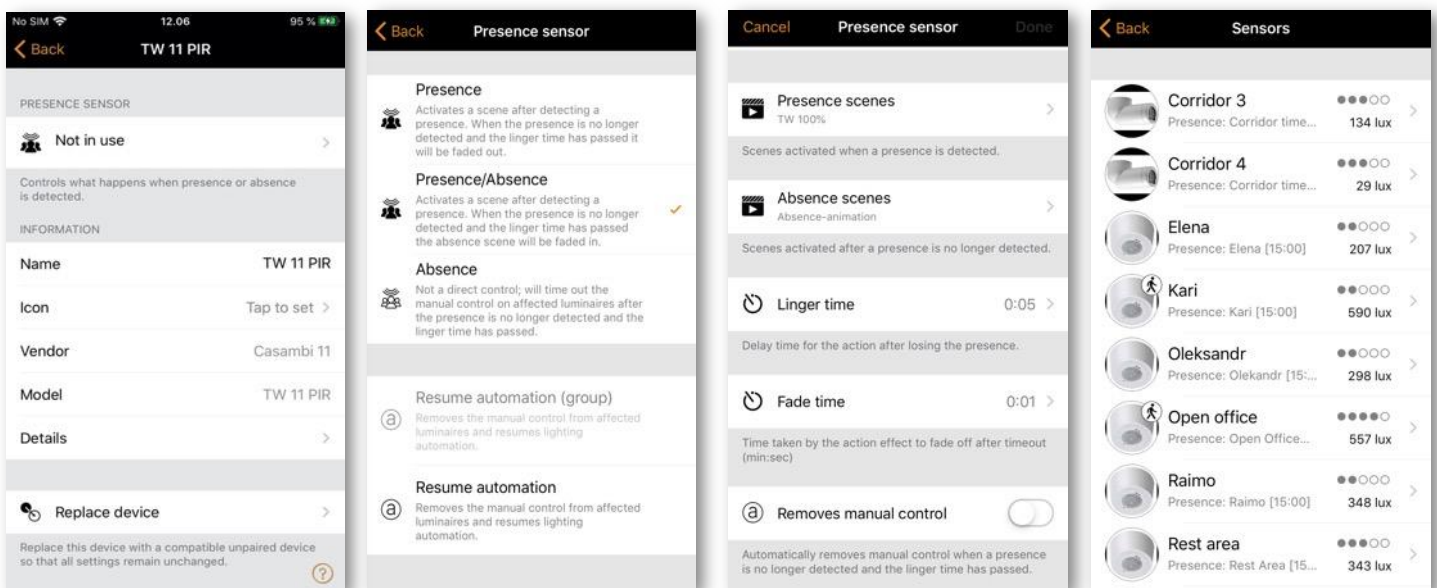
Absence Removes manual control from selected scene(s) when presence is no longer detected and the linger time has expired (see below). e.g., The scene(s) are activated manually (e.g., by a switch) but automatically deactivated.

Linger time Is the delay between presence no longer being detected and the controlled scene(s) expiring.

Fade time Is the time it takes the scene(s) to dim to off (0%) or to the Absence scene once presence is no longer detected and the linger time has expired.

Removes manual control Allows any previous manual control of a scene to be removed once presence is no longer detected and the linger time has also passed.

The two Resume automation options can be used to remove manual control from a specific group of luminaires or from all luminaires in your network.



A paired presence sensor will display a 'walking person' icon in the top right of the main sensor icon image when presence is detected.

Note: 230VAC-switching PIR sensors can also be used with the CBU-ASD or CBU-TED to act as a Casambi-enabled sensor. The profile of the CBU device may first need to be changed to enable this (See Changing a device profile in the Appendix).

Up to 20 sensors (for Evolution networks), or 10 sensors (for Classic networks) can be configured to control the same luminaire.

## Daylight sensors

From the Sensors list in the More tab you can configure the sensitivity and tolerance of a daylight sensor. Tap on the Daylight sensor option to open the settings.

Altering Sensitivity will determine the reaction time of the sensor when changes in detected illumination occur.

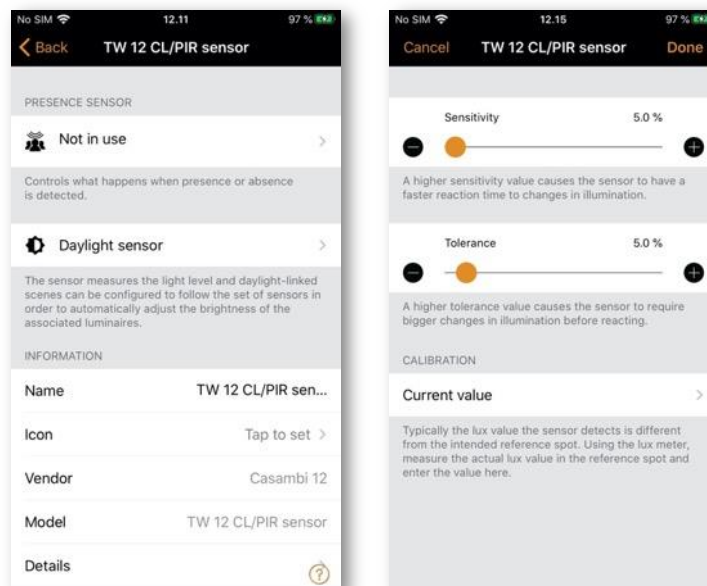
The Tolerance determines how large change in illumination is required before the sensor will react.

Usually for testing purposes the sensitivity and tolerance settings are low, but in normal use the settings are typically set higher to ensure that rapid changes in measured illumination do not result in rapid changes of the artificial lighting (e.g., if a cloud temporarily covers the sun you may not need the artificial lighting to react).

The daylight sensor can also be calibrated. This CALIBRATION may be needed because the lux value received by the sensor is typically not the same as the actual lux received on the surface below it (A downward facing ceiling mounted sensor receives reflected light whereas the surface under the sensor typically receives direct light). To enter a calibration value tap on the Current value and then enter the actual lux value measured on the surface of interest (e.g., A sensor positioned above a desk may be measuring 400 lux, but the actual lux value measured by a lux sensor placed on the desk surface may be 500 lux. When configuring a Closed loop daylight scene (to enable constant light levels to be maintained), you can then set your target lux value to the lux value you wish to achieve on the desk surface.

Closed loop, and other daylight sensor configuration options and settings are done when creating a daylight scene (see the Daylight scenes section).

Note: If multiple lux sensors control the same luminaire, the average of all lux readings will be the used value.



## Gateways

### Internet gateway

Using a gateway, it is possible to control Casambi-enabled luminaires remotely. A network administrator can also remotely configure the network.

To enable remote access, a Casambi network needs to have one iOS or Android device acting as a gateway and the sharing settings for the network need to be Open, Password protected or Administrator only.

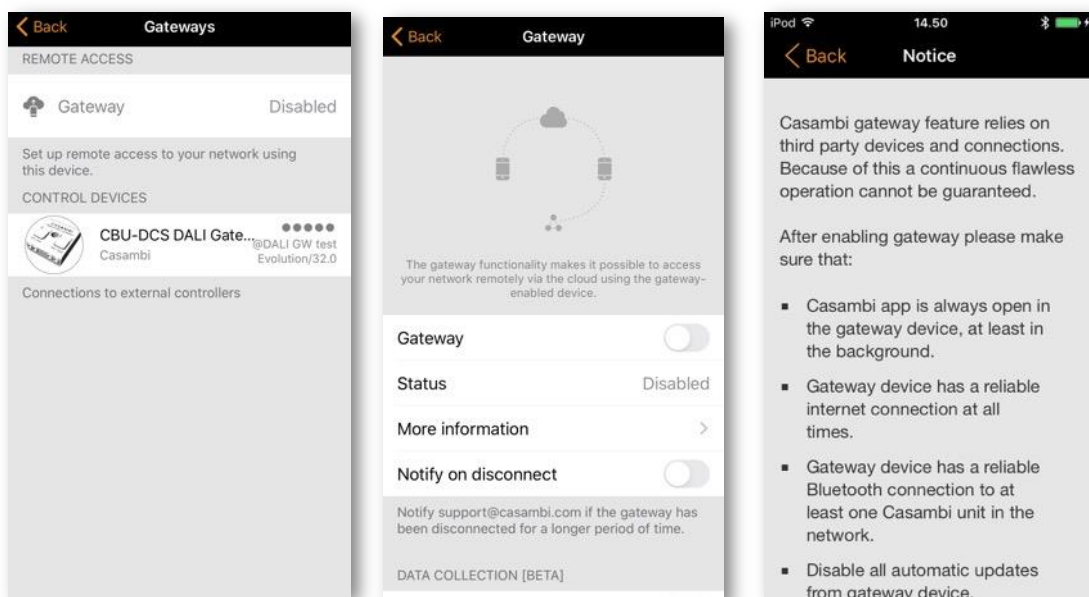
To set up the gateway device select Gateway in the Network Setup screen. If the Gateway option is grey and cannot be selected, make sure the sharing setting is not set to Not shared.

Select the Gateway button to enable the gateway on the device. If you have added an email address for the network, you can also enable notifications to that email address if the gateway is disconnected for some reason.

Note: The Casambi gateway feature relies on third-party devices and connections. Because of this, a continuous and flawless operation cannot be guaranteed.

After enabling the gateway, please make sure that:

1. The Casambi app is always open on the gateway device. The app can be in the background when using iOS devices, but the app must be active and at the foreground when using Android devices.
2. The gateway device always has a reliable Internet connection.
3. The gateway device has a reliable Bluetooth connection to at least one Casambi device in the network.
4. Disable all automatic updates on gateway device.
5. The gateway device is always plugged in to a power source.
6. Disable all power-saving options from the device that might cause the Bluetooth or Internet connection to close.



DATA COLLECTION can be enabled if you have a requirement to separately access the sensor or device usage data of your network. Enabling these options will increase the amount of network data while the information is gathered from devices and uploaded.

To prevent excessive data use it is not recommended to enable these options unless necessary.

Data logging contains information about device specific details such as information about its state and changes in the state. In addition, specific devices may be capable of providing more details. For example, a DALI device may also be able to provide data regarding specific hardware capabilities.

If enabled, sensor and device data is uploaded to the Casambi cloud service at an interval defined by the “Status update interval” slider. The data can then be accessed using a suitable 3<sup>rd</sup> party software interface designed around the Casambi Application Programming Interface (API).

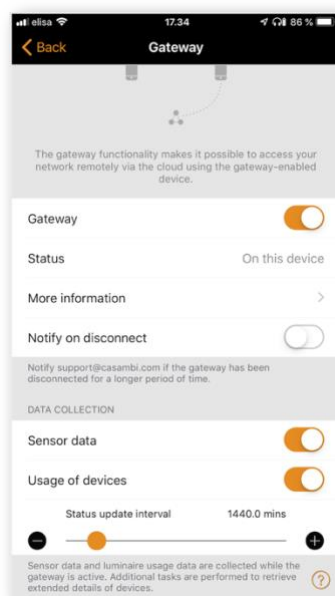
Enabling “Sensor data” allows readable sensor data to be uploaded. For example:

- Presence/occupancy signals (presence/absence)
- Light sensor (lux)
- On-board temperature
- Battery level
- Overheating/overloading indicator (Hardware specific)

“Usage of devices” enables the gateway to collect and upload other network specific data, such as:

- Status of the device in the network
- State of device controls, e.g., Dimming data, CCT level, colour settings, etc.
- Energy counters
- Manufacturer details of DALI drivers
- Other extended diagnostics and maintenance data that may be retrievable from (DALI) devices

The data available to be collected will be dependent on the designed capabilities of the sensors or other devices used in the network. e.g., A device without thermal measurement possibilities cannot provide temperature data.





## DALI gateway

This feature is only available if using Evolution firmware version 32.0 (2020-03-27) or later.

A CBU-DCS can be used to act as a gateway between a wired DALI network (controlled by DALI controller hardware and software) and a wireless Casambi network. Before connecting the CBU-DCS, it must first be in an un-paired state and the CBU-DCS DALI Gateway profile must be applied (see the Luminaires section for unpairing and profile changing instructions). The CBU-DCS must be connected to the same powered DALI bus as the DALI controller. Once physically connected, the CBU-DCS can be paired to the existing Casambi network.

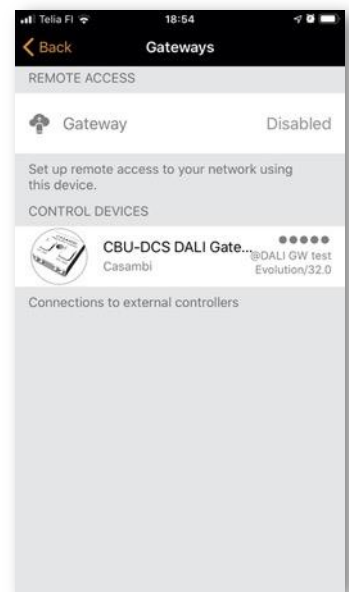
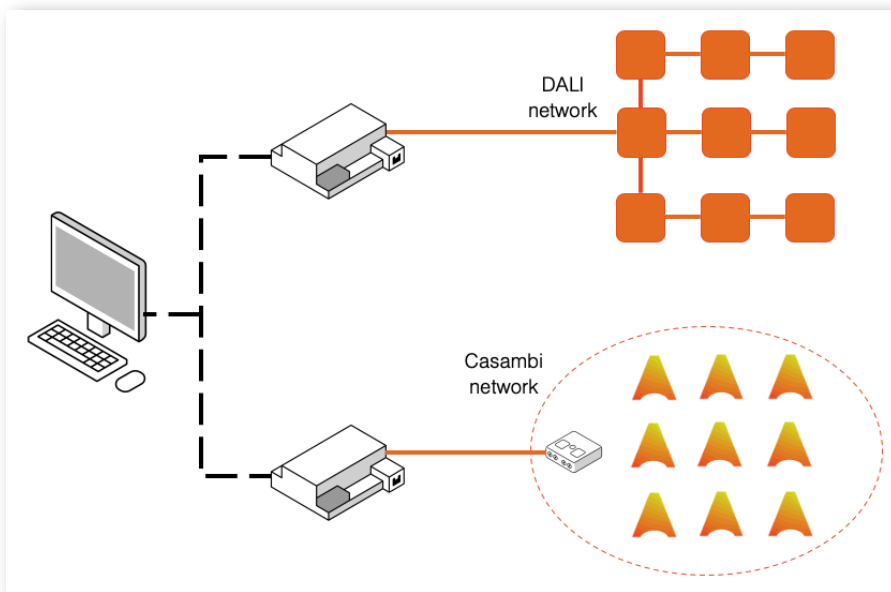
Any device which exists in the Casambi network will then appear as standard DALI gear to the wired DALI controller software. Each Casambi device uses one DALI address, but the CBU-DCS DALI gateway does not; instead, it appears transparent to the DALI controller software.

Casambi devices which control more than one channel appear as single-channel DALI gear to the DALI controller software, therefore the separate channels cannot be dimmed individually by the DALI controller software, only by the Casambi app.

Casambi devices which use TW, RGB or XY controls are presented to the DALI controller software as DALI or DALI DT8 (Tc/RGB/XY) devices.

If your Casambi network exceeds the DALI limitation of 64 devices, you can simply add multiple CBU-DCS DALI gateways in your existing Casambi network. The DALI controller software will then be able to address all your Casambi devices. All Casambi luminaires can be addressed by the DALI controller software, regardless of what type of Casambi device they are. i.e., the Casambi device does not need to be a DALI-controllable device.

As with other Casambi devices, the gateway device can be renamed and assigned its own icon.



## DALI gateway - Gateway Parameters

Control Scope defines which devices are passed through the DALI gateway to the DALI control software. The default option is All luminaires. However, this can also be restricted to a single scene, in which you can define the devices which you wish to be seen by the DALI controller software.

Control priority defines the level at which the gateway will prioritise commands sent by the DALI control software:

- Higher than manual Prevents the Casambi system (apps, sensors, switches, timers) from controlling Casambi devices. Casambi devices can only be controlled by the DALI controller software.
- Manual Is the default setting. It allows control of Casambi devices by both the DALI controller software and the Casambi app.
- Higher than automation Allows the DALI controller software to control lights which are under automation by presence/absence sensors or timers, but not those manually controlled by the Casambi app.
- Lowest-priority automation Allows the DALI controller software to control lights which are not currently automated by presence/absence sensors or timers. Any luminaire control from the Casambi app (manual, timers or sensor automation) will take over the externally set dimming levels.

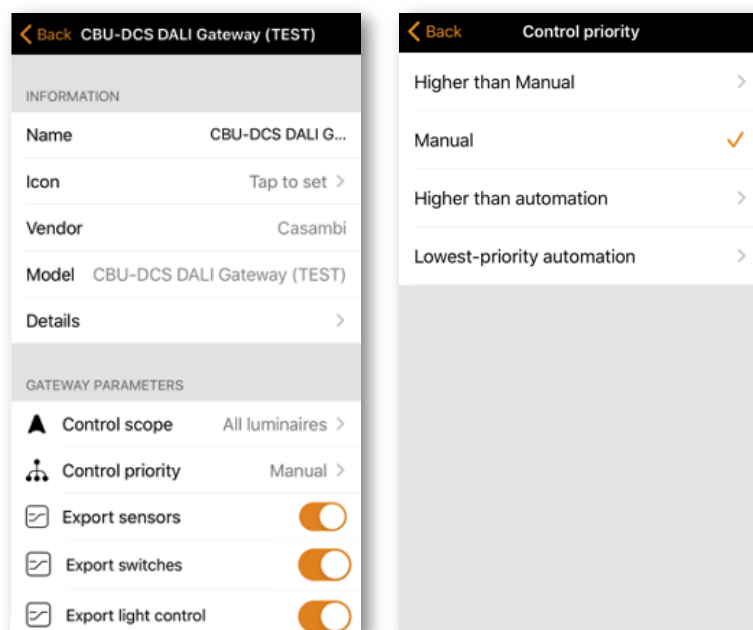
The resume automation button (@) must be used to allow the Casambi app to regain full control if the Higher than automation or Lowest-priority automation options are used.

Export sensors Allows Casambi enabled sensors to be available as DALI-2 sensors in the DALI network.

Export switches Allows Casambi enabled switches to be available as DALI-2 push buttons in the DALI network.

Export light control Allows changes in the dimming level of each DALI addressed Casambi luminaire to be automatically transferred to the DALI network.

- This option is suitable for integrations with BMS or DALI systems that rely on passive observation of DALI communication traffic to update the state of the light level to their system. i.e., They do not typically send DALI queries to devices.
- Tuneable white and colour changes for DALI DT8 devices are not automatically available.
- Non-addressed (Broadcast) devices cannot send this information.
- Enabling this option may interfere with DALI controllers that assume single-master control of the DALI bus.



Input dimming curve defines how the dimming levels that the DALI system sends to the Casambi DALI Gateway are interpreted and sent further within the Casambi network.

The Casambi DALI gateway profile offers the unique possibility to control any type of luminaire from a DALI system. As such, Casambi enabled luminaires may utilise linear, logarithmic, or custom dimming curves, or there may even be a mixture of all of these in a single Casambi network. A DALI system dimming curve usually uses the DALI standard logarithmic curve (with 0-255 steps). However, some DALI control systems (or non-DALI BMS adapters) may use a 0-100% linear curve. Differing dimming curves between the control system and luminaires may result in a dimming response that is not optimal when controlling a Casambi network from DALI. The Input dimming curve option therefore offers the possibility to change how the DALI system dimming curve is transferred into the Casambi network.

Options for the Input dimming curve are:

- default: This is actually the same as Linear.
- Linear: Transfers the dimming curve received from the DALI system into the Casambi network “as is”.
- Logarithmic (DALI): Will apply a logarithmic curve to the curve received from the DALI system.
  - Note that this setting may not respond ideally if Update actual dim level has been enabled.

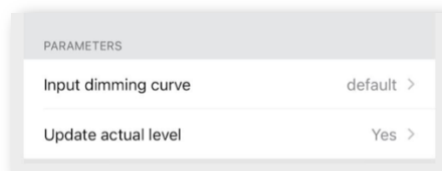
The most suitable option to select will depend entirely on the combinations of dimming curves used in a specific set up. Unfortunately, uniform results may not be possible to achieve if the Casambi network contains luminaires having a mixture of different dimming curves.

Update actual dim level Depending on the defined Control priority, dimmed levels and the state of tuneable white and colour controls (if using DALI DT8 devices) sent by the DALI system may be overridden by Manual or Automation control actions in a Casambi network. Since use cases vary, there may or may not be a requirement for changes made in the Casambi network to be available/visible to the DALI system.

Configuration options are:

- Yes (default)
  - The DALI system can actively query the current dimmed level/colour from the DALI Gateway regardless of whether a change was made by the DALI system or directly in the Casambi network. Dimmed levels/colour are NOT automatically transferred from Casambi to DALI.
- No
  - Only the dimmed level/colour changes sent by the DALI system itself are shown in the DALI system. Any changes made in the Casambi network are not visible to the DALI system.
- Only at Manual priority
  - “Yes (default)” will be applicable if the DALI Gateway Control priority has been set to Manual priority. “No” will be applicable if the Control priority setting is set to any other setting.

In all cases the DALI system must still send a command (query) requesting the latest dimmed level/colour status information (i.e., Changes in the Casambi network are not automatically transferred directly from Casambi to DALI).



## DALI Gateway input device limitations

The DALI standard specifies a maximum of 64 DALI luminaire addresses and 64 DALI-2 input device addresses. Input devices include push-buttons, sliders, occupancy sensors, and light sensors.

A CBU-DCS DALI Gateway enables 64 input devices to be addressed according to the DALI standard, but only 80 DALI-2 “instances” can be processed by the DALI Gateway. This means that the amount of input devices possible in your Casambi network may be limited depending on the number of instances the devices use.

The quantity of input device instances varies.

- A single motion sensor uses 1 instance.
- A lux/presence sensor uses 2 instances.
- A single push button uses 1 instance (e.g., A 4-button switch panel uses 4 instances).
- An Xpress switch has 4 instances, one for each configurable button (+, -, up and down commands are not transferrable via the DALI gateway)
- Casambi ready products from our ecosystem partners may use more instances depending on their design (e.g., The number of individual push buttons they contain).
  - An EnOcean switch panel uses 4 instances.
  - Drivers can also be designed with push button input/s and would then use at least 1 instance.

When planning DALI Gateway use in a Casambi network containing input devices, a calculation of the number of input device instances is necessary to ensure communication through the DALI Gateway works as desired. If you exceed the 80-instance limit, input devices will still be addressable (up to 64 devices), but some instances will not be recognized.

Input device limit calculation examples:

- a) 64x single push buttons = 64 DALI instances = OK
- b) 45x lux/presence sensor = 90 DALI instances = NOT OK
- c) 20x presence only sensors + 5x Four button switches = 40 DALI instances (20+(5x4)) = OK

## Network setup

All luminaires in the same network can be easily controlled from the Luminaires tab. Other devices appear in the relevant section of the More tab. One device can only be part of one network at a time. When a device is part of a network it is in a 'paired' state and cannot be added to any other network unless it is first 'unpaired'.

By default, a new network is 'Not Shared', which means that its configuration is only stored on the device used to create it, and only that specific device can control the luminaires. If you reset, delete, or reinstall the Casambi app, or damage or lose the mobile device, you will no longer be able to access the network. If you wish to ensure possibilities for future access to the network or wish to use multiple mobile devices to control the network, Casambi recommend that you share the network. This can be done at any time after initially creating the network. Please see the Sharing Settings section for more information.

## Network settings

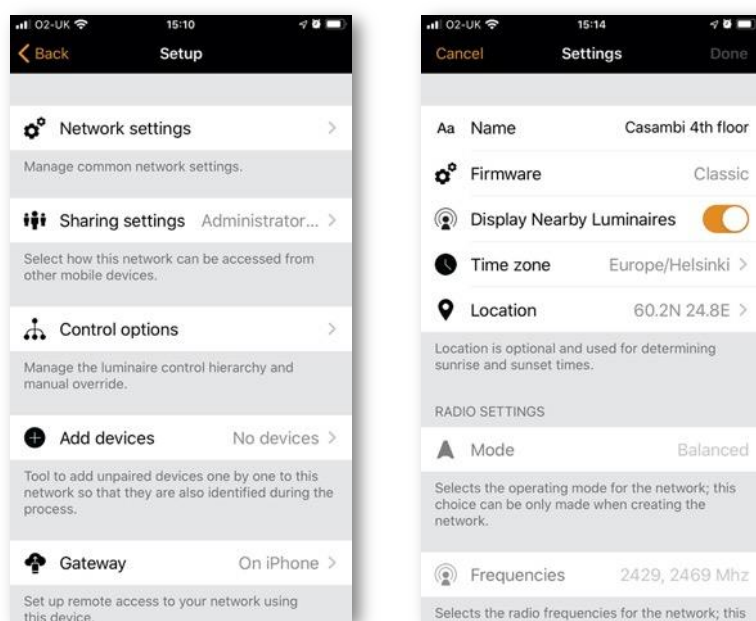
To change the network settings, select the More page > Network Setup > Network Settings. There you can change the network name, set the time zone and the network's location. The location needs to be set if you wish to create timers using local sunrise or sunset as a trigger.

You can also select if you would like the Nearby luminaires control icon to be visible in the app Luminaires tab. Disabling the Display Nearby Luminaires will hide the Nearby luminaires control icon for all users in the network.

The network mode and network frequencies can only be configured when creating a network for the first time and cannot be changed after a network has been taken into use. The default mode is Balanced and should be suitable for most networks. If your network contains a very large number of luminaires (100+) and they are placed physically near to each other, then Better Performance option can be used, regardless of the network type (Classic or Evolution). See the Change network section for instructions how to create a new network.

Network frequencies are always chosen in pairs. Communication is always made on both frequencies for redundancy in the event of interference in the mesh network caused by an external source.

Once your network set-up is complete, select **Done** to finish.



## Sharing settings

To control luminaires also with other devices the sharing settings need to be changed. To be able to share a network the mobile device must have a good Bluetooth connection to the network and a reliable Internet connection.

To share a network, tap on Sharing settings and then Sharing. There are four different options available:

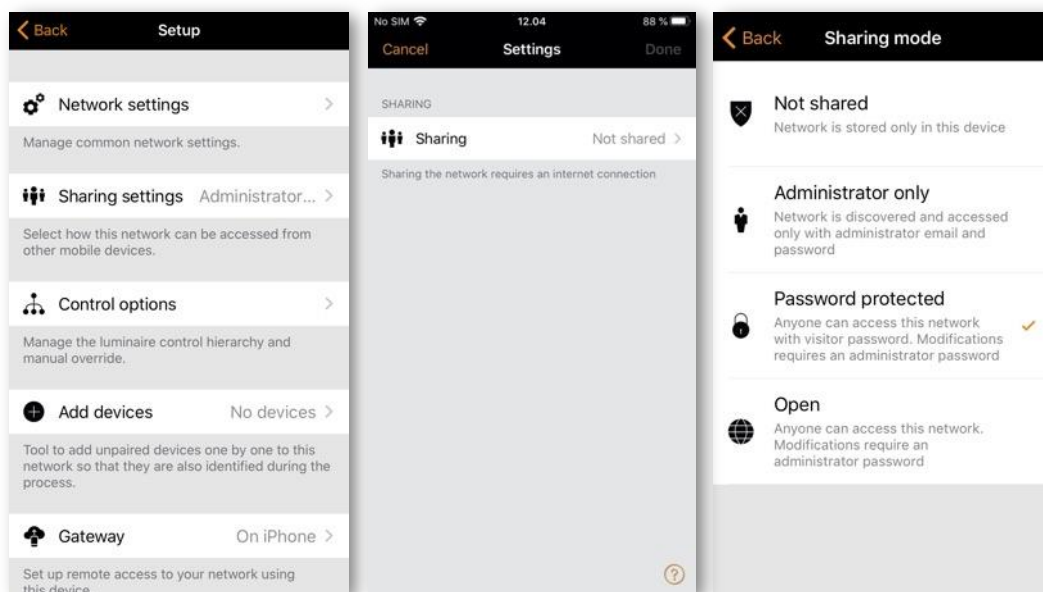
**Not shared** Access to the network is only possible using the device with which it was originally created and not uploaded to cloud service.

**Administrator only** The network is not automatically discoverable to any devices, but it is possible to log in from the networks screen if you know the admin email and password. Anyone who logs in with the admin email and password is also able to modify the network programming. The Networks screen can be accessed from More > Change network or from the app's start page by selecting My Networks.

**Password protected** The network is discoverable by other devices but users (visitors) need to know and enter a password to access and control luminaires. They cannot make network programming changes. If network programming modification is needed (e.g., to add more luminaires, or create scenes), then the network needs to be logged in to using the admin email and password. This network type therefore has two access levels: visitor and administrator.

**Open** The network is discoverable by other devices and there is no password required for visitor access. Anyone with the Casambi app can access this type of network and control the lights. They cannot make any programming changes. If network programming modification is needed (e.g., to add more luminaires, or create scenes), then the network needs to be logged in to using the admin email and password. This network type therefore has two access levels: visitor and administrator.

Note: To be able to recover lost passwords, a valid administrator email address must always be used.



After changing the network sharing mode, the administrator email and password need to be set for the network. A visitor password is needed for a password protected network so that other devices can access the network.

Evolution networks offer the additional security possibility to define three levels of access for each sharing setting type: User, Manager, and admin (Administrator).

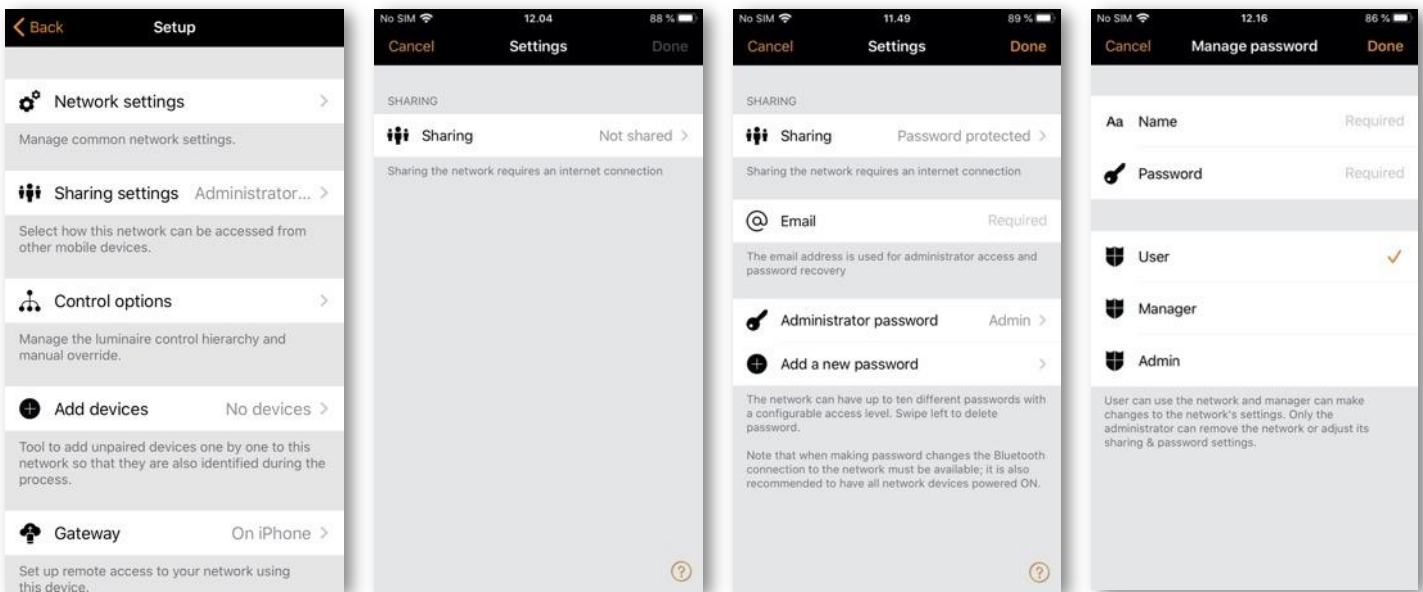
Admin Has full control of all network aspects.

Manager Can configure the network (i.e., change programming), but not create new user accounts.

User Can only use the network but cannot make any programming changes.

To save the new settings select **Done**. If the sharing setting is something other than Not Shared all the changes are uploaded to Casambi cloud service and the network can be accessed from other devices.

See the Change network section of this guide for more information about removing and deleting networks.



## Control options

The Control options page allows you to define the basic and automation controls (Control Hierarchy) of a Casambi network.

Fade time options allow you to alter the Fade time for powering up a Casambi luminaire (i.e. When switching the mains supply on), Fade time for toggling ON or OFF (i.e. Using the Casambi app, Xpress switch or Casambi Enabled switch) and the Fade time for switch dimming (i.e. when dimming using the Xpress + or – buttons or a Casambi enabled switch).

Remember last state Activating this option will allow luminaires to return to their previous state when toggled on from the app or a Casambi enabled switch. Note that this is not the same as a luminaire's STARTUP STATE FOR POWER ON, which is the startup condition when a luminaire is powered on.

Activate timers on startup When a luminaire is powered on and has received the network time, any timers associated with it will then activate.

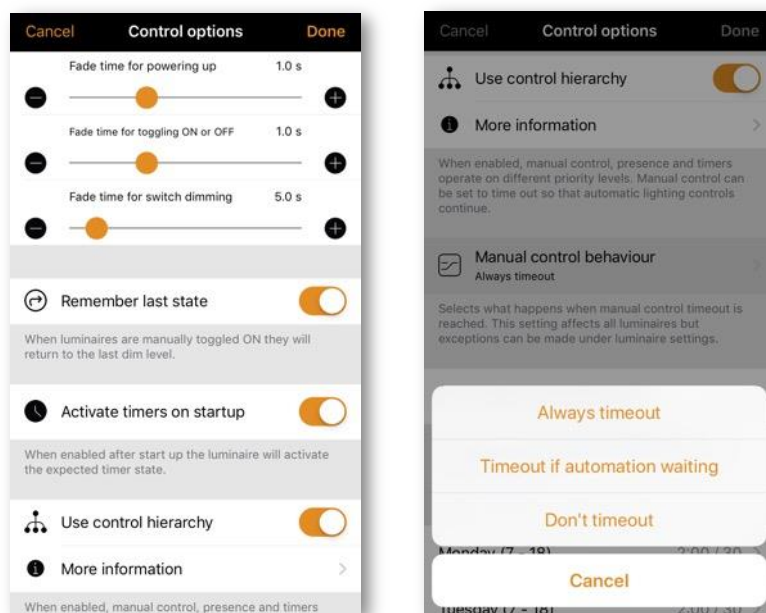
Use control hierarchy For a detailed explanation of the Control hierarchy, its priorities and its use with sensors and timers, please select the More information option, which can be found directly below the User control hierarchy option. The same information can be found in the Appendix of this guide.

When the Control hierarchy is activated, several options will then become available and a @ button will appear in the lower left of the Luminaires tab screen to allow the end-user to manually resume network automation if needed.

The Control hierarchy options are:

Manual control behaviour This option selects how luminaires should react to manual control and if/when network automation should resume.

- **Always timeout** will always cause manual control of a luminaire to expire (based on the timeout period).
- **Timeout if automation waiting** will cause manual control of a luminaire to expire only if it is being controlled by the control hierarchy. For example, a presence sensor or a timer.
- **Don't timeout** will prevent any network automation from affecting any manually controlled luminaires.



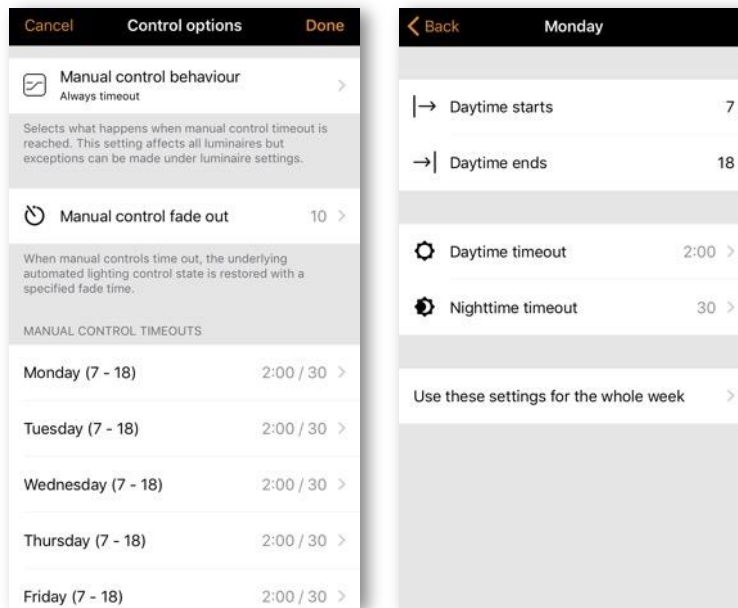


Manual control fade out This option sets the time within which a luminaire will fade once manual control has expired.

Manual control timeout The timeout value is the length of time a luminaire can remain under manually control before network automation resumes.

A separate timeout value can be set for each individual weekday, its evening and night. The default values are 2 hours in the day and 30 minutes in the evening, but these can be changed to suit your installation.

The Use these settings for the whole week option allows you to set the same day and night values for the entire week, rather than have to manually edit the values for each weekday.



## Performance & Security

This option is only visible in the app for an Evolution network.

- Allow unpair Allows devices to be unpaired from a network using the Unpair device option within a device's own settings.
- Allow flick unpair Allows devices to be unpaired by using the power cycling process (usually by flicking a wall switch off and on) to unpair a device. This process is used when you need to unpair a device belonging to a network to which you do not have access.
- Allow Utility unpair This option is reserved for Casambi partners.

Note: Do not disable all unpair options. If all unpair options are disabled and you are for some reason unable to access the network to which a device is paired, you will be unable to unpair the device in any way and it will become unusable.

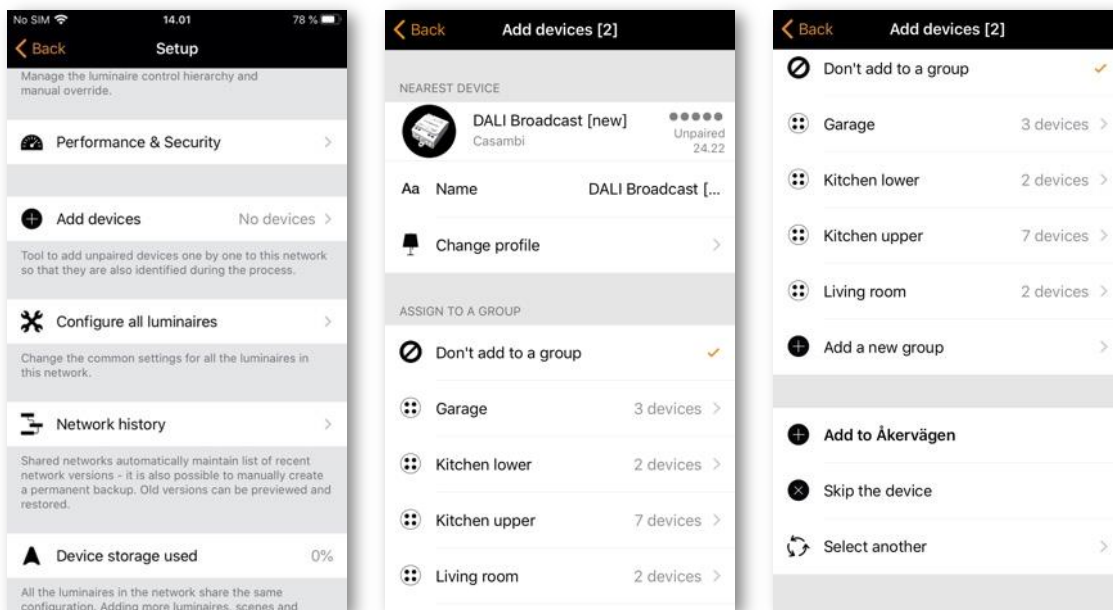
- Allow firmware updates Allows or prevents firmware update, even if a new firmware version is available.
- Devices always visible Hides or displays devices within the Nearby Devices list. When the option is disabled, it is possible to choose an initial amount of time for which the devices will remain visible when power is applied. The minimum amount of time is one minute. After this time the devices will disappear from the list. This visibility delay time is to enable the possibility to still unpair devices from the Nearby Devices list if needed.



## Add devices

The Add devices option can be used as a commissioning tool to add devices to a network and identify them at the same time. When adding each device, you can:

- Select a network
- Select a group to which it will belong
- Create and add it to a new group
- Change the device profile
- Rename the device
- Skip the device (and not add it to your network)



## Configure all luminaires

It is possible to simultaneously configure certain settings for all luminaires in a network. This feature is useful if you want to configure settings for all, or the majority of luminaires in the network.

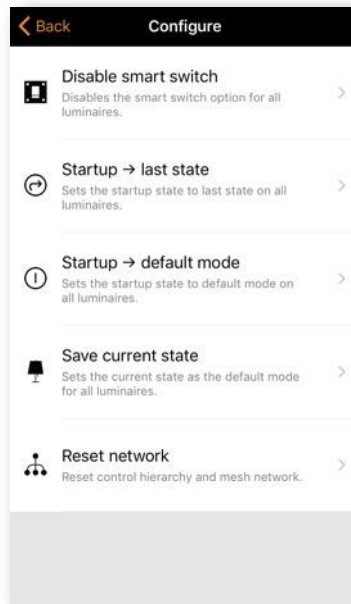
Select the Configure all luminaires option under Network Setup.

There are five settings that can be configured for all luminaires:

- Disable smart switch Disables the smart switch option for all luminaires.
- Startup -> last state Sets the startup state to last state on all luminaires.
- Startup -> default mode Sets the startup state to default mode on all luminaires.
- Save current state Sets the current state as the default mode for all luminaires.
- Reset network Can be used to reset the control hierarchy and mesh network. For example, you may need to reset the hierarchy if you delete a timer.

If you subsequently want to change any individual luminaire back to its original setting, then this can be done by accessing the properties of each individual luminaire in the Luminaires tab and changing the parameter.

Note: The commands are sent to the luminaires immediately when the option is selected. Be particularly careful not to select Disable smart switch unless you are sure you want the command applied to the majority of luminaires as there is not an option to reenale smart switching for all luminaires simultaneously (it must be done individually by opening and changing each luminaires properties in the luminaires tab).



## Network history

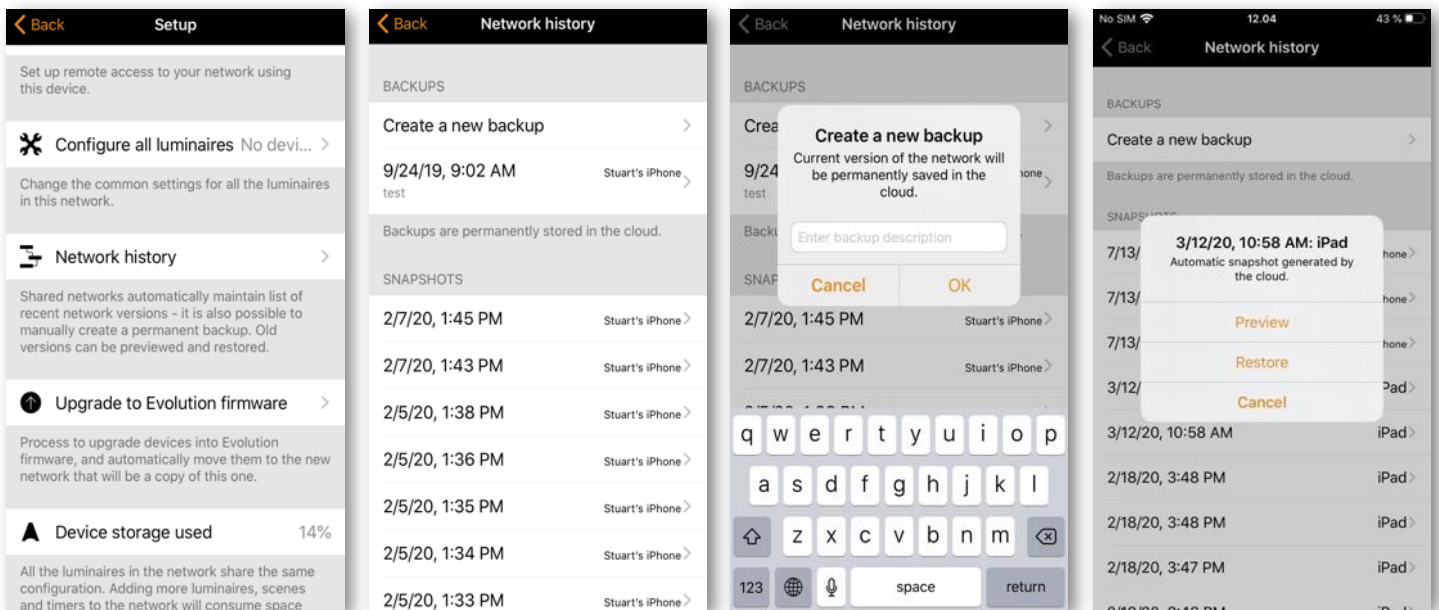
Network history allows two recovery options: BACKUPS and SNAPSHOTS. Both options are stored copies of the network program. The difference between the two is that snapshots are saved automatically, whereas backups are created and stored manually.

A total of fifty snapshots will be stored automatically. When more are stored, the oldest will be removed to allow space for the newest. A new network snapshot is taken each time a network configuration change is made. Snapshots only have a date and time stamp and cannot be renamed. They are intended to provide a quick method to return to a previous network configuration if you happen to make a mistake during programming (a little like the “undo” function available on PC’s).

To create a permanent backup, you must have internet connection available. Select Create a new backup and then enter a description (name) for the backup. A date and timestamp will automatically be added to the backup. The device on which the backup/snapshot was taken is also shown. Backups are stored on the cloud server and cannot be removed

To recover a backup or a snapshot, first select the backup or snapshot from the list available. You will then be prompted with a menu where your options are **Preview**, **Restore** and **Cancel**.

Selecting **Preview** shows you a visual example of how the configure will look in the app if you decide to restore that particular backup or snapshot. Select **Leave** in the top right of the screen to leave the preview image. You can then decide to **Restore** the backup/snapshot or **Cancel**.



## Upgrade to Evolution firmware

Upgrading an existing network from Classic to Evolution is quite a time-consuming process, has many steps, and may also require various manual steps in addition to the steps carried out by the Casambi app (for example, Battery operated devices must be updated individually).

It is advised only to update an existing fully functioning Classic network to Evolution if:

1. You already have 127 devices in your Classic network, and you wish to add more.
2. You really must use a feature or function only offered with Evolution.

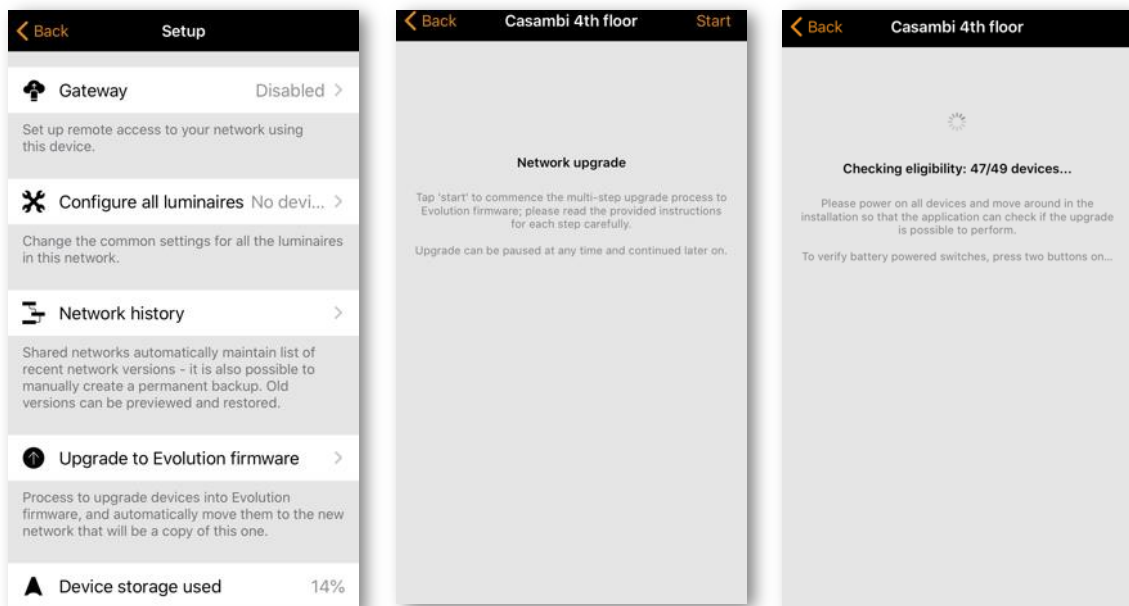
For more information on the benefits of using an Evolution network, see the Change network section.

Before updating to an Evolution network, please ensure:

1. All devices in your Classic network are Evolution compatible. You can check this by viewing your Nearby Devices list. The devices in your network must all display a small 'Classic' text close to the firmware version and network name. If you cannot see the Classic text, then your device is not compatible with Evolution networks.
2. Check and note the Classic networks radio mode setting (Balanced/Better Performance).
3. You have Bluetooth connection to the network.

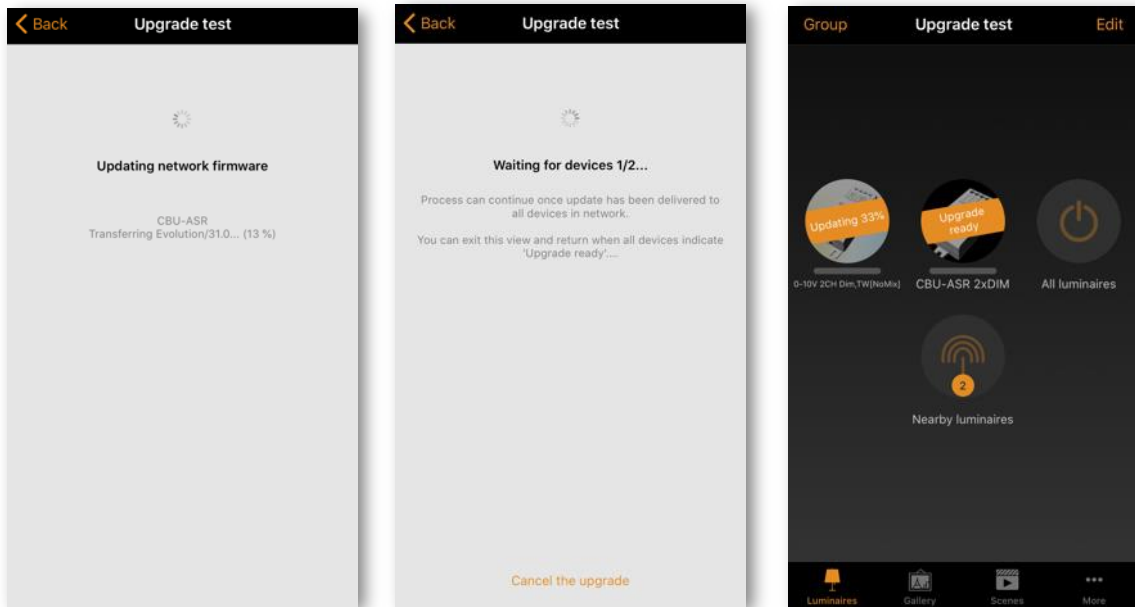
To start the upgrade process, select the Upgrade to Evolution firmware option.

A new Network upgrade window will open, where you will have the option to **Start** or to go **Back**. Select the **Start** option to continue at which point your network's devices will be checked for Evolution compatibility. (You will be prompted with names of any devices which are not compatible, which you would have to then physically replace with new Evolution-compatible devices if you wished to continue).



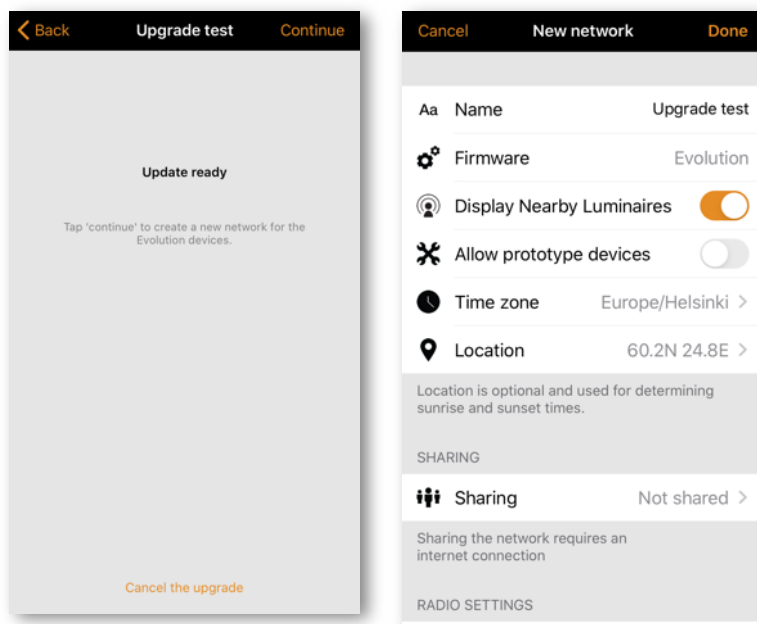
If all the devices are compatible, the firmware of each device will then be updated. This process may take some time if you have many devices in your network and you may see a Waiting for devices 1/x message.

At this point it is still possible to select **Cancel the upgrade** or **Back** (in the top left corner). One can also see the update progress (1 - 100%) of the Casambi devices in the Luminaires tab. Navigate back to Upgrade to Evolution firmware to continue with the upgrade.



Once all devices have been upgraded, an Update ready message is displayed. At this point you still have the option to **Cancel the upgrade**.

If you wish to continue, select **Continue** (in the top right corner) to check and configure the new network's details and select **Done** once complete. Note that the same radio mode settings (Balanced/Better Performance) as was used with the Classic network must be used for your new Evolution network.



Again, select **Continue** to continue with the network upgrade. The Casambi app will prompt you with a warning that after this step you cannot roll back to Classic. An Evolution network cannot be rolled back to a classic network. If you need to do this there is no option but to individually unpair each device, individually change teach devices firmware back to Classic, and create and program a new Classic network from the start.

From this prompt you must select **OK** to continue.

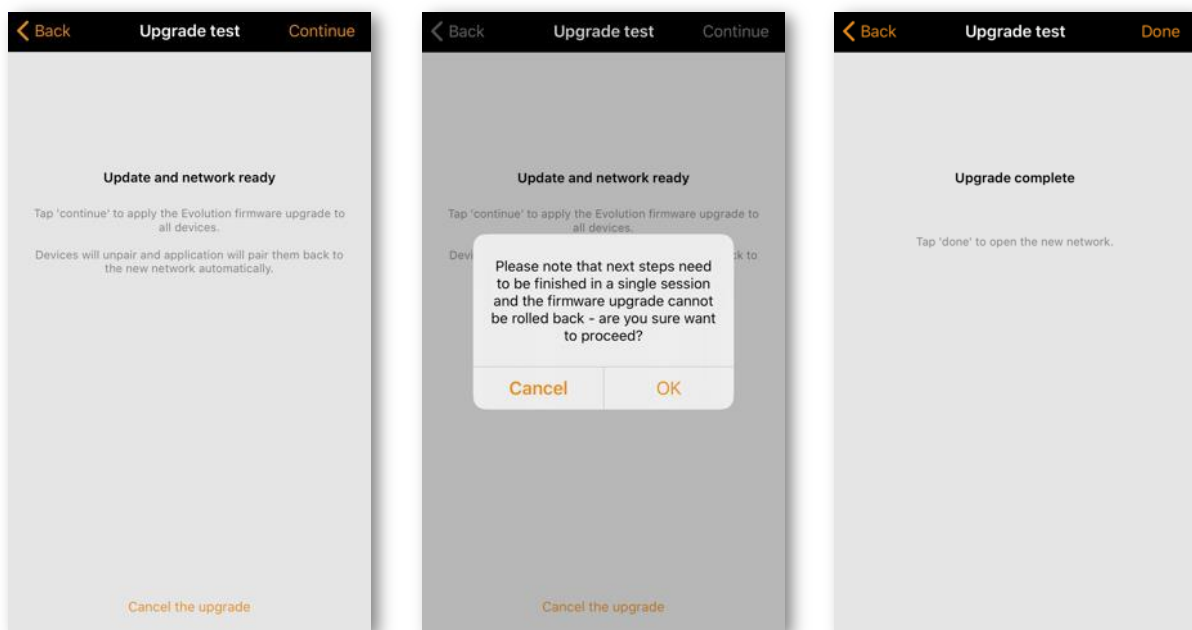
The upgrade process will now unpair all devices from the Classic network and pair the devices to the new Evolution network.

If your network contains many devices, it is advised to physically move around at the installation area to help the Casambi app find all the devices in in the network.

The upgrade process ends when Upgrade complete is displayed and you can close the upgrade process by selecting **Done**.

If you had any battery powered devices in the Classic network, then these will be shown as offline in the new Evolution network. You should manually upgrade these and add them to the new network using the Replace device option.

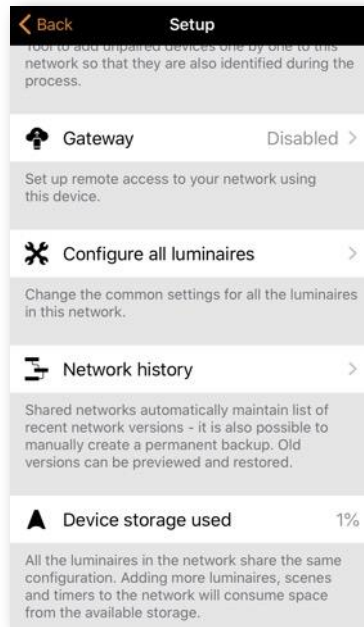
The entry for the old Classic network will still appear in the Change network screen. It will also still show that it has devices in the network. Once you have confirmed that the new Evolution network functions correctly you can delete the old Classic network.





## Device storage used

This is not an option but instead displays the amount of memory storage space (in %) used on each Casambi device to store the network configuration. There is only one figure since the entire network configuration is stored identically in every Casambi device in the network.



## Nearby devices

In the Nearby devices page, you can see a list of all Casambi-enabled devices that are close-by.

In the list you can see the device's icon image, name, vendor, network type, firmware version, signal strength and pairing state or network name. The network name always starts with the @ symbol. If you have access to the network to which the device is paired, the network name will be displayed. Otherwise, Paired or Unpaired will be displayed.

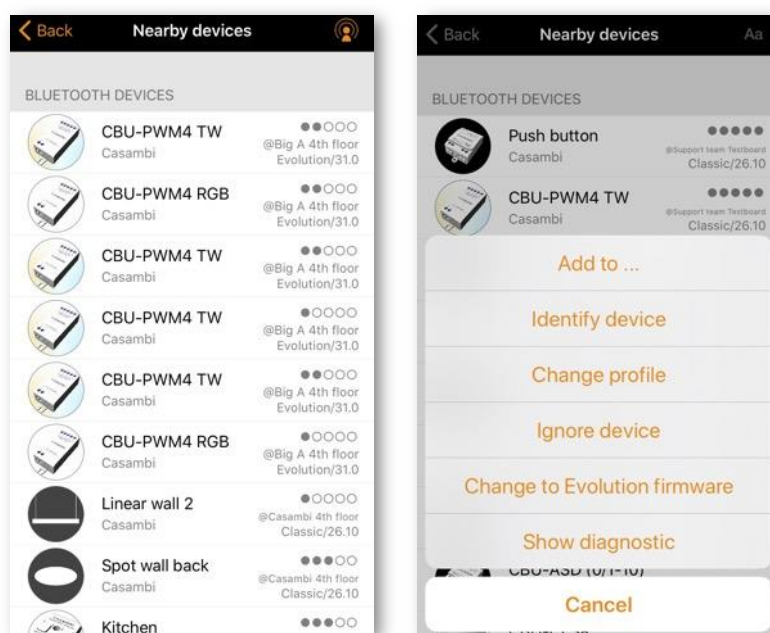
The list is initially sorted so that un-paired devices first appear at the top of the list (if they are within range of the mobile device). The remaining devices are then displayed in order of network name.

The list can be sorted in two ways, Alphabetically by network name, or by signal strength. The icon in the top right corner of the screen will change to show the option that can be selected. Pushing **Aa** (if displayed) will organise the list alphabetically by network name. Alternatively, selecting the antenna icon (if displayed in the top right corner) will then display all devices based on their signal strength: strongest at the top, weakest at the bottom, regardless of whether the devices are paired or not. Note that the signal strength does not necessarily indicate the proximity of devices since a devices' signal strength can be affected depending on the material surrounding it, or by the material/obstructions close to the device. For example, A luminaire with a metal housing may have a weaker signal strength compared to an identical design made of plastic.

When you select a device from the list, you can see the options that are available for it, such as: **Add to a network**, **Unpair**, **Identify device**, **Change profile**, **Update firmware** or **Update to Classic/Evolution firmware** etc. Different options may be available for different types of devices or depending on if they are part of a network to which you have, or do not have, access. The displayed list will only show the options available for you.

In the Nearby devices screen you can also check if there are any updates available for your Casambi-enabled devices. Scroll to the bottom of the list and select the Check for updates option. The Casambi app will connect to the cloud service (if you have internet access) and look for updates. If there is an update available, you will then see an arrow above the icon of devices that can be updated. Depending on your app settings, this update arrow may appear automatically when an update is available.

The latest firmware version can be seen at the bottom of page by selecting Latest firmware version. This will also display basic release notes for each software version.



## Change network

You can see the networks stored on your mobile device from the Change network page. The Change network page can be accessed by selecting More > Change Network, or from the start page by selecting **My Networks**. In the list, all networks that have nearby devices powered-on, i.e., online networks, will be displayed with a black icon next to the network name. All offline, or out of range networks display a greyed-out icon. Choose a network by selecting the network name.

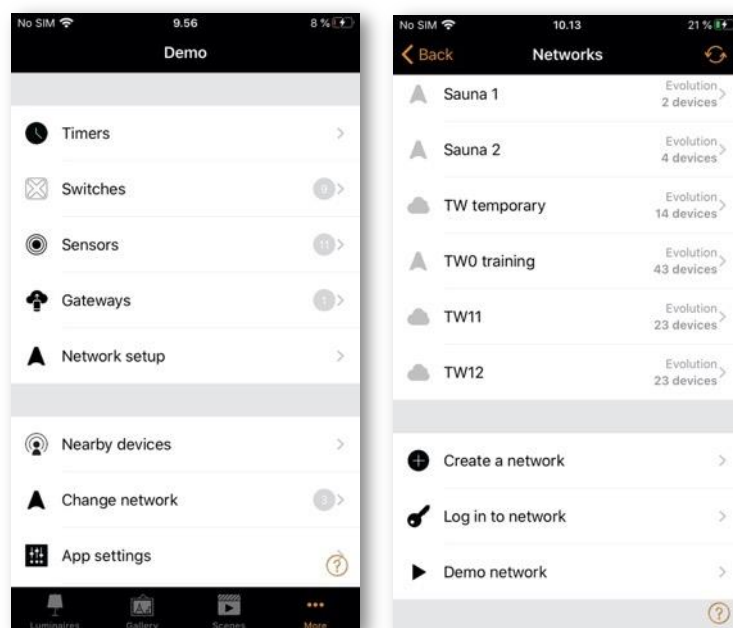
From this screen it is also possible to Create a network and Log in to network with an administrator email and password. You can also access a Demo network for demonstration purposes if needed.

If the network you wish to access is not shown, select Log in to network and enter the administrator email and password. You can access a network with the administrator email and password even if you are not in the range of the luminaires in that network. If not in range of the network, you will only be able to control the devices in the network if it has an active gateway.

There are three options to remove a network from your network list:

1. You can 'forget' a network from the list. This option will not delete the network from the cloud server. To forget a network, swipe to the left (in iOS) or tap and hold (in Android) on top of the network name and the **Forget Network** option will appear.
2. **Reset application** Go to More > App settings and scroll to the bottom of the options list to find the Reset application option. Note: Reset application will reset all app settings and data and remove the list of any networks that you have visited from the device. Use this option with caution.
3. You can totally delete the network. This option will delete the network from both your Casambi app and the cloud server, which then stops any devices from being able to use the network. To delete a network from the list, swipe to the left (in iOS) or tap and hold (in Android) on top of the network name and the **Delete** option will appear. Do not select this option if you or someone else needs to access the network later!

Tip: To use a network as a user after previously accessing a network as an administrator, use the forget the option and then log back into the network using user access.



## Create a network

To create a new network, select Create new network. You are then prompted to create either a Classic or Evolution network. For a description of Evolution and Classic networks, please see the Appendix section of this user guide.

After selecting your network type, the New Network page is shown. In the New network screen, you can assign a network name, time zone, location, sharing settings, network mode and network frequencies.

Note that a Location must be set for sunset and sunrise times to work correctly.

The network **Mode** has two options: Balanced and Better performance. Most types of network should use Balanced mode. Although networks with a large number of devices which are very close to each other (i.e., over 100), Better performance mode can be selected. The default option for Classic or Evolution networks is Balanced. Better performance allows faster communication speed, but at the cost of slightly reduced signal strength. Note that changing the network mode is not possible after the network has been created.

Two communication Frequencies are automatically set when creating the network, but you can manually change these to other frequencies if you know that there are specific frequencies that you would want to avoid). Note that changing the frequencies can only be done at the time of first creating the network.

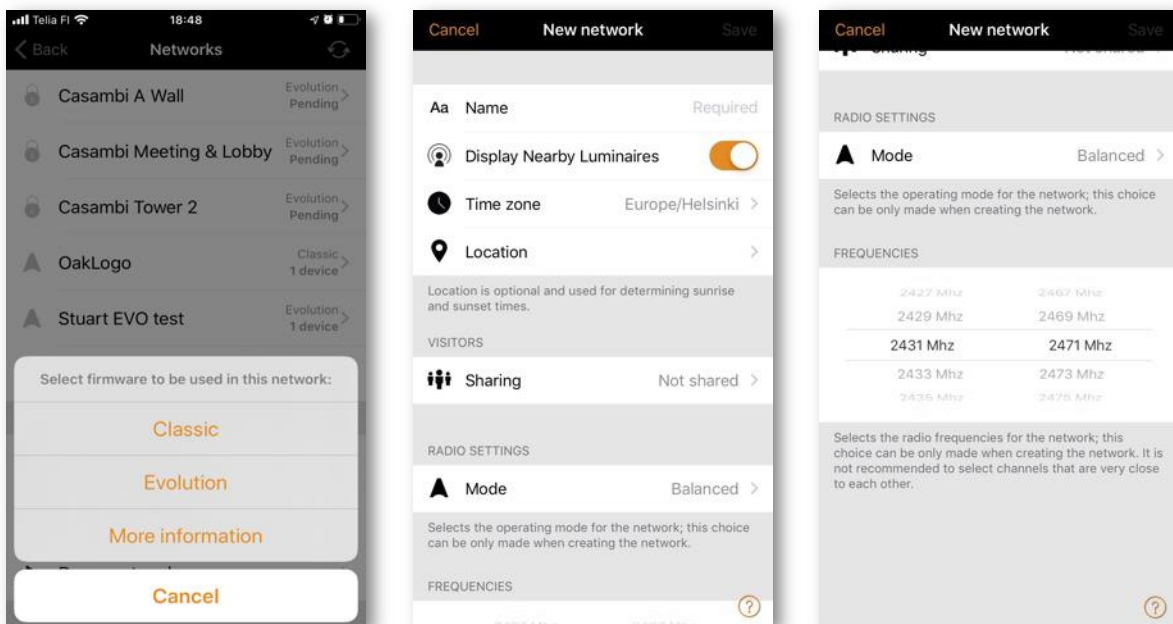
You can also share your network if needed. **Sharing** a network can also be done at a later stage. If you would like other devices to be able to access this network, select Sharing and then one of the following options: Administrator only, Password protected or. Open. For administrator access and password recovery, add a valid Administrator email and a password.

**Administrator only** The network is hidden from the network list unless the end-user has access.

**Password protected** Allows user and administrator access.

**Open** Allows anyone with the Casambi app to control the network, but they cannot make configuration changes.

Note that Evolution networks offer three levels of user access: User, Manager and Administrator. Managers can configure the network but not create new user accounts. Only an administrator account can create new accounts.



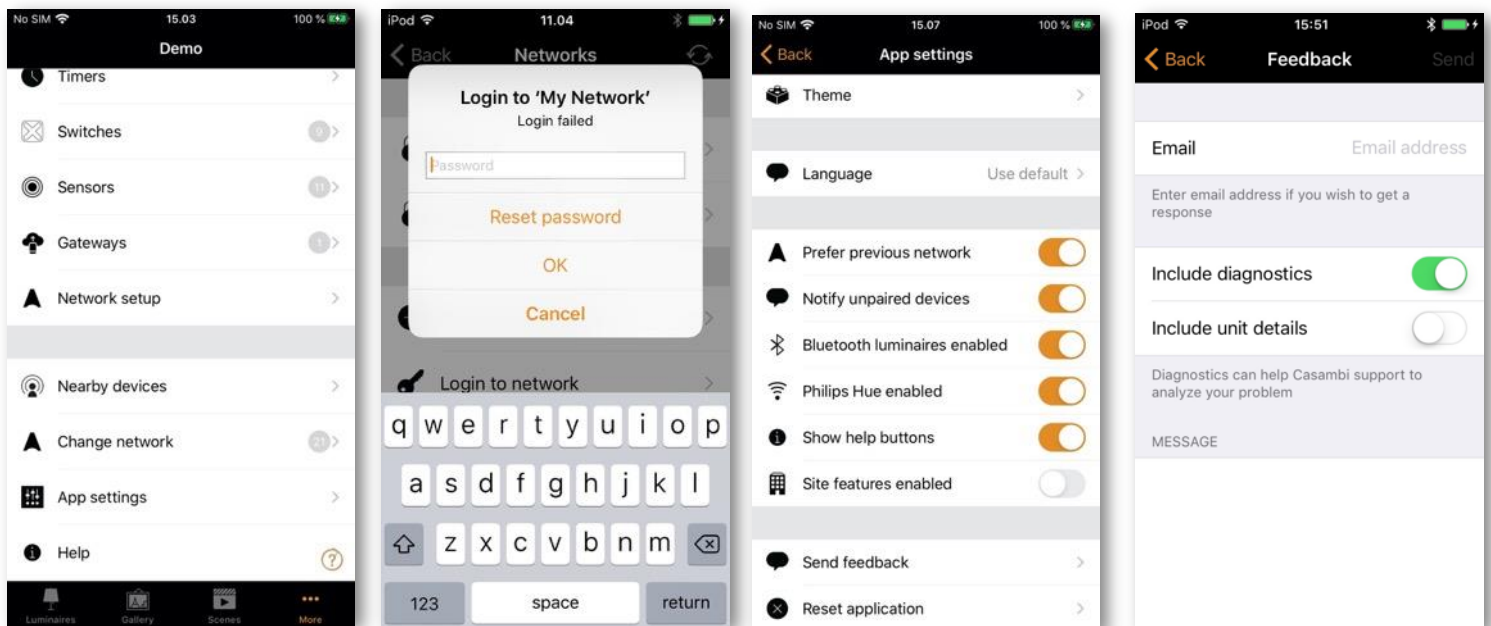
## Resetting a network password

If you forget your network password it can be reset if you entered a valid administrator email address when sharing your network. First try to enter a password. Incorrect password entry then gives a **Reset password** option. Selecting this option will send a reset password link to the administrator email address that you originally entered when sharing the network. Check your email for the reset link which is active for 15 minutes.

## App Settings

The App settings page offers the following options:

- Change the Casambi app's language
- Automatically select the previous network you used
- Enable/disable un-paired device notification
- Enable/disable Bluetooth luminaires
- Enable/disable a Philips Hue bridge
  - Note: Philips Hue lights are limited to manual-only control via WiFi connection using the Casambi app. Control over Bluetooth is not possible, thus Casambi enabled switches, sensors or timers cannot be used to control the lights
- Enable/disable help buttons
- Enable/disable the Site feature
- Send feedback (to Casambi Technical Support)
  - Enable Include diagnostics to send a copy of your current network settings for analysis (note that you must be within Bluetooth range of the network and have internet access for this to work)
- Reset application.
  - This option resets the app to its default settings (like it has just been installed) and removes data of networks you have visited from the mobile device. You can then set app settings to your preferences again, and log back into any networks individually. Use this option with caution if you have not shared your network as you will not be able to access it at all after resetting the application!



## Help

This section shows a list of Frequently asked questions (FAQ) and release notes for Casambi software versions.

## Site

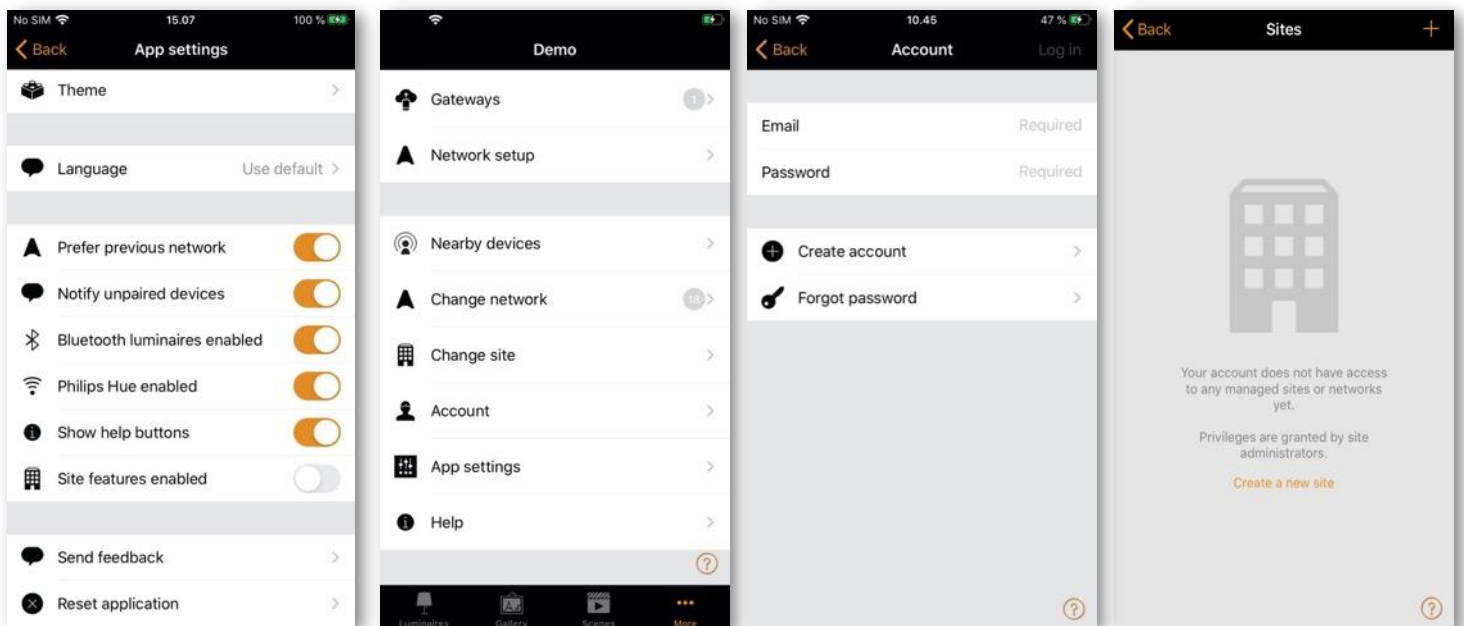
The Site feature allows you to control multiple networks simultaneously, create site-wide scenes and site-wide timers. For example, a building with three floors could have a separate network for each floor and a site could then be used to connect the three floors and control them simultaneously.

To use this feature, the feature must first be enabled in the App settings section of the app. Each network in the site must be shared and have a gateway enabled. It is recommended that changes to a network should not be made once it has been added to a site.

### Creating a Site

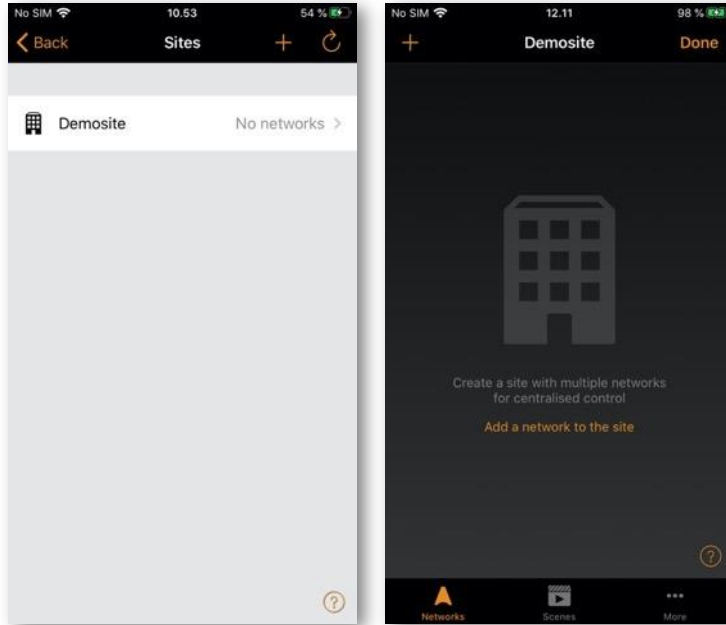
- Enable the Site feature by selecting More > App Settings > Site features enabled.
- Create a Site account: More > Account > Create account and enter the required details
- Navigate to More > Change site (or select Sites from the app's start page)
- Select **Create a new site** or push the + in the top right corner

The new site should now appear in the Change site list.



Select the site you require and add networks to the site:

- Select **Add a network to site** and then select a network from the displayed networks list. More networks can be added by selecting the **+** icon
- Select **Done** when you have added your networks to your site

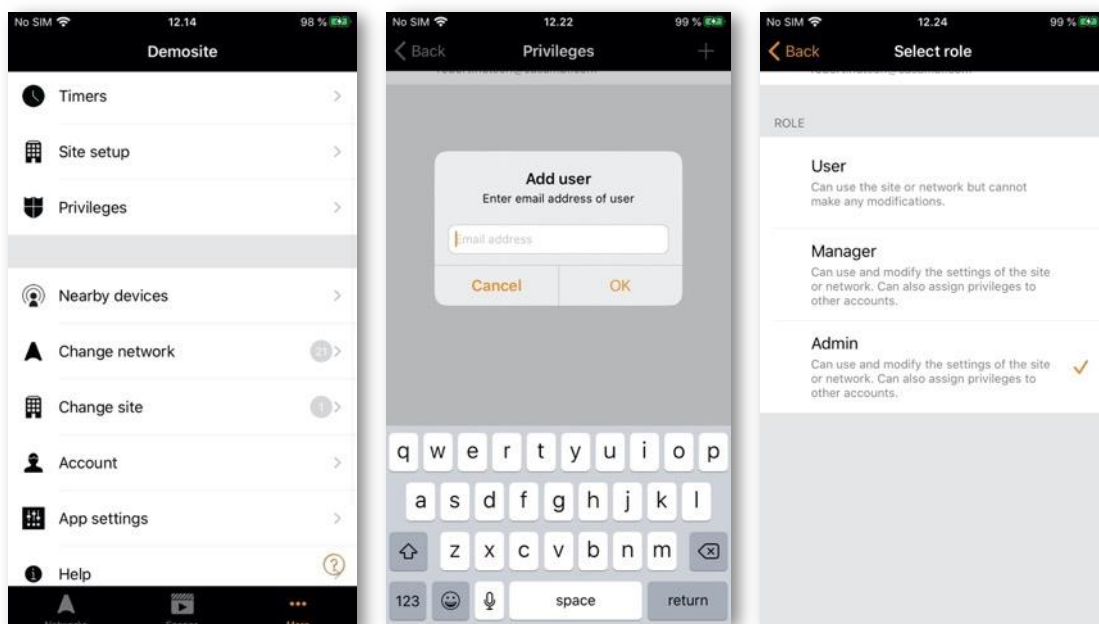


## Privileges

After creating a site, more users can be added to it. New users also need to have their own valid Site Account.

To add more users, select More > Privileges and tap on the **+** sign. Enter the user's email address. Then select their level of access. There are three different levels of site privileges that can be configured:

- **User** (default) Can use the Site or network but cannot make any modifications
- **Manager** Can use the Site or network and can modify settings but cannot assign privileges to the other accounts
- **Admin** Can modify all the settings and can also assign privileges to other accounts



## Controlling a network

From the Networks tab (bottom left of the screen) it is possible to control an entire network in the same way as an individual luminaire, using the same gestures. When tapping the network, all the luminaires inside the network will switch on or off. It is also possible to dim the whole network with swiping left or right, and colour temperature (if supported) can be changed by swiping up and down.

Double tapping a network will open it and from within that view it is then possible to control the individual luminaires in the network.

## Site Scenes

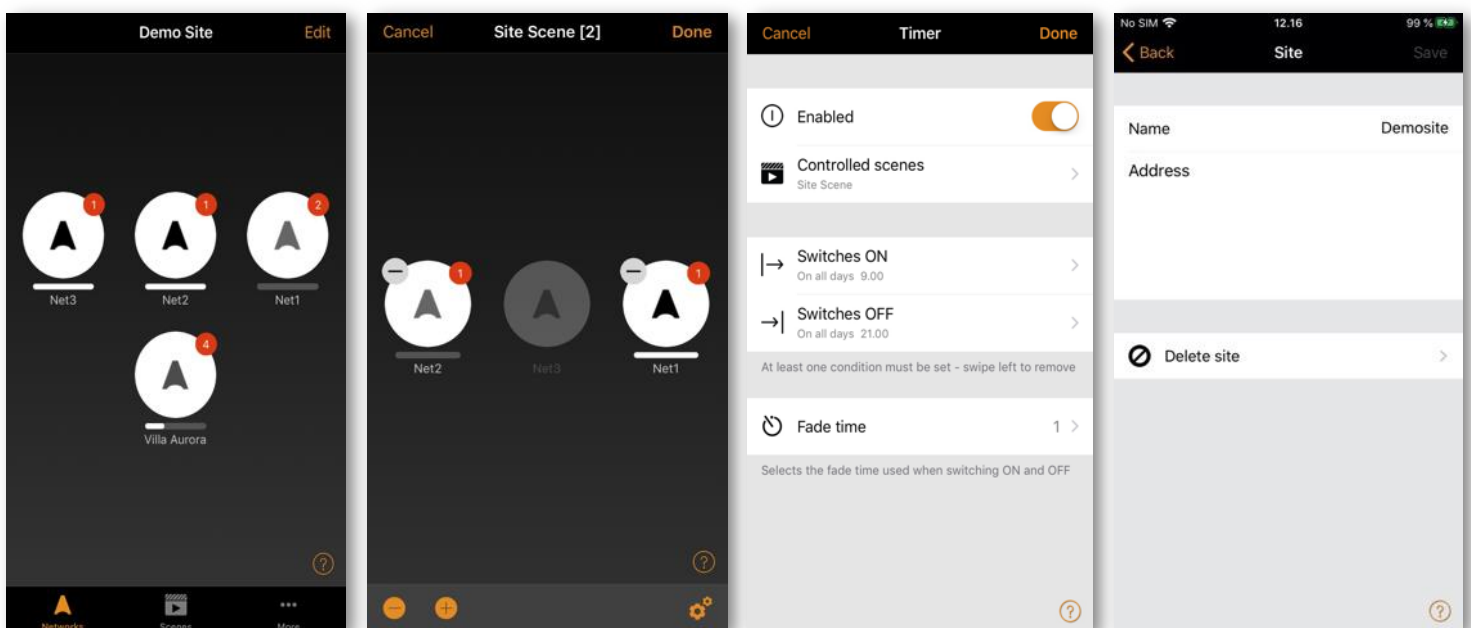
In the Scenes tab it is possible to create site-level scenes and animations. Site-level scenes can include luminaires from different networks. A whole network can be added to a scene. Individual luminaires can be selected by opening a network by double tapping on the network icon. Creating and editing site-level scenes is done in the same way as network-level scenes.

## Site Timers

It is possible to create site-level timers that control site-level scenes. Site-level timers can be configured in the Sites > More > Timers page. Site-level timers are configured in the same way as network-level timers.

## Deleting a Site

- Select the site name from the change site screen.
- Navigate to More > Site setup > Delete site.
- Enter your site account password and push **OK**.





## Appendix

### Definitions of terminology

Here you can find definitions of some of the main terms used throughout this user guide. It is for guidance only and is by no means comprehensive.

- Absence
  - The state of being away, or not present
- Animation
  - A sequence of scenes activated automatically in a predetermined order
- Automation
  - Control by anything that does not involve human interaction (i.e., By timers or sensors)
- Circadian rhythm/profile
  - The change of luminaire colour temperature (cool/warm white) over time to promote human wellbeing.
- Closed loop
  - The daylight control method to achieve constant light levels in an area.
- Daylight control
  - Automatic control of the artificial lighting based on levels of natural light measured by one or more sensors.
- Daylight gain
  - An estimate of the amount of available natural light in an area directly under a luminaire. Daylight gain can be used to ensure luminaires by a window in a room are kept at a dimmer level than luminaires further in the room to achieve the effect of having the same level of illumination throughout the room.
- External
  - A daylight sensor mode similar to Open loop, but for use if the sensor provides DALI dimming commands instead of lux levels.
- Fade time/fade out
  - The speed at which lights will dim, or an underlying command will take control.
- Flick unpair
  - The method of unpairing a device from a network by rapid power disconnection/reconnection.
- Group
  - A collection of luminaires in the same physical area (e.g., all luminaires in a row or in one room).
- Hierarchy
  - Software functionality that defines which type of commands take priority over others if multiple types of command are being actioned simultaneously.

- Linger time
  - The time from when a presence sensor stops detecting movement before it deactivates the Presence scene.
- Manual control
  - Control by physical interaction (e.g., Pushing a button or switch, or by selecting a control or scene icon within the app).
- Manual control time out
  - The period of time that manual control remains active (i.e., If a scene is selected from a push button, automation commands will not affect luminaires in that scene until the timeout expires).
- Open loop
  - Daylight control where the measuring sensor is not receiving any light from luminaires it is controlling (i.e., the sensor could be outdoors and luminaires indoors).
- Override presence
  - The method to raise the importance (priority) of a day or date timer in the control hierarchy so that it becomes more important than a presence command.
- Presence
  - The state of being in an area.
- Resume automation
  - Disable manual control commands that may be active at a higher level in the control hierarchy to allow the automatic control to take over (e.g., from sensors or timers).
- Scene
  - A lighting scenario usually comprised of multiple luminaires set to a desired configuration (e.g., brightness levels and colours).
- Smart-Switching
  - Options to provide simple lighting control depending on how a luminaire power switch is turned off and on.
- Timeout
  - The period of time a command remains active for.
- Toggle
  - Switching a luminaire on/off via a Casambi enabled device (i.e., Device power remains on).

## Smart switch

With the Smart switch feature, ordinary mains wall switches can be used as dimmers or configured to control luminaires or scenes. This feature is only available for Casambi devices that receive a direct mains input. Products that use an additional power supply (e.g., CBU-PWM-4) do not have Smart switch capability.

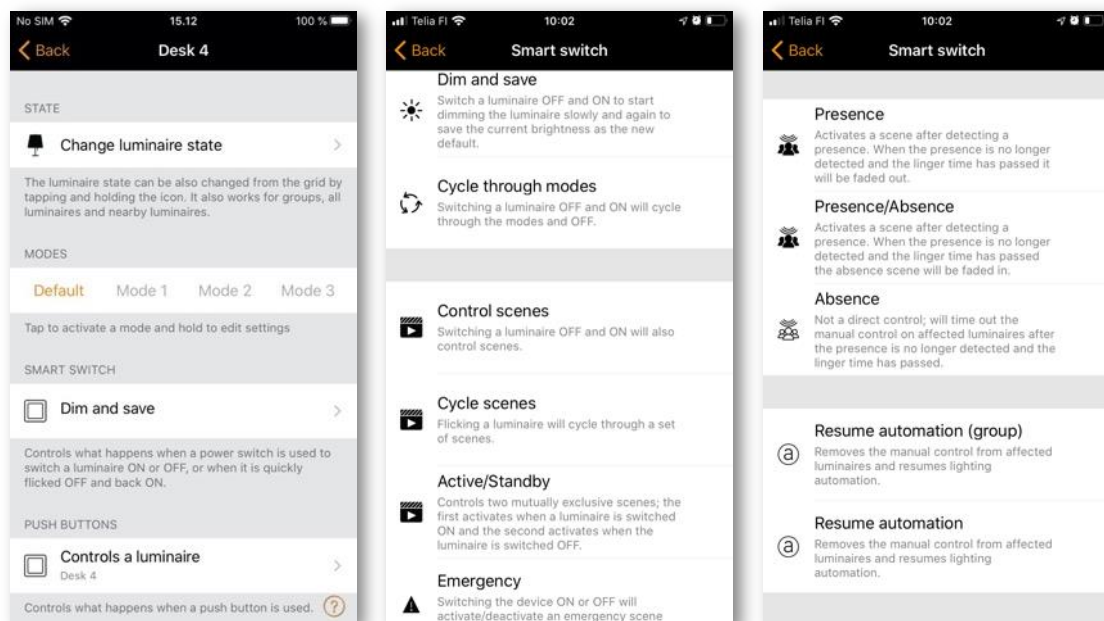
The Smart switch mode can be configured in Casambi app. It is possible to assign a different Smart switch mode to each Casambi enabled luminaire. For example, you can use Smart switch to switch on a scene when you come home or switch the lighting to be suitable for dinner party or watching a movie.

Go to the Luminaires tab and double tap the luminaire icon that you want to assign a Smart switch mode to.

Under the Smart switch section, select the current mode to open the Smart switch selection. The default mode is Dim and save.

The possible Smart switch modes are:

- Not in use
- Dim and save Controls one luminaire
- Cycle through modes Controls one luminaire
- Control scenes Controls one or multiple luminaires
- Cycle scenes Controls one or multiple luminaires
- Active / Standby Controls one or multiple luminaires
- Emergency activates a scene which cannot be manually over-ridden until the controlling device is powered off (for Evolution networks only)
- Presence Replicates a presence sensor
- Presence/Absence Replicates a presence/absence sensor
- Absence Replicates an absence sensor
- Resume automation (group) Resumes automation for a single group
- Resume automation Resumes automation for the whole network



## Dim and save

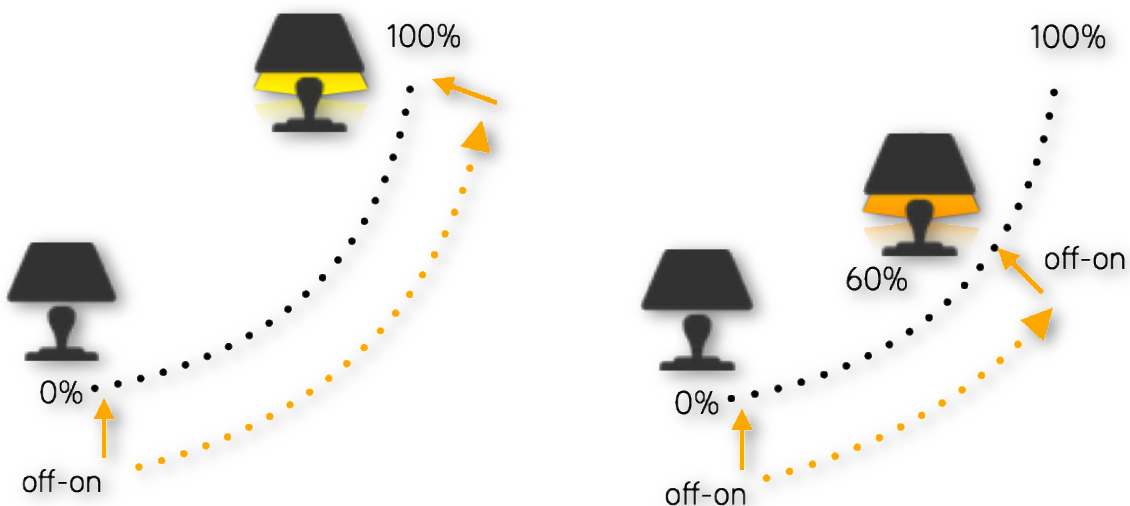
By default, Casambi enabled luminaires are set to use the Dim and save Smart switch mode. This means you can use the luminaires' power switch for dimming and setting the default light level.

To start the dimming process, quickly switch OFF and ON the light fixture from the power switch. After flicking the switch, the dimming process will start. Note that the speed at which the luminaire will dim from minimum to maximum level will be determined by the Fade time for switch dimming parameter set in the More tab, Network setup > Control options.

Once the light has reached the desired brightness flick the power or wall switch quickly OFF and ON again to save the current level as the new default brightness for the luminaire. You can then switch your luminaire off and on as normal and the default brightness level will be recalled each time you switch on.

It is possible to change the default brightness by starting the dimming process again by switching OFF and ON quickly.

To set the default brightness level back to maximum, just flick the power switch OFF and ON and allow the luminaire to dim up to maximum level. When the maximum level is reached it is automatically stored as the new default for the light fixture.



## Cycle through modes

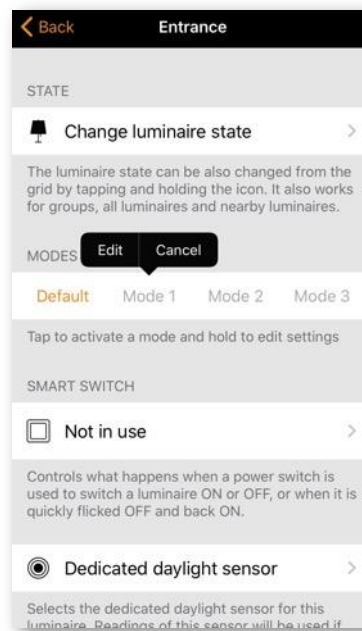
If you have set different modes for the luminaire with the Casambi app you can assign the power switch to control them. Modes can be different dimming levels, colours, or colour temperatures. Flicking the power switch quickly OFF and ON will cycle between each configured mode and off (e.g., Default, Mode1, Mode2, Mode3, Off).

To set a mode, first hold down the mode number you want to configure. The option to Edit is then shown. Select Edit and adjust the light level, colour temperature or colour of a luminaire to its desired level (available options will depend on the type of luminaire). Tap outside the adjustment area to close the window. Repeat the steps to set more Modes.

After you have set all the desired modes tap the Smart switch mode and select Cycle through modes from the list. It is possible to disable the Off step by disabling the option Include OFF in the cycle.

Note that you do not have to set all modes. Only modes that have been configured will be included in the sequence.

Tip: Create a simple “step dimmer” by storing Mode 1 = 75%, Mode 2 = 50% and Mode 3 = 25%.



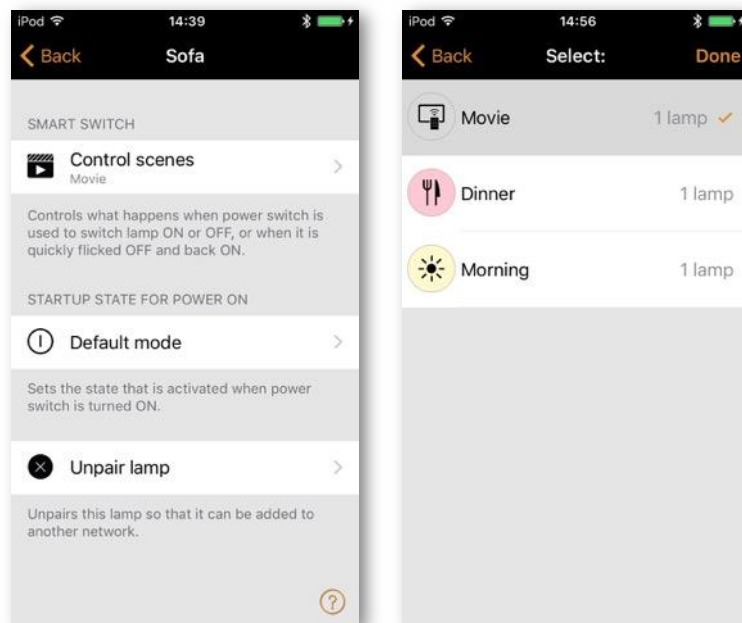
## Control scenes

If you have created different scenes with the Casambi app you can control them from a single power switch.

Turning on the luminaire that has this option configured will activate the specified scene and the luminaires in that scene will go to their defined scenario. Note that all luminaires in the scene must have power (The Control scenes option does not switch power on to any devices).

Turning off the Control scenes enabled luminaire will turn off the scene, and the luminaires that are currently controlled by that scene will fade off.

To enable this Smart switch option, select the 'Control scenes' option from Smart switch and tap on the desired scene to select it. Confirm changes with **Done**.



## Cycle scenes

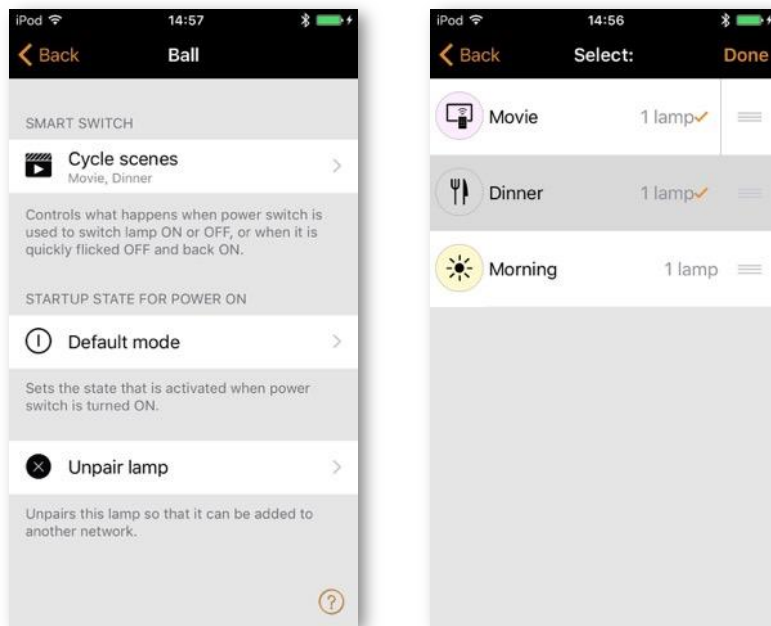
If you have created different scenes with the Casambi app you can cycle through them and Off with one power switch. Select the scenes you would like to cycle through and flick the power switch off and on to cycle through the selected scenes and Off. It is possible to disable the Off step by disabling the option Include OFF in the cycle.

Select the Cycle scenes option from Smart switch and tap on the desired scene or scenes to select them. It is also possible to change the order of the scenes by dragging and dropping the scenes around in the list by using the three parallel horizontal lines on the right of the screen next to the scene name. Confirm changes with **Done**.

Scenes will then be activated in the listed order (top to bottom).

Example: Selected scenes are Movie and Dinner. Include OFF in the cycle is active:

1. Flick off/on: Movie scene activates
2. Flick off/on: Movie scene deactivates, and Dinner scene activates
3. Flick off/on: Dinner scene deactivates, and lights fade Off
4. Flick off/on: Movie scene activates again
5. ....



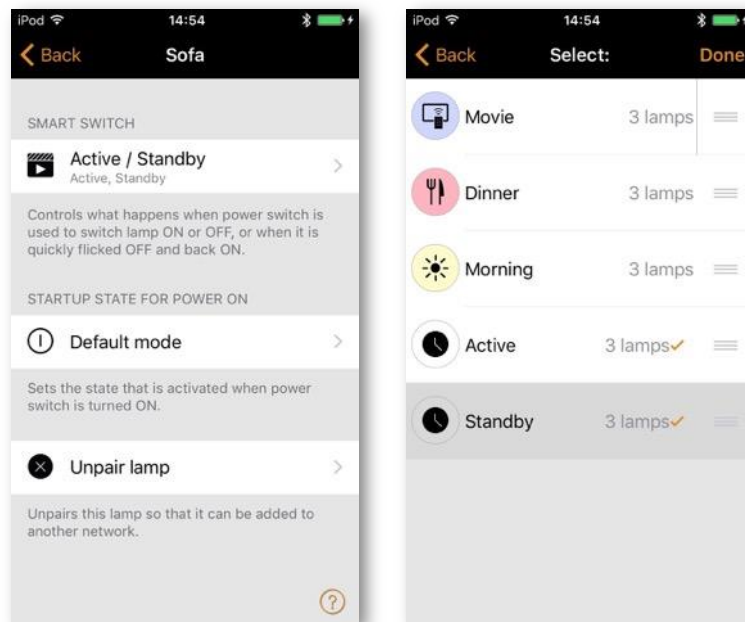
## Active/Standby

With Active/Standby Smart switch mode you can control two scenes that both have the same luminaires in them.

Create two scenes, one scene that should turn on when the controlling luminaire is powered ON (i.e., the Active scene) and one Standby scene that is turned on when the controlling luminaire powered OFF. This mode can be used for example with motion sensors.

Example: When motion is detected the luminaires go to full light level and when there is no motion the luminaires are dimmed to 30%.

Note that the luminaires in the two scenes must always be powered i.e. They cannot be connected to the same power switch as is used to activate the device configured with Active/Standby Smart switch mode.

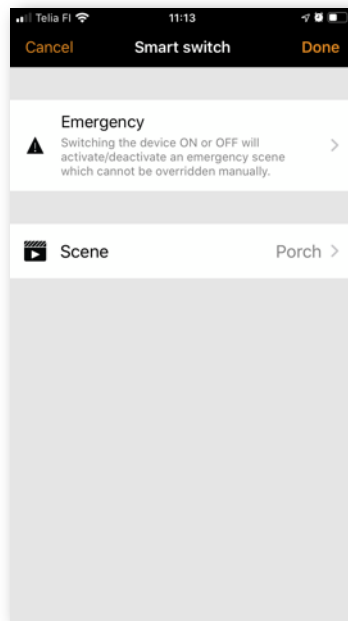




## Emergency

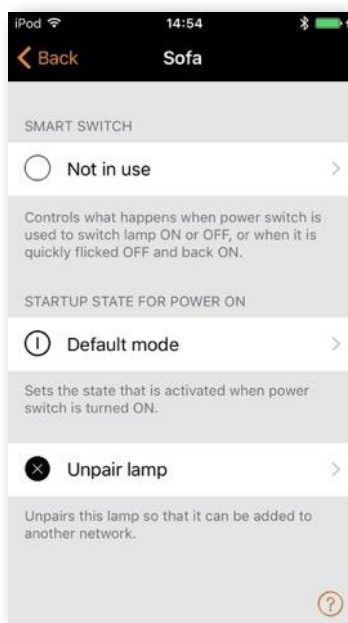
This option is only available with Evolution networks. This feature can be used with a latching wall switch to create an 'emergency switch'.

A scene is assigned to the Emergency Smart switch option. When the power to that device is ON, the assigned scene is activated and is only disabled when power to the device is switched OFF. i.e., Any luminaires used in the Emergency scene cannot be controlled by any other method until the Emergency device is powered OFF.



## Not in use

Sometimes it is necessary that the power switch doesn't do anything special when used. The Not in use option will disable our Smart switch feature.



## Push buttons

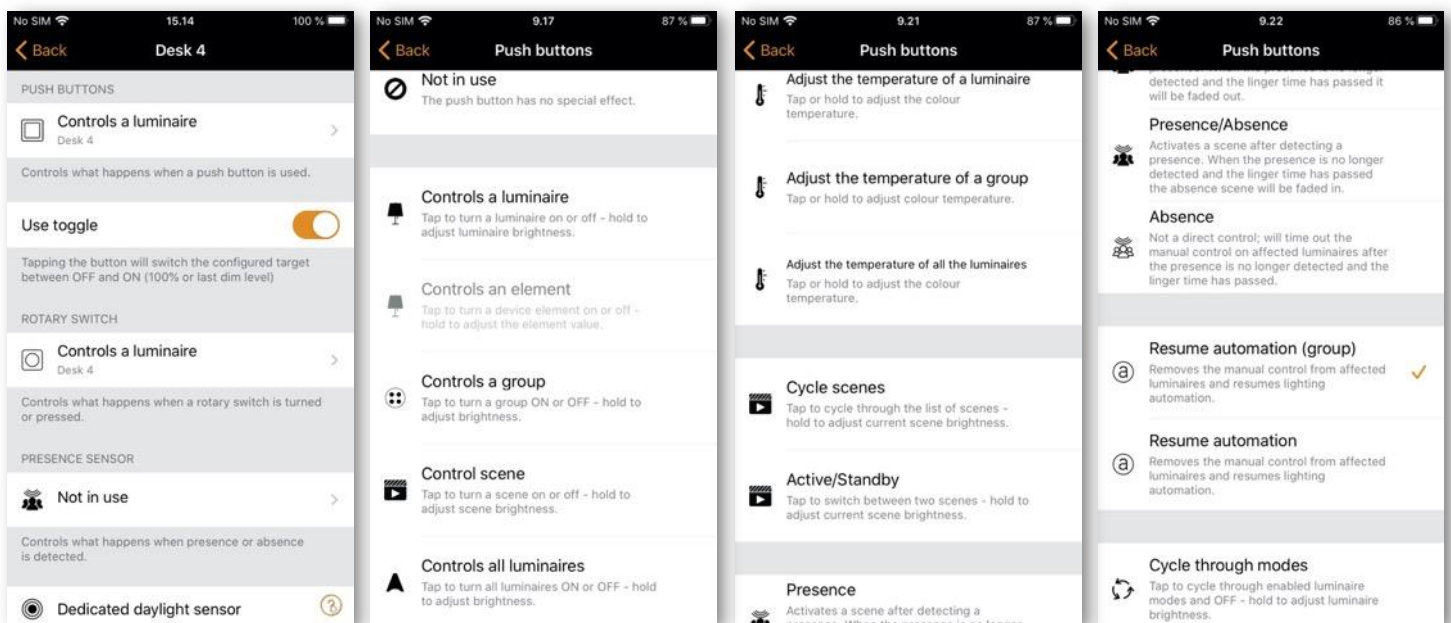
If your Casambi enabled luminaire is equipped with a push button, you can select the configuration for the push button in the Casambi app. You can use it to dim the luminaire or control several luminaires with one push button. It is possible to assign different modes to each Casambi enabled luminaire's push button. For example, you can use the Push button to switch on several luminaires when you come home or switch the lighting to be suitable for a dinner party or watching a movie.

Navigate to the Luminaire tab and double tap the lamp control in which want to change the push button configuration. You can also find the same possibilities to configure the push button in the More > Switches section.

Under 'Push buttons' tap the current mode to open the Push buttons selection. As a default the mode is 'Controls a luminaire'.

The available Push buttons modes will depend on the capabilities of the luminaires in your network. Available modes are:

- Not in use
- Controls a luminaire
- Controls an element
- Controls a group
- Control scene
- Controls all luminaires
- Adjust the temperature of a luminaire
- Adjust the temperature of a group
- Adjust the temperature of all the luminaires
- Cycle scenes
- Active/Standby - controls one or multiple luminaires
- Presence
- Presence/Absence
- Absence
- Resume automation (group)
- Resume automation
- Cycle through modes

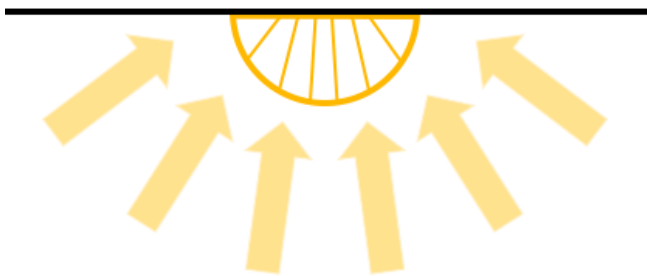


## Daylight sensor calibration and set up

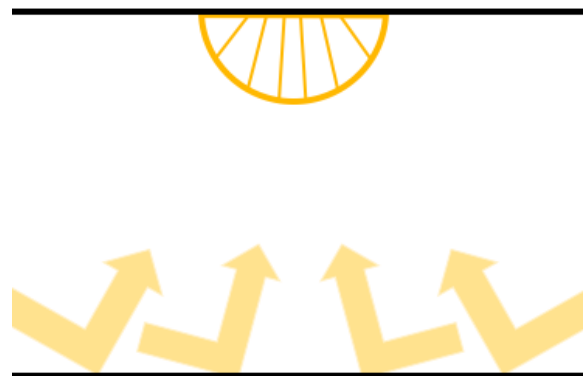
In most circumstances, calibrating a daylight sensor will not be needed as the sensor technology is highly likely to be accurate enough. However, if calibration is needed, then it first needs to be determined whether the sensor should be calibrated for measuring incidental or reflected light.

Site specific variations due to differences sensor specifications, locations, orientation, and the available natural and artificial lighting in an area, mean that calibrating a Casambi enabled sensor ensures the lux value measured by the sensor is interpreted by the Casambi system into a corrected lux value for the application.

Incidental (direct) light



Reflected light



### Calibrating a sensor for incidental (direct) light

Incidental light is the total amount of light being received by the sensor. i.e., the light that falls on the surface of the sensor lens that is gathered from the entire area in which the sensor is situated.

This is the default measurement and is the lux reading that a sensor will display in the Casambi app. Usually this will not require recalibration. However, sensor limitations may mean that it is not capable to measure the full lux range to which it is being subjected. This may occur for example if a sensor is mounted in direct sunlight.

If needed, the below steps should be followed to calibrate the sensor reading in the Casambi app.

- Place a lux meter as close as possible to the lens of the Casambi enabled sensor, ensuring that the lux meter's lens is pointing in exactly the same direction as the lens of the Casambi sensor being calibrated.
- Measure the amount of light received by the lux meter.
- Open your network in the Casambi app and navigate to More > Sensors.
- Select the desired sensor.
- Select Daylight sensor.
- Select Current value and enter the value of lux measured by your lux meter.
- Select **OK** and then **Done** to complete the calibration.
- Push **Back** to return to the sensors view

When using the sensor in any of the daylight scene modes (Mode of operation) that are configurable in the Casambi app, the lux value used for any adjustments will be the corrected value of lux being received at the sensor itself. Thus, if the sensor is calibrated for direct light, using Closed loop mode for constant light control will try to maintain an overall total amount of light for the whole area in which the sensor is situated.

## Calibrating a sensor for reflected light

Reflective light is light that is being received on the surface of an object, or objects placed directly opposite the lens of the Casambi enabled sensor. For example, the amount of light falling on the surface of a desk in an office.

If you would like to try to maintain a specific amount of light on that object or surface, you will need to calibrate the sensor lux value shown in the Casambi app. It should also be noted that when using a Casambi-enabled sensor in this way, the accuracy of the lux measurement will be reduced because the accuracy will be reduced the further the measured point is from the surface of the sensor lens.

To calibrate for this type of use:

- Place a lux meter on the surface of the desired object with the lens of the lux meter directed straight at the lens of the Casambi enabled sensor that is to be calibrated.
- Measure the amount of light received by the lux meter (this value is likely to differ significantly from the lux value received by the Casambi enabled sensor and displayed in the app).
- Open your network in the Casambi app and navigate to More > Sensors.
- Select the desired sensor.
- Select Daylight sensor.
- Select Current value and enter the value of lux measured by your lux meter.
- Select **OK** and then **Done** to complete the calibration.
- Push **Back** to return to the sensors view

If you now are using the Closed loop daylight mode in a scene, the Casambi enabled sensor will attempt to maintain a constant amount of light on the surface of the object, for example the surface of a desk that is directly below the sensor.

When calibrating a sensor that is to control the amount of artificial light in an area, it is important to remember to exclude as much natural light from the area as possible during the calibration. Ideally there should be no natural light. Also, it is best practice to try to have the installation in as final state as possible with all carpets, desks, and other items in their final places. This enables the most accurate calibration and the best dimming range for the controlled luminaires in the widest possible variety of situations.

Regardless of the calibration method chosen, it is necessary to consider if one or multiple sensors distributed through an area would be required to archive the best possible lighting control solution. Each individual sensor may need calibration for the lighting conditions applicable in their specific area of installation.

Note also that if multiple daylight sensors are configured to be controlling the same luminaires in an area, then the lux values used by the Casambi app will be the average of all sensor measured lux values.

## Sensitivity and Tolerance

Within the Daylight sensor settings, you will see options for adjusting the sensor Sensitivity and Tolerance.

The Sensitivity defines how quickly the sensor will react to changes in illumination. The higher the sensitivity the faster the reaction time. Lower sensitivities are usually chosen to avoid possibly annoying situations of luminaires dimming up and down every time a cloud happens to cover the sun for a few seconds.

The Tolerance defines how large the changes in measured lux value need to be before the sensor will react and adjust the lighting. A larger value requires larger measured lux changes.

## Daylight gain

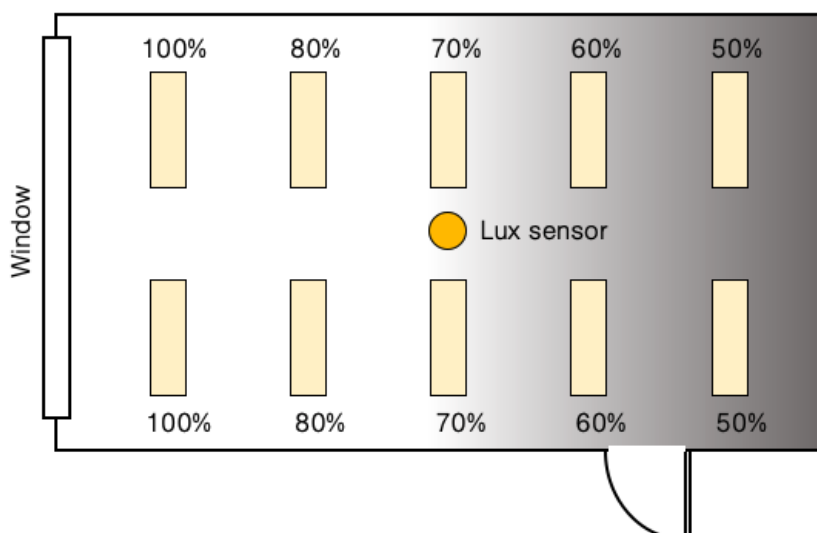
A consideration when configuring daylight control of an area is whether luminaires may need to be configured with a daylight gain offset to optimise the achieved dimming conditions. Daylight gain is mainly used, for example, if there are multiple luminaires in an area being controlled from a single daylight sensor.

Daylight gain is an estimate of the amount of available natural light that can be present in the same area that is illuminated by a single luminaire. For example, a luminaire installed next to a window may be in a position where there is the most natural light available, and thus could have a daylight gain of 100%. A luminaire further away from the window will not have as much natural light capable of affecting the area it is illuminating and would therefore have a lower daylight gain.

Configuring different daylight gains for the luminaires in an area would have the effect of providing a more consistent illumination throughout a room if controlled by a single lux sensor. Luminaires installed near a window will dim to a lower level than luminaires situated further inside the room, but users of the area will perceive that there is a similar amount of total light available throughout all areas across the entire room.

A recommended method to determine the estimate of daylight gain for different areas would be to use a lux meter to take readings at different points without any artificial illumination being active (i.e., only natural light is available). The highest lux reading can then be taken to be 100% daylight gain and lower daylight gain percentage values can then be calculated.

Example of Daylight gain setting (Most natural light is near the window)



Each luminaire in a Casambi network can have its own daylight gain defined if desired. As standard the Daylight gain for luminaires is set to 100%.

To set the daylight gain for a luminaire, navigate to the Luminaires tab, push **Edit** and then select the luminaire you wish to set the daylight gain for. Scroll to the Daylight gain slider and adjust this to reflect the approximate amount of natural light that you consider is present in the same areas that the luminaire illuminates. Push **Back** when finished and **Done** to return to the Luminaires tab view.

## Dedicated daylight sensor

If a luminaire has an inbuilt daylight sensor, you may wish that luminaire to only respond to values from that sensor. Alternatively, you may have a situation where you are using multiple daylight sensors, but you only wish to have one specific sensor affecting a particular luminaire. In such cases you can configure individual luminaires to react only to a specific sensor.

From the Luminaires tab select **Edit** and then select the luminaire you wish to configure. Scroll to Dedicated daylight sensor, tap and choose the correct controlling sensor from the displayed list. Push **Done**, then **Back** then **Done** again to return to the Luminaires tab view.

When configuring the Daylight control, Mode of operation as part of a scene, you will see an option to Use dedicated sensors. If this is enabled, a luminaire that has had a dedicated sensor assigned to it will only respond to values from that sensor. Luminaires that have not had any dedicated sensor assigned will be controlled by multiple sensors, if used. For example, if you have multiple lux sensors controlling lighting in a room, luminaires without dedicated sensors assigned will respond to the average lux value from all sensors. Luminaires that have a dedicated sensor assigned will only respond to the lux value from the specific dedicated sensor.

## Sensor placement considerations

To achieve the best performance from a daylight harvesting installation it is important for the location of the lux sensors to be carefully considered. The performance of the lighting control will depend totally on what the sensors “see”. This is particularly important where you have lighting applications relying on side-lighting, reflected light, diffused daylight or where direct sunlight can influence the sensor performance. It may be that simply a small change in sensor location or orientation can affect the overall system performance.

Ideally sensors should be positioned and orientated so that they are shielded from any direct glare. Indoor sensors should not typically be placed beside a window. They are best orientated to only be receiving indirect illumination from daylight. Exterior sensors should be shielded from direct sunlight.

The lux sensor should be placed so that it receives a representative sample of the available daylight in an area. Having a too wide field of view can result in detection direct sunlight or illumination from light sources outside of the zone being controlled. A too narrow field of view can have the effect of making the sensor too sensitive to local changes in brightness.

Prior to sensor placement, it is good practice for a separate lux meter to be used to measure light levels at potential locations before choosing the final daylight sensor positions.

A sensor that is to be used in Closed loop mode (i.e., Intended for maintaining a constant illumination level in an area or on a surface) is usually mounted on the ceiling to enable it to view a representative area that includes the illuminated area it is controlling. It should not be placed with direct view of a window or, for example, a pendant luminaire.

In an ideal situation, closed loop systems should be configured when there is an absence of all light that is not being controlled by the sensor (i.e., at night without any daylight, and without any other lighting being active that is not being controlled by the sensor). In addition, the installation should be in as finished state as possible, for example with all desks, carpet and equipment installed. This is because each item placed in the sensor measurement area at a later stage will change the amount of reflected light received by the sensor and will also therefore influence the constant light performance.

Open loop sensors are typically ceiling mounted and orientated towards a window or skylight to view incoming daylight but not any of the illuminated area that is to be controlled. Alternatively, open loop sensors can be mounted totally remotely from the illuminated area, such as outdoors. Open loop systems are easier to configure since they just require a dimming response graph to be defined which will tell the Casambi system what dimming level to target for a measured lux value. Due to this the configuration can be done at any time of day.

Regardless the chosen sensor or intended mode of operation, the sensor manufacturer's specifications, and installation and placement instructions should be followed.

## Control Hierarchy

Control hierarchy allows co-operation between manual lighting control and automated lighting control. Manual control is any physical action, like selecting a scene by pushing the scene icon in the app, pushing a switch, push button, or rotary control. Automated control is, for example, commands generated by presence sensors and timers. Each control action has a specific priority and if multiple controls are simultaneously active on the same luminaire it will adhere to the highest priority.

When the highest priority control is removed the luminaires will fade into next highest priority. If the hierarchy is empty the luminaire will fade to OFF.

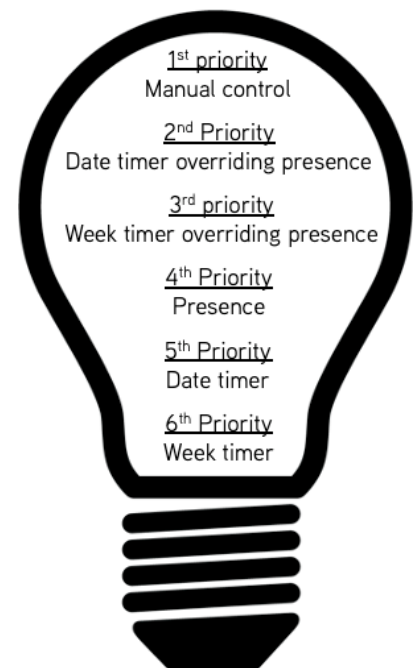
### Priority levels

- Manual control (App, switches, push buttons, rotary control)
- Date timer (with sensor override)
- Week timer (with sensor override)
- Presence sensors
- Date timer
- Week timer

Commands with the higher priority in the hierarchy are actioned, even if lower priority commands are still active due to sensor linger times, timers etc.

A higher priority command with a lower dimmed level will still override a lower priority command that has a higher dimmed level.

Commands with the same priority level are actioned in “latest takes precedence” order.



### Manual control

Manual lighting control has the highest priority and will always override the automated control. It can be set to timeout or stay on luminaires indefinitely. There are configurable timeouts for manual control assigned for day and night periods of each weekday.

When the timeout is reached the manual control will be removed and the luminaire fades to the next highest priority control. Setting the timeout value to zero will disable timeout, but in this case manual control is always overriding any presence sensors and timers. Timeout options are:

- **Always timeout** will always cause manual control of a luminaire to expire (based on the timeout period).
- **Timeout if automation waiting** will cause manual control of a luminaire to expire only if it is being controlled by the control hierarchy. For example, a presence sensor or a timer.
- **Don't timeout will** prevent any network automation from affecting any manually controlled luminaires.

When luminaires display the @ icon it indicates that it is under automated lighting control (presence sensors or timers). Tapping the @ button will remove the manual control from all luminaires or opened group of luminaires.



## Presence sensors

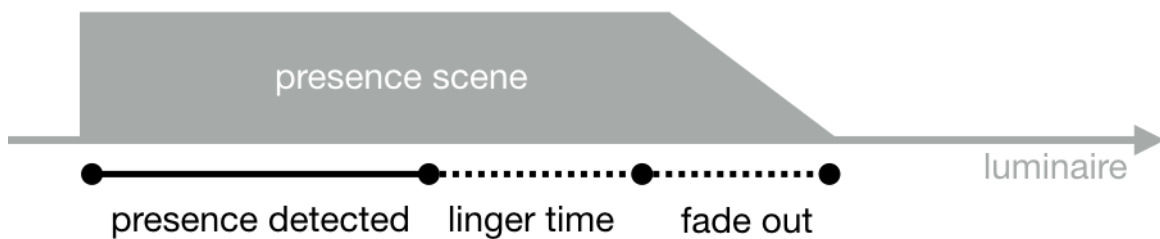
Presence sensors operate on second highest priority (unless a timer has been set to override presence) and use scenes to control the luminaires. Up to 20 sensors (for an Evolution network, 10 for a Classic network) can simultaneously control an individual luminaire. When multiple sensors are affecting one luminaire it will be following the presence scene having the highest dim level.

Each presence sensor has a setting for linger time which dictates how long the scenes will stay on after presence is no longer detected. After the linger time passes the associated luminaires will be faded over the configured duration.

Presence control functionality can be assigned to smart switching, push button or dedicated presence sensors. Each sensor can trigger up to two scenes; A typical use case is to use one scene for the actual controlled area and another scene for associated emergency route luminaires. Note that if multiple scenes are used there should not be overlap between affected luminaires (i.e., None of the same luminaires can be used in both scenes).

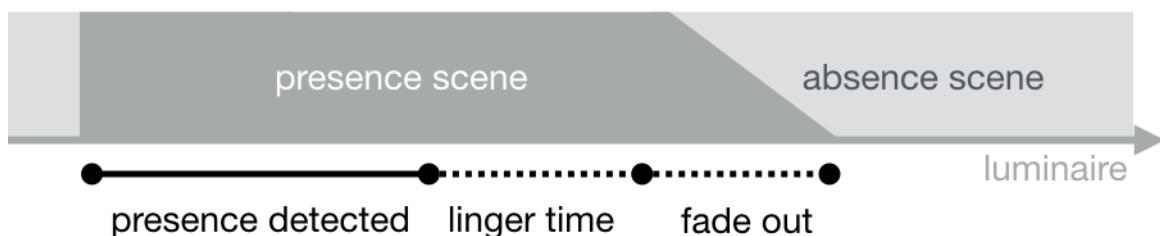
## Presence control

Activates a scene when presence is detected and deactivates it after presence is no longer detected and the linger time has expired.



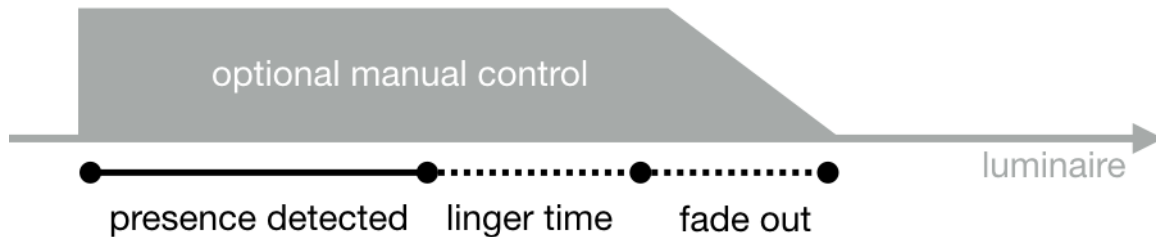
## Presence/Absence control

Activates a scene when presence is detected and changes to the absence scene after presence is no longer detected and the linger time has expired. Note that absence scenes will only affect those luminaires that were affected by presence scenes.



### Absence control

Absence control allows luminaires to be manually controlled and when presence is no longer detected and the linger time has expired it will remove the manual control (if any.) Scenes are only used to select the affected luminaires.



### Timers

Timers are split into two categories: date based (meaning start / end times are based on specific date) and other timers. Date based timers have a higher priority than the other timers, so they will override weekday-based timers. Thus, it is possible to use them to implement, for example, holiday season override.

Timers can also be set to override presence sensors; this could be used, for instance, to prevent sensors from activating luminaires at a certain time of day.

It is also possible to configure the timers to automatically activate when luminaires are powered on (Activate timers on startup). After receiving network time, the luminaire will determine the expected timer state and activate them. Note that after switching the power ON there will be a small delay before this happens.

Tip: To allow easier testing during commissioning the luminaire control hierarchies can be reset by selecting More > Network Setup > Configure all luminaires > Reset Network.

## Evolution and Classic networks

To take advantage of an Evolution network, your Casambi enabled devices must be Evolution firmware compatible. Evolution compatible devices display the text Evolution or Classic next to the firmware version number when viewed in the Nearby Devices list. If only the firmware number is displayed, then the device is only suitable for use in a Classic network.

Devices suitable for both network types (i.e., ones that display text AND firmware number) can be changed from Classic to Evolution firmware and vice-versa.

In addition to all features available from a Classic network, the features below are available with Evolution networks:

- The maximum amount of Casambi devices in an Evolution network is 250 (127 with Classic networks).
- Additional features are visible through remote connection making the commissioning and technical support phase easier than ever before. The unit's conditions (e.g., Overheated, Configuration failure, Missing driver etc) as well as the unit's priority level in the control hierarchy are now transported over the mesh network.
- Support for additional products:
  - Various DALI and DALI2 push button devices
  - Casambi Ready battery powered presence & lux sensors
  - EnOcean's wireless presence/daylight sensor
  - D4i support (Availability of data is under continuous development)
- Support for XY and XY,TW colour control for DALI8-based fixtures.
- The sharing settings include more options. Additional options for users in Evolution are:
  - USER
  - MANAGER
  - ADMINISTRATOR
- A 'Performance & Security' tab has been added. For more information, see the Performance & Security section of this user guide.
- Emergency mode for Smart switching. For more information, see the Smart switching section of this user guide.

Continuous development means additional "Evolution only" features and functionality will be added over time.

Classic firmware is only in "maintenance mode" and will only receive bug fixes. No new features or functions will be developed for Classic.

## Changing device firmware (Evolution <> Classic)

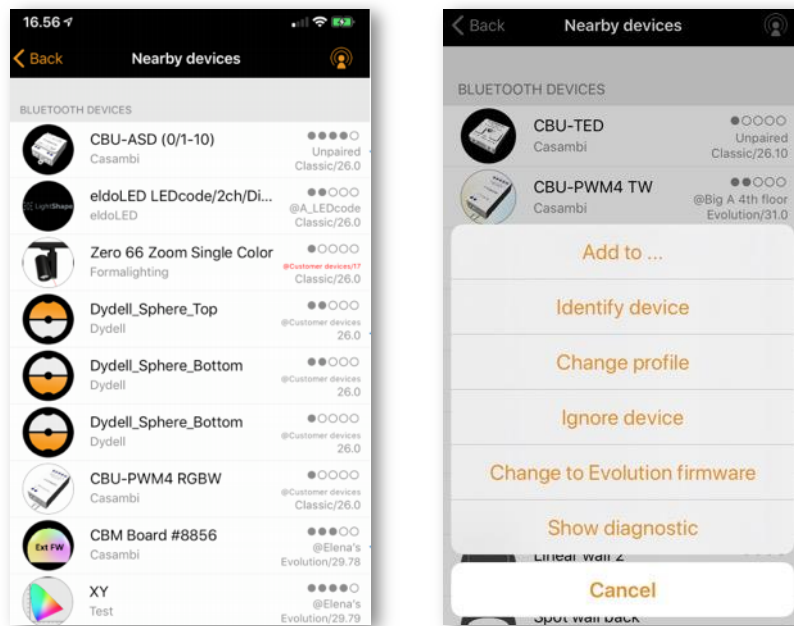
A device must display the text Classic or Evolution next to its firmware version when viewed in the Nearby Devices list. If only the firmware number is displayed, then the device is only capable of use on a Classic network.

### To upgrade a Classic device to Evolution firmware:

1. Ensure that the device is un-paired.
2. Select the device within the Nearby Devices list and then choose **Change to Evolution firmware** from the menu.
3. Select START when prompted.
4. The updated device can now be paired with an Evolution network.

### To change an Evolution device to Classic firmware:

1. Ensure that the device is un-paired.
2. Select the device within the Nearby Devices list and then choose **Change to Classic firmware** from the menu.
3. Select START when prompted.
4. The updated device can now be paired with a Classic network.



## Changing a device's profile

One feature of many Casambi devices is that the same physical hardware can be configured over-the-air to provide different functionality depending on what it has been connected to. For example, a CBU-PWM4 can control up to 4 separate channels of LED strip ("1ch dim", "2ch dim", "RGB", "TW" etc.).

Generally, devices sourced directly from Casambi, or our Ecosystem product partners should have the correct profiles preconfigured. If needed, standard profiles can be changed using the Casambi app.

To change a device's profile:

1. Unpair the device from your network.
  - a. For Luminaires:
    - i. In the Luminaires tab, select **Edit** and then push the X in the top left corner of the luminaire icon you wish to unpair
    - ii. Alternatively, in the Luminaires tab, double tap the icon of the luminaire you wish to unpair to open its properties. Scroll to the bottom and select Unpair device
    - iii. Or identify and select the correct luminaire from the Nearby devices list and select **Unpair device**.
  - b. For Switches and Sensors go to the relevant section in the More tab. Select the device. Scroll to the bottom and select Unpair device. Or identify and select the correct device from the Nearby devices list and select **Unpair device**.
2. In the More > Nearby Devices list select the unpaired device whose profile you wish to change.
3. Choose the **Change profile** option (if available) and select the correct profile from the displayed list.
4. Once the profile has been changed, add the device back to your network.

**Note:** If there is no option to **Change profile** when tapping on the unpaired unit, it means that the manufacturer of the Casambi ready device has determined that the profile cannot be changed, or no alternative profile is available. If you believe a profile change should be possible, or if the desired profile is not listed, please contact the Casambi Partner/Value Added Reseller who supplied the Casambi unit.

Example of some profiles available for the CBU-PWM4:



## Error texts

In the Nearby devices view you may see the network name displayed in red or purple text under certain error situations

### Red text

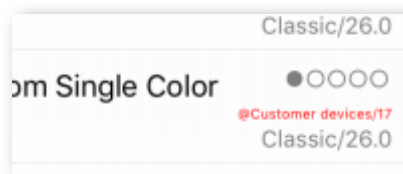
Meaning: A units configuration indicates that it is in a network, but the device isn't recognised in the network configuration.

Fix: Unpair & re-pair to the network.

### Purple text

Meaning: Duplicate unit ID. This may be caused if multiple persons are trying to pair devices to the same network simultaneously.

Fix: Unpair all devices showing purple text & re-pair to the network.



## Time syncing

If power is lost to all Casambi units in a network, then the time information will be lost. The app needs to be reconnected to the network to enable the time information to be "reseeded" to the devices in the network.

If just one Casambi enabled device remains powered, it will retain the time information and will automatically "reseed" it to other devices when power to them is restored.

Due to normal electronic component tolerances, if there is no app connected to the network, the time in individual units may drift slightly over longer periods of time. It is recommended to periodically (e.g., Every 6 months) reconnect the app to the network in order to refresh the time to all devices.

## Communication issues

Mobile devices from different manufacturers implement Bluetooth technology in different ways. This may lead to differences in mobile device performances and may occasionally lead to communication issues.

If Casambi enabled devices or the Casambi app do not appear to be reacting as expected, try one (or more) of the following actions:

- Ensure Bluetooth is enabled on your mobile device.
- Put your mobile device into Flight mode for 15 seconds.
- Switch your mobile device Bluetooth off & on again.
- Switch your mobile device WiFi off & on again.
- Totally close & then re-open the Casambi app.
- Restart your mobile device.

## Apple Watch

The Casambi app for the Apple Watch allows limited control of your Casambi network. The available options allow you to control all luminaires, all scenes and three favourite scenes.

### Favourites

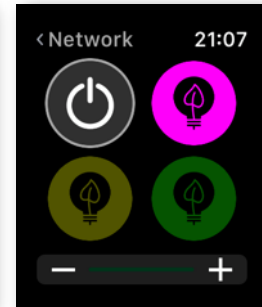
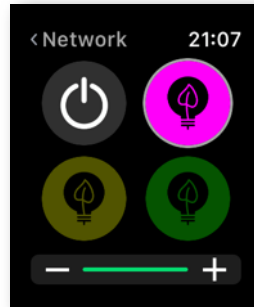
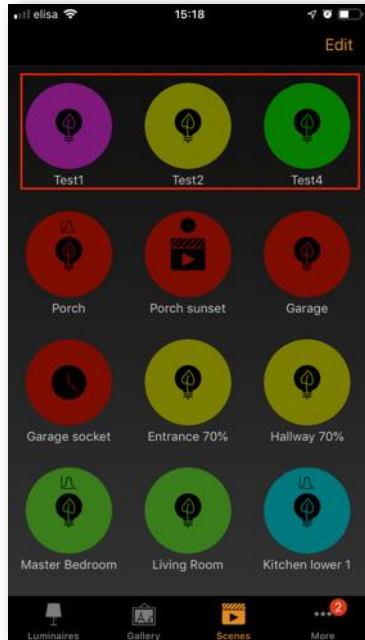
The three favourite scenes can be any scene type. The Apple Watch app automatically selects the first three scenes from your iPhone app's Scenes tab, so the three scenes you want to use as your favourites must be moved to the top of your iPhone app's Scenes page.

Also note that scene names are not visible in the Apple Watch, so it is recommended to set a different colour for each of your scenes to identify each individual scene. See the examples below.

### Networks

You can change to a different network by selecting the Network option in the top left of the app.

Note: it is not possible to log into a network from the Apple Watch app. Any network you wish to use must already be accessible from your iPhone Casambi app to be used by the Apple Watch app.



## Scene control

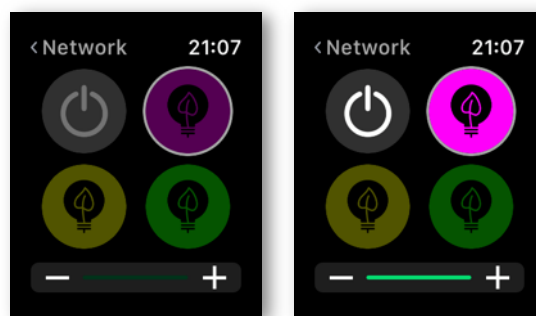
The currently controlled scene can be identified by a grey circle around the scene icon.

Like the Casambi iPhone app, scenes are highlighted when active and dimmed when inactive.

An active scene can be controlled in two ways: by the digital crown (on the side of the Apple Watch) or by the plus and minus icons in the Apple Watch app. When using the plus and minus icons in Apple Watch app they can only be selected (tapped) repeatedly. It is not possible to hold down the plus or minus icons as this will automatically call up another Apple Watch functionality. This cannot be avoided as it is part of the Apple Watch operating system.

The dimming level of the scene will appear in the dimming bar at the bottom of the display.

Note that selecting an active scene from your favourites will automatically deactivate it.



## Scene list

Forcefully selecting the centre of the screen for one second will open the Scenes option. Select the Scenes option to continue to the Scenes list.

Use the digital crown to scroll up and down the scenes list. When you select a scene name from the list, this automatically activates the scene and opens the scene's page.

Note: Hidden scenes are also visible in the Scenes list.

Once in the scene's page, you can activate and deactivate the scene by selecting the scene icon in the centre of the screen. Again, the scene icon will highlight or dim depending on whether it is active or not, like the Casambi iPhone app.

The scene's dimming level can be altered by using the digital crown or the plus and minus icons, like the favourite scenes.



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