CASAMBI

ORIGINAL APP USER MANUAL

App version 3.19.0
Firmware 48.0

CASAMBI

Table of Contents

CASAMBI

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 easy installation and functionality with minimal additional hardware and deployment costs. Casambi-ready products produced by Casambi partners 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, so that it 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 as well as a remote gateway. The Casambi app works with iOS as well as Android devices, like smartphones, tablets, and smartwatches. The Casambi app is free to download from Google Play and Apple App Store.

IMPORTANT!

Always ensure all devices in your network are using the <u>same firmware version</u> before beginning programming or making any programming changes.

After a firmware update you must allow the update to spread and fully update to every devices in the network (i.e. No device icons should display the "Updating" banner). Networks can be used as normal during updates, but network editing (programming changes) must not be made until updates are fully complete.

Using mixed firmware or editing the network programming while updates are still being applied, risks potential configuration errors that may result in erratic or unexpected operation of the mesh network.
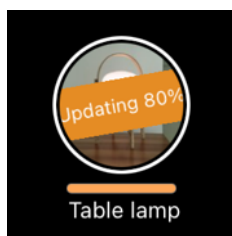
Device updating banner
(Luminaires tab)
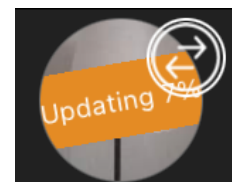
Device updating
(Nearby devices view)

The Firmware type and version can be seen easily in the Nearby devices view (right side). Firmware that is updating will also show the % status. Example: Evolution/39.40 (14%).

First time Casambi App use

When first taking devices into use they need to be added to a network. One device can only be part of one network. A device that is part of a network is 'paired' 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 look for advice in the FAQ section of our website knowledge base (https://support.casambi.com/support/home).

1. Download the Casambi app from Apple App Store or Google Play Store.
2. Switch on your Casambi-enabled devices and open the Casambi app.
3. Allow notifications and requested access. Accept the Licence Agreement and Privacy policy.
4. The app will search for all powered Casambi-enabled devices within Bluetooth range of your mobile device. These will be displayed in a list with the options Add all luminaires to or Add individually to...
   a. Add all luminaires to… will prompt you to create a new network (or add to an existing one). Only Casambi devices with the same firmware type as the network can be added (See Create a network section of this user guide for more information). Once the network is created all devices will automatically be added (paired) to it.
   b. Add individually to... will prompt you to create a new network (or add to an existing one). Only Casambi devices with the same firmware type as the network can be added (See Create a network section of this user guide for more information). Once a network is created, each luminaire will identify (flash) one by one and can be added to the network. (See Add devices section of this guide for more information). During this process you can also decide to rename and group luminaires if desired.
5. It is recommended that a new network is shared using the *Administrator only* setting. See Create a network section for further details on network creation.
6. When devices have been added to a network you can control and program them from the app.

IMPORTANT: ***Never delete a Network or delete and reinstall the Casambi app without first sharing the network, or unpairing all the devices. Failure to do this will result in devices being visible but uncontrollable.*** See the section Deleting a network for more information.

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

Additional help texts are shown below most configurable options to clarify 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.
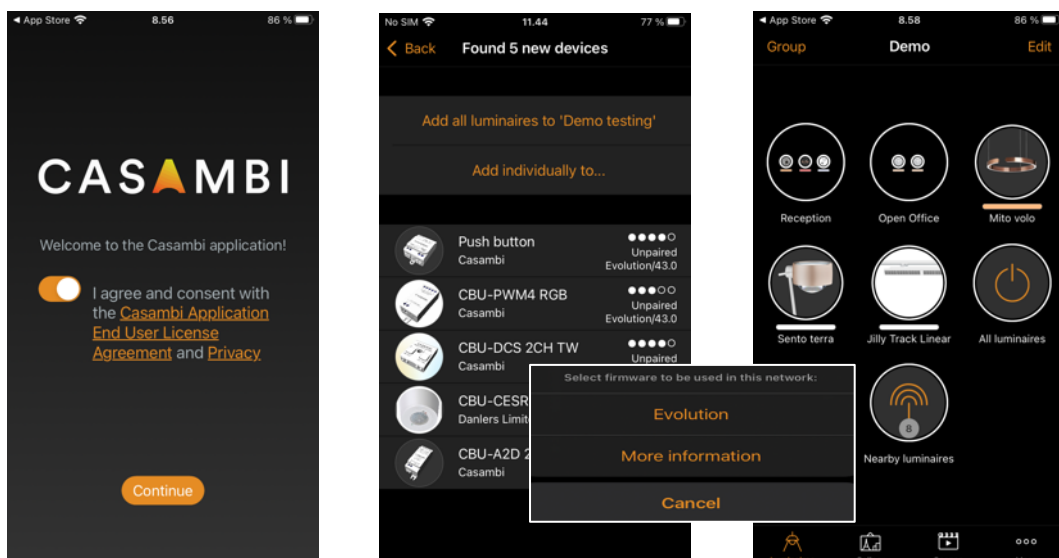
Luminaires tab

Luminaires that are paired to your network will be displayed in the *Luminaires* tab. Each will have an icon picture and a 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 tapping Edit selecting and holding the icon and then dragging it to a different position. Release the icon when it is in its new position. Tap on 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 to adjust the dimming level. The app remembers the set level so, if you turn the luminaire on, 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 overridden 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 your luminaires simultaneously or use the *Nearby luminaires* icon to only control those devices within range of your mobile device.

| Tap | Pan left / right | Pan up / down | Push and hold |
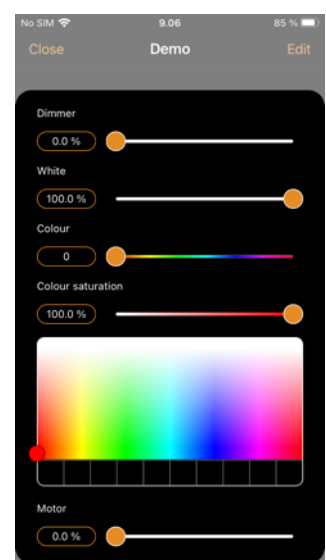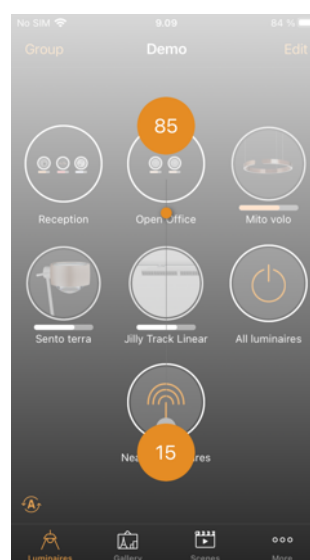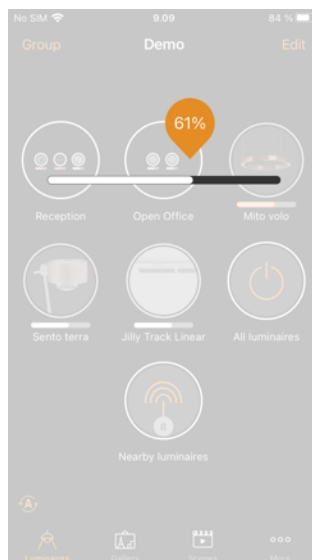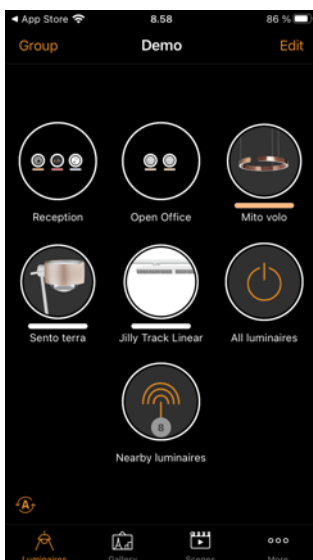
Grouping

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 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 dim 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 tab 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 on 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 on the folder icon 📁. Name the group. 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 to a group, select Edit and 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 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 by 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 on the group to open it. You can then use the basic gestures on individual luminaires.
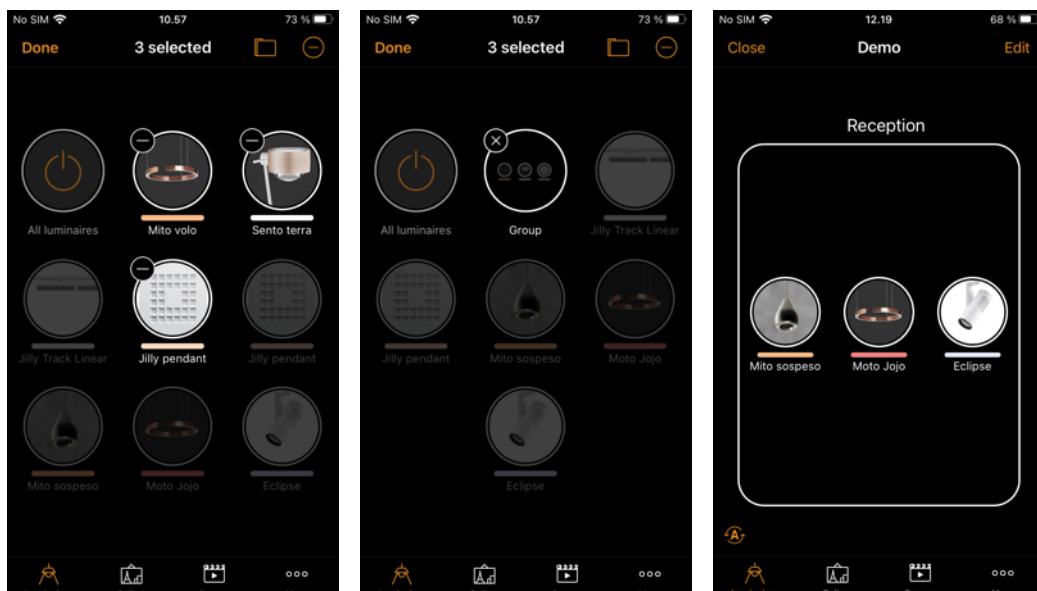
Resume automation (for all luminaires or a Group of luminaires)

The @ symbol that appears in the bottom left of the luminaires tab when Control hierarchy is active, allows automatic control to be resumed for luminaires that have been under manual control. i.e. If you have used a switch to manually activate a scene, the Resume automation option will disable that scene and allow the luminaires to be controlled by sensors or timers; in other words the "automatic" functionality of the system will be restored.

Pressing @ will open a popup window asking you to confirm that you wish to Resume automation. Pressing @ when a luminaire Group is open will only resume automation for luminaires in that group only. In other cases it will apply to all luminaires in the network

Editing luminaire control properties

To edit individual luminaire control properties, double tap on 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-enabled device.

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.

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

MODES Modes can be used to store different dim 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 the 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 the functionality that occurs when the luminaire's 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 switch section in the Appendix.

PUSH BUTTONS and ROTARY SWITCH Allow 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 about 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 commands "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 built-in sensor (if fitted).

Dedicated daylight sensor This option allows you to select a daylight sensor which can affect the luminaire.

Daylight gain Allows you to specify how much natural light can be available in an area covered by the specific luminaire. For example, a luminaire by a window may have a daylight gain of 100%, but one in a darker area may have a lower value. This feature may be useful if you have just one lux sensor controlling multiple luminaires in an area but want to try to maintain a more even illumination rather than having some areas darker than others.

Note: Daylight gain will only work for Open loop Daylight scenes. More information can be found in the Appendix under daylight gain.

STARTUP STATE FOR POWER ON Allows you to set the luminaire to use either the *Default mode* (default light level), *Last state*, or a *Scene*, when switching the luminaire power ON.
- Default mode will recall the Default value set in the luminaire properties MODES.
- *Last state* will recall the same dim level and colour which the luminaire was in before being powered off. If the luminaire was OFF (0%) when power was switched off, it will stay off when powered. To prevent this, set a minimum dim level for the last state so the luminaire will still come on.
- *Scene* allows you to choose a scene and the luminaire will come on in its specific state that has been defined as part of that scene. Note that this option does not recall the entire scene for all luminaires in the scene. It applies only to the specific luminaire.

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

MANUAL CONTROL The *Behaviour* and *Timeout* options allow you to override 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*.

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 the luminaire. When using the *Replace device* option, an identical luminaire device must be used. This allows you to transfer all the previous settings from the old luminaire to the new luminaire device.
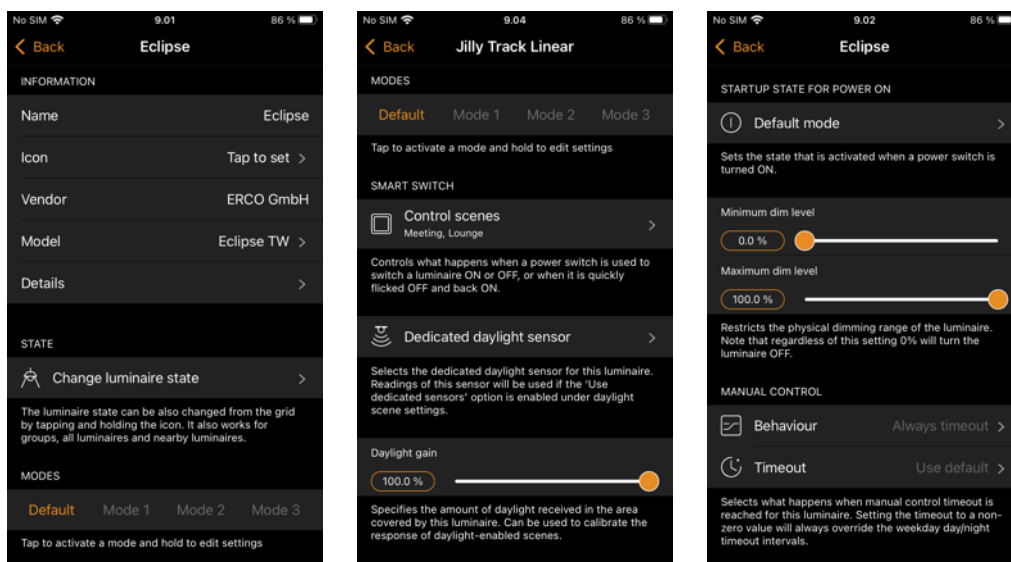
Gallery tab

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 by tapping on Done. If the required luminaire is in a group, first double tap on 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 on 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, tap on 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, tap on Close.

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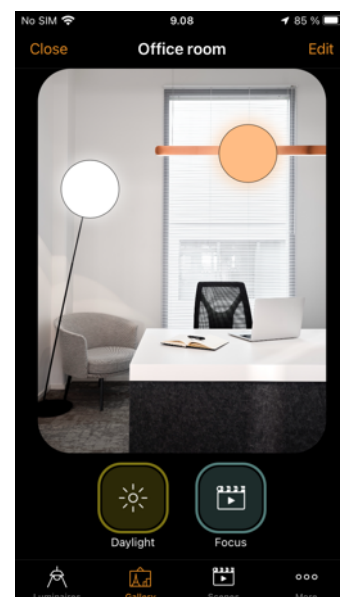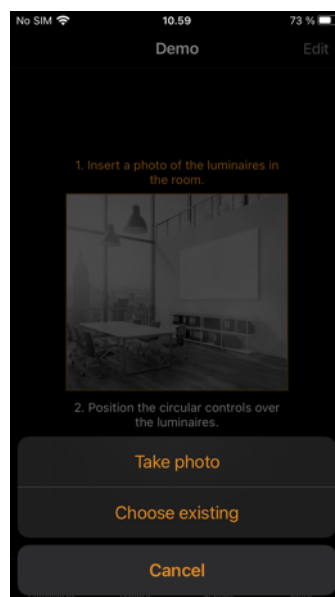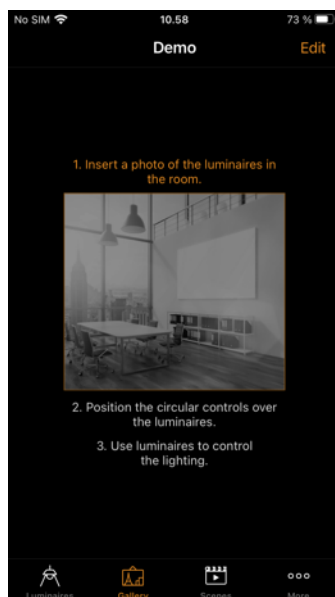
Controlling luminaires

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 only 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 over an area in the picture that does not have icons, then you will control all luminaires in the picture that have icons associated with them.
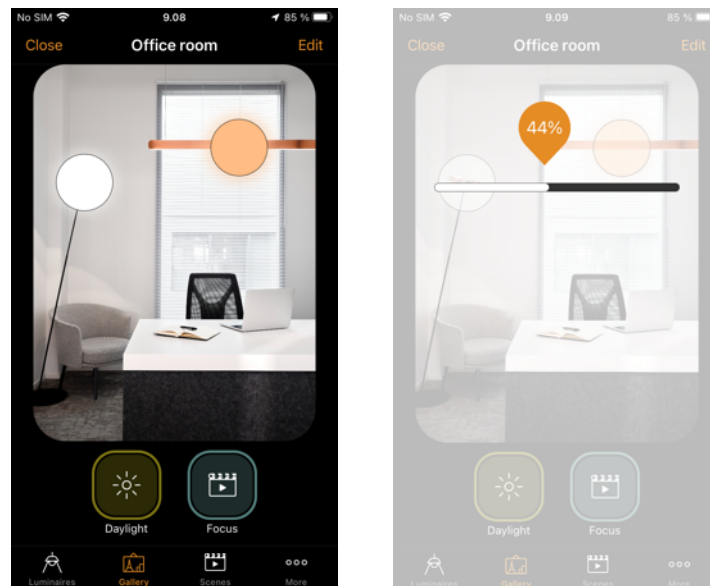
Arranging gallery pictures

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 between the pictures up and down. Note that this feature is only available for Apple iOS.

Confirm the changes by tapping on Done.
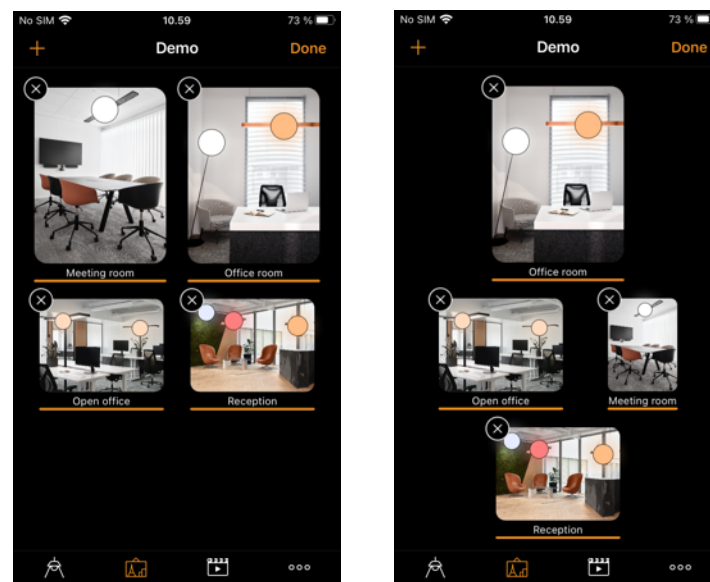
Scenes tab

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.

Timers, switches or sensors cannot be programmed to activate a scene without a scene being configured first.

A scene is active when its icon is highlighted.

Types of scenes

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

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

Basic Scene This is a single lighting scenario (usually containing several luminaires adjusted to different dim 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 diverse levels).

Time-based scene Consists of at least two "conditions" with different scenes or different dim levels for each scene. 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 on 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 respective gallery image and select the desired 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 luminaires in the scene.

Push Continue (top of screen) or *Settings* (bottom of the screen) to navigate to the scenes additional properties where you can change the name, image, and colour for the scene. You can then rename the scene, use the colour palette to define a colour for the scene icon or choose a new icon for the scene. A scene can be hidden from the user view by selecting Hidden. To save the settings and return to the *Scenes* tab, select Done.

Add more scenes by 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 in the S*cene Settings*.

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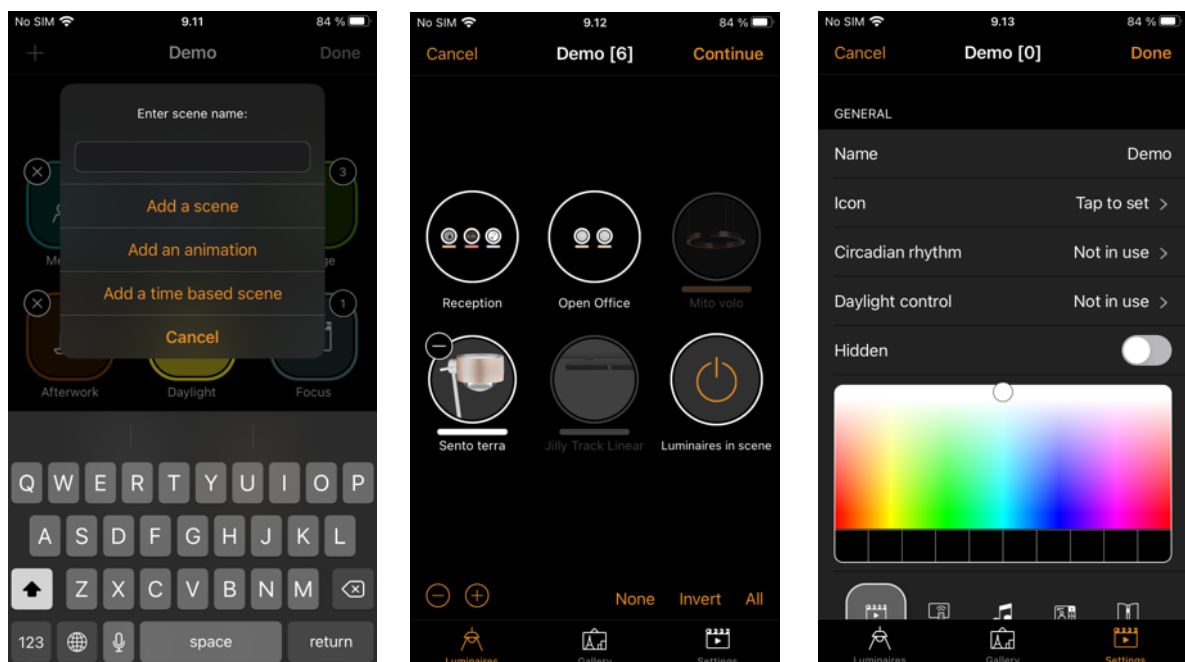
Circadian scenes

A circadian rhythm allows automatic colour temperature management for basic scenes by using a response graph that displays the hours of the day and the colour temperature. When a circadian scene is active, it will set the colour temperature &/or dimmed level based on the response graph. It will adjust the colour temperature and/or dimmed level for as long as the scene is active.

To be able to create a circadian scene, a Circadian profile graph needs to <u>first be created</u> in the More tab, Network setup, Circadian profiles section.

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 & choose *Circadian rhythm*. Then choose the required existing profile.

Select Done to save the circadian scene.

Notes:
- 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.
- Scenes containing a circadian graph will display a small graph in the scene icon image.
- If desired, a circadian profile <u>without a dimming graph defined </u>can also be used in the same scene as daylight control
- A circadian profile with both the CCT <u>and</u> dimming graphs defined should not be used in combination with a daylight scene. If used in such a way, the circadian graph dim level will override the daylight dim level, meaning that there will be no reaction to changes in lux. If a combined circadian and daylight scene is required, the circadian scene must use a circadian profile where only the CCT graph has been defined.
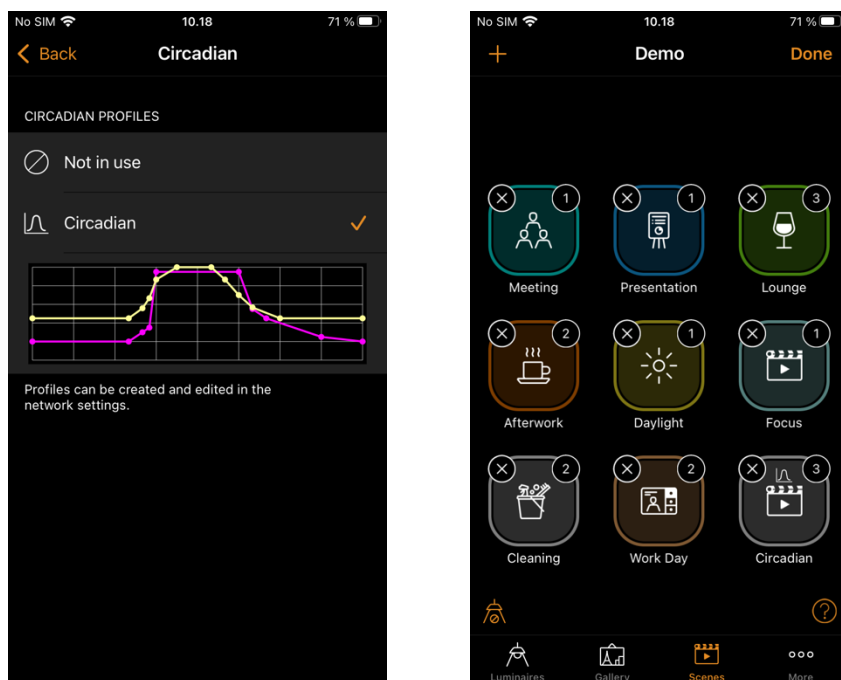
Daylight scenes

Daylight scenes use information from lux sensors to automatically adjust the scene dim level based on the amount of light available. Thus, separate dimming of a daylight scene is not possible or required. Daylight control can be configured when editing a basic scene by selecting *Daylight control* from the scene *Settings*. Available settings are described below. Note that a Daylight scene cannot be used as part of an Animation.

Basic (ON/OFF) Luminaires in an **active scene** will fade ON or OFF (or fade to the Minimum dim level defined in the Basic ON/OFF settings) based on two configurable Lux threshold levels.
- If measured lux is below "Switch ON at", the lights will be ON.
- If measured lux is above "Switch OFF at", the lights will be OFF (or to the set Minimum dim level).

Lux threshold values should be far enough from each other to avoid repeated or unwanted on/off operation. The Minimum dim level is relative to the scene dim level (i.e. if Minimum dim level is 10% and the scene is at 70% then the minimum dim level will be 7%).

The scene can be set to switch on or stay off if the measured lux when the scene is triggered is between the minimum and maximum defined lux thresholds (Activation level between ON and OFF thresholds).

Open loop Luminaires in an active scene will have their output level adjusted by comparing the sensor's lux reading to a response graph. Sensors should not be affected by light from the luminaires in the network. 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. Example: Luminaires controlled by a daylight sensor that is in the same area as the luminaires. Note that the Minimum dim level (%) setting in the Closed loop parameters applies to the closed loop scene selected. e.g., Minimum dim level set as 10% and the closed loop scene is 50%, then the minimum dimmed level for the closed loop scene will be restricted to 5% (10% of 50%). Also, the Activation level graph option only functions for Evolution networks.

External This is like *Open loop*, but it 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 there is no need to use the *External* option.

When the Mode of operation has been selected, select the controlling sensors and set relevant parameters (Parameters will vary depending on the selected Mode). Explanations of each are included below each option field in the app. For *Open loop/External* modes, configure the response graph in a similar way to a Circadian profile response graph.
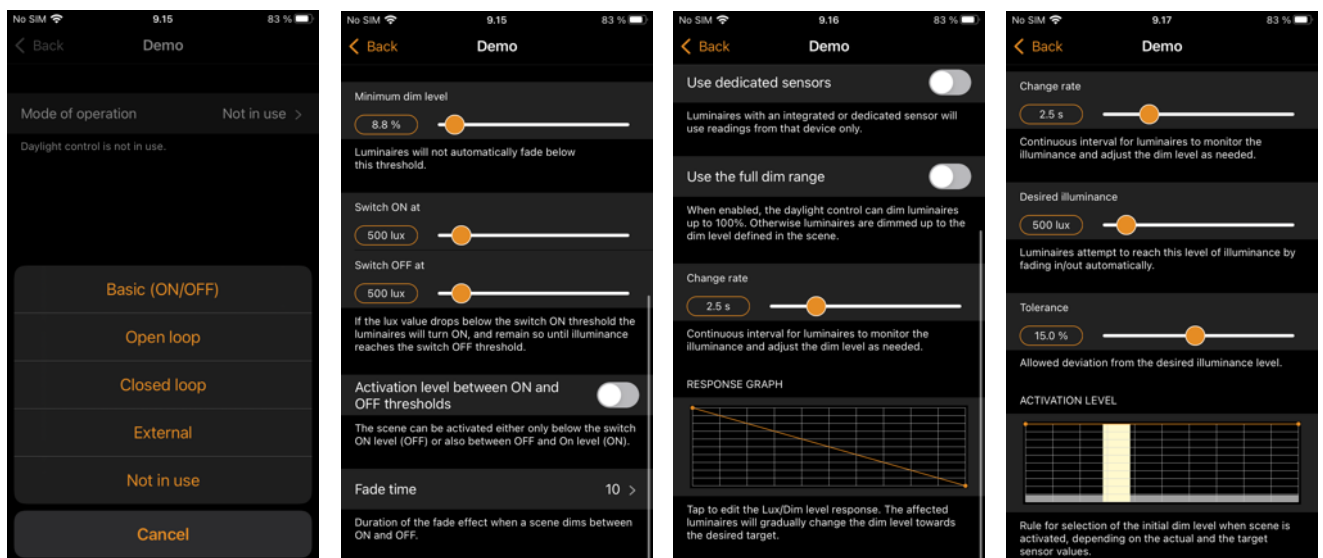
Animation scenes

Animations consist of multiple existing basic scenes that are activated in a defined sequence. An animation is treated as one complete scene by the Casambi system, regardless of how many basic scenes have been included. For this reason, the basic scenes used in the animation scene must always be carefully considered to avoid potentially undesired scenarios. Animation scenes can be activated in the same way as basic scenes. Animation scenes cannot trigger other Animation scenes or Time Based 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 each 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 dim level set for it. The fade time is how long it will take for the scene to reach its dim level set in the animation. Setting a fade time of 0 results in an actual fade of approximately 0.2 seconds. The dim level is the dimming percentage relative to the set dim level of the basic scene.

Examples:
- The basic scene had all luminaires set to 100%. Its dim 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 dim 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. The animation scene can also be hidden from the *Scenes* tab user view if needed. It will reappear when tapping on Edit.

When you have finished editing the animation, tap on Done to save

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

Notes:
1) Daylight scenes cannot be used in an animation scene.
2) Non-repeating animations cannot be used within Time-based scenes.
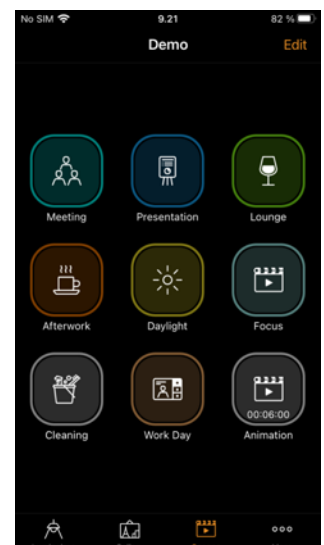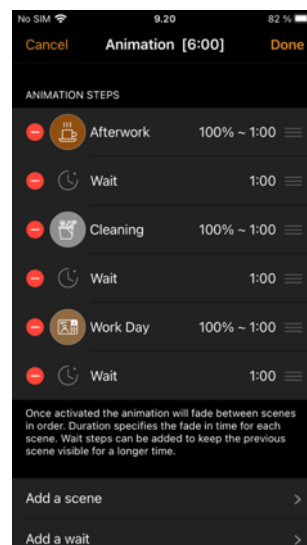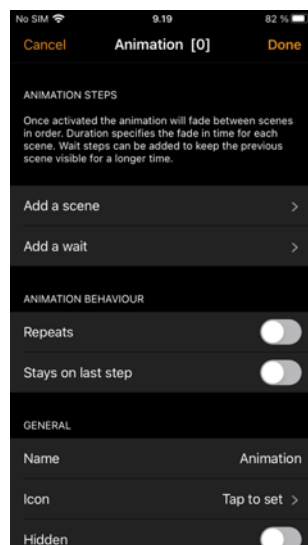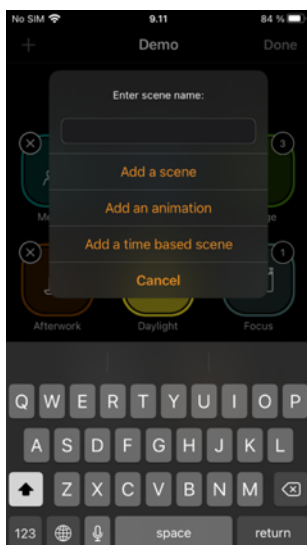
Example animations

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 will fade to Red in 10 seconds. Red will be active for 3 minutes. Then the scene will fade to Blue in 10 seconds. Blue will be active for 5 minutes and then fade off 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 will fade to SHOWROOM1 in 1 second and be active for 15 seconds before fading off (to 0%) in 1 second. Then the scene SHOWROOM2 will fade up in 1 second and remain active for 15 seconds before fading off in 1 second. Then SHOWROOM3 will fade up in 1 second and remain active for 15 seconds before fading off in 1 second. The whole animation will then repeat itself.

Examples of why each basic scene used in an animation is important

The result may differ from what is "desired" depending on the status of ALL luminaires in EVERY scene used in the Animation scene.

If each basic scene includes all of the same. luminaires (even if those luminaires are off)
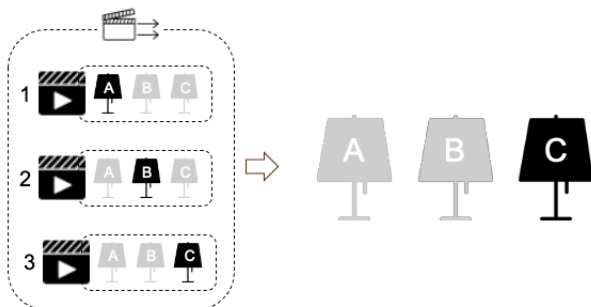
Animation WILL repeat
(One lamp on at a time)

If each basic scene does NOT include all of the same luminaires
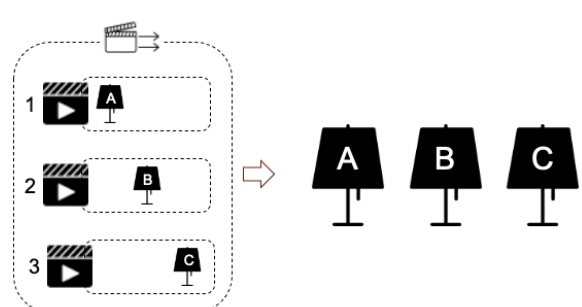
Animation WILL NOT repeat
(All 3 lights will be ON after the last step)

CASAMBI

Time-based scenes

A time-based scene can be used to achieve a different dim level of a scene or activate different lighting scenarios depending on when the time-based scene is activated. A time-based scene has the advantage over a Timer that it can be triggered at random times, therefore only activating scenes when needed. A Time based scene is treated as one complete scene within the Casambi system, regardless of how many scenes have been included to construct it. For this reason, the scenes contained in the Time based scene must always be carefully considered to avoid potentially undesired scenarios. Time-based scenes are primarily designed to be used in conjunction with presence sensors. Time based scenes cannot trigger other Time Based scenes but can trigger repeating Animation scenes.

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 + in the top right corner. Name the scene and select Add a time-based scene. Note: At least one basic scene must already exist to create a time-based scene.
- Select On all days and set when the first conditions' active period should start. Configure from days of the week, time or select based on sunrise or sunset (if you have enabled location). When set, tap on 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 during the active period of that condition.
- Select Add a scene to choose the scene to activate. You can also tap on the scene and alter its dim level if desired. Remember that the dim level will be relative to the dim level of the original scene.
- Carry out the same process for the next condition. 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 within time-based scenes.
- If a time-based scene is active during the period of time when conditions change, the next condition will be set automatically.
- Since all dimming of a Time based scene is handled within the scene configuration itself, separate dimming of a daylight scene is not possible or required.
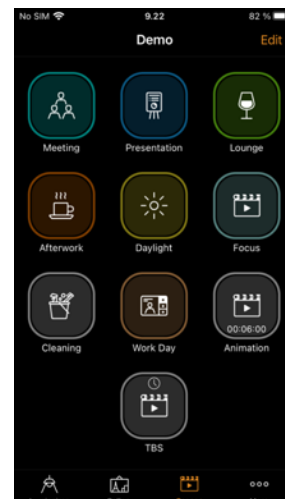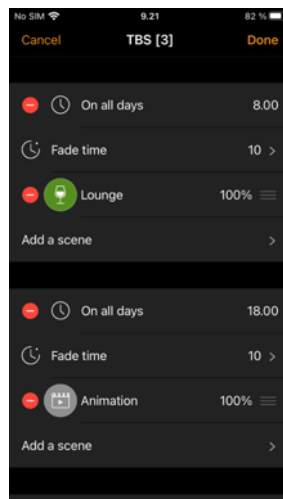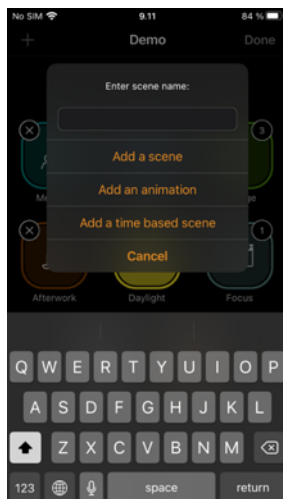
Example of a Time-based Scene

A time-based scene ("Kitchen lwr1 timed") is created to set scene "Kitchen lower 1" dim level at 40% between 8.00 and 21.00. This is the first condition of the time- based scene.

Between 21.00 and 8.00, the dim 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 per 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 dim level of scene Kitchen lower 1 appropriately.
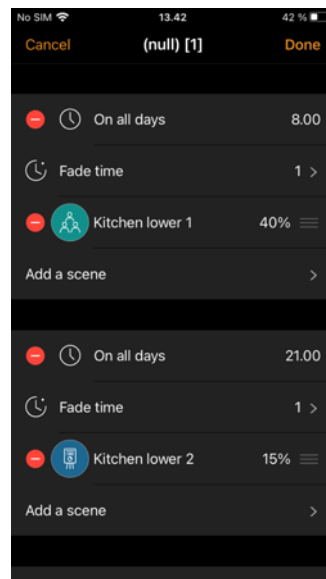
Examples of why the configuration of each basic scene used in a Time based scene condition is important

The result may differ from what is "desired" depending on the status of ALL luminaires used in EVERY scene used in the Time based scene.

If each basic scene includes all of the same.
luminaires (even if those luminaires are off)

If each basic scene does NOT include all of
the same luminaires
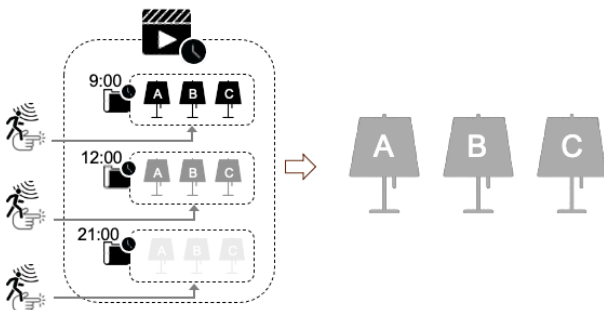
Each condition scene will trigger as expected
(e.g., 3 luminaires will dim as expected)
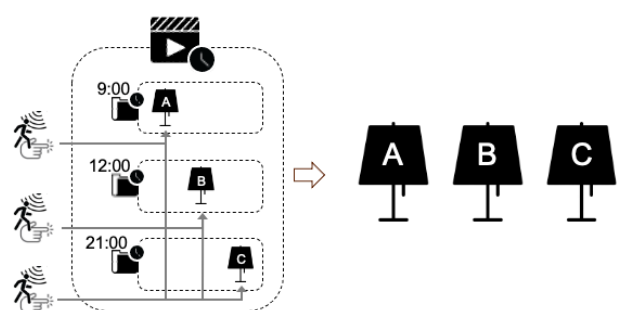
Luminaires not included in a condition scene
will trigger to an earlier valid condition state
(e.g., All 3 lamps ON in the last condition)

Disconnected editing (Offline scene editing)

This feature enables new scenes to be created or existing scenes to be adjusted without affecting the physical luminaires on-site during the process. This minimises immediate changes to the lighting being visible to users of an area while you are adjusting or fine-tuning settings on an installation that is already in use.

To use the feature, log in to the network with Administrator or Manager rights.

- Go to the Scenes tab and select Edit.
- Tap the offline edit icon that appears (bottom left)
- Read the popup prompt message & select Yes
- DISCONNECTED EDITING will appear at the top of the scenes tab view to indicate that you are in offline edit mode.
- Make the desired changes to the scenes you wish to adjust.
- Push Done (top right) to save the changes.
- DISCONNECTED EDITING will disappear & you are then back to normal mode.
- The new or edited scenes will function the next time they are triggered.

Switch to disconnected editing?
In disconnected edit mode, the luminaires do not react to the changes until the scene is activated again.

No   Yes
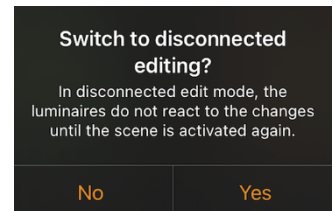
Scene complexity warning

To ensure reliable operation, the app automatically analyses the complexity of scene configurations as they are being created. To prevent situations that may adversely affect network performance, warnings will be presented should a scene become overly complicated.

A "complex" scene is one that contains many luminaires set to many different dimming levels, colours, &/or colour temperatures. It is not possible to define exactly, since the quantity of differing dimming levels, colour & colour temperatures used have varying impacts on system performance depending on the chosen combination.

There are two warning levels:

1) Scene complexity is near the limit (Yellow warning triangle at the top of the screen).

2) Scene complexity limit has been reached or exceeded (Red triangle at the top of the screen, plus an additional pop-up message). Such a scene cannot be saved or used!

Scene is too complex

This scene configuration is too complex and it cannot be saved.

To simplify the scene, please either remove some units from the scene or configure more luminaires to use identical luminance settings.

OK
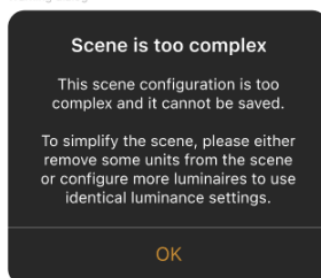
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Scene complexity data limits explanation

A Casambi scene has a maximum data size of 510 bytes.

Every unique setting within a scene (e.g. the combination of dimmed level, colour temperature, colour etc) consumes 3+N bytes of data (3 bytes is fixed & N varies depending on the luminaire capabilities).

The maximum number of unique variations in a scene is 510/(3+N). A scene with different luminaires, or same luminaires with different settings (i.e. different dim levels), will consume 3+N bytes for every variation.

Examples of N for different luminaire capabilities

Dimmable only	N=1
Dimmable + Tuneable White	N=3
Dimmable + RGB	N=4
8-channel dimmable	N=8
Complex luminaire (e.g. pan, tilt, zoom etc)	N=number of unique functions

Examples of maximum unique variations per scene:

Dimmable only (3+1 bytes)	127 (510/4)
Dimmable + Tuneable White (3+3 bytes)	85 (510/6)
Dimmable + RGB (3+5 bytes)	63 (510/8)
8-channel dimmable (3+8 bytes)	46 (510/11)

More examples:
- A scene with identical luminaires, all with identical settings will use 3+N bytes in total.
- A scene with only dimmable luminaires can have 127 unique luminaire dimming levels.
- A scene with 10 dimmable luminaires (all set to the same dimmed levels) & 10 Dimmable + RGB luminaires (all set to the same dimmed level & colour), will use 12 (4+8) bytes in total.
- A scene with 10 dimmable luminaires (all set to different dimmed levels) & 10 Dimmable + RGB luminaires (all set to different dimmed levels & colours), will use 120 ((4*10)+(8*10)) bytes in total.

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. Tap on Done to confirm the changes.

Select the Switches OFF option and set 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. Tap on Done to confirm the changes.

Select the scene or scenes that you want to control with this timer in 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., all scenes that are part of the same timer must have different luminaires. Otherwise, the operation may not be as expected, because the 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.
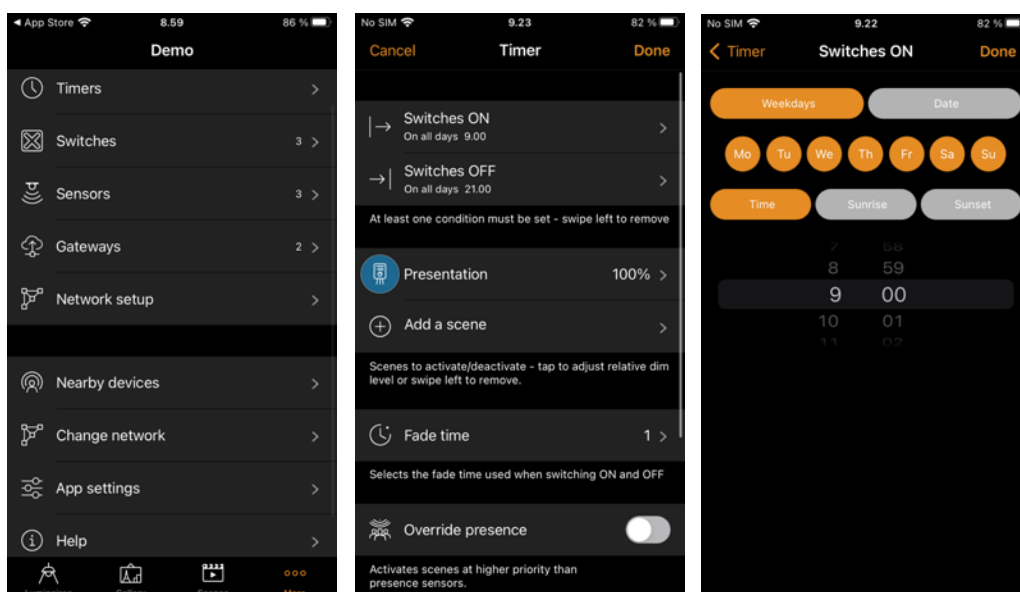
If an application also uses presence detectors and requires that a timer operates regardless of any movement being detected (i.e., at a higher priority in the Casambi Control Hierarchy), Override presence should be enabled for the timer. If one or more timers are set to Override presence then to ensure that any underlying Presence or basic Timer control can resume, at least one of the Override presence timers must have a Switches OFF time set. See the Appendix for an explanation of the Control Hierarchy.

There is the option to have a timer Removes manual control when it activates. This has the effect of removing any currently active manually triggered commands that might be taking control priority of luminaires (either those in the whole network or just luminaires in the scene targeted by the timer).

If Removes manual control is activated for a timer without any scene selected, it will affect all luminaires in the network. If a scene is also selected as part of the timer configuration, Removes manual control will only affect any active manual control applying to luminaires in the define scene and the timer scene will also trigger as normal.

It is also possible to Enable/Disable a timer by using the Enabled button. Confirm your settings by tapping on 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.

Timers only send commands to the network at the specific set times. If you configure a timer to activate at a time that is earlier than the current time, it will not activate until it reaches the Switches ON time the next time (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 need a Switch ON or Switch OFF time if operating at the same level in the control hierarchy. For example, multiple timers could be set to trigger the same scene to different dim 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 appear. Select it to disable the ON or OFF option for the timer. *Not set* will then be shown. Note: If using the *Override presence* option, the timer must have both Switches ON and Switches OFF times set.
- Casambi units keep track of time if at least one unit in the network stays powered. If all units have lost power, the network time needs to be re-synchronised. To do this, open the Casambi app and connect to the network. For a Not shared network use the same mobile device that was used to configure the network.
- 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* view (even if they are integral to a luminaire).

To use switches that only switch the mains power on and off with Casambi, see the Smart switch 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 was previously configured with. Some Casambi-enabled switches have more options available than others. Possible options may be:

- Controls a luminaire
- Controls an element
- Controls a group
- Control scene
- Controls all luminaires
- Controls priority
- Control function
- 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
- Cycle through modes

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.
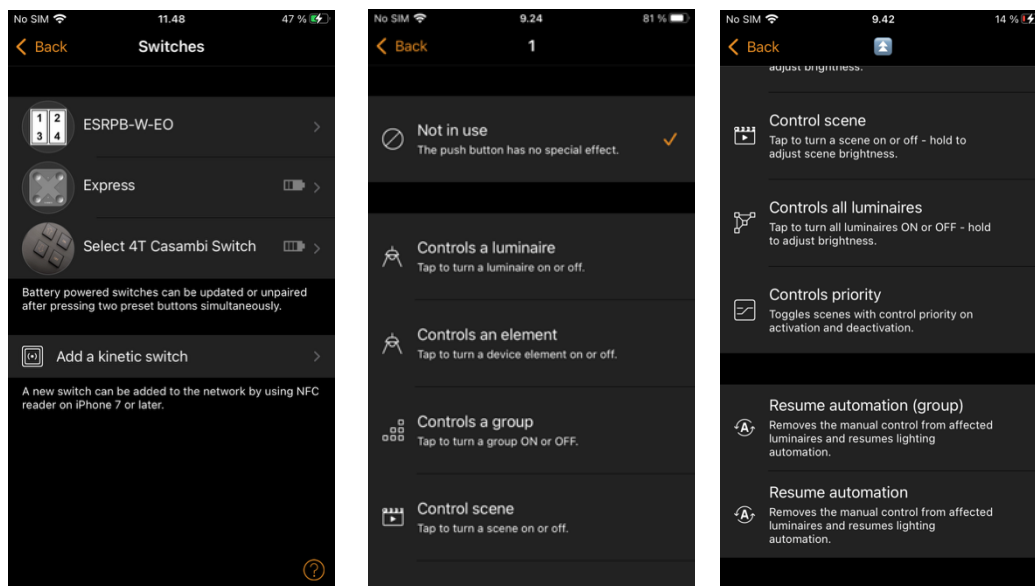
If the Control scene or Cycle scenes option is used, you can also Disable dimming. Disabling dimming prevents a long button push (or the +/- buttons on the Xpress) from adjusting the scene dimmed level.

For the below options you can also limit the Minimum dim level to prevent the luminaires dimming OFF.

- Controls a luminaire
- Controls an element
- Controls a group
- Control scene

- Controls all luminaires
- Cycle scenes
- Active/Standby
- Cycle through modes

- For options affecting a scene, the minimum dim level is applied relative to the set scene dim level.
- Any non-0% value of the Minimum dim level slider will prevent the luminaires turning OFF via dimming. ON/OFF can still be achieved by toggling the luminaires ON/OFF from the switch.
- Minimum dim level does not override the Minimum dim level set in the individual luminaire properties in the Luminaire tab.
- Switch options that also have the Disable dimming option enabled will override the Minimum dim level, feature even if the slider can still be adjusted, since dimming is then not possible.

The Controls priority option enables switches to activate scenes at different levels in the Casambi Control Hierarchy. It is intended for use with latching switches (not momentary contact switches).
Using *Controls priority* you can define an action for when a switch is closed (Active state), and another for when it is opened (Inactive state). In addition, you can define the Activation and Deactivation priorities the action has in the Casambi control hierarchy (see the Control Hierarchy section in the appendix for more information regarding the different levels available).

Examples of use cases where different priorities may be needed when a switch/contact is open or closed:
a) A dry contact closure from an emergency system relay can activate a scene in the event of an emergency that cannot be overridden by any other command in the Casambi system. When the contact is opened again after the emergency is over, another scene can be triggered at a lower priority so that other automatic Casambi commands can be used normally.
b) A hotel room keycard, where inserting the card recalls a "welcome" scene at a low priority so that other switches in the hotel room can also be used to adjust the lighting. When the keycard is removed it triggers an "off" scene at a Higher than manual priority so that all other room switches are overridden and lights stay off.
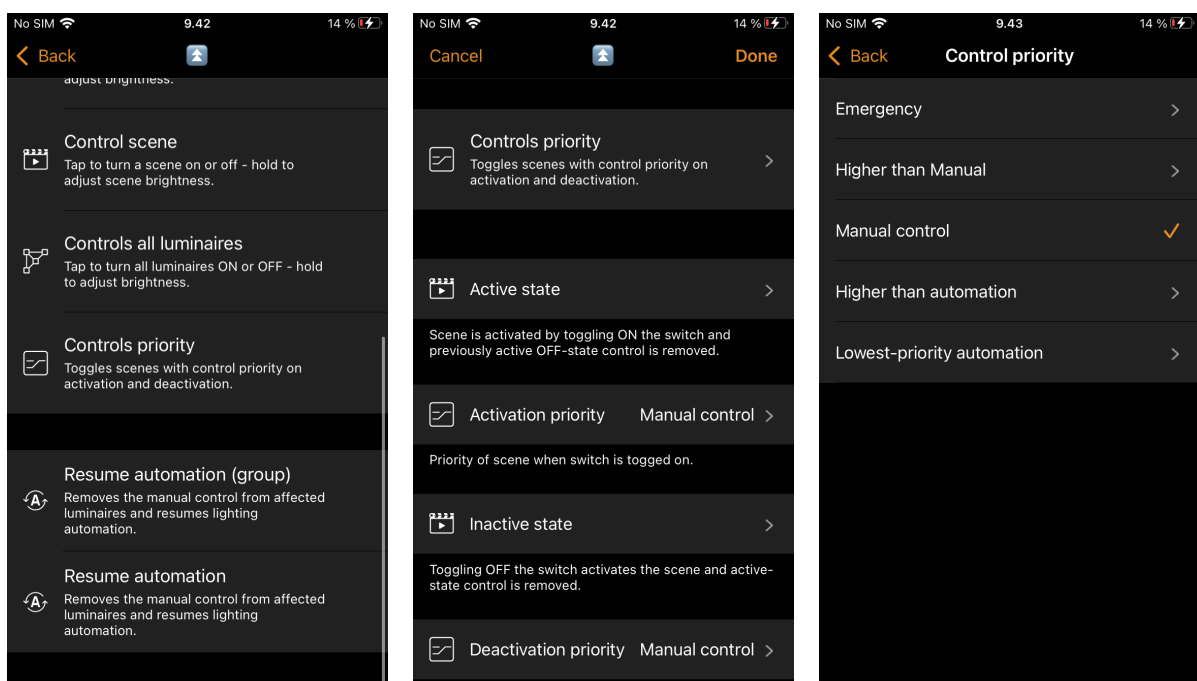
Controls and element: Elements are single dim channels or other non-standard controls that may be available from a Casambi Ecosystem partner product (such as a motor control). If the profile of a unit is for example 4ch/dim,dim,dim,dim, each of the channels can be controlled from four Xpress buttons separately. This could be useful in RGBW applications where Casambi app may not really be convenient to use.

When all settings have been configured, tap on Done and then on Done again.

Where available, 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, tap the switch to rename to open its properties. Then select the Name.

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

Tip: If you are within Bluetooth range of the switch you wish to configure, easily identify it by selecting *Switches* from the *More* tab. You will then see a magnifying glass in the top right of the screen. Tap on the magnifying glass and you will be prompted to Push a button within 10 seconds. Push the switch you desire to configure and the configuration 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.
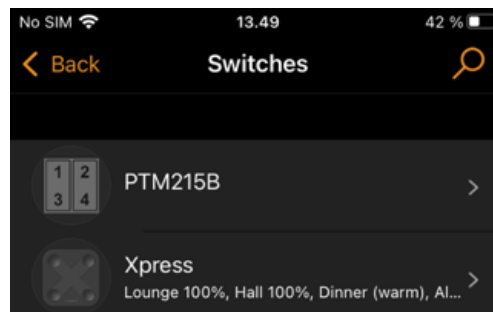
CASAMBI

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 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 you are connected to, or to Add individually to… If you select Add individually to… 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 device*s option in *App settings*, you will not see this pop-up window. Instead, you will be able to see the Xpress on the list of *Nearby devices* in the *More* tab. Select the Xpress from there and choose the network you want to add it to.

2. After adding 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 of the numbered buttons (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 to a group or to the whole network. If the Control scene option is selected, you will also have the option to Disable dimming to prevent the +/- buttons from adjusting the preset scene dimmed level.

4. After configuring the settings, tap on Done and then on Done again.

5. You can activate or deactivate the *Use toggle* function. When activated, the *Use toggle* function will allow each Xpress button to activate/deactivate the programmed action on each button press. When deactivated, it will only allow the button to activate the assigned action.

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. When you select the Long press all OFF function, all luminaires in the network can be turned off by pressing any numbered button for approximately 5 seconds.

7. You can also rename the Xpress and change its icon for easier identification. Tap on Back to save the settings and return to the *Switches* screen.
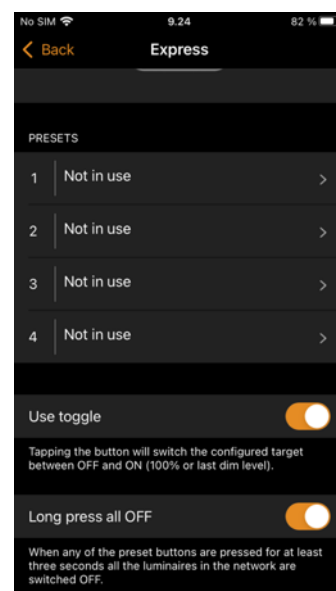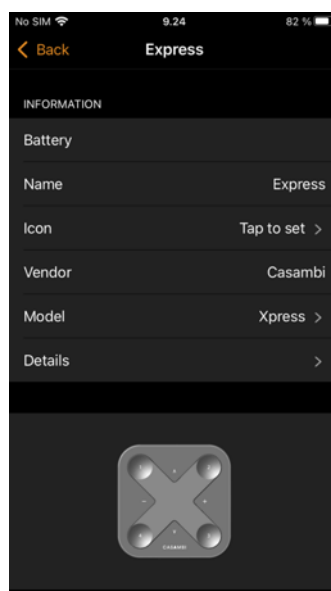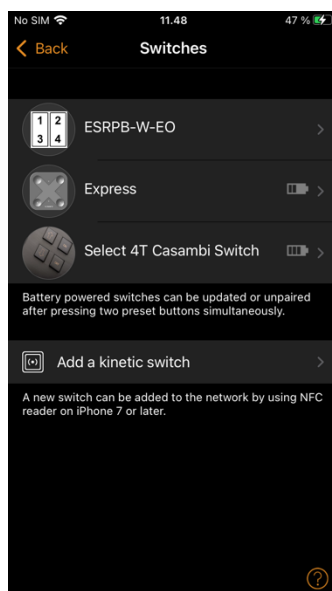
After configuring the buttons, they will now control the assigned scene, luminaire, group, element, or resume automation (see Control Hierarchy).

The first press will turn on the scene, lamp, or group and a 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 the colour temperature (of a tuneable white luminaire) or the direct/indirect lighting ratio, provided that your luminaire supports these features.

- Simultaneously pressing the + and – buttons for about 5 seconds will turn all lights OFF in your network. This function cannot be disabled.
- Simultaneously pressing the ∧ and ∨ buttons for about 5 seconds will Resume automation for the complete network. This function cannot be disabled.

Unpairing an Xpress

Press any two pre-set buttons on the switch to begin the unpairing process. There are three ways to unpair an Xpress switch:

1. By selecting the *Unpair device* option within the switch settings. Tap on the Xpress switch that you want to unpair and scroll down 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 tap on 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 the unpairing. You will need to perform the unpairing steps before the switch turns itself off (no LEDs on), which happens automatically, if it is not used for about 30 seconds.

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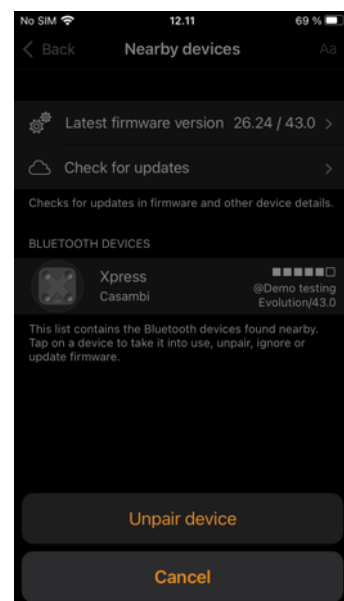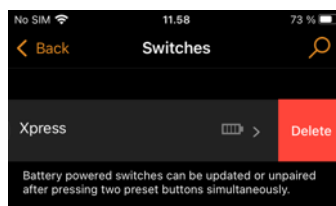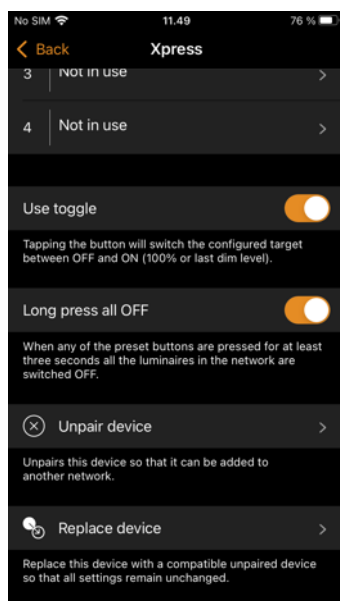
Sensors

Paired sensors will appear on the *Sensors* page in the *More* tab. Presence, Daylight, and combined Presence/Daylight sensors are shown. To minimise network data traffic, sensor motion detection or lux functions can be disabled in the individual sensor properties for sensors where the feature is unnecessary.

Presence sensors

To configure a presence sensor, the *Use Control Hierarchy* option must first be enabled (see section on Network setup/Control options). Note that, if it has not been enabled already in the Network setup/Control options, you will automatically be prompted to enable Control hierarchy when trying to configure the first sensor in a network. There are different configuration options for each sensor:

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

Presence can activate up to two mutually exclusive scenes when the sensor is triggered. Activates a scene when presence is detected and deactivates it after presence is no longer detected and the linger time has expired.
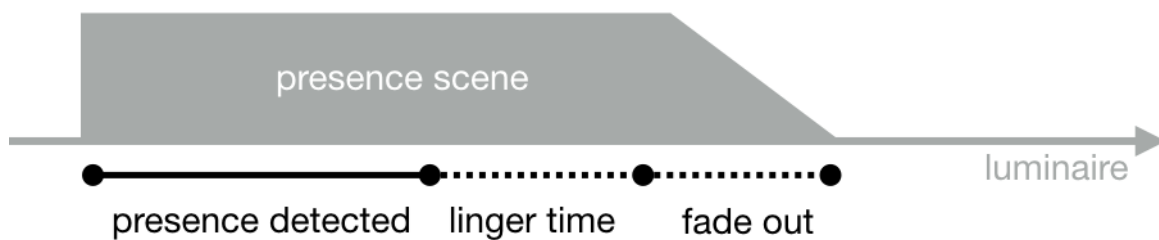
Presence/Absence activates up to two mutually exclusive scenes when the sensor is triggered, and up to two mutually exclusive scenes when motion stops and linger time ends. So this function activates a scene when presence is detected and changes to the absence scene after presence is no longer detected and the linger time has expired.

- Note: Presence and Absence scene(s) **must contain all the same luminaire(s).**
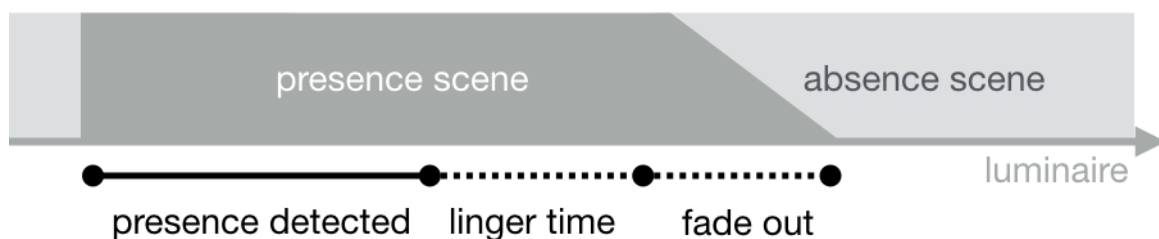
Absence removes manual control from a scene(s) when presence is no longer detected and linger time has expired (see below). E.g., the scene(s) is activated manually but automatically deactivated.
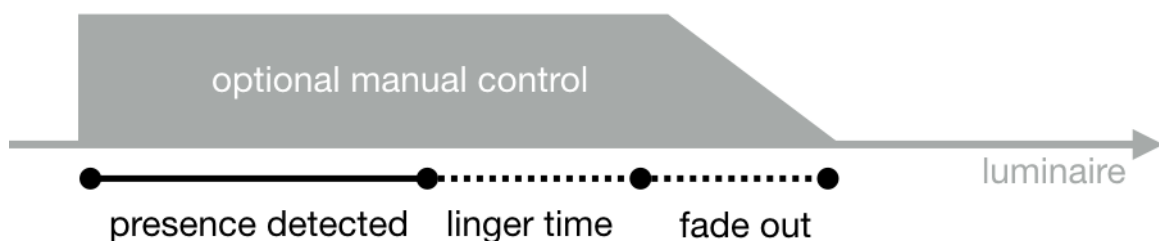
Local control is sensor profile specific, so will not always appear in the app. If available, it allows compatible sensors to control only the luminaire it is installed in with predefined "Mode/Scene" for Presence/Absence.

Linger time is the delay between presence detection ending and the controlled scene(s) expiring.

Absence timeout defines how long the Absence scene will remain active. By default, it is Disabled (i.e., The absence scene will not turn off).

Fade time is the time it takes the scene(s) to dim to off (0%) or to fade into 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 expired.

Sensor is activated by trigger is only visible in Presence/Absence mode and ensures the sensor will stay inactive until the Presence scene is triggered by another method and only remains active and detecting motion until the Absence timeout expires.

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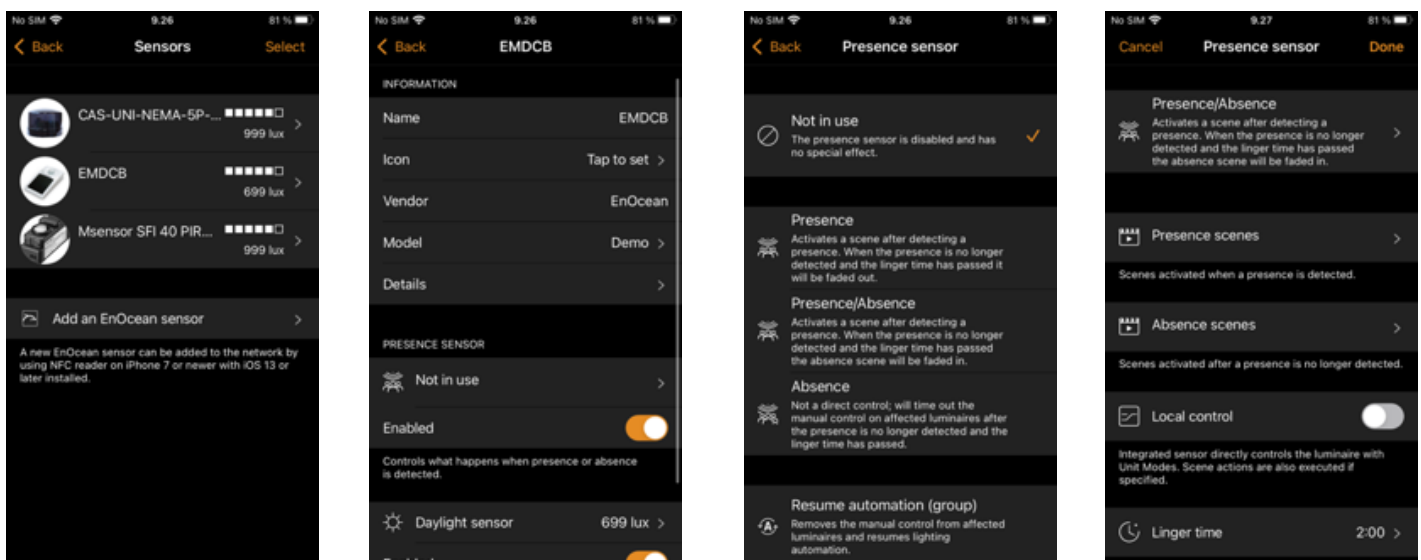
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A presence sensor will display a 'walking person' icon in the top right of the main sensor icon image when presence is detected.

Note: Mains-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 30 sensors (for Evolution networks) or 10 sensors (for Classic networks) can be configured to control the same luminaire.

Daylight sensors

Paired sensors will appear on the *Sensors* page in the *More* tab. Presence, Daylight, and combined Presence/Daylight sensors are shown. To minimise network data traffic, sensor motion detection or lux functions can be disabled in the individual sensor properties for sensors where the feature is unnecessary.

You can configure the sensitivity and tolerance of a daylight sensor in the Sensors list in the *More* tab. Tap on the *Daylight sensor* option to open the settings.
- The Sensitivity, which you can set, determines the sensor's response time when changes in the detected lighting occur.
- The Tolerance determines how large the change in illumination must be before the sensor reacts.

Adjust the sensitivity and tolerance settings depending on whether you are testing how the system reacts or finalising the programming for normal use. A high sensitivity and low tolerance suit testing, but normal use usually demands slower reactions to ensure that rapid changes in the measured illumination do not result in rapid changes in the artificial lighting (e.g., You don't want the lighting to react if a small cloud temporarily blocks the sun). In normal use sensitivity is generally set lower and tolerance higher. As each use case is different, the user needs to find the settings suitable for their application.

The daylight sensor can also be calibrated. This CALIBRATION may be needed, because the lux value received by the sensor is often 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 in question (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 maintain a constant light level), you can then set your target lux value to the lux value you want to achieve on the desk surface.

You can choose *Closed loop* and other configuration options and settings for daylight sensors, when creating a daylight scene (see Daylight scenes section).
- Note: If multiple lux sensors control the same luminaire, the average value lux will be used.

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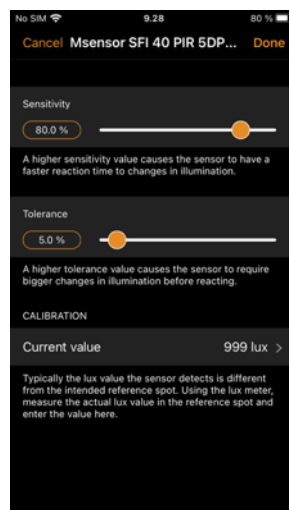
Configuring settings for multiple sensors simultaneously

To configure the settings for multiple sensors simultaneously, tap on Select in the *Sensors* view and choose all required sensors (tick box).

On iOS there is also a tick box at the top of the list that provides the below quick selection functions when tapping it.

1. Selects all sensors
2. Deselects all sensors
3. Inverts the current selection. For example, if 5 from 10 sensors had been manually selected; inverting will deselect those 5 & select the other 5

Tap on Done when all required sensors are selected. Then select whether to configure presence sensor settings or daylight sensor settings.

- For presence sensors you can set the sensor operational Mode and the scenes to activate.
- For daylight sensors you can adjust the *Sensitivity* and *Tolerance* settings (simultaneous calibration of multiple sensors is not possible).

Depending on your selection, you will be taken to the corresponding configuration view. Set the parameters as desired. Tap on Done when finished and you will see a confirmation message of how many sensors have been configured. Tap on OK to continue.

Note that you cannot only apply a change of a single sensor parameter & apply it to all sensors! One entire sensor configuration will be copied to all selected sensors (including scene, fades & linger times….). In other words, all selected sensors will behave identically in the scenes they select, linger times they have etc..
If you only want to apply the change of a single parameter (for example Linger time) to all sensors, it must be done one sensor at a time.
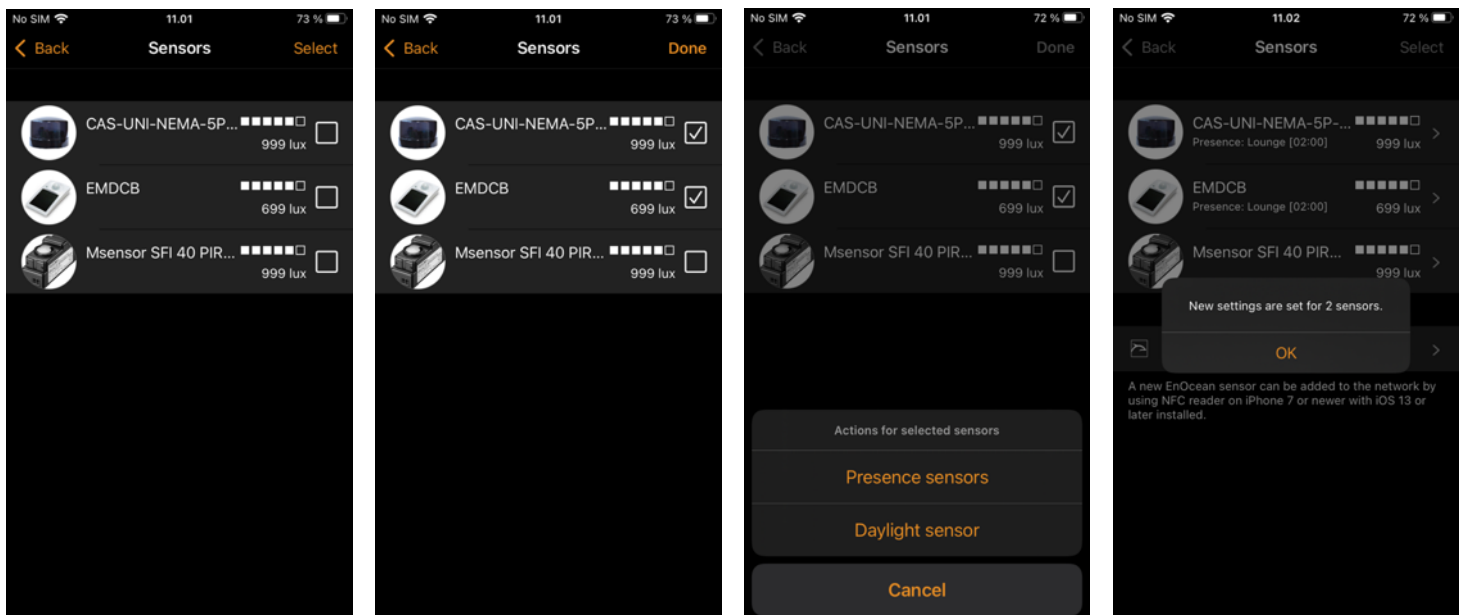
Note:
- Always, Restart the network (More, Network setup, Configure all luminaires, Restart Network) if you make changes to scene configuration after it has already been assigned to a sensor. This ensures that the sensor receives the new scene configuration.

Gateways

Internet gateway

By using a gateway it is possible to control Casambi-enabled luminaires remotely.

Gateway options.
- Cloud gateway: This must be powered, and in Bluetooth range of the network it is acting as a gateway for.
- Casambi Gateway (Beta): This is a specific device only in Beta. It is not generally available and instructions for use are not included here.
- This device: This is intended to provide remote network access on a temporary basis or for troubleshooting. An iOS or Android device (e.g., a phone or tablet) is used, powered, and running the Casambi app. It must remain in Bluetooth range of the network it is intended to act as the gateway for and have internet connection.

The network to be controlled must have been shared as Admin only or Password protected to enable gateway use. It is not possible to use a gateway on an Open or Not shared network.

Note that Classic networks do not have the Cloud gateway or Casambi Gateway (Beta) options available.

To set up the gateway device, select Gateways in the More tab. If the Internet gateway option under the REMOTE ACCESS heading is grey and cannot be selected, make sure the network is shared (see the Sharing settings section of this guide).

The GATEWAY SELECTION section displays the possible gateway options.
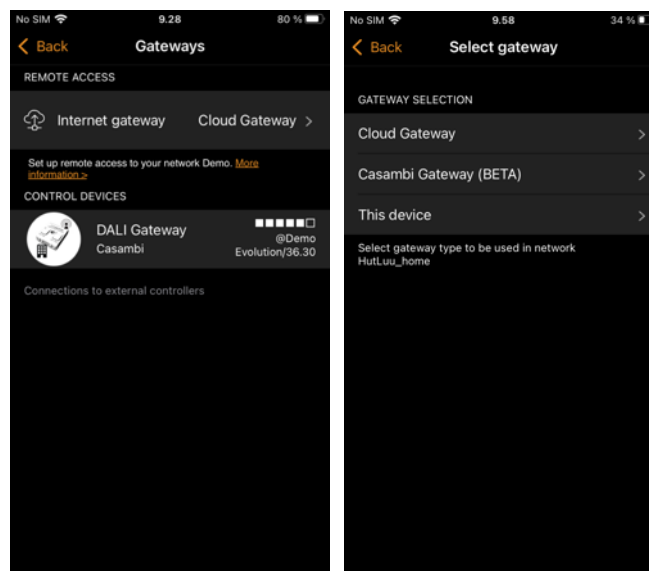
Note: The Casambi gateway feature relies on third-party devices and connections. For this reason, continuous and error-free operation cannot be guaranteed.

If your gateway appears offline, please first check and confirm your internet connection to the gateway is stable.

Cloud gateway

Choose this option if you are using the Casambi cloud gateway product.

- When Cloud gateway selected, a list of serial numbers of powered nearby gateways within Bluetooth range will be displayed under AVAILABLE GATEWAYS.
- Select the gateway device you wish to use, and push ADD TO NETWORK.
- The Gateway is added to your network and you will see information about it plus options for configuring the Gateway settings and connecting to WiFi.
  - When a Cloud gateway is first paired to a network it will automatically create a separate (and non-editable) "Manager" for the gateway in the Network sharing settings.
- The Status information can show 3 types of message:
  - Online: Gateway is online
  - Offline: Gateway is offline.
  - Partial: This may appear if the connection has not been fully successful. Try connecting again.
- In Gateway settings, Notify on disconnect means that a message will be sent to the network Administrator email address (detail shown below this option) if the gateway is disconnected for some reason. You can disable this option if you do not wish to receive the notification.
- To connect to Wi-Fi, select the Wi-Fi option.
  - Available nearby WiFi networks will be shown. Select one and enter the password for it.
    - Note that the WiFi networks displayed are only the ones in range of the Gateway, not ones in range of your mobile device
  - Alternatively, you can enter the name of your WiFi network and the Password.
  - Note: WiFi setup will not be possible if the Gateway is already connected to a WiFi network. To use on a different WiFi network, disconnect the gateway from the existing WiFi network first.
  - A confirmation message will be displayed when WiFi has successfully connected.
- See the DATA COLLECTION and SCANNING INTERVAL sections later in this guide for information on these settings.
- To disconnect a Cloud gateway from the network, select the bin symbol in the top right corner and confirm the pop-up message. An information screen will be displayed during the disconnection process.
- An existing Wi-Fi connection can be removed by removing the gateway from the Casambi network via the Casambi App.
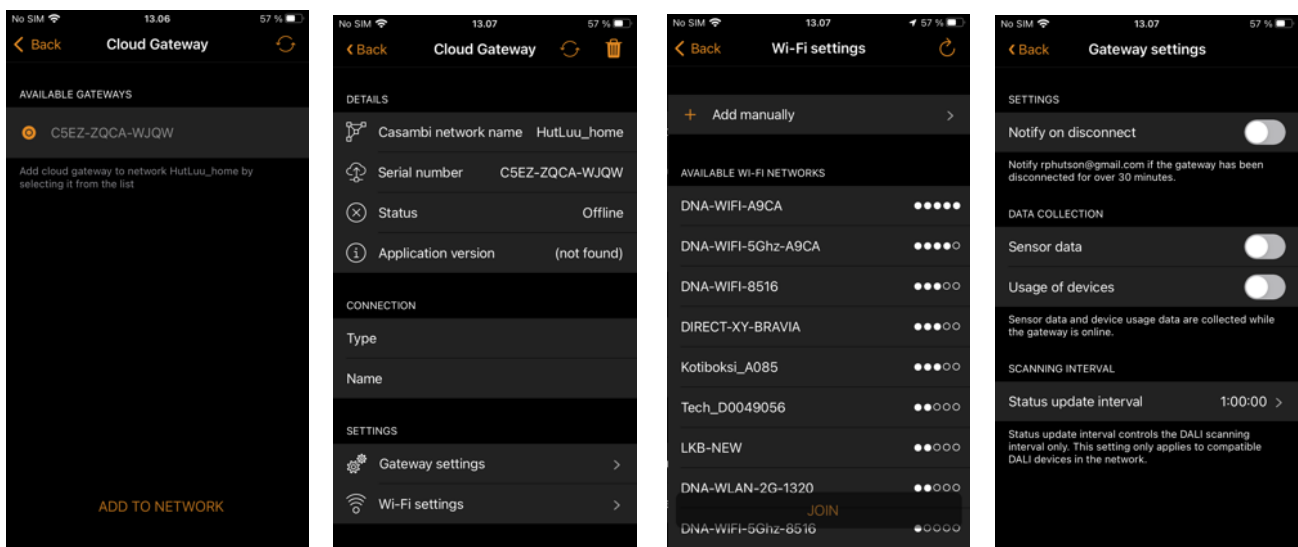
Casambi Gateway (Beta)

This is a specific device only available in Beta. It is not generally available and instructions for use are not included here.

This device

Select this option to enable a temporary gateway on the mobile device (phone or tablet) that you are currently connected to the network with.

- Enable Notify on disconnect (if desired), so that you will receive a notification to the network Administrator email address if the gateway is disconnected for some reason.
- See the DATA COLLECTION section of this guide for information on these settings.
- To disconnect the gateway from the network, select the bin symbol in the top right corner and confirm the pop-up message.
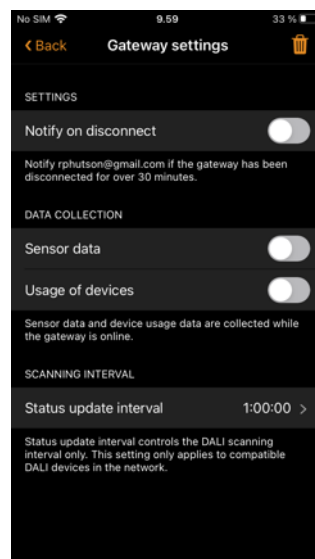
After enabling the gateway on a phone or tablet, please ensure the following:

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

DATA COLLECTION
This can be configured in the various gateway option settings. Data collection options can be enabled if you need to access your network's sensor or device usage data separately. The collection of sensor data and usage of devices data can be enabled separately. Enabling these options will increase the amount of network data while collecting and uploading the information from devices.

 To prevent excessive data usage, it is recommended to enable these options only when necessary.

The data logging contains information about device-specific details such as information about its state and changes in the state. Certain devices may be able to provide more details. For example, a DALI device may also be able to provide data on specific hardware capabilities.

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

SCANNING INTERVAL
This only applies to DALI devices in your network. DALI sensor and/or device data from your network can then be uploaded to the Casambi cloud service at an interval defined by the Status update interval setting. The data can then be accessed by using a suitable 3rd party software interface designed around the Casambi Application Programming Interface (API).

The data available for collection depends on the designed DALI capabilities of the sensors or other devices used in the network. e.g., a DALI device without thermal measurement capabilities cannot provide temperature data.

This option may use a significant amount of network data bandwidth and can slow network operation.
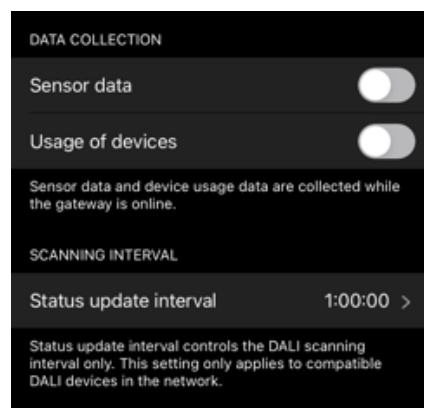
DALI gateway

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 unpaired state and the CBU-DCS DALI Gateway profile must be applied (see the Luminaires section for instructions on unpairing and profile changing). 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 present in the Casambi network will then appear as standard DALI gear to the wired DALI controller software. Each Casambi device uses a DALI address, but the CBU-DCS DALI gateway does not; instead, it appears as transparent to the DALI controller software.

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

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

You cannot separately address more than 64 Casambi devices (DALI limitation). If you wish to control more than 64 devices you should create multiple Casambi networks with a DCS DALI gateway in each. If using more than one DCS DALI gateway in a single Casambi network, one must only control luminaires (DALI DT6 or DT8) and the second only control DT1 emergency devices.

Like other Casambi devices, the gateway device can be renamed and assigned its own icon.
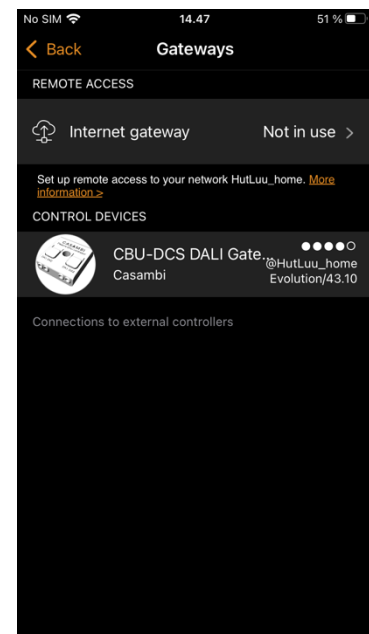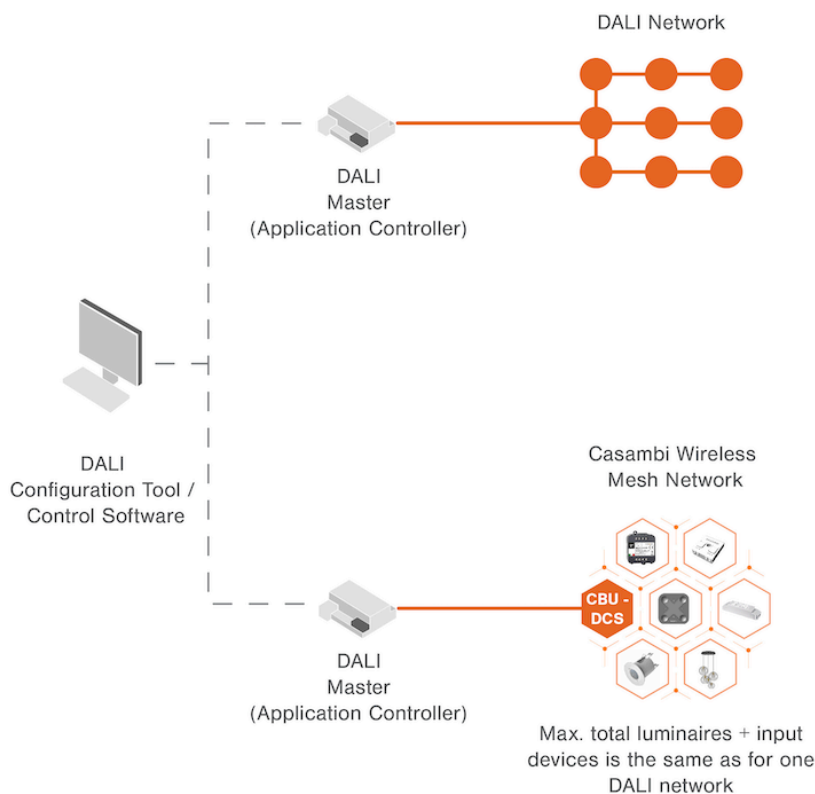
DALI gateway - Gateway Parameters

Control Scope defines which Casambi luminaires can be recognised by the DALI control software. Default is *All luminaries*. However, this can be limited to luminaires contained in a single scene.

Control priority defines the hierarchy for the gateway to prioritise commands sent by the DALI software:

<u>Higher than manual</u> Commands sent from the DALI system override Casambi commands in the Casambi network (e.g. Casambi commands triggered by the Casambi app, sensors, switches, timers)

<u>Manual</u> Is the default setting. It allows Casambi devices to be controlled both by the DALI controller software and by the Casambi app.

<u>Higher than automation</u> Allows the DALI controller software to control lights that are under automation by presence/absence sensors or timers, but not those that are manually controlled by the Casambi app.

<u>Lowest-priority automation</u> Allows the DALI system to control lights in the Casambi network that are not under any form of control from within the Casambi network itself (e.g. manually, sensors or timers).

The Resume Automation button (@) must be used to allow the Casambi app to regain full control when using the *Higher than automation* or *Lowest-priority automation* options.

<u>Export sensors</u> Enabling this allows Casambi-enabled sensors in the network to be selected and made available through the gateway as DALI-2 devices in the DALI network.

<u>Export switches</u> Enabling this allows Casambi-enabled switches in the network to be selected and made available through the gateway as DALI-2 devices in the DALI network.

<u>Export light control</u> Allows the automatic transmission of changes in the dim level of each DALI-addressed Casambi luminaire to the DALI network.
- This is suitable for BMS or DALI systems that rely on <u>passive observation</u> of DALI communication to update light level status in their system, i.e., they don't send DALI requests 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 single-master control DALI controllers on the DALI bus.

<u>Export changes of CCT</u> Allows the automatic transmission of changes in the colour temperature of DALI-addressed DT8 tuneable white luminaires in the Casambi network to the DALI network.

<u>Export DALI device data</u> Allows DALI D4i data from D4i compatible drivers that are in the Casambi network to be gathered by the DALI system.
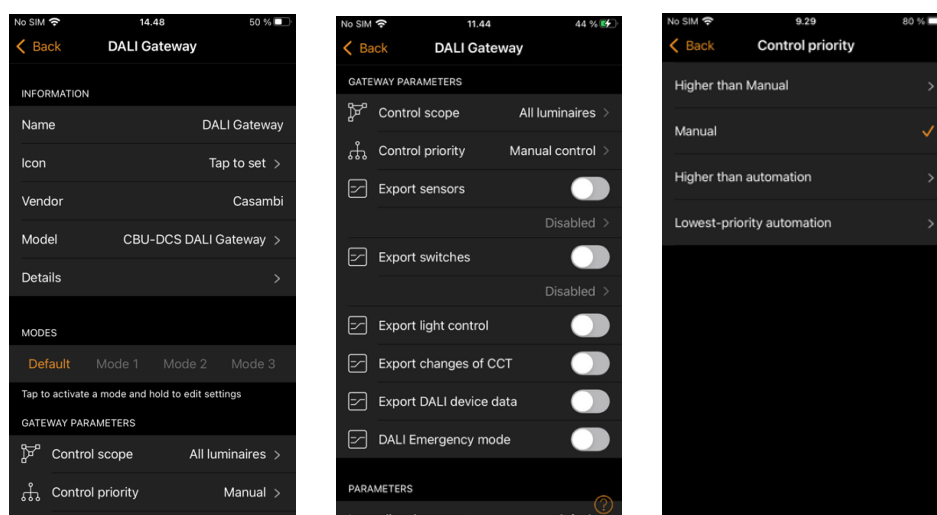
DALI Emergency mode Allows the control of DALI DT1 (Emergency) devices in the Casambi network from DALI.

Input dimming curve defines how the dim 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 of controlling any type of luminaire from a DALI system. Casambi-enabled luminaires can use linear, logarithmic or custom dimming curves, or there can even be a mix of all these dimming curves 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 the luminaires can lead to non-optimal dimming behaviour when a Casambi network is controlled by DALI. The *Input dimming curve* option therefore offers the possibility to change how the DALI system dimming curve is transferred in the Casambi network.

Options for the Input dimming curve are:
- Default: This is the same as Linear.
- Linear: Transfers the dimming curve received from the DALI system "as is" to the Casambi network.
- Logarithmic (DALI): Applies a logarithmic curve to the curve received from the DALI system.
    - Note that this setting may not respond optimally if *Update actual dim level* has been enabled.

Choosing the most suitable option depends entirely on the combinations of dimming curves used in a specific set up. Unfortunately, consistent results cannot be achieved when the Casambi network contains luminaires with a mix of different dimming curves.

Update actual dim level Depending on the defined Control priority, dim 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, changes made in the Casambi network may need to be available/visible to the DALI system.

Configuration options are:
- Yes (default)
    - The DALI system can actively query the current dim level/colour from the DALI Gateway, regardless of whether a change was made by the DALI system or directly in the Casambi network. Dim levels/colour are NOT automatically transferred from Casambi to DALI.
- No
    - Only the dim 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 dim level/colour status information (i.e., changes in the Casambi network are not automatically transferred directly from Casambi to DALI).

Device scan interval specifies how often the DALI gateway will scan the connected devices.

PARAMETERS	
Input dimming curve	default >
Update actual value	Yes >
Device scan interval	120 s >

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, presence 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 in 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

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's *Luminaires* tab. Disabling the *Display Nearby Luminaires* option 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 *Better Performance* and should be suitable for most networks. See the Change network section for instructions on creating 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, tap on Done to finish.
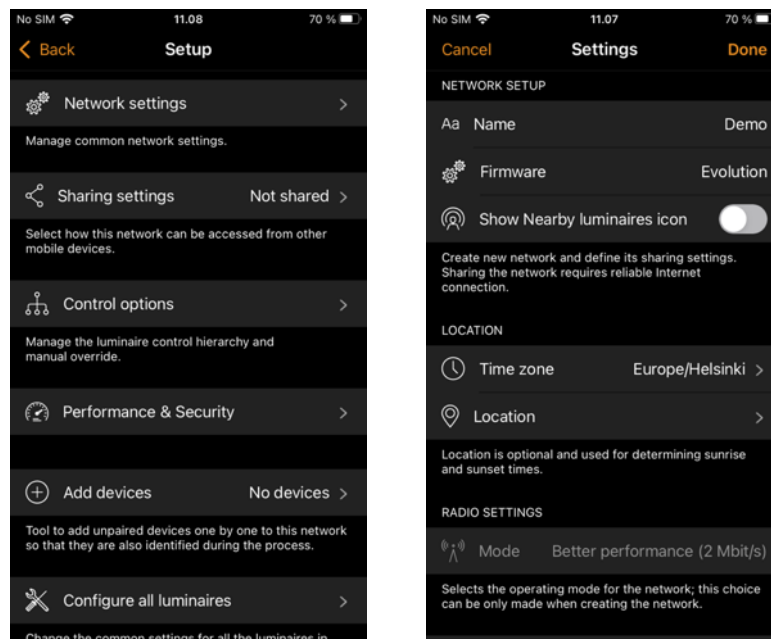
Sharing settings

To control luminaires also with other devices, the sharing settings need to be set. 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:

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 a change to the network programming is required (e.g., to add more luminaires or create scenes), it is necessary to log in with the administrator email and password. This network type therefore has two access levels: visitor and administrator.

Not shared Access to the network is only possible using the device with which it was originally created, and the network data is not uploaded to the cloud service. Note: It is not recommended to use this option. If selected, the network 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 recommends that you share the network.

Note: Lost passwords can only be recovered with a valid administrator email address.
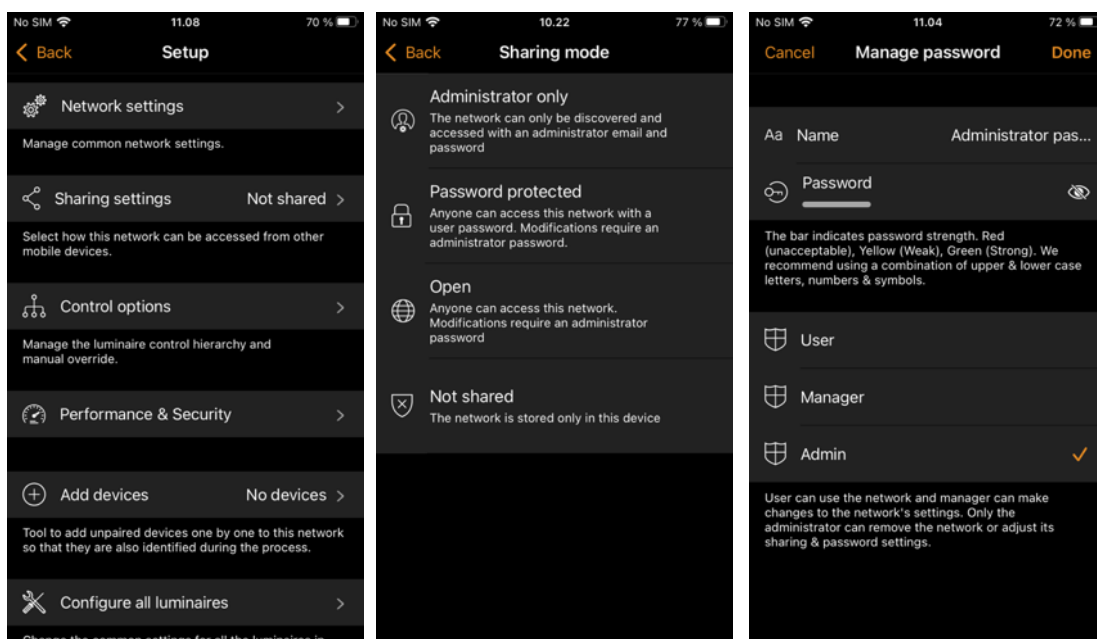
When setting the network sharing mode, the administrator email and password need to be set for the network. A password protected network also requires a visitor password to allow other devices to access the network.

Evolution Networks provide the additional security option of defining 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, change Performance & security settings, or see the Network history.
User Can only use the network but cannot make any programming changes.

When creating the password, a password strength check will be performed, guiding the user to create a strong password. You can view the password by pushing the "eye" symbol.
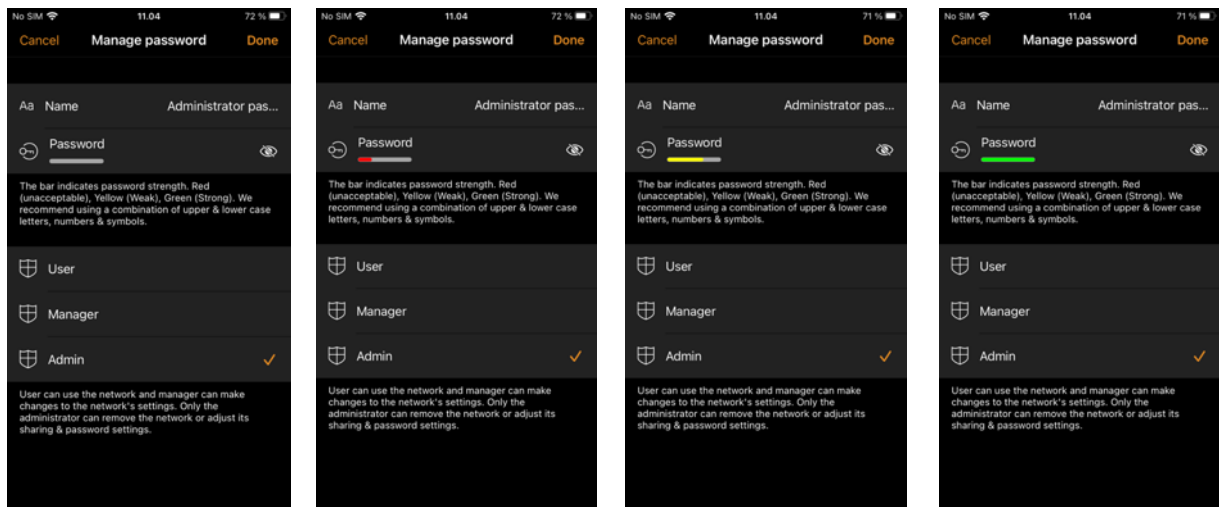
To save the new settings select Done. If the sharing setting is something other than *Not Shared* all the changes are uploaded to Casambi cloud service and the network can be accessed from other devices. See the Change network section of this guide for more information about removing and deleting networks.

Changing or deleting email addresses associated with a network can be done in multiple ways.

Email addresses can be associated with Admin, Manager or User sharing settings. Someone with Admin rights has the possibility to change or delete other email addresses that may be associated with other access rights.

In the Sharing settings section any visible email address can be selected and changed to a new email address. This may be desired if the commissioning engineer has used their own email address when creating a network and then wishes to hand-over the network to the true owner. The Admin email can be updated to the owners email address and the owner can also be asked to enter their own unique password.

A person with Admin rights can delete Manager or User emails that may have been associated with the network.

If an email needs to be changed or deleted and you do not have access to do this, then please contact support@casambi.com. To prevent undesired changes, Casambi may first require you to prove that you are the network "owner" (Administrator) or have the network owner's permission to make the change.

Control options

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

<u>FADE TIME</u> options allow you to alter the Fade time:
- Powering up of the device (i.e., when switching the mains supply on)
- Toggling ON or OFF (i.e., using the Casambi app, Xpress switch or Casambi Enabled switch)
- Dimming with switches (i.e., when dimming using the Xpress + or – buttons or a Casambi enabled switch)
- Smart switch (i.e., when dimming via a normal mains switch connected to the mains input of a device that has the Smart Switching Dim and Save feature enabled)

You can also select one of the following options:

<u>Remember last state</u> Activating this option will allow luminaires that have been manually dimmed from the app luminaires tab or by a Casambi enabled switch, to return to that dimmed level when toggled on from the app luminaires tab or a Casambi-enabled switch. A scene activated manually from the Scenes tab will always recall the original scene dimmed level and not the manually adjusted dimmed level.
- Remember last state is not the same as a luminaire's STARTUP STATE FOR POWER ON, which is the startup condition when a luminaire is powered on.

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

<u>Use control hierarchy</u> For a detailed explanation of the Control Hierarchy, its priorities and its use with sensors and timers, please see the Appendix of this guide.

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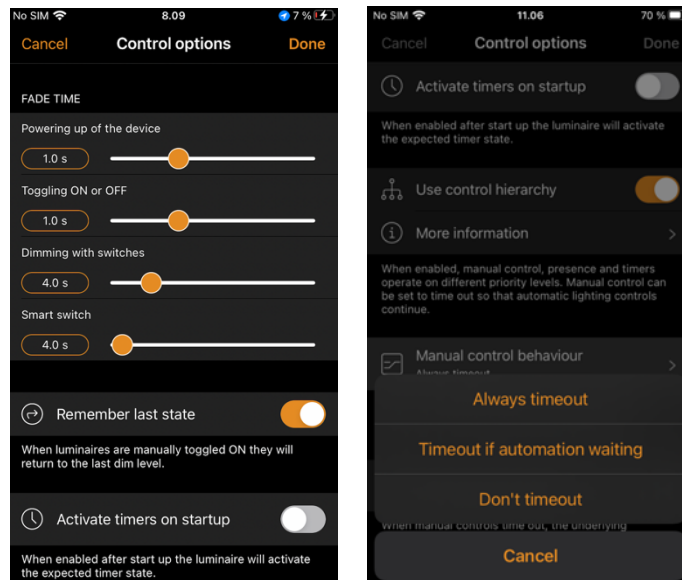
The Control hierarchy options are:

<u>Manual control behaviour</u> This option allows you to select 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 (after the timeout period).
- Timeout if automation waiting will cause manual control of a luminaire to expire only if, or when, 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.

<u>Manual control fade out</u> This option sets the time within which a luminaire fades out once manual control has expired.

<u>Manual control timeout</u> 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, instead of having to manually edit the values for each weekday.
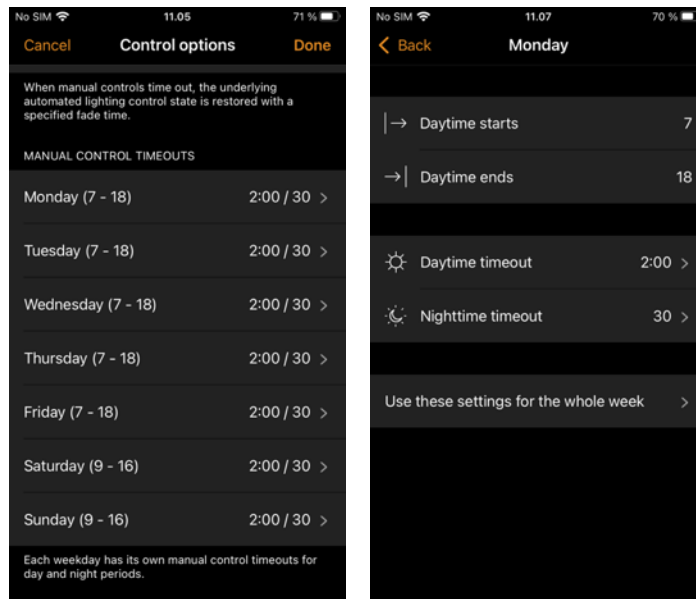
Performance & Security

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

Min sensor reporting time Reduces network data traffic. Increase the time to improve network performance if sensors are not required to be continuously sending information.

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.

Radio Transmission Power Allows the radio transmission power to be boosted to the maximum capable for the device. Generally, there should be no need to change this from the default setting.

Allow firmware updates Allows or prevents firmware updates, even if a new firmware version is available. Disabling this will also prevent pop-ups being shown when a new firmware update is available. If disabled, the responsibility of checking for firmware updates lies with the system admin. If disabled, re-enable this option, update the firmware, then disable the option again.

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.

Network events Shows events, such as switch activations, sensor motion triggers and lux changes, that are happening in the network in real time. The list continuously updates, bust updating can be paused and restarted by pushing the "radar" icon. It is possible to save a copy of the information by selecting EXPORT.
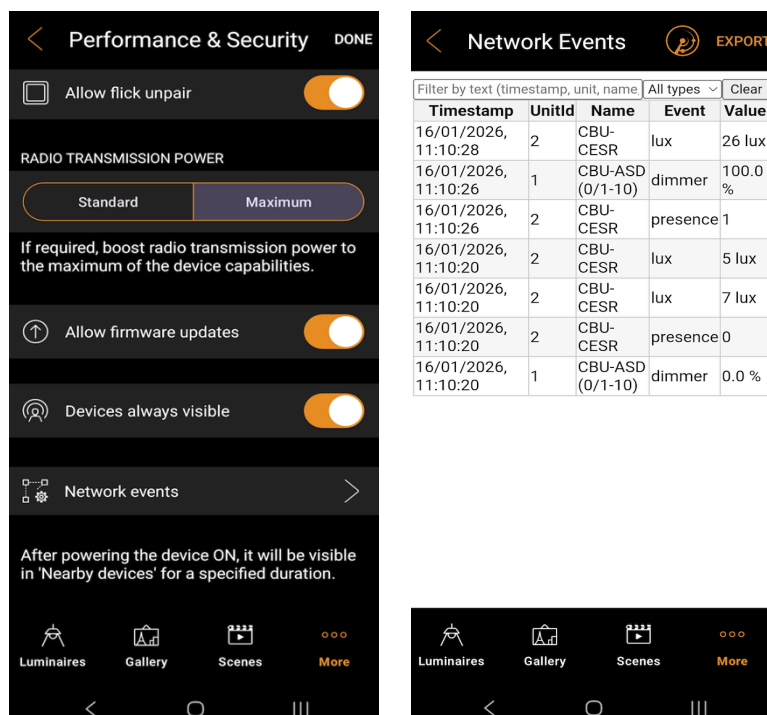
Add devices

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 a new group and add the device to it
- Change the device profile
- Rename the device
- Skip the device (and not add it to your network)
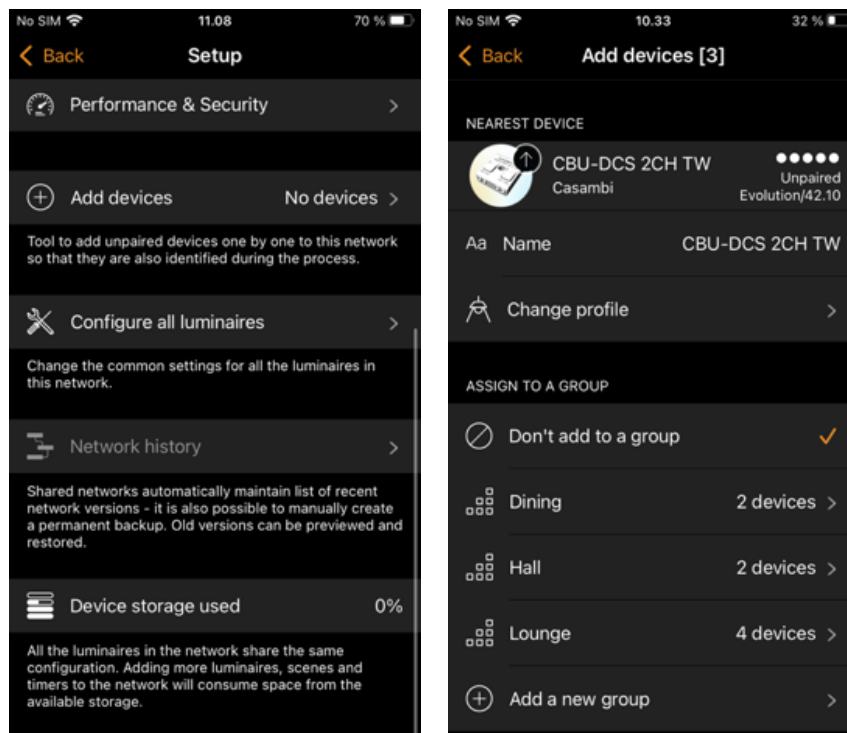
Configure all luminaires

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 most luminaires in the network.

Select the *Configure all luminaires* option under *Network Setup*.

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

<u>Configure Smart Switching</u> Allows the selection or disabling of various *Smart Switch* options for all luminaires in the network. For detailed information about smart switching please see the Smart switch section in the Appendix.

<u>Startup -> last state</u> Sets the startup state to last state on all luminaires.

<u>Startup -> default mode</u> Sets the startup state to default mode on all luminaires.

<u>Save current state</u> Sets the current state as the default mode for all luminaires.

<u>Restart network</u> Can be used to restart the control hierarchy and mesh network. This can be useful if you wish to restart devices in order to test the most recent program setting (i.e., test if a recently programmed sensor triggers correctly) or if you delete a timer that was already running before deleting.

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.
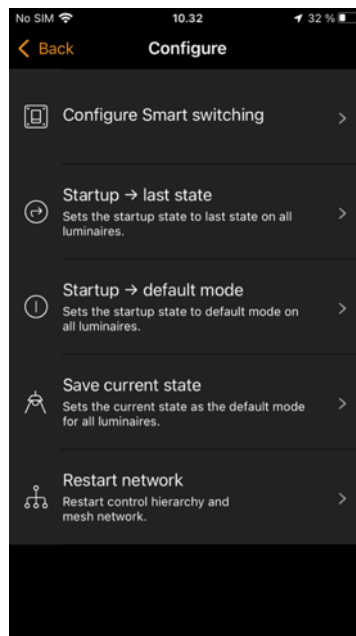
Circadian profiles

To be able to create a circadian scene, Circadian profile graphs need to first be created in the *More tab*, *Network setup*. They can then be applied & used in Circadian scenes created in the Scenes tab.

To create a Circadian profile:

1) Navigate to the *More* tab
2) Select *Network setup*
3) Scroll down & select *Circadian profiles*

You will then see this view where profiles you have created will be listed:

To Import an already existing profile that has been used in another Casambi project that you have commissioned using the same mobile device, select Import (top right) & choose the relevant profile from the list shown.

To Add a new profile:

1) Select Add a new profile
2) Change the profile name (if desired) by clicking the "Circadian text & editing
3) Enable *Colour temperature* &/or *Dimmer* options so that the buttons show as orange.
   a. Only *Colour temperature* enabled: You can configure a circadian graph only. When applied to a scene, the colour temperature of tuneable white luminaires will automatically adjust over time according to the profile graph settings.
   b. Only *Dimmer* enabled: You can define a dimming curve graph only. When applied to a scene, the dimming level of luminaires in that scene will automatically adjust over time according to the profile graph settings.
   c. Both *Colour temperature* & *Dimmer* enabled: You can configure two graphs that will then cause colour temperature to be adjusted & dimmed over time. When applied to a scene, the colour temperature of tuneable white luminaires, & their dimming level will also change, automatically over time according to the profile graph settings.
4) Push OK

You will then be presented with a view showing two graphs. One representing colour temperature over time, & another representing the dimmed level over time.

If you have enabled both *Colour temperature* & *Dimmer* options, at the bottom you will see buttons for *Colour temperature* & *Dimmer*. Select the option for the graph you wish to adjust.

Select a control point (dot) on the graph & drag it two where you wish to have it. As you move the control point, the display in the top right will automatically change to display Time of day, Colour temperature & Dim level of that control point. You cannot drag a control point to be placed before or after a previous do on the graph.

To add more control points to a graph, simply tap & hold on the graph.

To delete a control point, select the control point at tap the bin icon.

The menu (…) in the top right provides the following possibilities:
- Change the format of a graph from a curved format (*Curve*) to a stepped format (*Steps*)
- See what circadian scenes the profile is *Used by* (Push Circadian (top left) to exit the menu & return to the graph editing view)

When you have finished configuring the Circadian profile graph, push Done to save it.

The Circadian graph can now be utilised in a circadian scene. Circadian scenes are created in the Scenes tab. The Circadian scene is selected from the scene Settings, Circadian rhythm option. For as long as a Circadian scene is active (& active as the highest priority command in the Casambi control hierarchy), the tuneable while luminaires will react to the colour temperature & dim levels defined in the used circadian profile graph.

Copying, renaming or deleting a profile: Go to the Circadian profiles option & swipe left (iOS), or push & hold (Android) to see the options: *Copy*, *Rename*, & *Delete*.

<u>Notes</u>
- If you edit a graph that has been used in scene/s, the change will also affect the scene/s.
- Another use for the *Dimming* profile graph could be as a possible alternative method to using Animation scenes or Time based scenes for situations where only dimming is required to adjust as certain times.
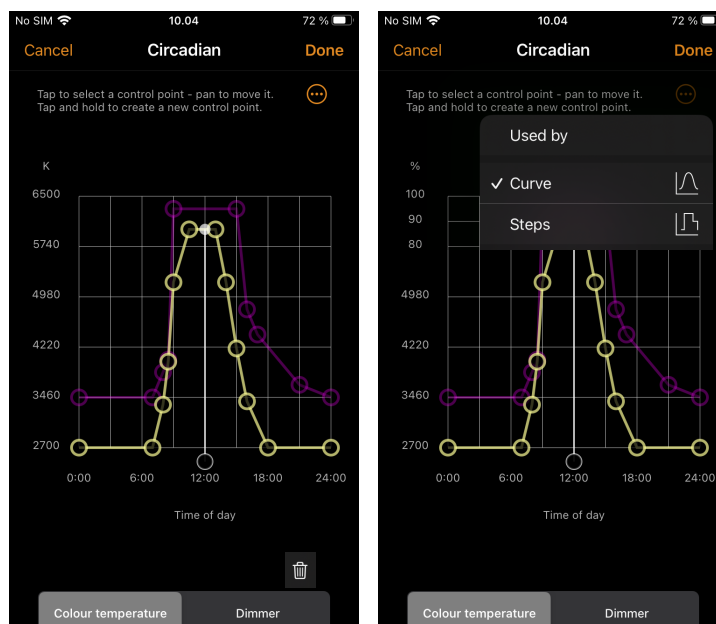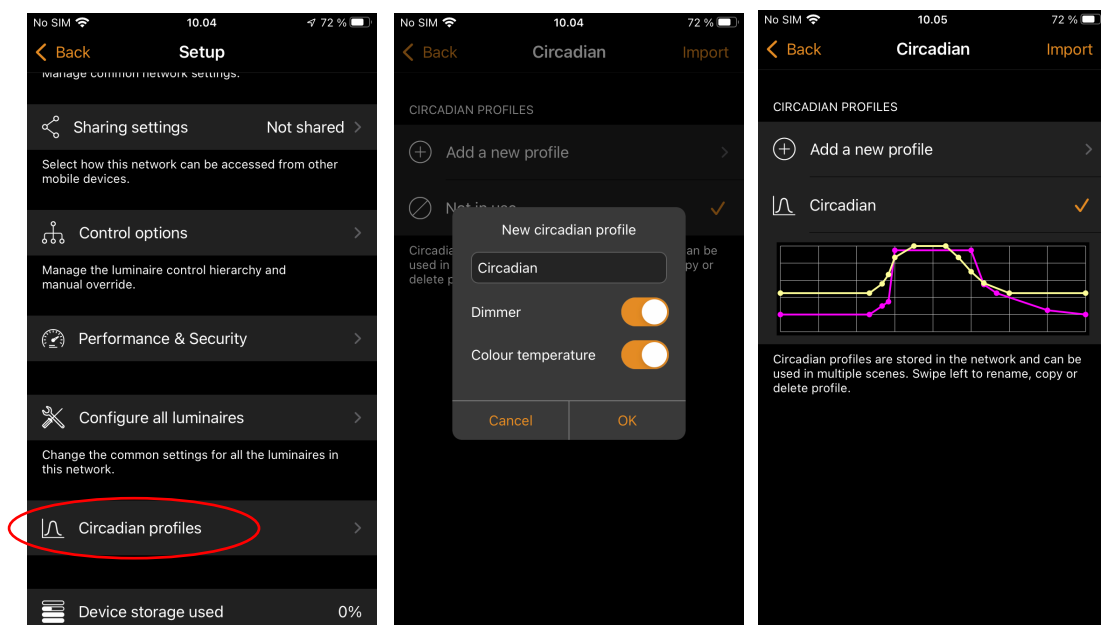
Network history

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 S*napshots* are saved automatically, whereas *Backups* are created and stored manually.

A total of fifty snapshots will be stored automatically. If more than 50 are saved, the oldest will be removed to make room for the new ones. A new network snapshot is created whenever the network configuration is changed. Snapshots only have a date and time stamp and cannot be renamed. They are intended to allow you to quickly return to a previous network configuration if you make a mistake while programming (a bit like the "undo" function available on PCs).

You need an internet connection to create a permanent backup. Select *Create a new backup* and then enter a description (name) for the backup. The backup is automatically date and time stamped. The device on which the backup/snapshot was created is also displayed. 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 of available backups/snapshots. Then a menu will appear with the options Preview, Restore and Cancel.

Selecting Preview gives you a visual example of what the configuration will look like in the app when 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.

When restoring a backup, the system checks for any changes that may have been implemented between the current version of network and the version to be restored (such as devices being added or removed). If conflicts are noticed, they system will try to resolve these if possible. Popup messages may be displayed to indicate issues that may not have been possible to resolve, or to inform that devices added since the restored backup have been organised to a specific group for easy identification.
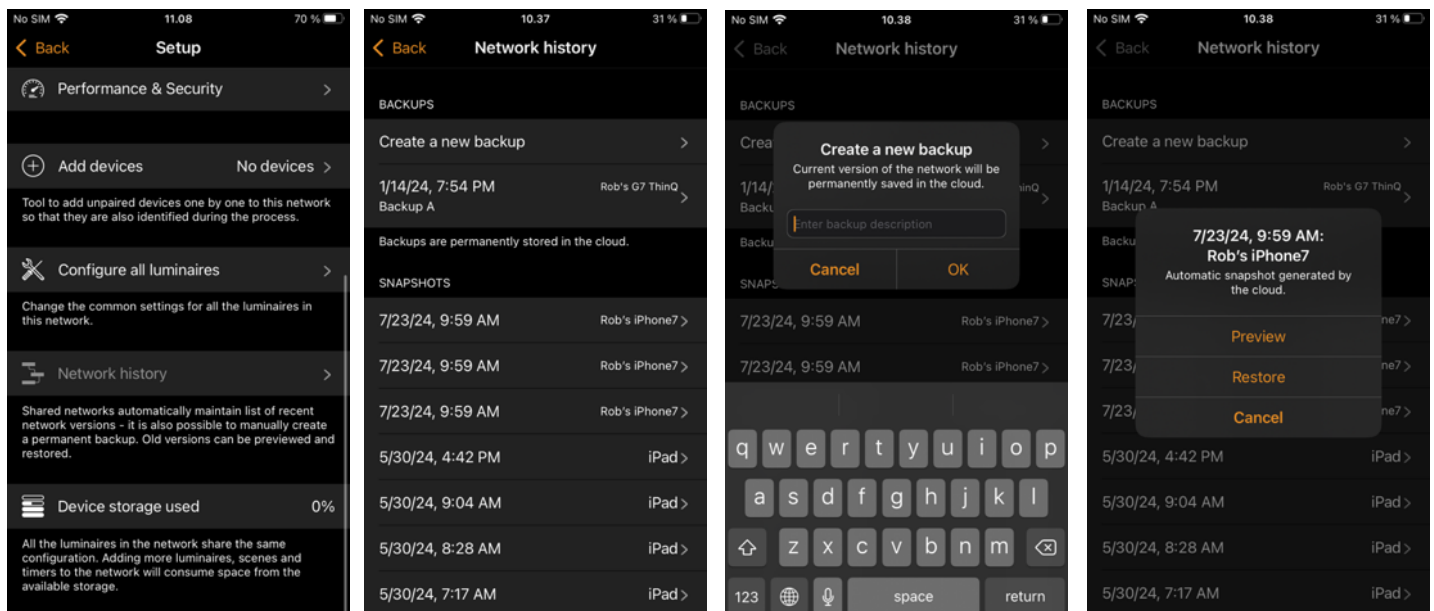
Upgrade to Evolution firmware

Upgrading an existing network from Classic to Evolution is quite a time-consuming process, has many steps, and may require various manual steps in addition to the steps carried out by the Casambi app (for example, battery powered 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 have to use a feature or function only offered with Evolution.

See the Change network section for more information on the benefits of using an Evolution network.

Before updating to an Evolution network, please ensure that:

1.   All devices in your Classic network are Evolution-compatible. You can check this by viewing them in 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.   You check and note the Classic networks' *Radio Mode* setting (*Balanced*/*Better Performance*).
3.   You have a 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, and your network's devices will be checked for Evolution compatibility. Following this compatibility check, you will be presented with a list of the names of any non-compatible devices. You would then need to physically replace them with new Evolution-compatible devices if you wish to proceed with the firmware upgrade.

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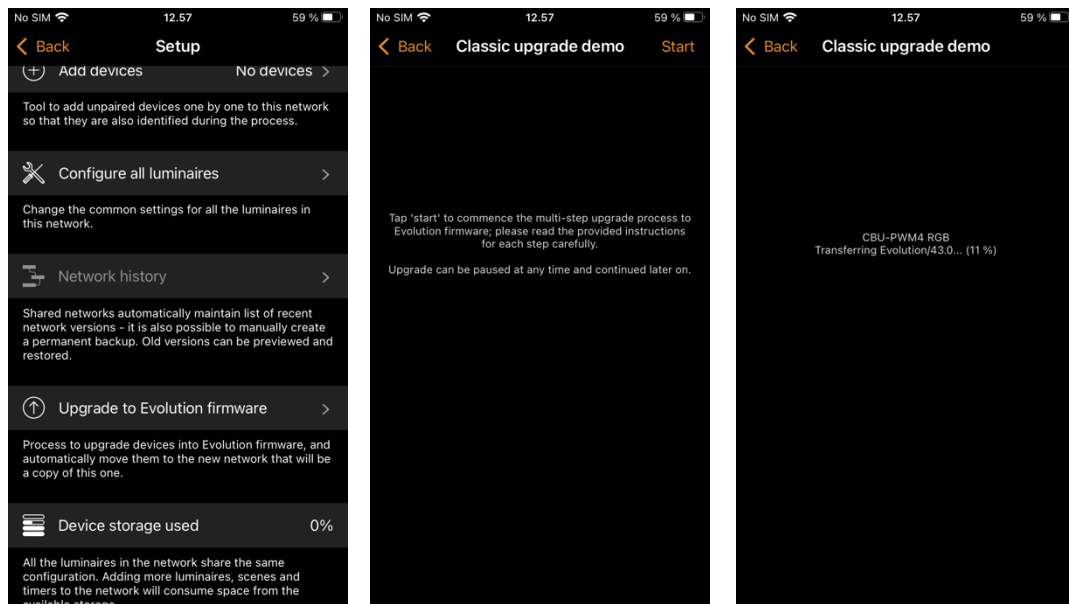
If all the devices are compatible, the firmware of each device will then be updated. This process may take some time if you have many devices in your network and you may see a *Waiting for devices* 1/x message.

At this point it is still possible to select Cancel the upgrade or Back (in the top left corner). You 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) previously used for the Classic network must also be used for your new Evolution network.
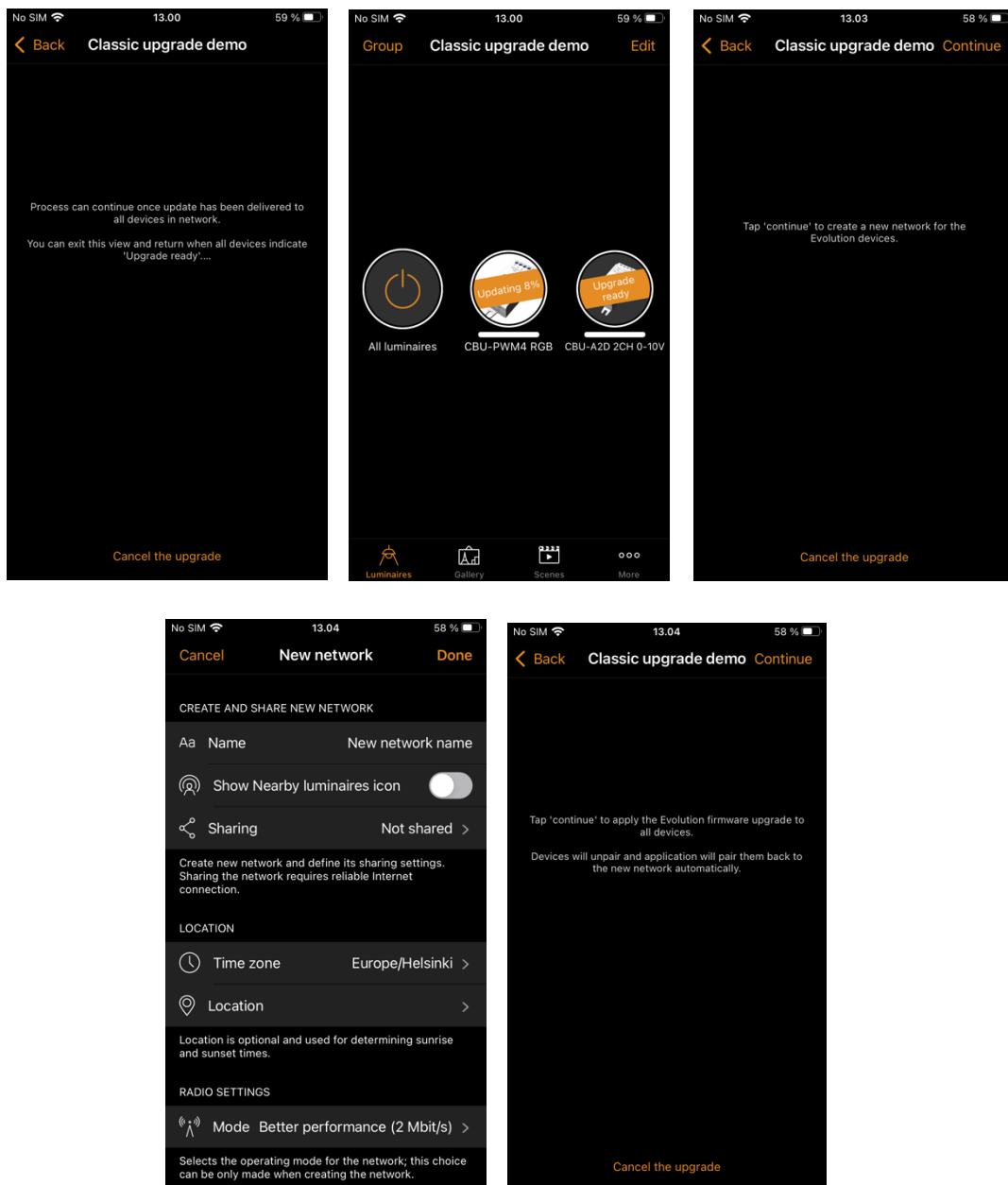
Select Continue again to continue with the network upgrade. The Casambi app will display a warning that you cannot return to Classic after this step. An Evolution network cannot be reverted to a Classic network. If you need to revert it, there is no other option than to unpair each device individually, change each device's firmware back to Classic individually, and create and program a new Classic network from scratch.

At 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 in the installation area to help the Casambi app to find all the devices in the network.

When the upgrade process is complete, *Upgrade complete* is displayed. Now 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. In order to use these devices, you have to manually upgrade them and add them to the new network by 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 there are devices in the network. After verifying that the new Evolution network is working correctly, you can delete the old Classic network.
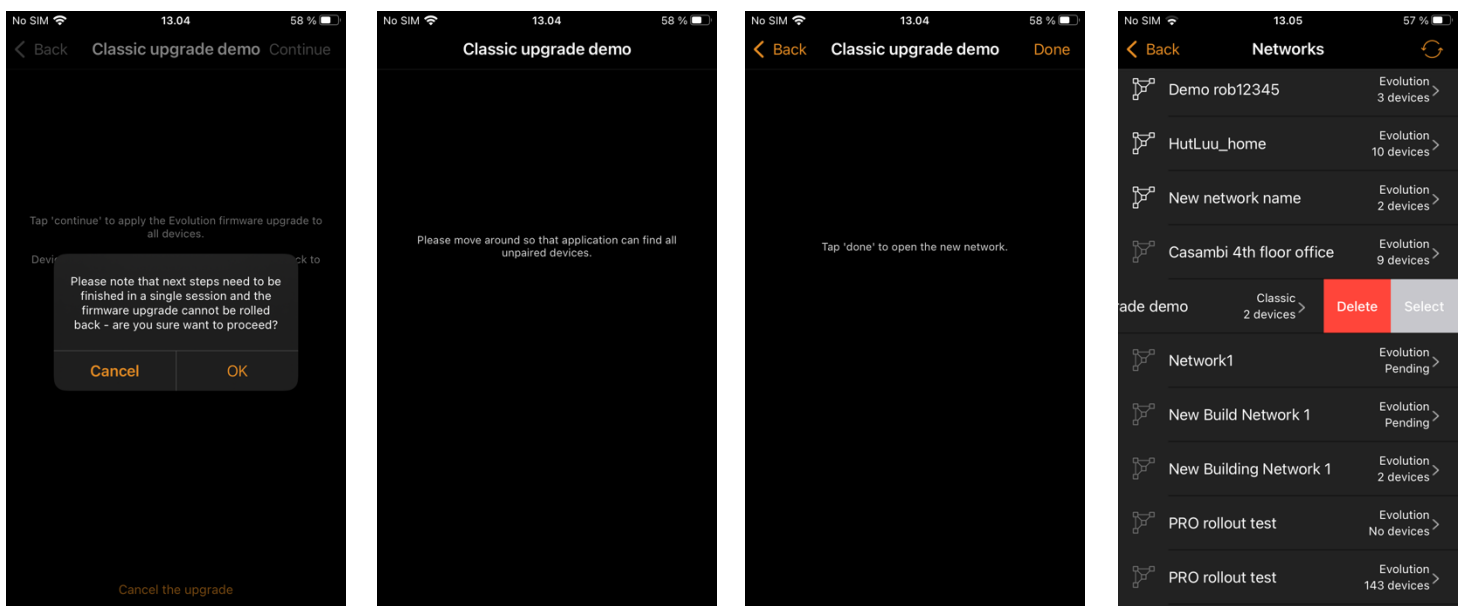
Device storage used

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 number displayed since the entire network configuration is stored identically on every Casambi device in the network.
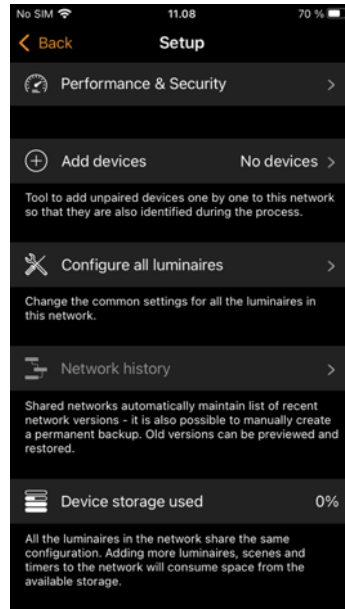
Nearby devices

The Nearby devices page displays a list of all Casambi-enabled devices that are nearby.

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. Devices suitable for the use in long range networks can be identified via their signal strength icon. Long range compatible devices are indicated by 6 square icons rather than 5 round ones.

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. Depending on the product, different options may be available 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 top right of the screen there are two symbols.

Networks scanning:
- If the icon is revolving, the app is scanning to try to locate all Casambi devices within range. Tapping the icon pauses the scan and stops the list updating. Tapping again restarts the scan. There is no need to pause the scan to take other actions or apply filters.

Sorting/filtering options:
- Organize the displayed devices using the Sort by, and/or Filter by options.
  - Sort by: **Signal** strength, device **Name**, or **Network name**.
  - Filter by: **Unpaired** devices, Devices in the **Current network** you are accessing, **My networks** (networks you can access), **Luminaires**, **Sensors**, **Switches**, or O**ther Devices**

You can check for firmware updates (**Check for updates**). If you have internet access the Casambi app will connect to the cloud service and check for updates. If an update is available, you will see an arrow above the icon of the devices that can be updated. Depending on your app settings, this update arrow may appear automatically when an update is available.

You can see details of the **Latest firmware version** available (The first number refers to Evolution firmware, and the second refers to Classic firmware). Tapping Latest firmware version displays a list of release notes for each version. Tapping a particular version will display the details of that version.

At the top of the displayed list of Nearby devices you can find a free text **Search BLE devices** field. Enter the text you wish to search for, and the list will update to display the matching results as you type.
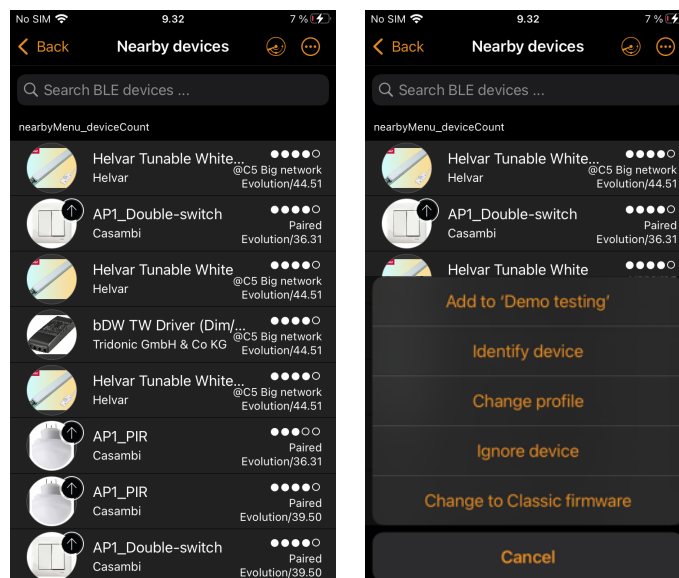
Change network

You can see the networks stored on your mobile device on 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. Choose a network by selecting the network name.

All networks that have nearby devices powered, i.e., online networks, are displayed in the list with a bold icon next to the network name. Offline or out of range networks are display with a greyed-out icon.

Accessible shared online network. Login may be needed depending on network Sharing settings.

Inaccessible shared online network.

Offline accessible shared network.

Offline inaccessible shared network.

Accessible network with a gateway enabled. Login to gain remote access.

In the top right of the screen there are two symbols.

Refresh the list

Sorting/filtering options:
- Organize the displayed devices using the Sort by, and/or Filter by options.
  - Sort by: **Network name** or your **Network access rights**
  - Filter by: Networks with devices **In BLE range**, **Evolution networks**, or **Classic networks**.

From the sort/filter options you can also **Create a network**, **Log in to network** (if you know the login credentials for it), access the **Demo network**, or return to the app **Start screen** (i.e. the splash screen seem when first opening the app) if desired.

At the top of the displayed list of Networks you can find a free text **Search by network name** field. Enter the text you wish to search for, and the list will update to display the matching results as you type.
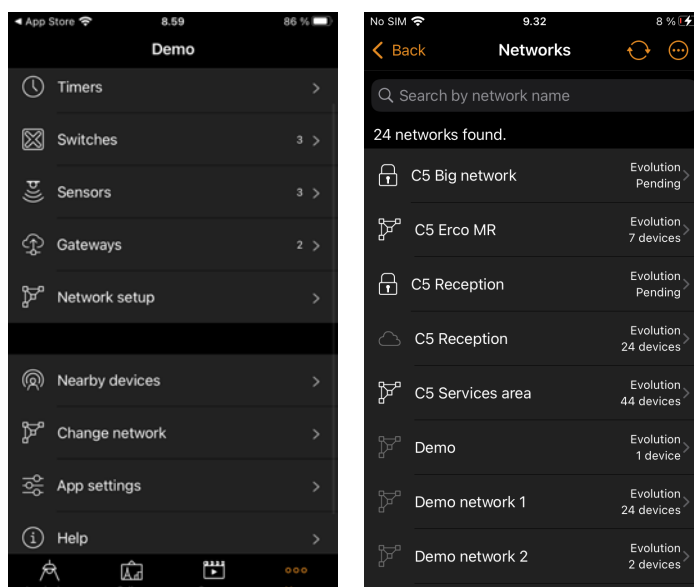
If the network you wish to access is not shown on the list, select Log in to network and enter the administrator email and password. You can access a network with the administrator email and password, even if you are not in the range of the luminaires in that network. If you are not in range of the network, 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 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 delete the network completely. This option deletes the network from both your Casambi app and the cloud server, which will then stop 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.

From the Change network screen you can also change the login password for a network to which you are already logged in.

1. Swipe to the left (in iOS) or tap and hold (in Android) on top of the network name and the Change login option will appear.
2. You will be presented with the option to enter a new password.
3. If you have the correct network access rights the password will be updated. Note that you may also be asked to log in to the network again.

Create a network

To create a new network, select Create new network. You are then prompted to create an Evolution network. If you need to create a Classic network, select More information and scroll to the bottom to find the option for creating a Classic network. Descriptions of the Evolution and Classic networks can be found in the More information section of the app and the appendix of this user guide.

After selecting the network type, the New Network page is displayed. In the *New network* view, you can assign a network name, time zone, and location, and select Sharing settings, network mode and network frequencies.

The Time Zone is based on the time zone of the mobile device that you are using to create the network. If you wish to set an alternative time zone then you must change the setting of your mobile device to the correct time zone.

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

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

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

Password protected Allows users and the 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 they cannot create new user accounts. Only an administrator account can create new accounts.
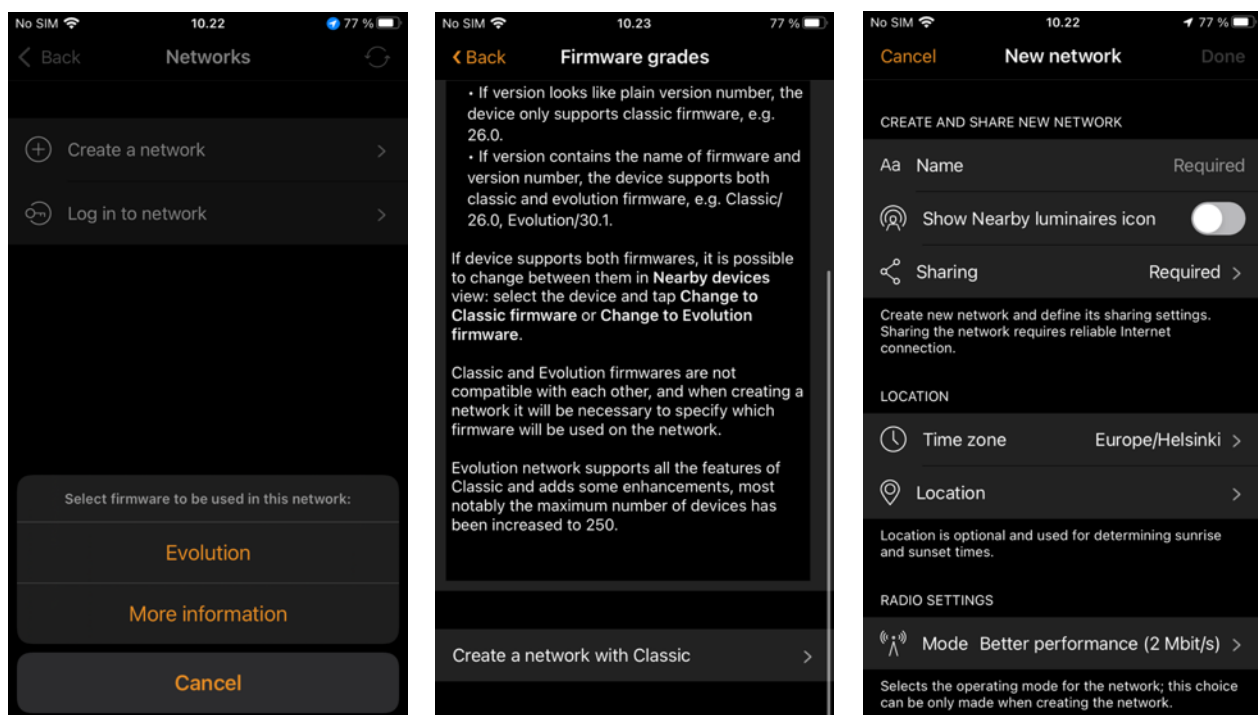
The network Radio settings have four Mode options. These determine the communication speed and potential communication range for devices in the network.

- Better performance (2 Mbit/s): Optimised for larger indoor networks with increased data traffic. Reduced communication range compared to Balanced network mode. **This is the default Mode for a Classic or Evolution network.**

- Balanced (1 Mbit/s): Optimised for small to mid-size indoor networks (recommended 125 nodes max.) with moderate data traffic.

- Long Range (0.5 Mbit/s): Optimised for small to mid-size outdoor networks (recommended 60 nodes max.) with low data traffic. Increased communication range compared to Balanced network mode. Compatible devices only. This mode is suitable ONLY for Casambi devices using our latest CBM-003 that has Bluetooth 5.0 Long Range capabilities

Long range modes are only available for Evolution networks. Devices suitable for use in Long range networks can be identified in the Nearby devices view. The signal strength indication for Long range compatible devices is indicated by 6 square icons rather than 5 round ones next to corresponding devices in the list. The Casambi app will inform you if you try to create a Long range mode network using incompatible devices.

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 want to avoid, for example, at the request of a customer's IT department).

Casambi does not interfere with standard Bluetooth frequencies. The frequencies below are close to equivalent Bluetooth channels and are not selectable from app version 3.9.0.

- 2403 (channel 1)
- 2425 (channel 12)
- 2427 (channel 13)
- 2479 (channel 39)

Note that changing the network mode or frequencies is not possible after the network has been created!
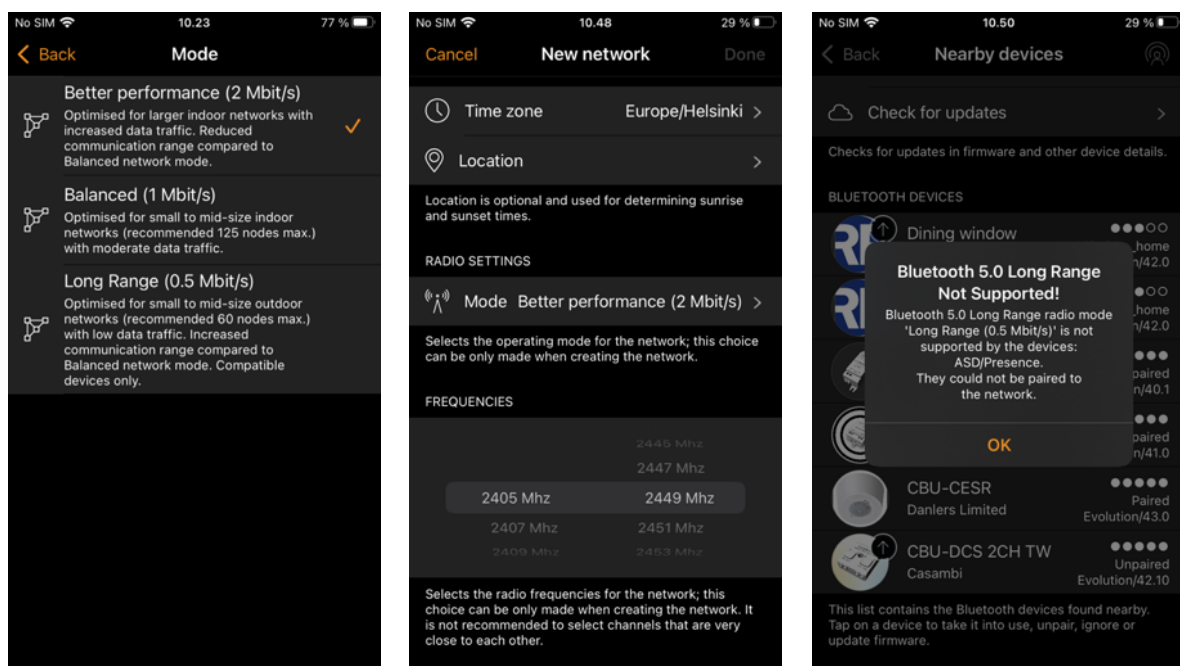
Log in to a network

You can log in to an existing Shared network if you know the log in credentials. Select Log in to network from the Change network screen and enter the email address and password associated with the network.

If you cannot remember your password, then select the Forgot password option after attempting to log in (see Resetting a network password section)

Deleting a network

You only have the possibility to delete a network to which you have the correct access rights.

Deleting a network will delete access to the network for everyone who had access rights.
- Unshared networks are never possible to restore after deletion.
- Under certain conditions, Shared networks may be possible to restore by contacting support@casambi.com

Deleting an Unshared network
- Select the network name from the Change networks list.
- Swipe to the left (iOS) or press and hold the network name (Android) to see the Delete option
- Select Delete and you will be prompted to enter a verification code. After deletion you will not be able to restore it or control any devices that may still have been paired to the network at the time of deletion.

Deleting a Shared network
- Select the network name from the Change networks list.
- Swipe to the left (iOS) or press and hold the network name (Android) to see the Delete option.
  - If the delete option is not visible, you do not have the access rights to delete the network.
- Select Delete and you will be prompted to enter a verification code. This will delete the network for anyone who had access.

If devices were still paired to a deleted network, the only way to regain control of those devices (in their default settings) is if you have the possibility to disconnect and reconnect power to the device.

Devices will show simply as "paired" if looking at the details in the Nearby devices list, and you must be within Bluetooth range of the device that you wish to unpair.

To unpair you select the device to unpair from the Nearby devices list and choose Unpair. You will then be prompted with a Start option. Press this and when an orange bar starts to run across the display switch the power to the device off and on to unpair it. This process may need to be repeated, or the period between switching off and on extended to get devices to unpair correctly. A confirmation message will be displayed in if the device unpairs successfully.

Battery devices first need to be activated so that they become online and can then be found and selected from the Nearby devices list.

The process of manually unpairing must be done individually for each device and may therefore be quite time consuming.

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. Entering an incorrect password will give you 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 valid for 15 minutes.

App Settings

The App settings page offers the following options:
- Change the app theme
- Change the Casambi app's language
- Automatically select the previous network you used
- Enable/disable unpaired device notification
- Enable/disable a Philips Hue bridge
  - Note: Philips Hue lights are limited to manual-only control via WiFi connection using the Casambi app. Control via Bluetooth is not possible, therefore, Casambi enabled switches, sensors or timers cannot be used to control the lights
- Enable/disable help buttons
- Hide full screen sliders: Disables slider overlays when swiping to dim/change colour temperature
- Enable/disable the Site feature
- Contact us
  - Options to SEND FEEDBACK, or REQUEST SUPPORT
  - SEND FEEDBACK is purely for giving feedback to Casambi about the app.
  - REQUEST SUPPORT is for use if you have an issue with which you would like help.
    - *Include diagnostics* is enabled by default and will include 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)
  - Always use a valid email address if you wish to get a response!
- Reset application.
  - This resets the app to its default settings (as if it had just been installed) and removes all 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 because after resetting the application you will not be able to access it at all!
- Remove administrator rights: Only visible if logged in to a network with admin credentials. This option allows you to request that your email address removed from all networks where it has been used as the Administrator email address and you will no longer be able to access those networks.
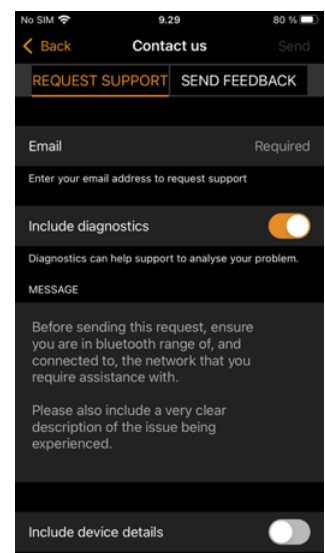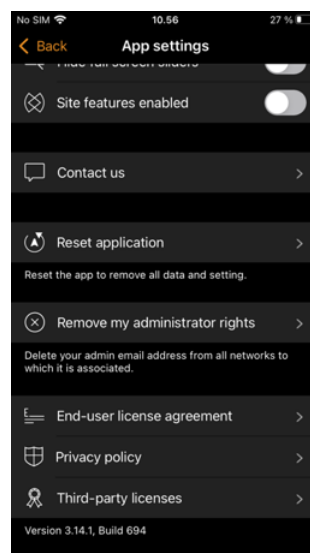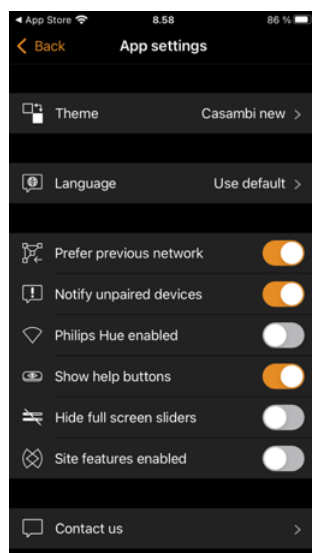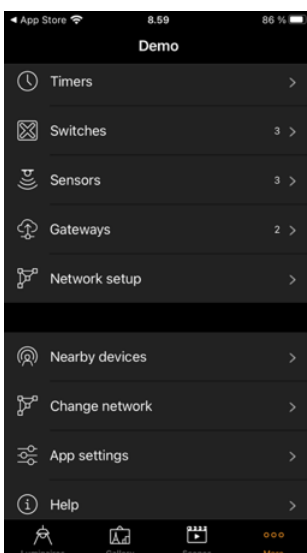
Help

This section links to Frequently asked questions (FAQ) on the Casambi website and to release notes for Casambi software versions.

Site

A Site is intended to link multiple networks that are in the same location and belong to a single project (e.g. Different floors of an office building).

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 to control them simultaneously.

To use this feature, the feature must first be enabled in the App settings section. Each network in the site must be shared and have a gateway enabled.

It is recommended not to make any changes to a network 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 will now appear in the Change site list.
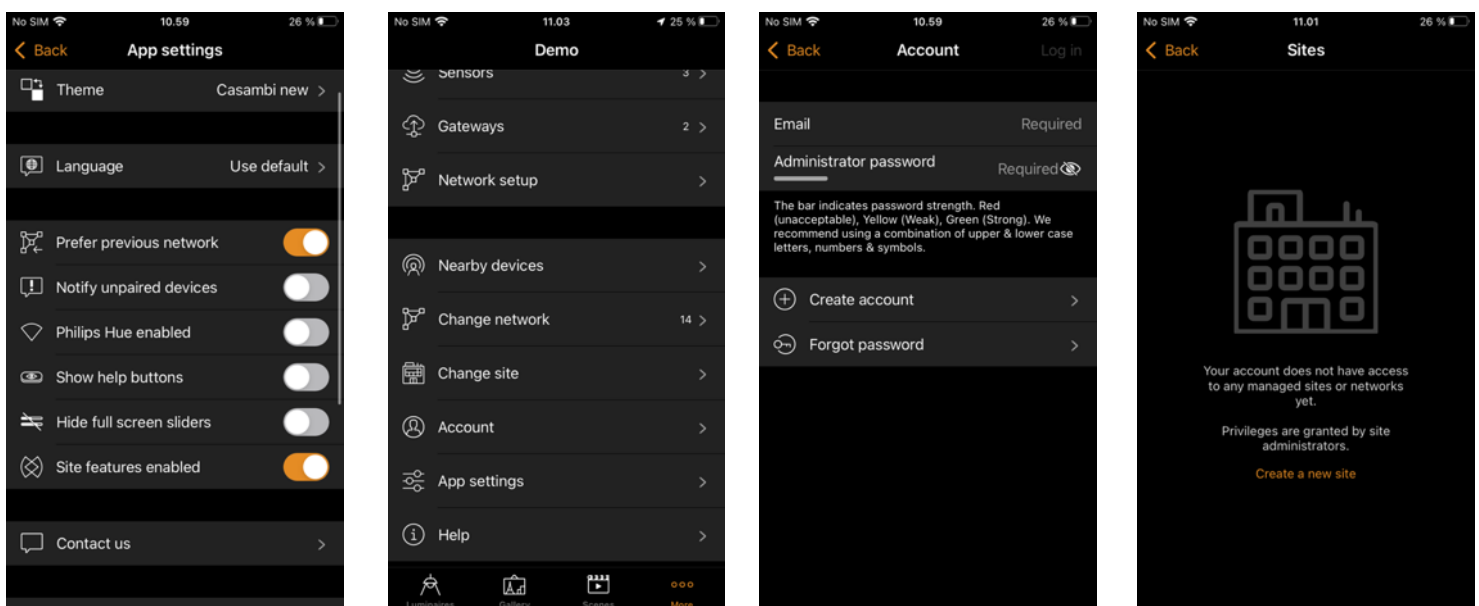
Select the site you require and add networks to the site:

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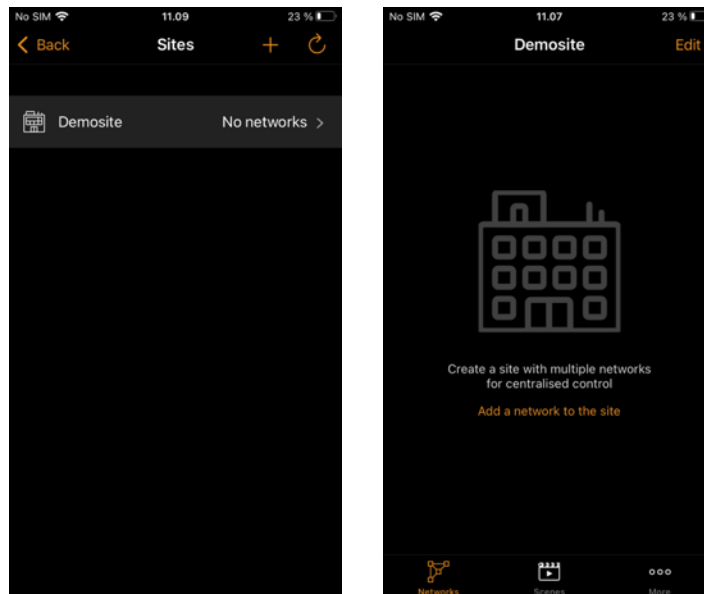
Privileges

After creating a Site, more people can be given access to it, or just specific networks that are part of that Site, if they also have their own Site account.

Site access Privileges

To grant others access to a Site, select the specific Site, select More > Privileges and tap +. Enter a valid Site account email address for the person you wish to grant access to. 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 networks and modify settings but cannot give privileges to other accounts.
- Admin Can modify all the settings and can also assign privileges to other accounts.
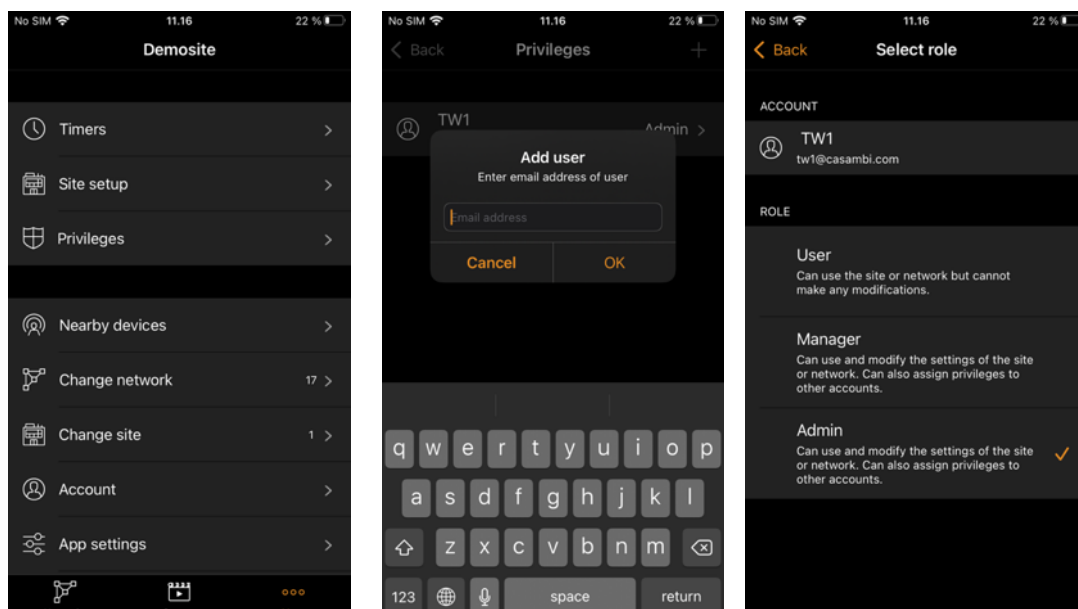
Network only Privileges

Access privileges only to a network that is part of that Site can be granted (i.e. No access to the Site itself, only access to a network that is part of the Site).

Select the specific Site and then select (tap) the network to which access is to be granted. This will open the network view. Then navigate to More > Privileges and tap +. Enter a valid Site account email address for the person you wish to grant access to. Then select their level of access. There are three different levels of site privileges that can be configured:

- User (default) Can use the Network but cannot make any modifications.
- Manager Can use the Network and modify settings but cannot give privileges to other accounts.
- Admin Can modify all the Network settings and can also assign privileges for that Network to others with a Site account (An additional Privileges option will be visible under the Network settings when viewing the Network).

To gain access to networks to which you have been assigned Privileges, log in to your Site account and then go to Change networks and refresh the list to see Networks you have access to. You will not be able to see or use the Site itself.

If you log out from your Site account you will not lose access to the network, but you will not have any manager or Admin rights to the network (if those had been granted). Log back into your Site account to regain the full assigned privileges to the network.

If you have network privileges granted to you Site account, there is no need to "Log in to network" in the Change network view. In fact, unless you know the specific network login credentials, login via the Log in to network option will not be possible.

Summary:
- Site accounts granted Site Privileges have access to all networks that are part of the Site.
- Site accounts only granted Network Privileges have access to the Networks only and cannot see the Site.

Note:
Do not add Privileges for a Site account at both Site and Network level, especially if the assigned privileges are different. The highest access privilege will take priority in such case, regardless of if it is assigned at Site or Network level. i.e. Someone with a "User" Site privilege and "Admin" Network Privilege will actually have Admin Site privilege.

Comparison views of where to set the different privileges:
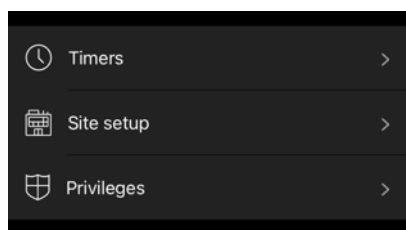
SITE privileges
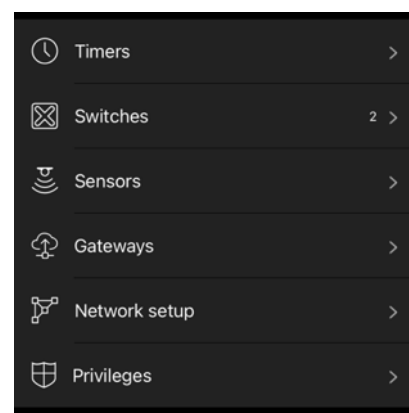
Network privileges

Controlling a network

When tapping on the network icon, the Luminaires tab view for that network will be opened. You can then use the normal gestures to control the luminaires in that 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 scenes count towards the maximum allowed total of 255 scenes per network.

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.

Site timers are stored in the local networks even if the timer is not visible if checked purely from the local network configuration.

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 tap on OK

Deleting your Site account

- When logged in to your Site account, go to the Account tab and select Delete account at the bottom of the screen. Note that you will then not be able to access any previous Sites that you created.

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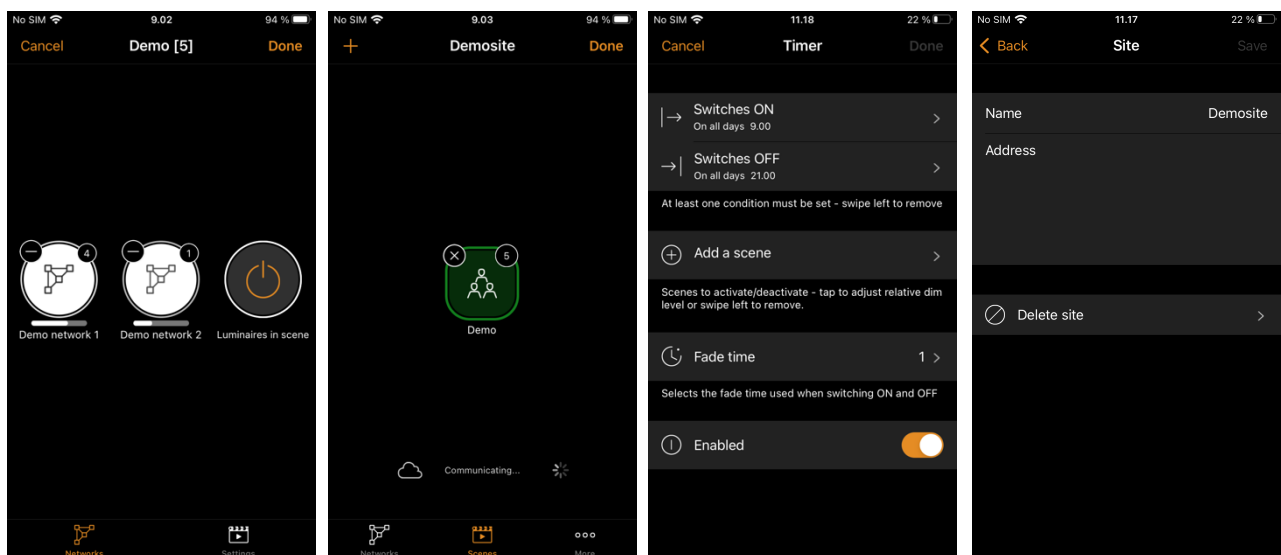
Appendix

Definitions of terminology

Here you can find definitions of some of the key terms used throughout this user guide. It is for guidance only and 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 well-being.

- Closed loop
  - A method of daylight control 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 below a luminaire. Daylight gain can be used to ensure that luminaires that are located near a window are kept dimmer than luminaires that are located farther into the room to achieve the effect of having the same level of illumination throughout the room.

- External
  - A daylight sensor mode like Open loop but intended for use when 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 when multiple types of command are being actioned simultaneously.

- Linger time
  - The set period of time before presence sensor deactivates a Presence scene after it stopped detecting movement.

- Manual control
  - Control by physical interaction (e.g., by 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 the 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.

- Remember last state
  - Luminaires automatically store their last dimmed level when toggled off (i.e. power is NOT switched off). When toggled on they return to the stored level. This function also overwrites the dimmed level of a scene if the scene was first selected and then dimmed before being toggled. This does not apply if a scene is selected, dimmed and toggled off/on from the scenes tab. In such a case, the original scene is recalled.

- Resume automation
  - Disable manual control commands active at a higher level in the control hierarchy to allow the automatic control to take over (e.g., from sensors or timers).
  - If done in the Luminaires tab with a Group open, Resume automaton will apply to that group only. In other cases it will apply to all luminaires in the network.

- 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's power switch is turned off and on.

- Startup -> Last state
  - After power is removed and restored, luminaires will start at the dimmed level they were at before losing power.

- Timeout
  - The length of time that a command remains active.

- Toggle
  - Switching a luminaire on/off via a Casambi enabled device (i.e., device power remains on).

Unpairing devices from a network

There are various places in the app where you can unpair Casambi enabled devices from a network.

For Luminaries:
- Go to the 'Luminaires' tab and tap 'edit'. Unpair a luminaire by tapping the ("X") that will appear in the corner of the relevant luminaire icon.
- Go to the 'Luminaires' tab and double tap the luminaire icon to open its properties. Scroll to the 'Unpair device' option.

For Switches:
- Go to the 'Switches' tab found under the 'More' tab.
- Tap on the switch you wish to unpair. Scroll to the 'Unpair device' option.
  - Note that battery powered switches can only be unpaired while active. For Xpress this is done by pushing two buttons simultaneously.

or...
- On iOS devices you can also swipe left on the device you wish to unpair and select the 'unpair' option.

or...
- On Android devices you can long press on the device you wish to unpair and select the 'Unpair device' option.

For sensors:
- Go to the 'Sensors' tab found under the 'More' tab.
- Tap on the sensor you wish to unpair. Scroll to the 'Unpair device' option.

or...
- On iOS devices you can also swipe left on the device you wish to unpair and select the 'unpair' option.

or...
- On Android devices you can long press on the device you wish to unpair and select the 'Unpair device' option.

For Internet gateways:
- Go to the 'Gateways' tab found under the 'More' tab.
- Select the gateway to unpair and push the 'Bin' icon in the top right corner

For Control device gateways (e.g. CBU-DCS with DALI gateway profile)
a) Go to the 'Gateways' tab found under the 'More' tab.
b) Select the gateway you wish to unpair. Scroll to the 'Unpair device' option.

For any Casambi enabled device (except Internet gateways):
- Go to the "Nearby devices" screen found under the 'More' tab.
- Find the device you wish to unpair, tap on it and select 'Unpair device'.
  - This will unpair the luminaire if you have modification (administrator) rights to the network.
- If you don't have the modification rights to the network that the device is paired to then you need to have access to the devices power switch to be able to unpair.
  - Tap on the device you wish to unpair and select 'Unpair device' and the app will open the 'Unpair' screen.
  - Tap on the 'Start' button and an orange "Time bar" will appear and start to move across the screen.
  - During the time it takes the bar to move across the screen, flick the power switch off and back on again.
  - If unpairing succeeds then there is a message that luminaire has been unpaired.
  - If it does not succeed then try again but switch the power off and on again more slowly (This may be needed for devices that use an additional power supply; such as a CBU-PWM4)

To unpair any battery powered device it must first be activated so that it appears as online in the Casambi app.
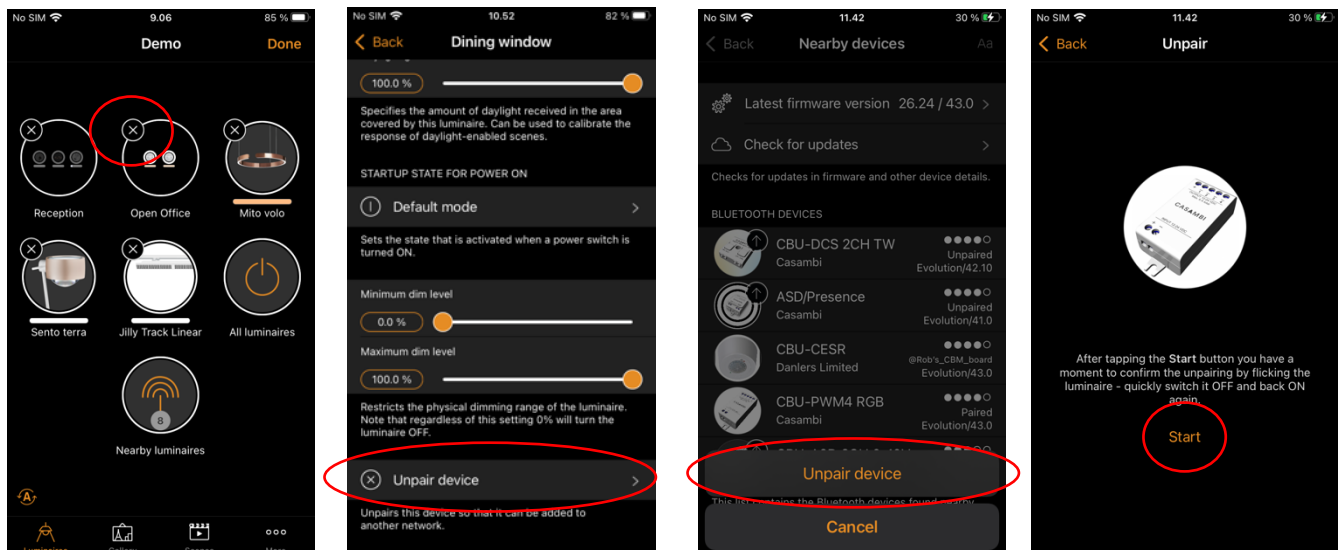
Troubleshooting tips (see also: https://support.casambi.com/support/home)

If you should have an issue with a Casambi network, <u>please check the following before requesting support</u>.

Below are the two most reported issues and details of the correct way to send feedback to Casambi support should you require further assistance.

<u>The most common problem (a "Paired" device)</u>

The **first thing to do if you have a problem** is to go to the Nearby devices view, find the device causing an issue and check its Network name.

Network name

Users often report this issue in several ways. For example:
- I cannot control a device.
- I cannot add a device to my network.
- I can no longer control a device.
- I've bought a new phone and cannot now control my devices.
- I unpaired a device and now I can't control it.
- I can see the device but cannot use it.

If "Paired" the possible reasons why this occurred are:
- You created a "Not shared" network, paired devices, then "Reset application" from the App settings. This reset the app to its default setting (i.e. as it was when first installed) where no networks had been created or devices paired. In turn, this resulted in you not being able to control the devices because it is now part of a non-existing network.
- You created a Not shared network and paired the device, then deleted and reinstalled the app.
- You created a Not shared network and paired the device, then later bought a new phone without first sharing the network from your old phone.
- You deleted an unpowered device from your network.
- The network to which the device was paired has been deleted.
- The device is part of a network to which you do not have access rights or know the login credentials.

Cure: The device must be unpaired and then paired to a network again.

To unpair:
- Tap on the "Paired" device you wish to unpair and select 'Unpair device'.
- The app will open the 'Unpair' screen.
- Tap on the 'Start' button and an orange "Time bar" will appear and start to move across the screen.
  - During the time it takes the bar to move across the screen, flick the power switch off and back on again. This should unpair the device.
  - If unpairing succeeds, then there is a message that luminaire has been unpaired.
  - If it does not succeed, then try again but switch the power off and on again more slowly (This may be needed for devices that use an additional power supply, like the CBU-PWM4).
- If unpairing continues to be unsuccessful then it is probably the case that the power switch is not correct for the device you are trying to unpair.

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<u>Lights go off by themselves</u>

- Lights are controlled from the app or with switches only:

If you control your lights from a Casambi switch and the lights automatically turn off after about 2 hours (during the day) or 30 minutes (during the evening/night) then the reason is that Control hierarchy has been enabled and the Manual Control Timeout values are being applied to automatically deactivate the manual control (i.e. the command from the switch).

Cure: Go to the network setup, Control options screen and disable Control hierarchy
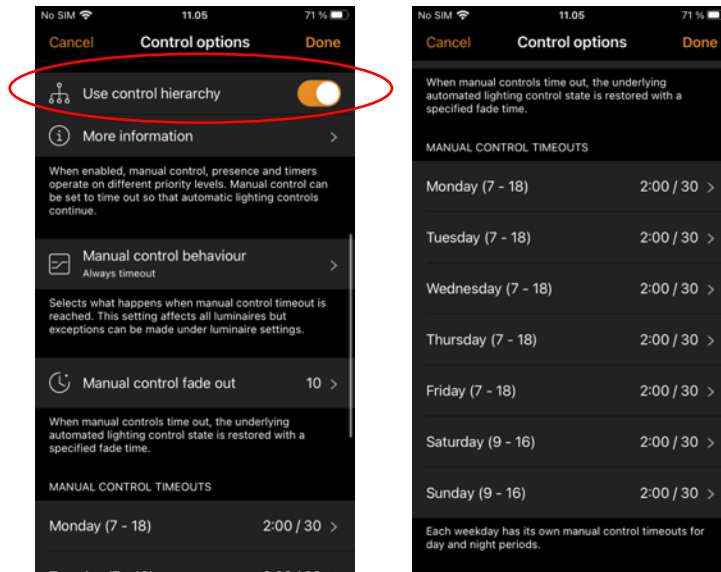
- Lights are controlled from sensors:

Sensors have a linger time, which is how long the sensor waits after it stops detecting movement before it deactivates the scene it is controlling. The linger time starts as soon as the sensor stops detecting movement. If you sit still for a long time, or if your sensor is not particularly sensitive to motion, you may find the lights switch off.

Cure: Extend the linger time of the sensor.

Contacting Casambi support

The Casambi app has the capability to send a diagnostic report from your network so we can remote troubleshoot an issue. For this feature to work correctly you must:

1. Physically be within Bluetooth communication range of some devices in the problem network
2. You must have an internet connection

Process:
- Ensure that you are in range and connected to the network for which you require assistance.
- In the Casambi app, go to: App Settings, Contact us and select REQUEST SUPPORT at the top of the screen.
- Enter your email address where we can contact you
- Ensure Include diagnostics is enabled (By default it should already be enabled)
- In the Message field:
  - Confirm the exact Name of the problem network
  - Clearly describe the issue you are experiencing
- DO NOT Include device details unless Casambi have specifically asked you to enable it.
- Press 'Send'
  - The Send option will not become active unless you have entered an email address and a message.
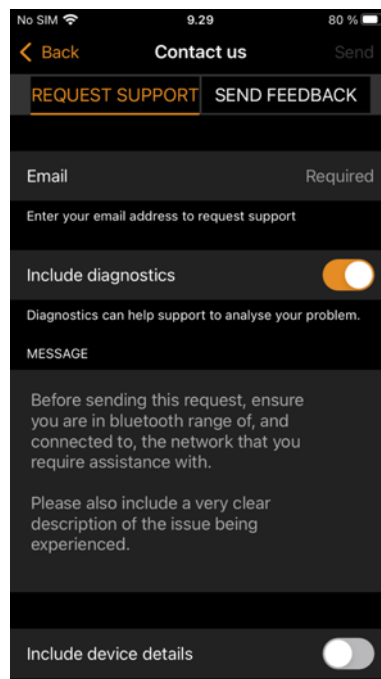
Depending on your system size, the system may take a few minutes to upload the diagnostics file.

Correctly sending diagnostics assists our technical support specialists in diagnosing:
- Devices online/offline
- Devices with low/dead batteries
- Potentially faulty devices
- Signal strength issues within your network
- Potential programming errors
- …

Device icon banner explanations

Possible icon banners that may appear over the luminaire icon in the Luminaires tab:

Text	Notes
Updating xx%	Firmware update progress percentage
Update required	Newer firmware version is available
Configuration failure	Hardware configuration error, IO failure, Incompatible hardware, Missing driver
Driver failure	DALI specific driver failure
Luminaire overheated	Device has exceeded its thermal specification
Luminaire failure	Device profile is not correct for the connected load (e.g. a PWM4 set to 4 channel mode but only having 3 channels of LED strip physically connected)
Short circuit	Short circuit detected
Overloaded	Device is overloaded. May also be caused by excessive inrush current
Open circuit	Device has detected that no load is connected
Upgrade ready	Firmware ready to be upgraded from Classic to Evolution

Example icons:
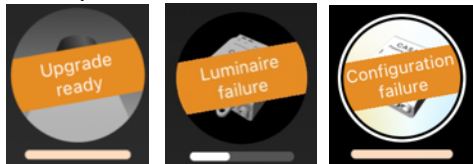
Possible icon banners that may appear over the device icon in the nearby devices view:

Text	Notes
Address match	Indicates a device previously "paired" to a network that may have been unpaired incorrectly. This banner can appear when using the "Replace device" option.
Prototype	Devices without a correct master-key. Do not use for real installations
Untrusted	Verification failed during device authentication. Reasons could be due to: • App cannot find the public key for the device • Mismatch in device date versus App expectation

Example icon:

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 with 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 the Casambi app. It is possible to assign a different Smart switch mode to each Casambi-enabled luminaire. For example, you can use a Smart Switch to turn on a scene when you get home or switch the lighting to suit a dinner party or a movie night.

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

Go to the Smart switch section and select the current mode to open the Smart switch selection.

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)
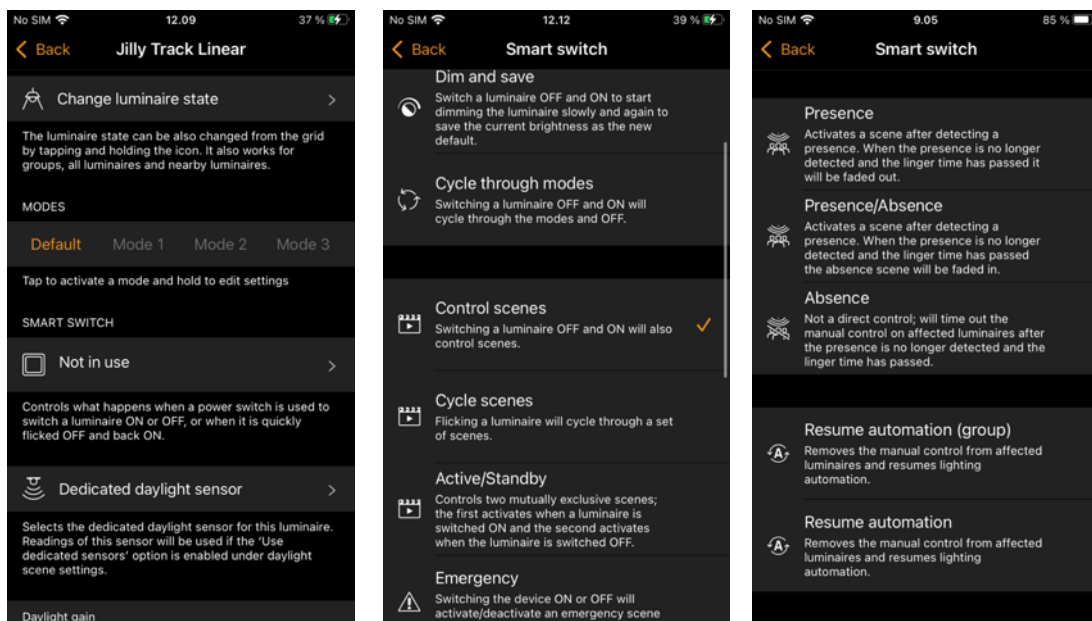
Dim and save

Casambi-enabled luminaires can be 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 with 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 the switch's 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 it 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.
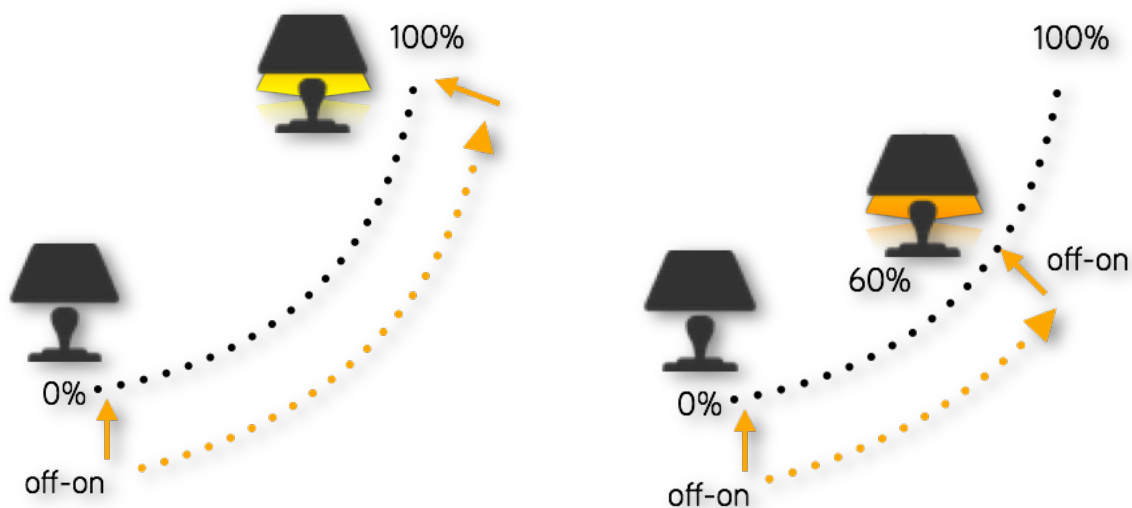
Cycle through modes

If you have set different modes for the luminaires with the Casambi app, you can assign the power switch to control these modes. Modes can be different dim 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%.
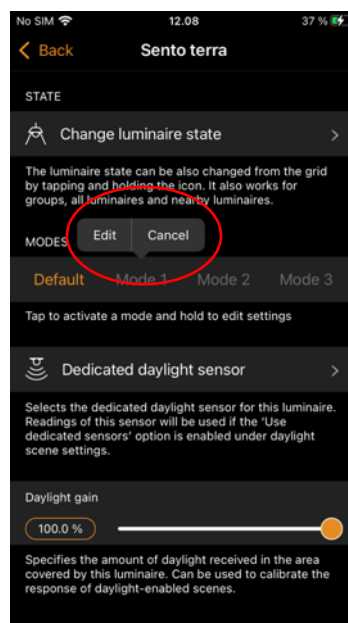
Control scenes

If you have created different scenes with the Casambi app, you can control them with 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 into their defined scenario. Note that all luminaires in the scene must already be powered on (The *Control scenes* option does not turn on 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 by tapping on Done.
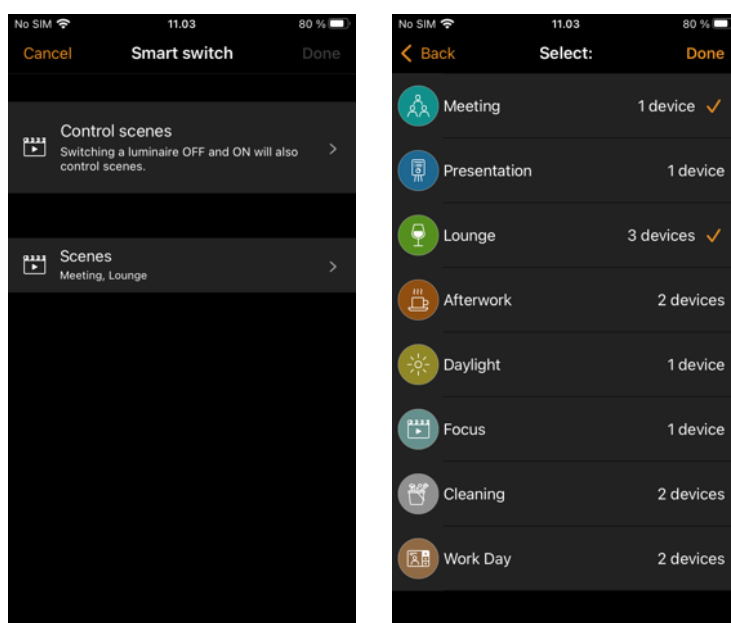
Cycle scenes

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 by tapping on 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. …..
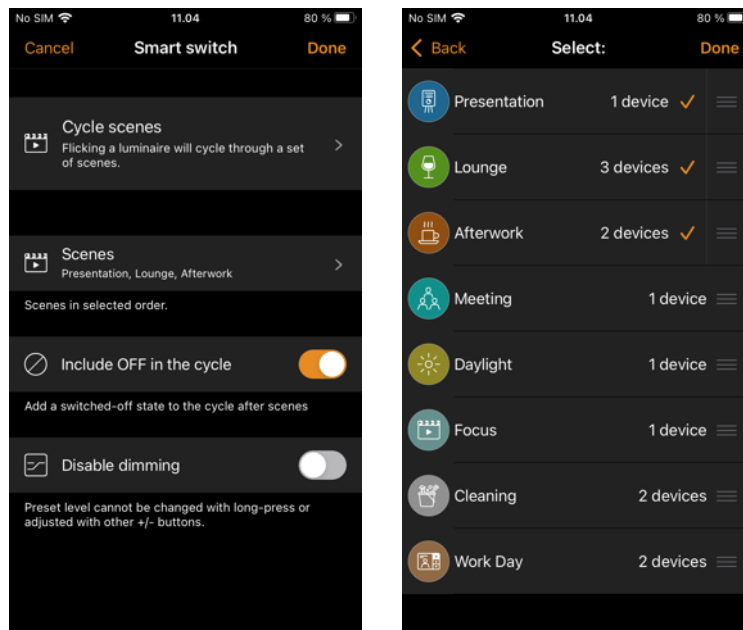
Active/Standby

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

Create two scenes, one scene that turns 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 is powered OFF. This mode can be used for example with a mains switching motion sensor connected to a CBU-TED with "sensor" profile.

Example: When motion is detected the sensor switches power on to the CBU-TED. This then recalls a scene (e.g. Luminaires at 100%). When the sensor stops detecting motion it switches power to the CBU-TED off and this causes another scene to be triggered (e.g. Luminaires at 30%).

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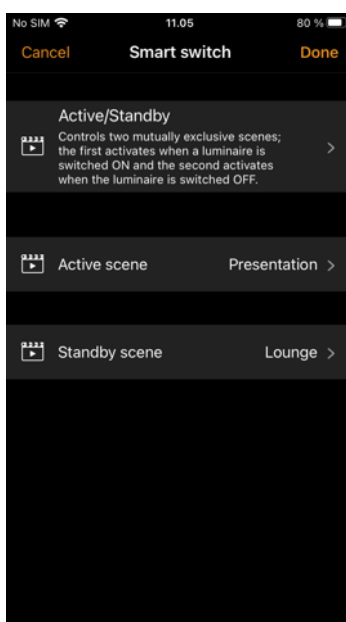
Emergency

This option is only available with Evolution networks. This feature overrides any other control of selected luminaires in a defined scene. Despite the name, Emergency Smart Switching is not intended for true emergency lighting applications. It is more like an "override" option.

A scene is assigned to the Emergency Smart Switch device. When the power to the device is switched ON, the assigned scene is activated and will only be disabled when power to the device is switched OFF again. i.e. Any luminaires used in the scene cannot be controlled until the Emergency Smart Switched device is powered OFF.

Luminaires used in an "Emergency" scene MUST be powered separately from the Emergency Smart Switched device. i.e. The same power switch cannot be used to switch power to the luminaires in the scene and the Emergency Smart Switched device.
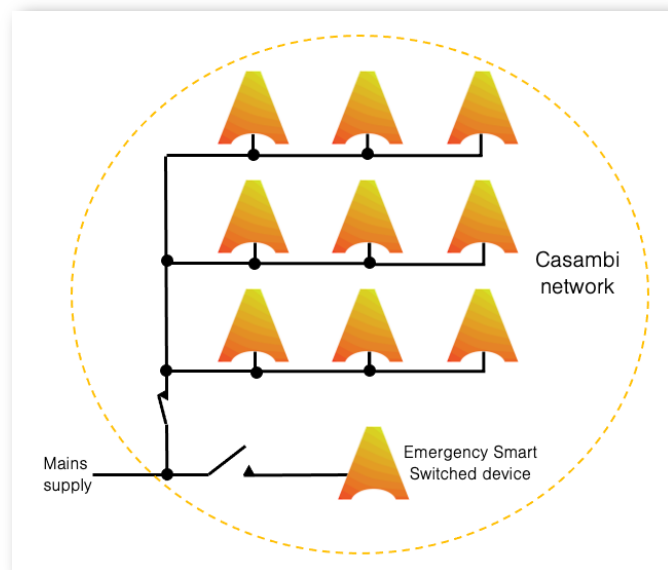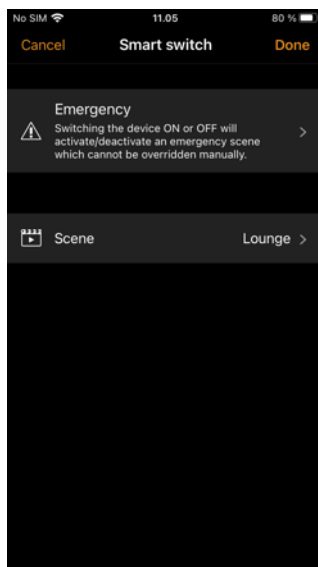
Emergency scene will only be active when power is ON
to the Emergency Smart Switched device

Not in use

Sometimes it is required that the power switch does not perform any special actions when used. The Not in use option will disable the Smart switch feature.
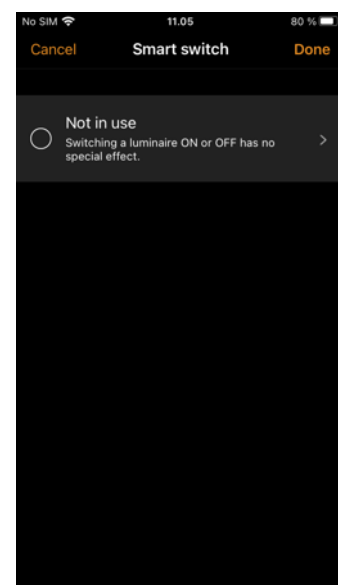
Push buttons

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 to change the lighting to be suitable for a dinner party or for watching a movie.

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

Tap on the current mode under Push buttons to open the Push buttons selection. The default 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
    - Elements are custom sliders or buttons that have been created by our partners to control aspects of their specific products
- Controls a group
- Controls priority
- Controls scene
- Controls all luminaires
- Control function (Limits the button to perform a specific action)
    - The Control function option for push button switches works for single Casambi nodes having 2 or more buttons. The Control function can be assigned to affect the last selected option triggered from one of the other buttons on the same switch panel.

        Example (4 button panel): Switch 1: Controls Scene 1, Switch 2: Controls scene 2, Switch 3: Controls scene 3, Switch 4: Controls function: When Switch 1 is pushed and activates scene 1, button 4 (Control function) will then affect Scene 1. If Switch 2 or 3 are pushed the Control function will affect that selected scene instead.

        The Control function option cannot be used to affect anything triggered by a different node (i.e. triggered from another switch panel). i.e. A Control function button on one panel cannot affect a scene selected by a different panel.
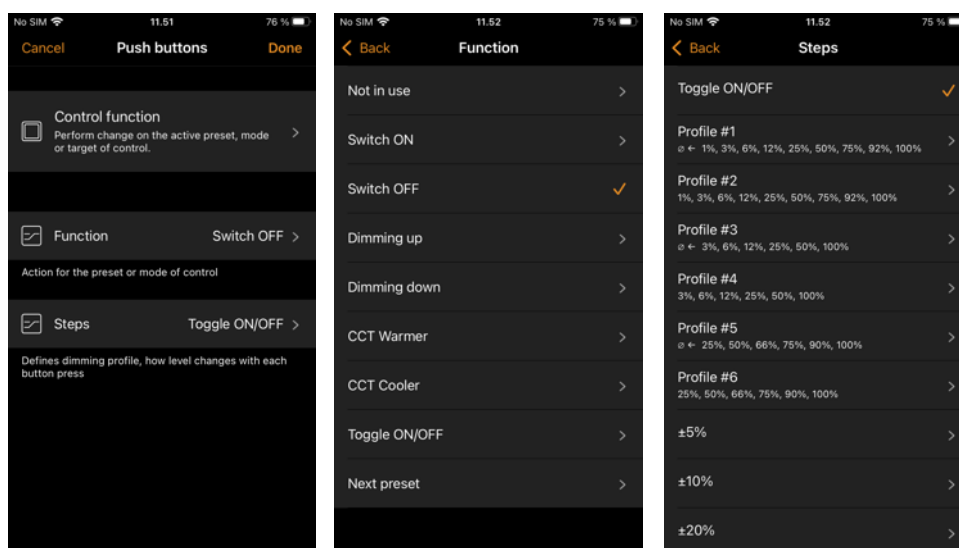
- Adjust the temperature of a luminaire
- Adjust the temperature of a group
- Adjust the temperature of all the luminaires
- Cycle scenes
- Active/Standby (Controls one or multiple luminaires)
- Presence
- Presence/Absence
- Absence
- Resume automation (group)
- Resume automation
- Cycle through modes
  - Up to 3 Modes are configured in the individual luminaire Properties.
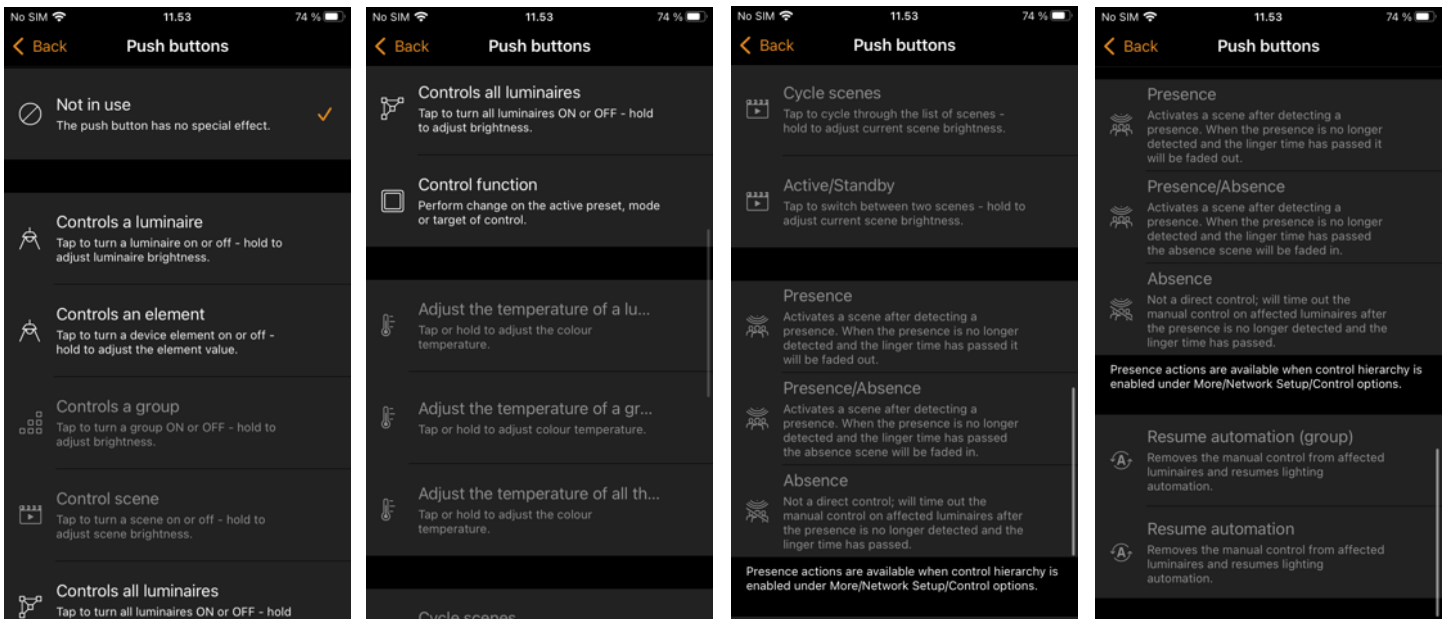
Daylight sensor calibration and set up

In most cases, the calibration of a daylight sensor will not be required as the sensor technology is most likely accurate enough. However, if calibration is required, it must first be determined whether the sensor should be calibrated to measure incidental or reflected light.

Site specific variations due to differences in 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.
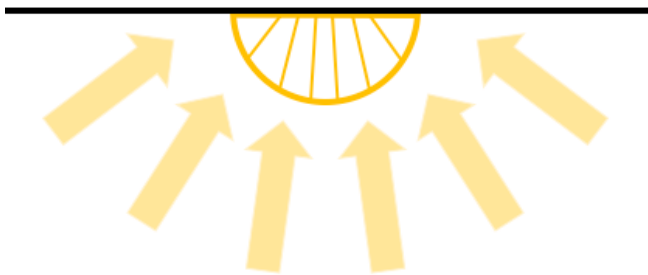
Incidental (direct) light   Reflected light
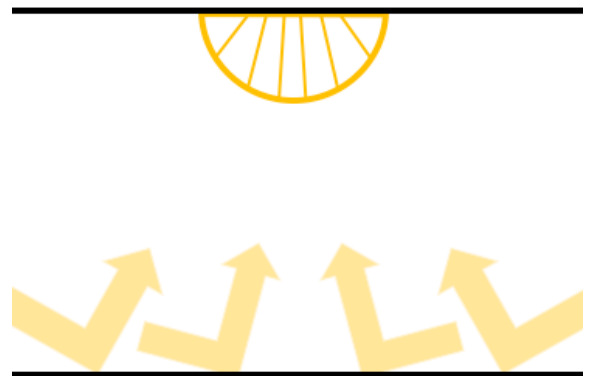
Calibrating a sensor for incidental (direct) light

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 where the sensor is located.

This is the default measurement and the lux reading that a sensor will display in the Casambi app. Usually this will not require recalibration. However, sensor limitations may result in its inability to measure the full range of lux it is exposed to. This may occur for example if a sensor is mounted in direct sunlight.

 If calibration is required, follow the steps below 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 exactly in the same direction as the lens of the Casambi sensor.
- 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.
- Tap on OK and then on Done to complete the calibration.
- Tap on 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 by the sensor itself. So, if the sensor is calibrated for direct light, using the Closed loop mode for constant light control will try to maintain an overall total amount of light for the entire area the sensor is in.

Calibrating a sensor for reflected light

Reflected 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 may need to calibrate the sensor lux value shown in the Casambi app. It should also be noted that using a Casambi-enabled sensor in this way reduces the accuracy of the lux measurement, since you are only applying a correction factor to the actual measured lux value and thus the accuracy decreases over the entire dimmed range and due to the "target measurement point" being further 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.
- 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 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.
- Tap on OK and then on Done to complete the calibration.
- Tap on Back to return to the Sensors view.

If you are now 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.

Calibrating the sensor for reflected light has been shown to produce less optimal results in Closed loop mode. It is better to set the target value in a closed loop scene to be the lux value actually measured by the sensor.

i.e., If you want to configure a closed loop scene to achieve 500lx on a surface:
1. Place a lux meter on the surface below the sensor
2. Dim the lighting to achieve the desired lux on the surface (500lx)
3. In the Casambi app, read the lux value being measured by the sensor (this may be, for example, 400lx)
4. Use the sensor lux value (400lx) as the Target lux value in the Closed loop daylight scene

When calibrating a sensor 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. It would be best to try to finish the installation as much as possible before measuring, so that all carpets, desks and other items are in their final place. 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 to their specific area of installation.

Also note that when multiple daylight sensors are configured to control the same luminaires in an area, 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

When configuring daylight control for an area, it is important to consider whether luminaires may need to be configured with a daylight gain offset to optimize the achieved dimming conditions. Daylight gain is mainly used, for example, if there are multiple luminaires in an area being controlled by 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 the most natural light is available, and therefore achieve a daylight gain of 100%. A luminaire that is further from the window will not receive as much natural light that can affect the area being illuminated and will therefore have less 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 and take readings at different points without any artificial illumination being active (i.e., only natural light is available). The highest lux value can then be taken as 100% daylight gain and lower daylight gain percentages can be calculated on that basis.

Example of Daylight gain setting (Most natural light is near the window)
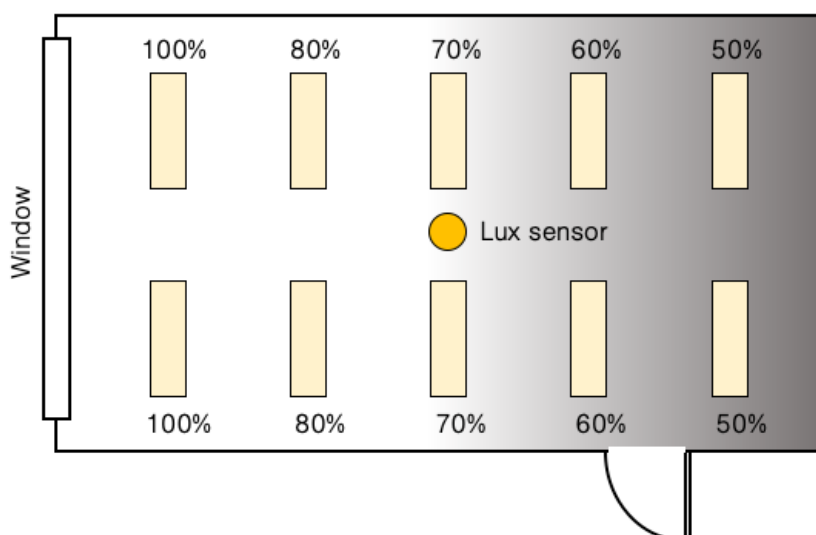
If you wish, you can define a separate daylight gain for each luminaire in a Casambi network. By default, the daylight gain for luminaires is set to 100%.

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. Tap on Back when finished and on Done to return to the Luminaires tab view.

Note: Daylight gain will only work for Open loop Daylight scenes.

Dedicated daylight sensor

If a luminaire has a built-in 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. Tap on Done, then on Back, then on 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 the 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 to carefully consider the locations of the lux sensors. The performance of the lighting control will depend totally on what the sensors "see". This is particularly important if you have lighting applications relying on side-lighting, reflected light, diffused daylight or where direct sunlight can influence the sensor performance. It is possible that a minor change in the sensor position or orientation can affect the overall system performance.

Ideally sensors should be positioned and orientated in a way that they are shielded from any direct glare. Indoor sensors should not normally be placed next to a window. It is best to position sensors in a way that they are only indirectly illuminated by daylight. Exterior sensors should be shielded from direct sunlight.

The lux sensor should be placed in a way that it receives a representative sample of the available daylight in the respective area. Having a too wide a field of view may result in detecting direct sunlight or illumination from light sources outside of the controlled zone. A too narrow field of view can make the sensor too sensitive to local changes in brightness.

Before placing the sensor, it is a good idea to use a separate lux meter to measure light levels in potential locations before choosing the final position for the daylight sensor.

A sensor that is 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 in 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, it would be best to try to finish the installation as much as possible before measuring, so that all carpets, desks and other items are in their final place. This is because every object that is later brought into the measuring range of the sensor changes the amount of reflected light received by the sensor and thus also influences 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 they are supposed to control. Alternatively, open loop sensors can be mounted far away from the area to be illuminated, for example outdoors. Open loop systems are easier to configure, since they only require a dimming response graph to be defined that tells the Casambi system what dim level to target for a measured lux value. This means that the configuration can be done at any time of day.

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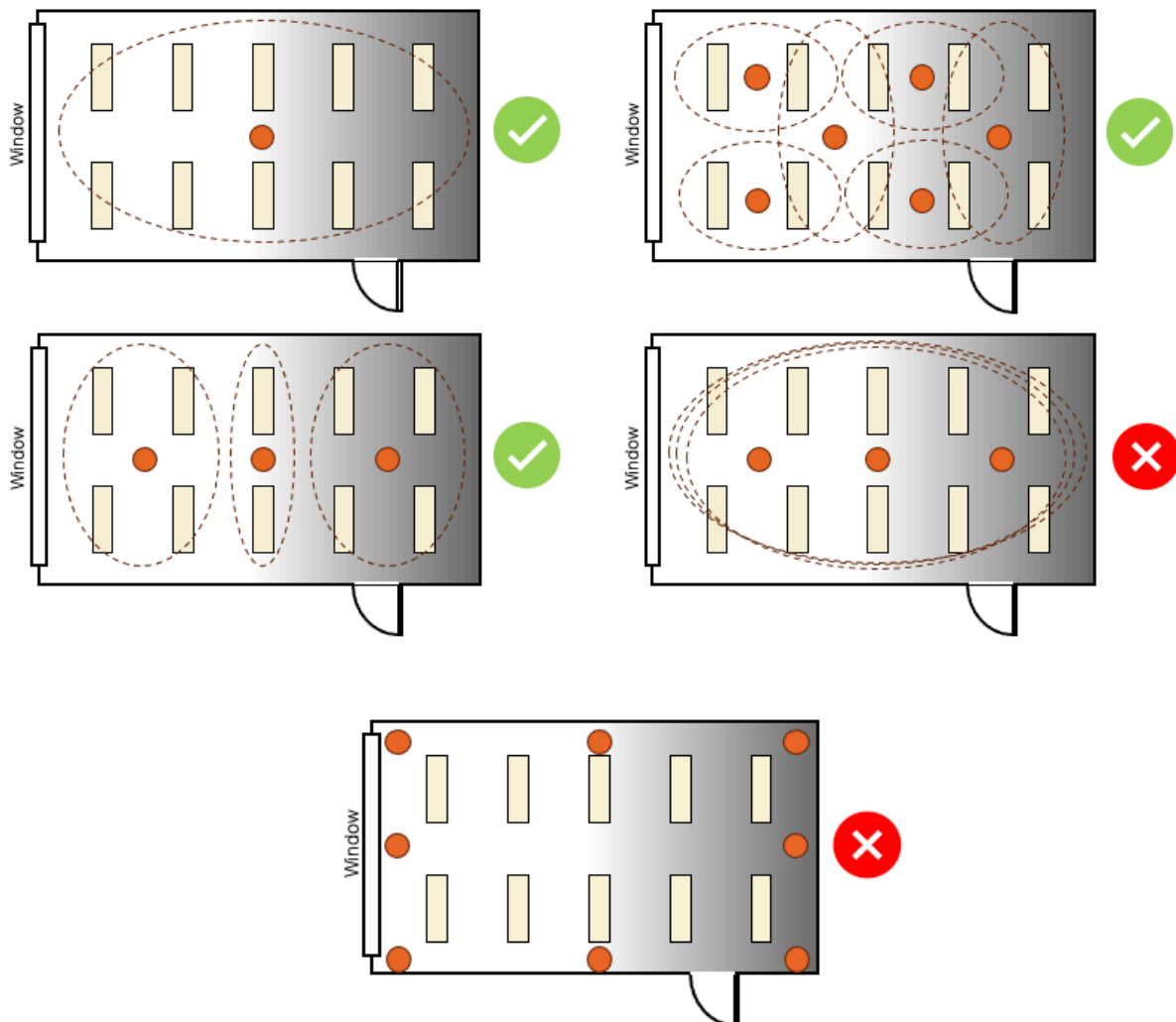
Control Hierarchy

The control hierarchy allows manual lighting control and automatic lighting control to work together. Manual control is any physical action, like selecting a scene by tapping on the scene icon in the app, pushing a switch, push button, or adjusting a 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. For switches, it is also possible to define the priority level for individual actions if the *Controls priority* switch function is used (see the Switches section for more information).

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

Priority levels (Highest to lowest)

Note: Icons for indication only. They do not accurately represent the actual in-app icons displayed.

- Emergency
- Higher than manual
- Manual control (App, switches, push buttons, rotary control)
- Higher than automation
- Date timer (with sensor override)
- Week timer (with sensor override)
- Presence (sensors)
- Date timer
- Day/Week timer
- Lowest priority automation
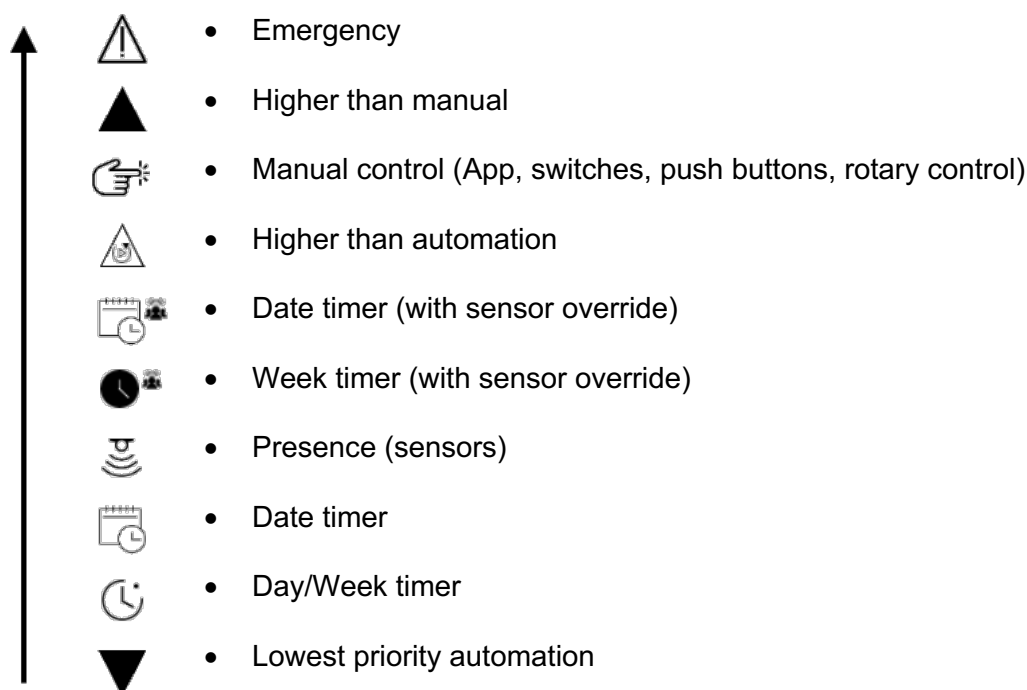
Luminaires react to the highest priority commands affecting them, even if lower priority commands are also active and affecting the same luminaires simultaneously.

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

Commands of the same priority level are actioned in "latest takes precedence" order. If multiple sensors are simultaneously affecting the dimmed level of the same luminaire, the highest dimmed level takes priority.

Priority level descriptions

Emergency

This highest priority level and overrides any other control of selected luminaires in a defined scene. Despite the name, it is not intended for normal emergency lighting purposes! It is intended to be used more like a "system override". If luminaires are controlled at this priority level, no other command at any other priority level will have any effect on the luminaires for as long as the Emergency priority command remains active.

Higher than manual

Active commands at this level will be prioritised over any lower-level commands. This level of priority command could, for example, be assigned to a trigger from a relay contact closure in a building management system if an emergency occurs. Alternatively, this priority level may be required if integrating Casambi with a DALI system and you require commands from the DALI system to override any manual commands that may be in use in the Casambi network.

It should be noted that, using the Controls priority switch option, switches can be configured to trigger actions at this priority level, even if a switch is normally classed as a "manual" (i.e. physical) action.

Manual control

This is the default control priority for anything in the Casambi system that is manually (i.e. physically) activated, such as pushing a physical button, or triggering a scene from a scene icon in the Casambi app. Manual control can be set to timeout (i.e. automatically deactivate) after a set time or stay active on the affected luminaires indefinitely. Configurable timeouts for manual control can be assigned for day and night periods of each weekday (see the Control options section for more information).

Tapping the @ button icon in the app will manually remove active manual control from either all luminaires in a network, or for a specific group of luminaires.

Higher than automation

Active commands at this level will be prioritised over any automation commands (i.e. All lower-priority level commands from any timer, sensors, or manual commands from switches that are set to trigger at the Lowest-priority automation level).

Date timer (with sensor override)

This timer has the same description as a Date timer (see below) but has its priority level increased by activating the Override presence function so will still affect luminaires even if they are also being controlled by a motion sensor (Presence). This could be used, for instance, to prevent sensors from activating luminaires on a certain date at the set time.

Day/Week timer (with sensor override)

This timer has the same description as a Day/week timer (see below) but has its priority level increased by activating the Override presence function so will still affect luminaires even if they are also being controlled by a motion sensor (Presence). This could be used, for instance, to prevent sensors from activating luminaires at a certain time of day.

Presence (sensors)

Commands triggered by motion sensors will affect the defined luminaires unless a higher priority command is already active for those luminaires.

Sensors in Presence/Absence mode, the absence scene will still be considered by the system to be active at the Presence priority level in the control hierarchy. If a lower priority command, such as a Day/Week timer, is required to affect the luminaires at some point then the Absence timeout option must also be configured to ensure the active absence scene will deactivate after the defined time to allow control from lower priority commands.

If multiple sensors are triggered and configured to be affecting the same luminaire but at differing dimming levels, the luminaire will be set to the highest of these levels.

The sensor linger time dictates how long the triggered scene will stay on after motion is no longer detected. When the linger time expires the associated luminaires will be faded to the next highest active priority command affecting them, to the configured absence scene (if the Presence/Absence function has been selected for the sensor), or fade OFF if there are no other active commands affecting the luminaires.

Note that Switches can also be configured to mimic sensor functionality and thus can also operate at the Presence level of the control hierarchy.

Date timer
Timers configured for a specific date have a higher priority than Day/Week timers since the date may fall on a different day of the week each year.

Day/Week timer
The lowest priority type of timer that can be configured. Activation/deactivation is defined based on days of the week, times of the day and/or sunrise and sunset times (if location has been enabled for your network). A timer configured with this priority could, for example, just be intended to switch lights on at a low level in the morning before people arrive at the office. When people arrive the lights then start to be controlled with higher priority commands coming from motion sensors and/or switches.

Lowest priority automation
Commands assigned at this hierarchy level are the least important command type and can be overridden by any other type of command in the control hierarchy.

Tip: To allow easier testing during commissioning, network control hierarchy can be reset (i.e. Any current active commands can be deactivated) by selecting More > Network Setup > Configure all luminaires > Restart Network.

Indicators of the hierarchy level currently affecting a luminaire

For some control hierarchy command types, luminaires will indicate the highest priority command affecting them as a small additional icon in the top right of each luminaire icon seen in the luminaires tab view.

- An Emergency priority command is affecting the luminaire.

- A Higher than manual command is affecting the luminaire.

- One (or more) Sensors is currently affecting the luminaire.

- Date timer (with both Switch On and Switch OFF dates set).

- A Timer is currently affecting the luminaire. Note that this is just indicates that a timer at one of the 4 possible timer priority levels is affecting the luminaire!

- Hierarchy commands currently without any additional indication:
    o Manual control.
    o Higher than automation.
    o Lowest level automation.
    o No active command is affecting the luminaire.

Evolution and Classic networks

To take advantage of an Evolution network, your Casambi-enabled devices must be compatible with the Evolution firmware. 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., the ones that display text AND the firmware number) can be changed from Classic to Evolution firmware and vice-versa.

In addition to all features of Classic networks, the features below are available only with Evolution networks:

- Up to 250 Casambi devices can be used in an Evolution network (up to 127 with Classic networks).
    - The chosen network Mode affects network data capabilities and the optimum number of devices supported for reliable operation. Since projects have unique requirements, specific limits are not possible to provide. For example, using sensors in a network uses more data than only using switches. Closed loop daylight control will use more data than Open loop control. Obtaining D4i data from DALI drivers in a Casambi network uses significant network data resources.

- Additional features are visible through remote connection, making the commissioning and technical support phase easier than ever. 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 sensors and 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 switch section of this user guide.

Continuous development means that 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 number, when viewed in the Nearby Devices list. If only the firmware number is displayed, then the device is only capable t be used in use in a Classic network.

To upgrade a Classic device to Evolution firmware:

1. Ensure that the device is unpaired.
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 unpaired.
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.
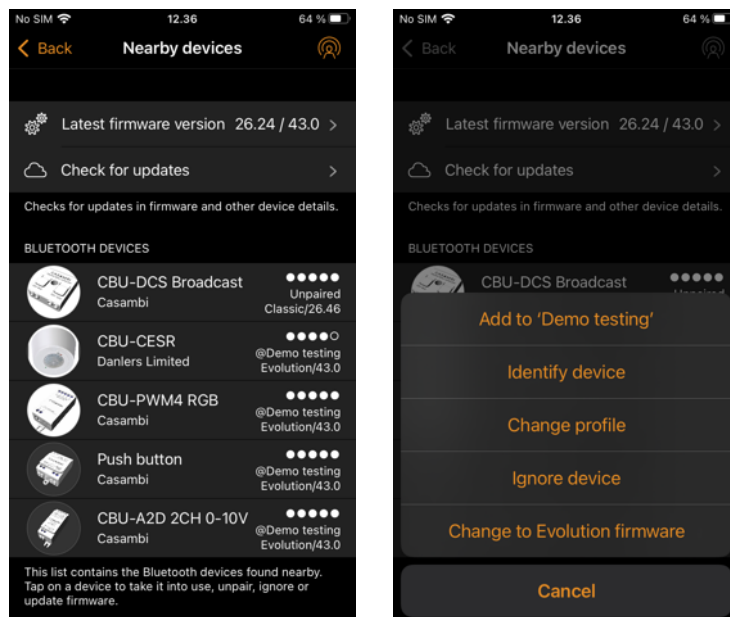
Changing a device's profile

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

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

There are two ways to change a devices profile.

1. Directly from the properties of a device that is already <u>Paired</u> to a network to which you have Administrator or manager rights:

    a) Open the devices' properties and select Model.
    b) Choose the Change profile option (if available) and select the correct profile from the displayed list.

2. For an <u>Unpaired</u> device displayed in the More tab, Nearby devices list:

    a) Select the device from the list
    b) Choose the Change profile option (if available) and select the correct profile from the displayed list.

<u>Note:</u> If there is no option to Change profile, 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 Nearby devices view

You may see the network name displayed in red or purple text in the Nearby devices view, when a certain error occurs:

Red text
Meaning: A units configuration indicates that it is in a network, but the device is not recognised in the network configuration.
Fix: Unpair and re-pair to the network.

Purple text
Meaning: Duplicate unit ID. This may be caused, if multiple people are trying to pair devices to the same network simultaneously.
Fix: Unpair all devices showing purple text and re-pair to the network.
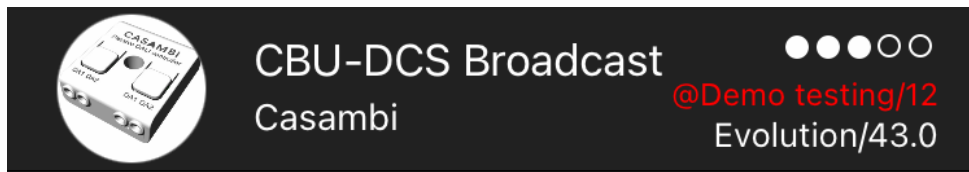
Time syncing

If the power is lost to all Casambi units in a network, then the time information will be lost too. 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 in the network, when power is restored to them.

If there is no app connected to the network, the time in individual units may drift slightly over longer periods of time due to normal electronic component tolerances. 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.

Time will resync when a mobile device running the app & with internet connection is connected to the network regardless of network access rights (User, Manager or Admin).

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 and on again
- Switch your mobile device WiFi off and on again
- Close and 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 the individual scenes. 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 with the Apple Watch app. Any network you wish to use must already be accessible with 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 dim 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. Selecting a scene name from the list automatically activates the scene and opens the scene's page.

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

Once in the *Scenes* 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 in the Casambi iPhone app.

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

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