

Casambi Wireless Mesh Network Detectors

System manual



EBDSPIR-CB

Casambi wireless, compact, flush mounted, ceiling PIR presence detectors



EBDMR-CB

Casambi wireless, mid range, flush mounted, ceiling, PIR presence detectors



EBDHS-B-CB

Casambi wireless, flush mounted, high bay/high level, PIR presence detectors

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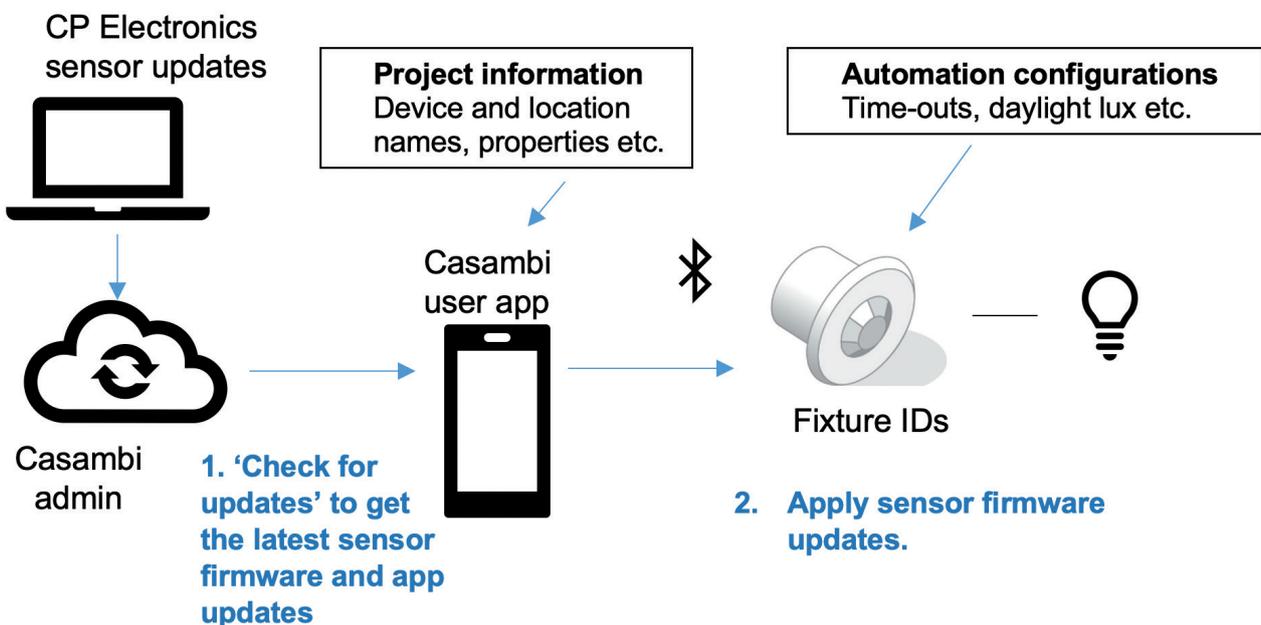
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1. OVERVIEW

The basic configuration of a Casambi system is covered in Casambi's own Casambi App User guide which can be found here: <https://support.casambi.com/support/solutions/folders/12000015883> This guide acts as a complementary document and intends to make recommendations to users on how to apply the unique properties of CP Electronics sensors and highlight the most efficient methods to make the configuration process faster and smoother.

1.1. EQUIPMENT AND CONNECTIONS

The Casambi system structure is as follows:



Different models of CP Electronics Casambi sensors will have different **fixture IDs** for example EBDHS-B-CB-DD for a high bay sensor or EBDSPiR-CB-DD for a standard ceiling sensor.

1.2. LOCATION OF INFORMATION ON THE CONFIGURATIONS

The commissioning process creates:

1. Automation configurations that determine the control behaviours are stored in the field devices, such as within the CP Electronics sensors.
2. Project information such as the specific names of the devices that gives it relevance to the real world and its location are stored within the mobile device via the app.

1.3. EQUIPMENT AND INTERNET ACCESS

1.3.1 EQUIPMENT REQUIREMENTS

A mobile device running the Casambi user app, downloadable from the Apple store for iOS devices or Google Play store for Android devices, is used as the configuration tool. The minimum specification requirement for equipment will be detailed in the app stores as they may change from time to time as the software gets further and further updated.

1.3.2 NFC FEATURE REQUIRED

Ensure the mobile device to be used for configuration has the NFC near field feature available as this will be required to configure the Casambi EnOcean wireless wall switches.

1.3.3 INTERNET ACCESS

A lot of configurations can be done without needing to access the internet; however, it is best to request for this to be available to ensure that full configuration is possible.

Internet access is necessary to allow the app to load from the Casambi cloud with properties information on the discovered device. Therefore, for initial information about the discovered devices, it may be necessary to have internet access in order to perform this task. The app will, however, try its best to configure the devices so long as it has the information already. Obviously, it would NOT be able to synchronise to the cloud for any backup of the information created and would reside therefore only on the mobile device and on the field devices.

1.4. CP ELECTRONICS SENSOR FIRMWARE UPDATES

Since newer CP Electronics sensors can be easily updated to the Casambi cloud, any user with the Casambi app can update their installed sensors in situ wirelessly with no physical disruption.

However, if these updates are applied, they should apply to all of the units on-site to offer good consistency of behaviour. Each firmware update takes about a minute to perform and MUST be done manually one by one so this can be a lengthy process that might not always be worthwhile.

It may be better to set the units to ignore updates unless absolutely necessary to avoid additional work.

2. APPLICATION OVERVIEW

Each project is constructed as a network. Each network will have its security levels permitted to certain login credentials. Once logged into the Casambi user app, multiple networks or multiple projects become accessible.

Each network can be given names relevant to the project.

Network 'My Network'

My Network						
Scene1 : Occupancy			Scene2 : Daylight			---
Light1	Light2	Light3...	Light1	Light2	Light3...	---

Network 'Sales demo'

Sales demo						
Scene1 : Occupancy			Scene2 : Daylight			---
Light1	Light2	Light3...	Light1	Light2	Light3...	---

2.1. APP VIEW ON NETWORKS:

On the Casambi app, all the networks available are listed under 'Change networks'. Normally, this page is skipped, and the app enters directly to the network that it detects.

2.2 CREATE A NETWORK

Tap 'Create a network' and it asks for name and details to be set up.

2.2.1 Classic is the original network

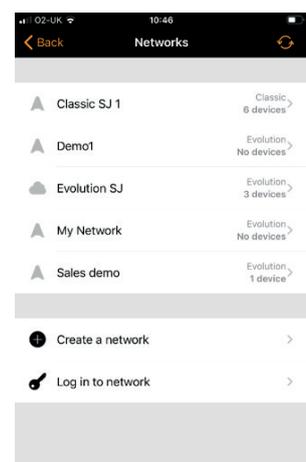
Max number of nodes : 127 devices
User permissions : limited

2.2.2 Evolution is the upgraded network

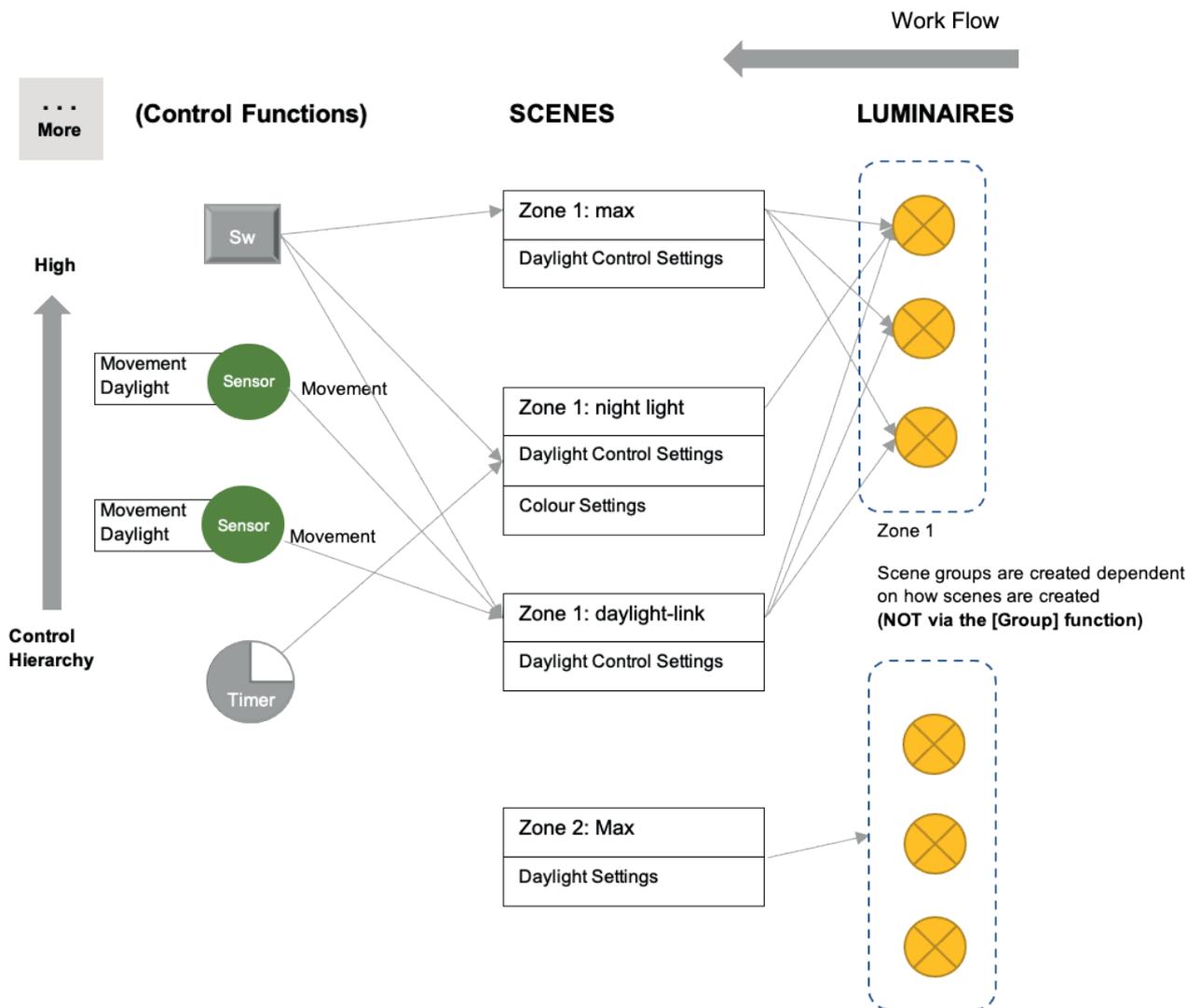
Max number of nodes : 250 devices
User permissions : full

2.2.3. Balanced mode or better performance

With Evolution networks, it defaults to use 'Better Performance' mode which may not work with older versions of EnOcean switches. If in doubt, use '**Balanced**' mode whenever **EnOcean** switches are required.



2.3 CONTROL LINKS AND WORKFLOW



Each light fixture is grouped to act with the same behaviour using **scenes**. Control functions, such as occupancy control, then call these scenes to activate them. The **luminaire groups cannot** be used in conjunction with these scenes and they are primarily for manual group switch and dim operation on the app only.

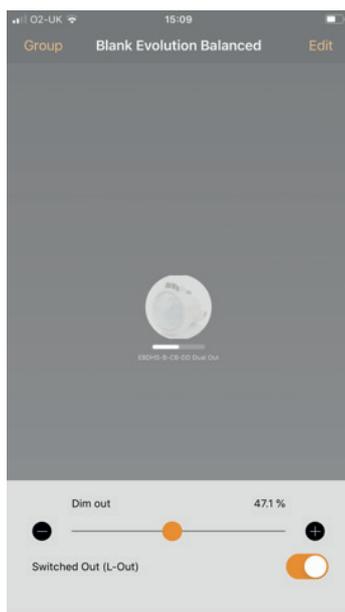
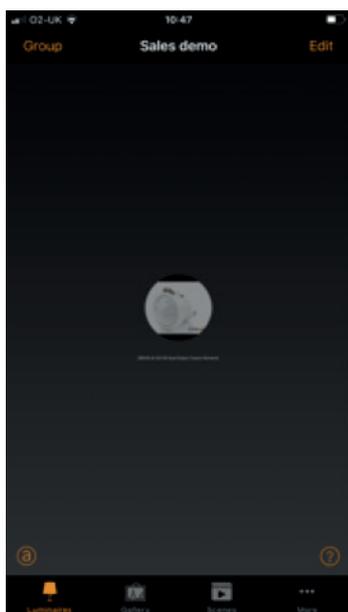
3. CASAMBI USER APP

Within the Casambi system, CP Electronics sensors are configured as 'luminaires with sensors'.

Only light fixtures are shown in the app and sensors are built as control properties. Sensors are therefore, **not** displayed in the gallery tab (used as the floor plan display in the app).

3.1. [LUMINAIRES] TAB

Controls are generally accessed in the 'luminaires' Tab.



HERE ARE THE BASIC GESTURES TO CONTROL LIGHTS:

To turn off or on a luminaire just tap the luminaire. Or **PRESS and HOLD** to bring out the controls.

Pan the luminaire control left or right to adjust the light level of the luminaire. The app will remember the last light level, so when you turn the light on again it will return to the previous level. Pan the lamp control up or down to adjust the colour temperature of the luminaire.

3.1.1. [GROUPS]

Note that groups are predominantly designed for manual operation using the app, and scenes **MUST** be used for automation such as occupancy and daylight control.

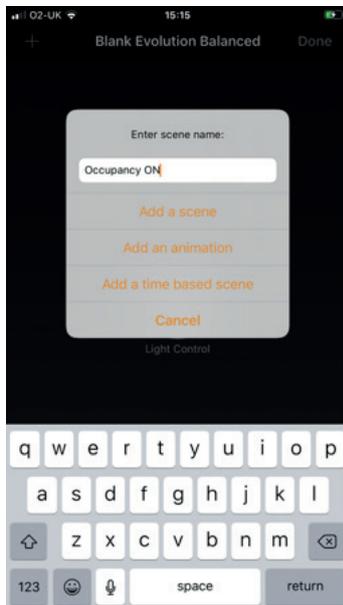
3.2. [GALLERY TAB]

The gallery tab merely offers a way to display where the lighting fixtures are for operation testing and showing their status. This step is not a necessity for lighting controls to be performed.

3.3. [SCENES TAB]

Create scenes as necessary in preparation for them to be called by triggers such as movement detection, wall switch operation or time events etc.

Tap **[Scenes]** and tap top right on **[Edit]** and then top left on **[+]** to add a new scene.

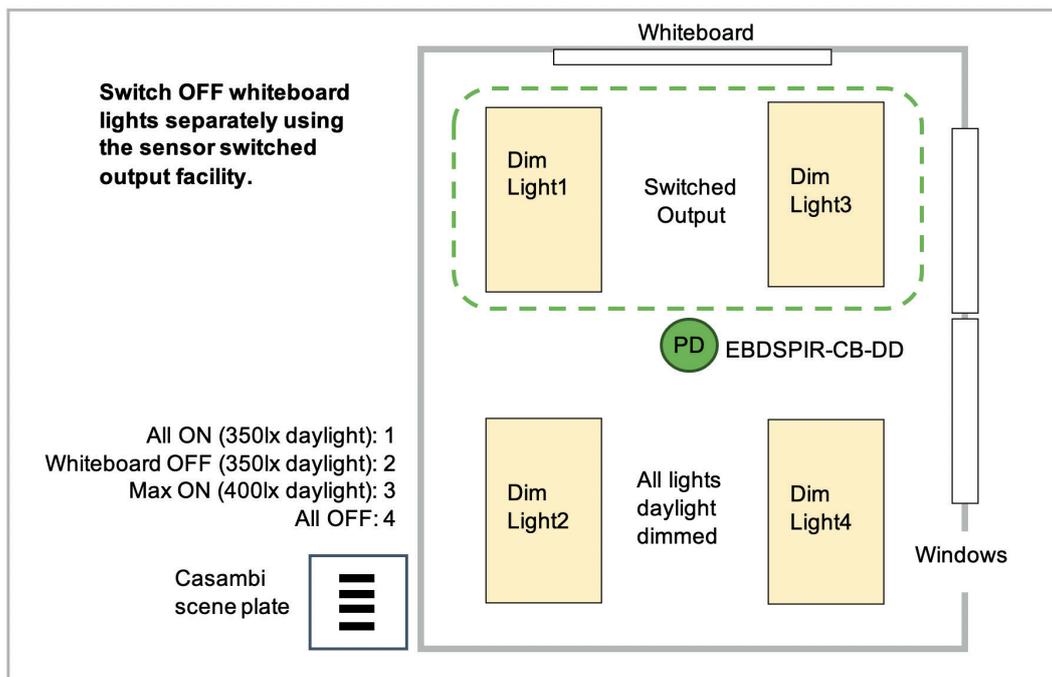


Tap and HOLD on the chosen sensor to bring out the slider to set the dimmed light level and the switched output status.



3.3.1. SCENES FOR CP ELECTRONICS SENSORS WITH SWITCHING AND DIMMING OUTPUTS

CP Electronics sensors have a great feature of built-in outputs for both switched power output and a DALI dimming output. The value of these two can be defined by the user as part of the scene definition. Since many light fittings equipped with DALI gear require only the DALI dimming lines to switch and dim, the switched output available from CP Electronics sensors can offer a function similar to that of an extra channel of control. For example as shown in the diagram overleaf, the switched output could provide separate switch on/off of the row of lights nearest to the projection screen whilst the DALI dimming line is controlling the daylight-linked dimming of the whole room.



3.3.2. Valid Sensor Output Settings:

Dim Out : 1-100%	Switched Out (L-Out): OFF	OK!
Dim Out : 0%	Switched Out (L-Out): OFF	OK!
Dim Out : 1-100%	Switched Out (L-Out): ON	OK!
Dim Out : 0%	Switched Out (L-Out): ON	Not Valid!

The scenario of dimming level at zero and the switched output being ON is NOT a valid scene setting. This is because the dimming control routines in the sensor such as light output regulation with daylight control will control both the dimming output and the switched output so that a simple Lux ON and Lux OFF control can be deployed even for non-dimmable light fittings.

3.3.3. Override Switched Output to OFF During Daylight Control

When daylight control is applied, the dimming output will vary continuously responding to the light sensor readings. Scenes with the switched output set to OFF can override the light control such that it keeps the switched output to OFF even at low daylight levels that demand the switch ON of the lights. In this case, only the DALI dimming output level will change from 0% to a higher value.

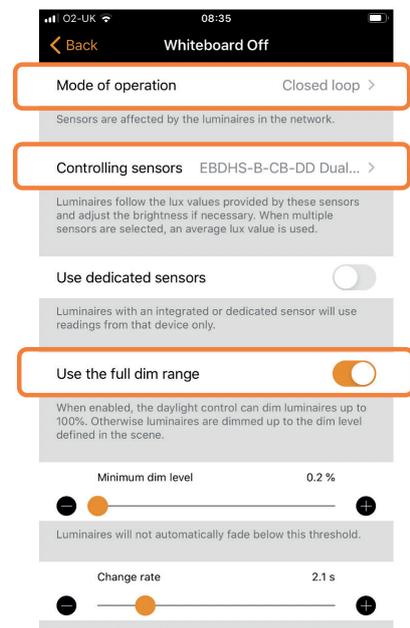
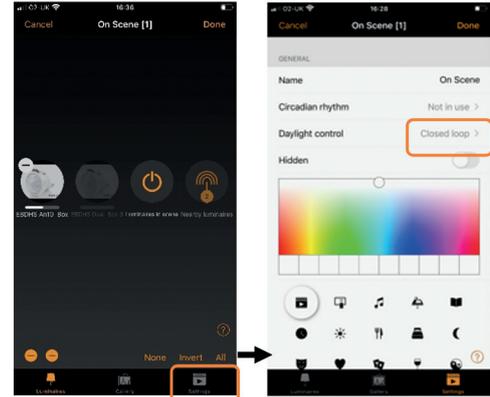
Effectively, this offers a scene that switches OFF the whiteboard lights separately from the rest of the room.

3.3.4. Daylight Control Settings

Closed loop A target Lux level is manually specified and the sensor will actively try to reach and maintain the Lux level via a feedback loop (by observing the results of its own changes). Sensors are affected by luminaires and this mode can only operate when it is the highest priority item on the control hierarchy. An example of this is a group of luminaires controlled by a daylight sensor located in the same area as the luminaires.

Steps: **To avoid influence from other settings, assign these to the CP initial values (see appendix 1), then apply the steps below**

1. Double tap on the scene that will have daylight control to open the content of the scene. => Tap the **[Settings]** icon at the bottom right
2. Choose the daylight control option
3. Set **Mode of operation**:
 - a. Basic ON/OFF, or close loop or open loop.
=> choose **[Closed loop]**
4. Select the **[Controlling sensors]**:
 - a. Choose one from the list. When multiple sensors are chosen, their average value will be used.
5. Enable **[Use the full dim range]**. This **MUST** be set for the CP Electronics sensor to respond.
6. Set the slider for **[Desired Illuminance]**: e.g. 500 Lux.
 - a. **Tap the number to input exact value.**

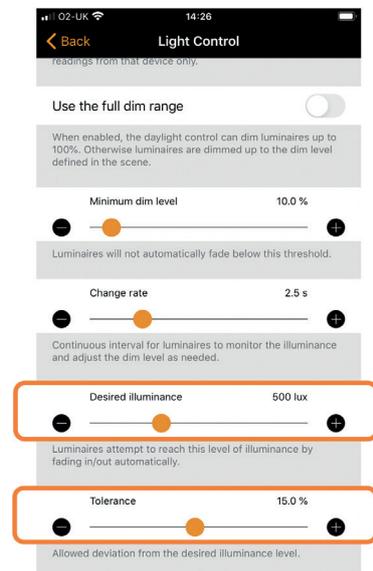


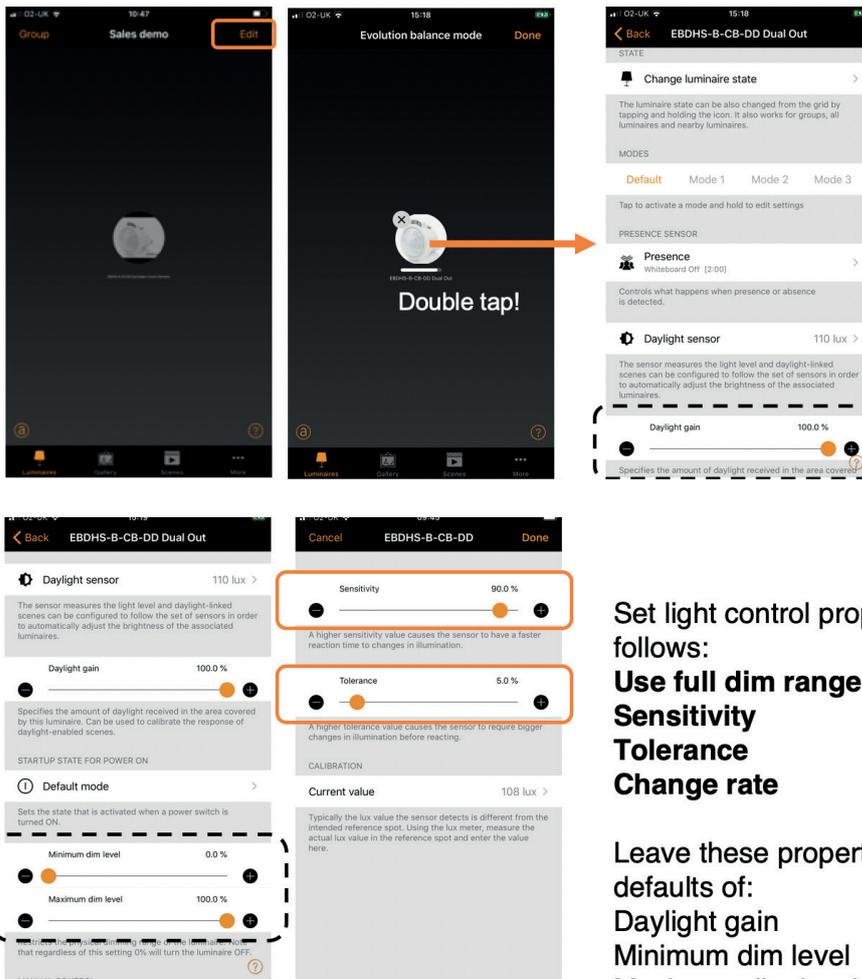
All the luminaires within this scene will now be under the control of the daylight control function. Allow a minute or so for it to take effect. The default settings will give a slow but smooth non-distracting response.

3.3.5. Faster Response Behaviour Settings

CP Electronics sensors can give faster daylight control response if the **[Sensitivity]** set higher. A lower **[Tolerance]** setting aims to achieve closer to the desired set level. The fastest response without much overshoot is recommended as follows so try to stay under these settings where possible.

Edit these properties of the light sensor by tapping **[Edit]** on the top right of the **[Luminaire]** page:
Double tap the sensor and amend the properties including those to do with light level control.





Set light control properties as follows:

- Use full dim range = enable**
- Sensitivity = 90%**
- Tolerance = 2%**
- Change rate = 1.0 sec**

Leave these properties at defaults of:

- Daylight gain = 100%**
- Minimum dim level = 0%**
- Maximum dim level = 100%**

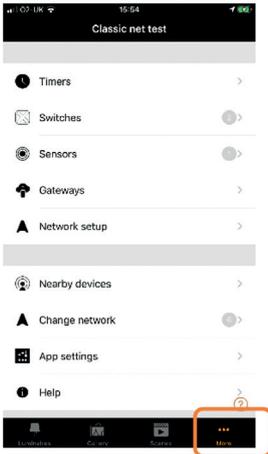
The desired target and light control speed of response is set within the chosen scene as mentioned earlier in the set up steps.

3.3.6 Other Methods of Daylight Control

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

Open loop Luminaire output level (0-100%) is obtained by comparing the sensor's Lux reading against a response graph. Sensors should not be affected by the luminaires in the network and this mode can operate on the control hierarchy even if it is not the highest priority item. Some examples of this are: a group of luminaires controlled by a daylight sensor installed in a separate location to the luminaires or controlled by a sensor facing towards a window away from the luminaires.

3.4. MORE MENU [...]



All other control functions can be found under the [...] More menu at the bottom right.

Timer, sensor and switch control can be accessed here.

Also, use the **[Network setting]** option to activate the **[Control hierarchy]** to allow occupancy control.

3.5. ACTIVATE [USE CONTROL HIERARCHY] FOR OCCUPANCY CONTROL

The **[Use control hierarchy]** option MUST be activated in order to configure for occupancy control.

At the bottom right under:



Choose **[Network Setup]**, then **[Control options]** which opens the screen shown to the right then: slide right **[Use control hierarchy]** to switch to ON. An **Ⓐ** button will appear in the lower left of the page which when tapped will allow the end-user to manually resume network automation when needed.



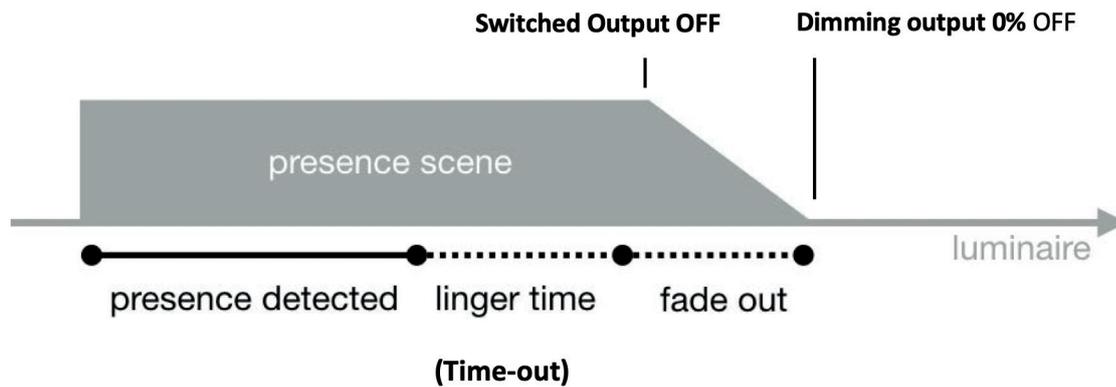
3.6. PICK SENSOR FOR OCCUPANCY CONTROL

Tap



Here, choose **[Sensors]** and select an occupancy sensor for the control group. Then select the control mode and ON/OFF scenes:

- Presence (need to set only the ON scene, the OFF scene will only be OFF so no need to specify the scene)
- Presence / Absence (need to set the ON and OFF scenes)**
- Absence only (need to set the OFF scene only)
- Set the linger time. This is the time-out period.
- Set the fade time. This is the time takes to dim and fade to 0% (OFF).



3.6.1 SETTING THE DIMMING AND SWITCHED OUTPUT VALUES IN SCENES

Refer to the [Scene] section earlier in this document for details of the valid output settings in relation to the switched output in relation to the dimming output.

3.6.2 ADD MORE SENSORS TO THE GROUP

For additional sensors controlling the same group of luminaires, the above needs to be repeated for the additional sensors setting them to call the same scenes.

The net effect is that each sensor will time-out to their own setting and when all of them have timed-out the occupancy is determined to be inactive and starts the fade and switch off process.

3.7 TIMER SETTINGS

There are no special arrangements required for CP Electronics devices as these follow exactly as per the Casambi implementation. They are intuitive and are entirely under the control of the Casambi system. They may or may not override the occupancy controls etc. based on the order of the control hierarchy.

3.8 CONTROL HIERARCHY PRIORITIES

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

Priority levels

- Manual control (app, switches, push buttons)
- Date timers (with sensor override)
- Weekday timers (with sensor override)
- Presence sensors
- Date timers
- Weekday timers

3.8.1 Manual Control

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

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

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

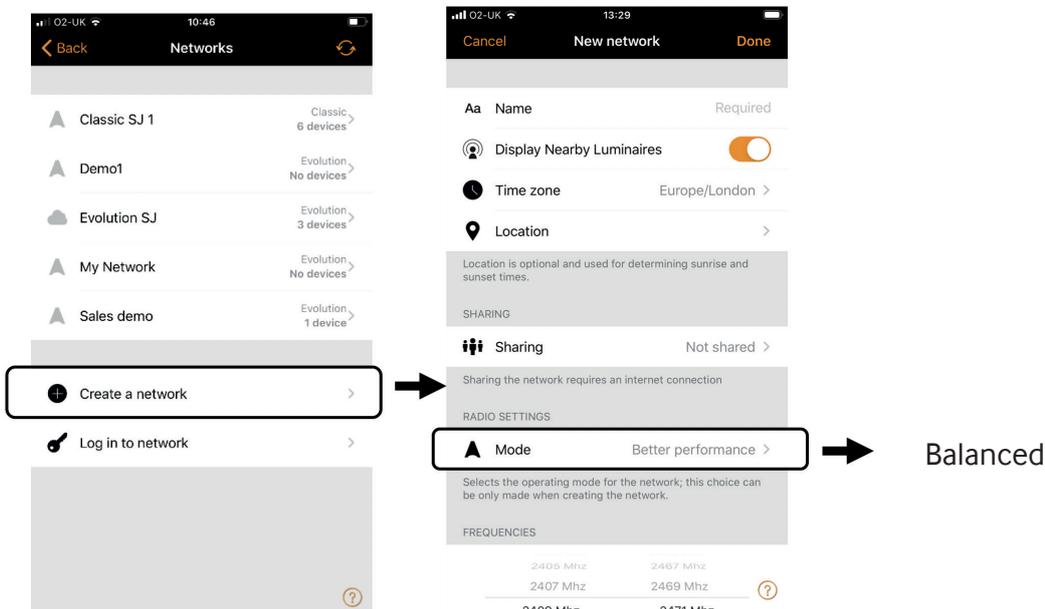
3.9 USING ENOCEAN SWITCHES

3.9.1 BALANCED NETWORK MODE ONLY

EnOcean switches can be added in networks created as evolution networks but must be set to use the **balanced** Mode.

3.9.2 CREATE THE NETWORK WITH BALANCED MODE

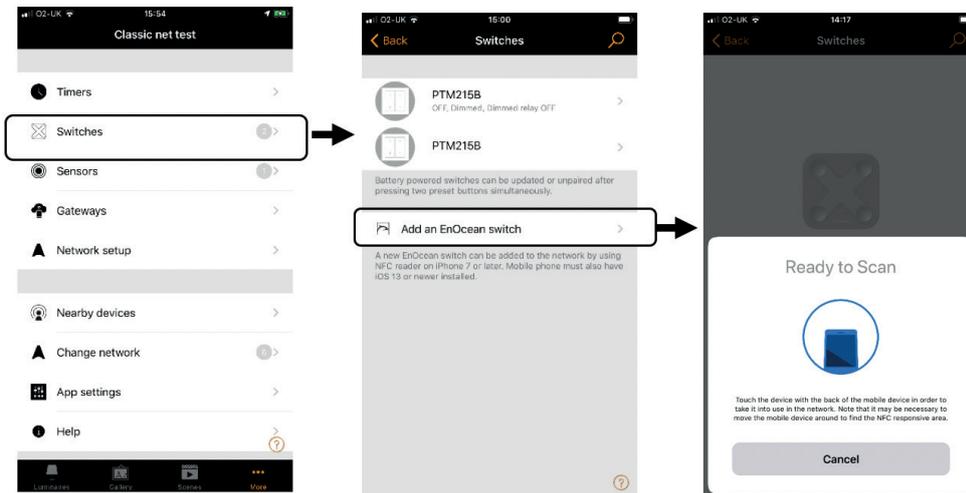
Ensure the network is created as 'balanced' at the point of creation. It can NOT be changed afterwards.



3.10 ADDING THE ENOCEAN SWITCH

EnOcean switches are added using the Near Field NFC interface built into the latest mobile devices. Therefore, ensure the device chosen for performing the commissioning has NFC built-in to that device when configuring EnOcean switches.

Access the switches menu under the [...] **More** tab at the bottom right.



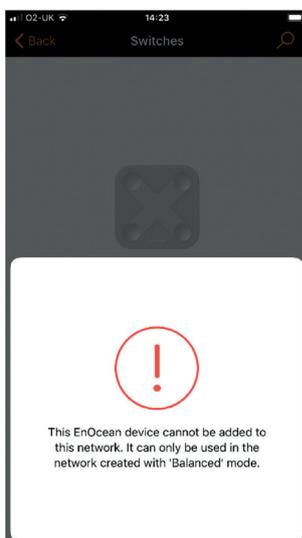
Place the top end of the phone near to the EnOcean switch and make a tap action for best response.



For iPhone 7, the best result was found by placing the top of the phone just at the bottom edge of the EnOcean switch unit and tap down to the unit.



Other mobile phones may have their NFC sensors elsewhere so try tapping at various points to find the best result.

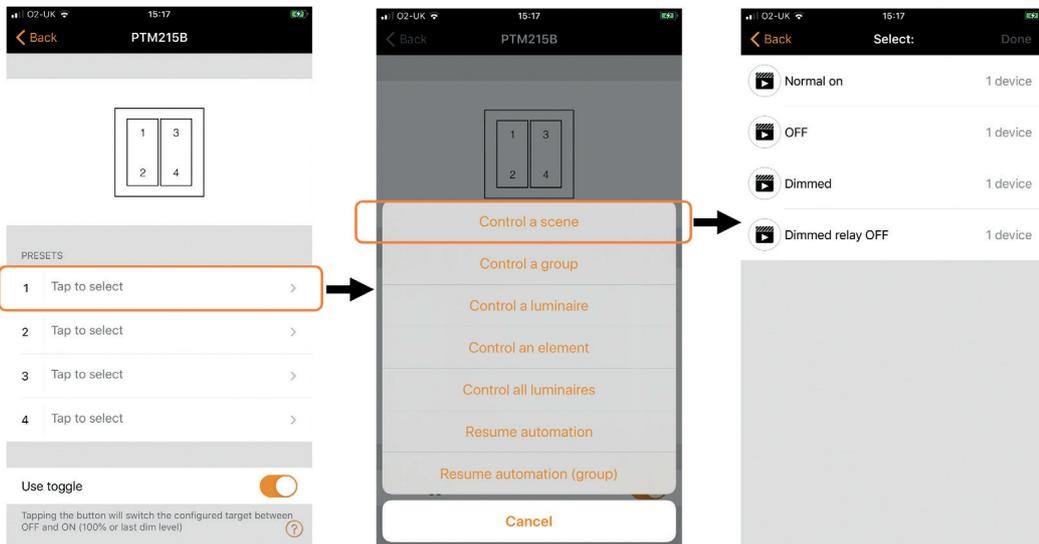


Incompatible units added when in 'better performance' mode networks can fail with this warning. Use 'balanced' mode instead should this message appear.

3.11 ASSIGNING FUNCTIONS TO THE BUTTONS

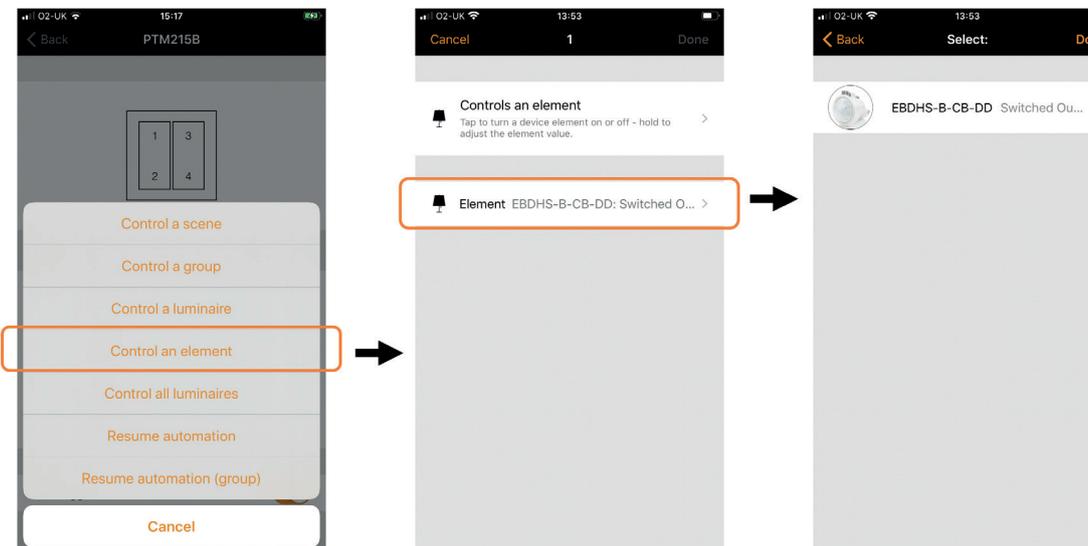
Each button can be set as scene calls or used as toggle ON/OFF control of an individual or group of luminaires.

The example shows the setting as a scene call for button 1.



3.11.1 Control Switch Output Only - Element Control

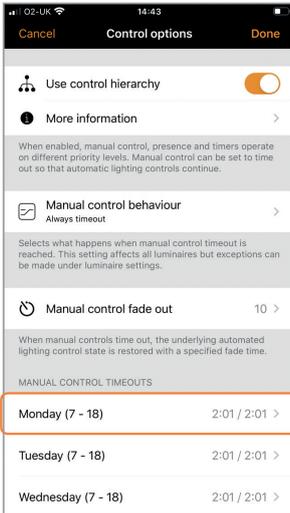
A button can be assigned to control only an element of the sensor which in this case is the switched output which can be controlled without changing the state of the dimming output.



3.12 MANUAL TIME-OUT

To avoid lights being wastefully lit ON indefinitely, there is also a backup manual time out where manual switch operations will time out and turn off the lights automatically should no other automation turn it off.

Choose **[Network setup]**, then **[Control options]**, then scroll to the option below:



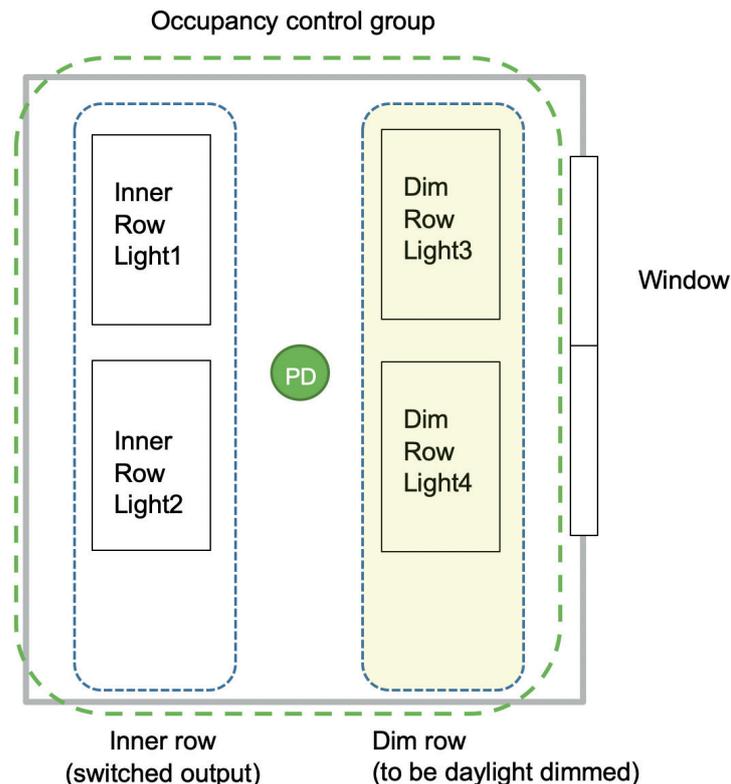
Sets the manual switch time-out to turn lights off after this period as a regime based on the day or night of the week.

e.g. day 2hr:01mins / night 2hrs:01mins

4. EXAMPLE APPLICATIONS

4.1. DAYLIGHT OCCUPANCY FOR DIMMABLE AND NON-DIMMABLE LIGHTS

A dimmable window row of lights + inner row of non-dimmable lights both under occupancy control and daylight control.



Implementation

	Function	Implementation
Occupancy (presence) with daylight dimming and switching	<p>Occupancy: switches ON/OFF both dim row channel and inner row switched output channel.</p> <p>Daylight: control should dim based on available daylight.</p> <p>Should there be enough ambient daylight, it may dim to 0% and turn off the non-dimmable lights also.</p>	<p>Occupancy settings:</p> <p>Mode = Presence / Absence</p> <p>ON Scene = Switched out : ON, Dim out : 50%</p> <p>OFF scene = Switched out : OFF Dim Out : 0%</p> <p>Daylight control settings:</p> <p>Mode = closed loop</p> <p>Desired Level = 500 lux</p> <p>Set Daylight min dim = 0%</p>
Alternative daylight dim to minimum (e.g. 3%)	Daylight should dim to min (e.g.3%) and keep the switched output channel ON.	As above but set: Daylight min dim = 3%

Programming Steps on the Casambi app:

1. Discover nearby devices and add to desired network name as e.g. Regents Floor 1
 - a. Choose to use the **[Evolution]** network for the latest features.
2. Create the occupancy ON scene for occupancy control:
 - a. Tap the **[Scenes]** tab and then **[Edit]**
 - b. Tap **[+]** at the top left to add a scene. Enter scene name e.g. 'All On + Daylight' and choose the group or all the luminaires to be controlled within this scene.
 - c. Press and hold each luminaire to get the slider to the set it for example, dim=50% brightness level, and switched output=ON.
 - d. Tap **[Done]** to finish the settings for the scene.
3. Refer to the Appendix 1 and set all the parameters under different menus to the **CP Electronics Initial Setup values.**
4. Select **[Use Control hierarchy]** to allow occupancy control:
 - a. Tap  **More**



Choose **[Network setup]**, then enable **[Use control hierarchy]**. This enables occupancy control to work with switch control and other types of control.

5. Setting occupancy to control both the 'inner row' and 'dim row':

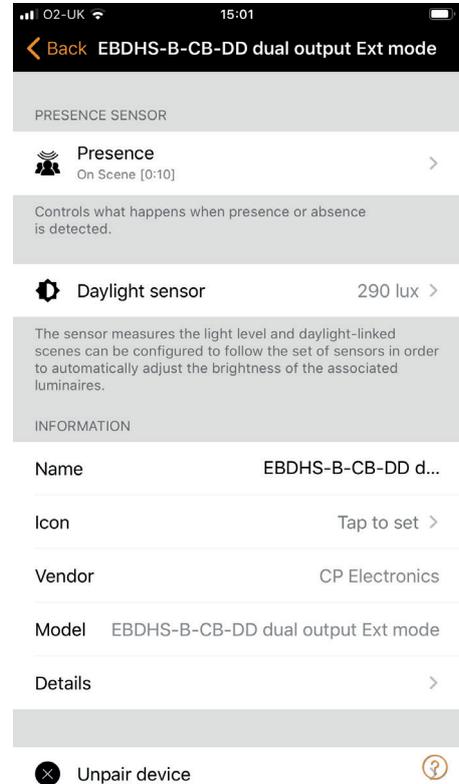
- a. Within the **[Luminaire]** tab, double tap on the luminaire group to edit.
- b. Under **Presence sensors**, tap the '>' arrow to the next page and tap '>' again to see the occupancy options.
- c. Tap **[Presence/Absence]** to choose occupancy control mode (Presence or Presence/Absence or Absence):

Alternatively, the [Presence] mode can be chosen but its OFF control works without an OFF scene so it can only control the Ch2 dimming output and does not turn off the Ch1 switched output.

- i. Tap [Presence scenes]
 1. Tap the ON scene already made or choose multiple scenes to be controlled. In this case you can select both 'inner row ON' and 'dim row ON' scenes
- ii. Tap [Absence scenes]
 1. Tap the OFF scene already made or choose multiple scenes to be controlled. In this case you can select both 'inner row OFF' and 'dim row OFF' scenes
- iii. Adjust [Linger time] (time-out period) to 20 seconds
- iv. Adjust [Fade time] (time period of fade to OFF after time-out period)

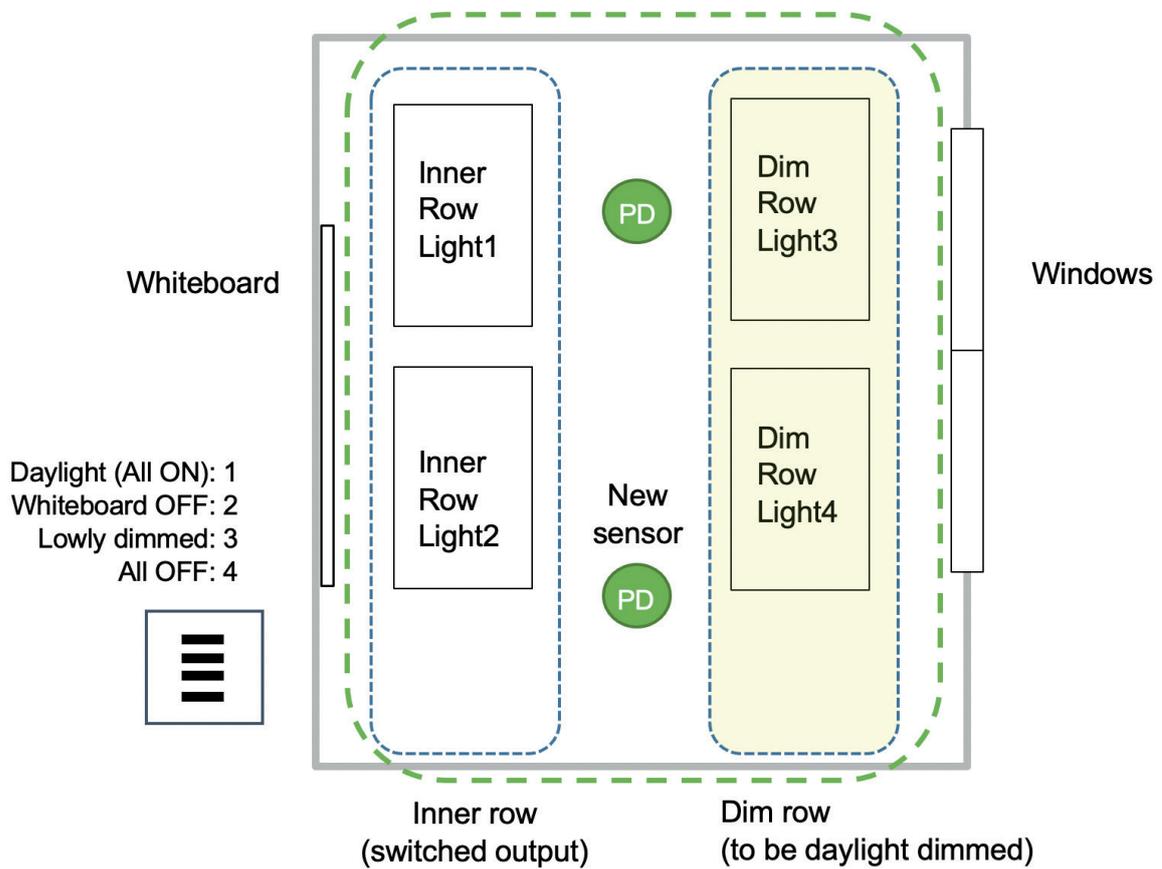
6. Test for Occupancy Operation:

- a. Tap the [Luminaire] tab, then tap [a] at bottom left to resume automatic control.
- b. Cover the sensor for >20 seconds for the sensor to time-out and see the lights operate to the assigned OFF scene.
- c. Trigger the sensor with movement and see the lights go to the ON scene.



4.2. ADDING SCENE SWITCH FOR ABSENCE MODE

As per the previous example of using a dimmable window row of lights an inner row of non-dimmable lights both under occupancy control and daylight control but this time adding the control of a scene plate to work the room in absence mode. This example also offers whiteboard row switching off.



Implementation

	Function	Implementation
Occupancy (absence)	Occupancy switches OFF both Dim row channel and inner row switched output channel.	Mode = Absence Switch = toggle mode on various scenes OFF scene = All OFF
Daylight Control	Window row to dim with available daylight in daylight control scenes	Daylight control settings: Mode = closed loop Desired Level = 300 lux
Scene switch	<ol style="list-style-type: none"> Daylight (All ON) Whiteboard OFF Lowly dimmed All OFF 	<p>Make scene switch call 4 scenes:</p> <ol style="list-style-type: none"> Toggle scene Daylight: switched output = ON, dim output = daylight 300lux Toggle element: switched output Toggle scene Lowly dimmed: switched output = OFF dim output = 20% Toggle scene All OFF: switched output = OFF, dim output = 0% <p>Switches 2,3,4 will halt daylight control.</p>

Programming Steps on the Casambi App:

1. Discover nearby devices and add to desired network, name as e.g. Regents Floor 1

a. Choose to use the Evolution network and in Balanced mode to ensure compatibility with older versions of EnOcean switches.

2. Create the occupancy OFF scene for the absence occupancy control:

a. Tap the [Scenes] tab and then [Edit]

b. Tap [+] at top left to add a scene. Enter scene name e.g. 'inner row only' and choose the group or all the luminaires to be controlled within this scene.

c. Tap each luminaire or group and press and hold to get the slider to set it for example, dim=0% brightness level, and switched output=OFF.

d. Tap [Done] to finish the settings for the scene and repeat to create the OFF scene.

3. Create other scenes for the 4 buttons on the EnOcean switch

a. Tap the [Scenes] tab and then [Edit] as previous

b. Tap [+] at top left to add the 4 scenes as for the 4 scenes for assignment to the switch buttons.

4. Select [Use Control Hierarchy] to allow occupancy control:

a. Tap



Choose [Network Setup], then enable [Use control hierarchy]. This enables occupancy control to work with switch control and other types of control.

5. Setting Occupancy to control both 'inner row' and 'dim row':

a. Within the [Luminaire] tab, double tap on the luminaire group to edit.

b. Under Presence Sensors, tap the '>' arrow to the next page and tap '>' again to see the occupancy options.

c. Tap [Absence] to choose occupancy control mode

i. Tap [Absence scenes]

1. Tap the OFF scene already made or choose multiple scenes to be controlled. In this case you can select both 'inner row OFF' and 'dim row OFF' scenes

ii. Adjust [Linger time] (time-out period) to 20 seconds for testing (or 20 minutes for normal operation)

iii. Adjust [Fade time] to say 1 sec. This is the time period of the fade to OFF after time-out period.

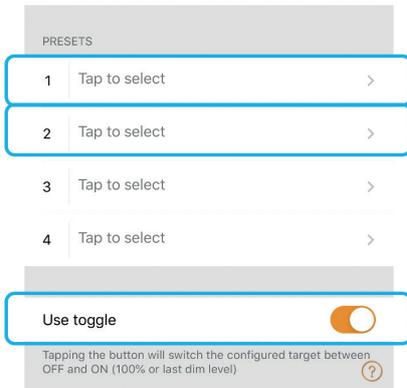
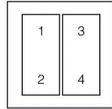
6. Set up switch control:

a. Tap



Click [Switches] and add the EnOcean switch to the network using the NFC communication on the mobile device as described in previous chapters.

b. Click on the paired switch. Assign function to each button as per the screen.



Assign each button to their designed scenes

Button 2 to control switch out element only

Use toggle so the switch out element for the whiteboard row can be toggled on/off

7. Daylight Setting for 'dim row' only:

- a. Go to **[SCENES]**, tap **[Edit]** at the top right, then the 'dim row' scene to edit.
- b. Touch the **[SETTINGS]** tab at the bottom right to open to choose **daylight control**
- c. Choose **Closed loop** for a maintained illuminance method
 - i. Apply a **Desired Illuminance** level of 250 Lux for example

8. Test for absence occupancy operation:

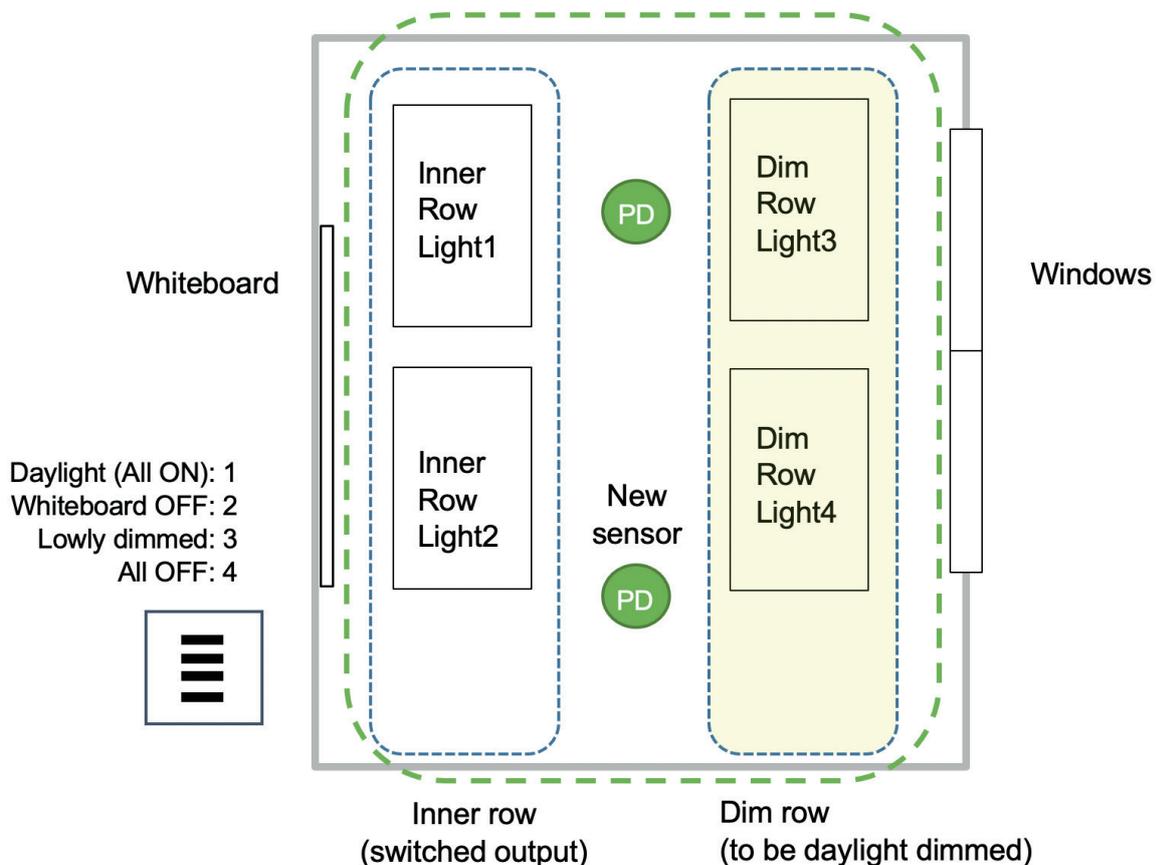
- a. Tap the **[Luminaire]** tab, then tap **[@]** at bottom left to resume automatic control.
- b. Operate the EnOcean switch button 1 to turn on all the lights which will also be daylight controlled.
- c. Operate button 2 to toggle the switched output and turn on/off the white board row of lights.
- d. Cover the sensor for >20 seconds for the sensor to time-out and see the lights operate to the assigned OFF scene.

9. Daylight occupancy operation testing:

- a. Operate button 1 so all the lights are turned on. Present movement to keep the sensor activated.
- b. Read the Lux level read back from the sensor and see that it reaches close to that of the desired Lux target value.

4.3. ADDING ANOTHER SENSOR TO GROUP OCCUPANCY

Add another occupancy sensor so that the room lights only turn off when both sensors have timed-out.



Additional occupancy sensors to control the same group of lights as the first sensor can be added by pairing the new sensor to the same network and setting its occupancy parameters to control the same ON and OFF scenes as that of the first occupancy sensor.

Programming Steps on the Casambi App:

1. Discover the new sensor under 'Nearby devices' and add to previously assigned network.
2. Setup the occupancy settings as follows:
 - a. Within the **[Luminaire]** tab, double tap on the luminaire to edit.
 - b. Under **Presence Sensors**, tap the '>' arrow to the next page and tap '>' again to see the occupancy options.
 - c. Tap **[Presence/Absence]** to choose occupancy control mode (Presence or Presence/Absence or Absence):
 - i. Tap **[Presence scenes]**
Tap the same ON scene already made. In this case you can select both 'inner row ON' and 'dim row ON' scenes
 - ii. Tap **[Absence scenes]**
Tap the OFF scene already made.
 - iii. Adjust **[Linger time]** (time-out period) to 20 seconds (same as the other sensor)
 - iv. Adjust **[Fade time]** (time period of fade to OFF after time-out period)

3. Test for absence occupancy operation:

- a. Tap the **[Luminaire]** tab, then tap **[a]** at bottom left to resume automatic control.
- b. Operate the EnOcean switch button 1 to turn on all the lights which will also be daylight controlled.
- c. Operate button 2 to toggle the switched output and turn on/off the white board row of lights.
- d. Cover the sensor for >20 seconds for the sensor to time-out and see the lights operate to the assigned OFF scene.

5. TIPS AND SHORT-CUTS

5.1 OPERATIONS SPECIFIC TO CP ELECTRONICS SENSORS

5.1.1. APPLY CP ELECTRONICS SENSOR INITIAL SETUP FIRST (SEE APPENDIX 1)

The CP Electronics initial setup values listed in the appendix table are worked through examples known to work well for CP Electronics sensor units. Therefore, these can be good starting values that can help to solve any issues for a project. Once the unit is seen to be working using these values, one can then move to make the specific refinements preferred for the specific project.

5.1.2. DAYLIGHT CONTROL WITH SWITCHED OUTPUT OPERATION

If the switched load output is to be **controlled together** with daylight dimming control, ensure the scene calls for the **switched output to the ON position**. Useful for Lux control of non-dimmable loads.

If the switched load output L-out is **to be ignored** in the control of the daylight dimming control, set the switched output L-out **to the OFF position**. Useful when switching a row of lights to OFF that is near the whiteboard whilst the rest of the lights are performing daylight-linked dimming.

5.2. GENERAL APP HINTS AND SHORT-CUTS

5.2.1 ALLOW ALL PERMISSION ON INSTALL AND MAKE FREQUENT UPDATES ON CASAMBI APP

The app works with various updates from the cloud and will generally require all its permissions to be enabled to function correctly including location details.

Also, it relies on using the latest firmware and updates in order to stay synchronised with the various changes, so ensure the firmware updates are also frequently performed.

5.2.2 COPY AND AMEND SCENES

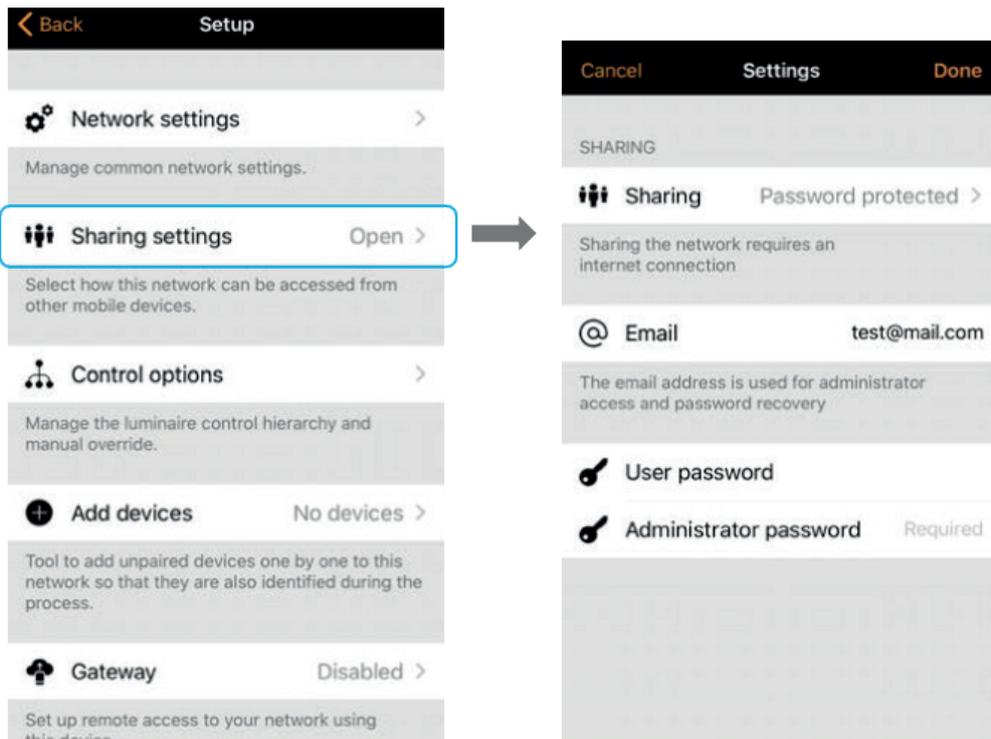
All scenes should contain the same CP Electronics initial setup values, for example, it would much quicker to setup the first scene and then copy and amend for subsequent ones. Steps to copy:

1. Tap **[Edit]** on top right of the screen => See an 'x' placed on the scenes
2. Tap and hold an existing scene => creates a copy of this scene
3. Tap **[Settings]** (bottom right) => opens the parameters for the scene
4. Make changes including entering the preferred scene name and tap done to complete

6. SECURITY, SHARING AND REMOTE SUPPORT

By default, the app configures the network as private and is NOT shared. None of the paired devices will be visible to other users.

To enable security sharing, configure **Sharing settings**, under [...More] => **[Network setup]** => **[Sharing settings]**



6.1. SHARING OPTIONS:

- Not Shared : private and accessible only by the paired device.
- Open : allows anyone with the Casambi app to control the network, but they cannot make configuration changes.
- Password protected : allows user and administrator access.
- Administrator only : the network is hidden from the network list unless the end-user has access.

Choose the **[Password protected]** option because the user could be the customer who can test and sign off the configured operation but only competent staff with an administrator password can make amendments.

Enter the email address and password for the administrator managing that particular network. Then add in the user's username and password.

6.2. LOGGING IN FROM REMOTE FOR SUPPORT

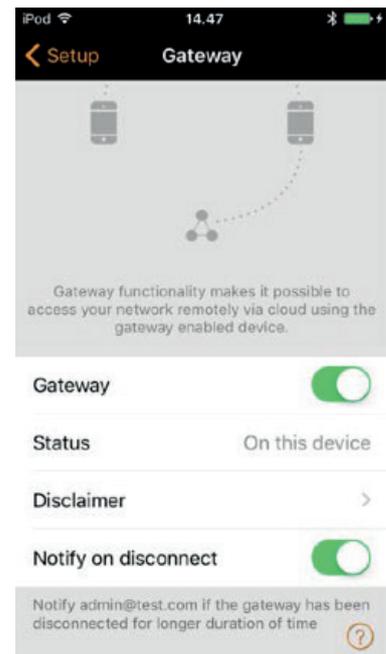
When given the email and password, anyone with experience at a remote location can use the Casambi app to view the setup of that network and advise of any helpful improvements. At this point there would not be the ability to connect to the live devices. A gateway setup will be required should this be necessary.

6.3. REMOTE LIVE OPERATION VIA GATEWAY

Activate the locally paired app device as with the gateway function under [...More] => [Network setup] => [Gateway]

The remote device can now connect live to the field devices using this device as a gateway. A live diagnosis can now be performed remotely.

Care is required as the operations will turn the actual light fixtures ON/OFF.



APPENDIX 1 – CP ELECTRONICS SENSOR INITIAL SETUP

Using these tried and tested settings could help to fix any setup errors should the unpair and pair again process be a little cumbersome. The unit can be checked to see that it functions well with these FIRST before adjusting to customise for the specific project.

DAYLIGHT CONTROL SETTINGS		
Settings	CP Setup	Comments
Mode of operation	Close loop	Light regulation to target
Use full dim range	Yes	This is absolutely necessary for the light sensor control to function
Min dim level	1%	Avoid restrictions
Change rate	1.0 s	Optimum for test and typical operation
Desired Illuminance	150 lux	Typical for ceiling mount light sensor expecting around 375lux on the work plane at a reflectance of 0.6
Tolerance (setting - deviation allowed)	1%	Tight 1% setting tested - good stability
Sensitivity	90%	This high sensitivity gives best response and good stability
Tolerance (sensor)	1%	Tight 1% setting tested -good stability
All other settings [Use dedicated sensors] [Circadian rhythm] etc.	DISABLE	

OCCUPANCY CONTROL SETTINGS		
Settings	CP Setup	Comments
Network setup -> Control options -> Use control Hierarchy	Enable	Must enable this to allow occupancy control
Network setup -> Control options -> Manual control behaviour	Always time-out	Switch overrides to time-out regardless whether occupancy is detected or not, thus never leaving lights wastefully on
Mode of operation	Presence	Switch on specified scene when triggered, turn to OFF when vacant
Linger time	20 mins (10 sec for test)	Align with other CP RAPID and Vitesse control defaults
Fade time	5 sec (0.5 sec for test)	Slow fade to give occupant time to re-trigger occupancy before it gets dangerously dark
Removes manual control	DISABLE	Do not block manual control
Presence scene	All lights to 100% or ON	Create a scene to be called as the presence scene sets all lights to maximum ON.

MANUAL CONTROL SETTINGS		
Settings	CP Setup	Comments
Network setup -> Control options -> Use control Hierarchy	Enable	Must enable this to allow occupancy control
Network setup -> Control options -> Manual control behaviour	Always time out	Switch overrides to timeout regardless whether occupancy is detected or not thus never leaving lights wastefully on
Network setup -> Control options -> Manual control fade out	10 sec (0.5 sec for test)	Slow fade to give occupant time to walk to switch back on before it gets dangerously dark
Network setup -> Control options -> Manual control time outs	30 min - daytime 30 min - night	Should the occupancy time-out not switch off the lights, these manual timeouts will to ensure no lights are left continuously uncontrolled
Network setup -> Control options -> Fade time for powering up	1.0 sec	Responsive fade rate for on/off switching
Network setup -> Control options -> Activate timers on start-up	Disable	

APP SWITCHING CONTROL SETTINGS		
Settings	CP Setup	Comments
Network setup -> Control options -> Fade time for toggling ON or OFF	1.0 sec	Responsive fade for on/off switching
Network setup -> Control options -> Fade time for switch dimming	5.0 Sec	Smoother raise and lower dimming rates
Network setup -> Control options -> Remember last state	Enable	For testing / demoing the lights with the app for fine tuning the brightness for example

OTHER SYSTEM AND SECURITY SETTINGS			
Settings	Config stage	Handover stage	comments
Network setup -> Sharing settings	Password protected	Administrator only	During commissioning, a check of progress can be made by any CP Electronics engineer with the given password. Actual changes can only be made with the admin password once the changes are agreed with the project leader
Network setup -> Performance and security	Allow all except: Device updates	Disable all except: Devices always visible= Enable	Device updates are time consuming and may not be necessary. At handover disable most of them to stop inadvertent changes but always visible for checking on re-visits

APPENDIX 2 – LED STATUS AND DIAGNOSTICS

A. IS IT CASAMBI OR CP ELECTRONICS PROBLEM?

Hardware failure in general should fall within the remit of CP Electronics to support and diagnose. Outside of that, the software behaviour is all within the control of the Casambi system and can be supported via that channel.

To aid the checking of normal hardware behaviour, the two status LEDs below should be checked for confirmation of good operation:

1. The Casambi LED flickers to indicate network communication.
2. Use the CP UNLCDHS handset to enable the walk test LED to operate on detection of movement (use Unit Identify or V3 DD/SR Detector Parameters menu).



A.1 Factory Default Reset Via Unpair

Factory default reset in the field is NOT available as a function within the Casambi app but when the units are unpaired and paired again, they will effectively take on the default factory settings.

A.2 Normal Start-Up Behaviour and Led Status

When **Unpaired**, normal power on start-up behaviour as follows:

1. The switched live should turn ON and the dimming output should go to 100%.
2. Casambi LED (blue) turns ON.
3. CP walk test LED (red) turns ON momentarily then goes OFF.
4. When network communication starts upon the presence of an app or local wireless device, the Casambi blue LED will flicker to indicate this action.

When **Paired**, normal power on start-up behaviour of the switched live and dimming outputs will vary according to the setup within the network parameters.

A.3 Casambi Network Bluetooth Communication Test

Perform this test after the unit has been unpaired.

1. Use the Casambi app to discover the unit within 5m free air distance away.
2. Pair the unit to a new network on its own.
3. **Press and hold** the luminaire and operate the dimming control slider. Operate to turn ON/OFF and dim up/down if it is dimmable.

If the switched output response is OK, then the hardware and software would appear to be working as expected. If the lights fail to dim, then there may be an issue with the DALI line control that needs to be investigated further.



Should the unit function ok as above then the issue is likely to be a configuration fault by the user. Apply the procedure as recommended by the CP Electronics use guide using the initial settings laid in Appendix 1 and use the basic setup for occupancy and daylight control as test routines.

In normal usage, all software parameters are set by the Casambi software and are completely within the control of their system. Therefore, should any unexpected behaviour be encountered, this would fall within the Casambi system and so all support to solve the issue should be addressed by via Casambi.

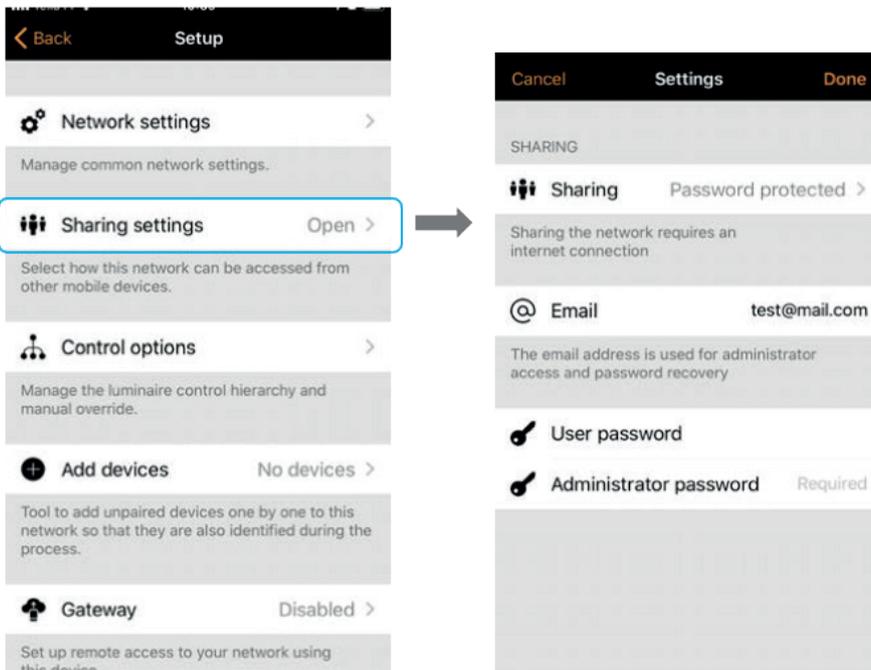
B. BASIC CASAMBI NETWORK TEST

- B.1 To solve any basic lighting control operation, one must first apply all the **CP initial setup recommended settings in Appendix 1**.
- B.2 Then try out the basic occupancy or daylight control examples in this guide.

C. REMOTE SUPPORT

Since all network setup is synchronized to the Casambi cloud, all setup information on the units can be viewed from any Casambi app with access to the project on the internet. The user needs to give the password credential access for viewing. From the setup information on the cloud, it may be clear what errors were made in the setup.

To enable security sharing, configure **[Sharing]** settings, under **[...More] => [Network setup] => [Sharing settings]**



C.1 Remote Live Testing

Where live testing is required, a mobile device running the Casambi app on-site connected to the site network can be used as a gateway to make live changes and perform live tests. See details in earlier chapters for the setup of a mobile device as a gateway,

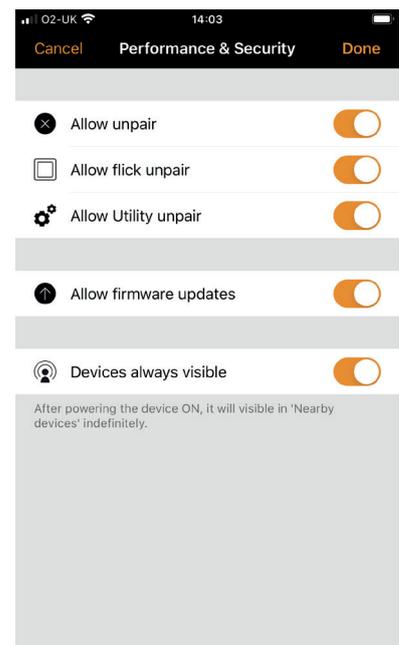
D. LOSS OF NETWORK PASSWORD

When a network is protected, it will not be accessible without the correct password credentials. Should this password be lost for some reason, there is **NO BACK-DOOR** access to change any of these devices on that network, however, they are visible under 'nearby devices' if the network is enabled to do so.

The default of 'allow flick unpair' can be used if enabled so each of the devices can be unpaired and a new network can be created.

D.1 Unpair Via Allow Flick Unpair

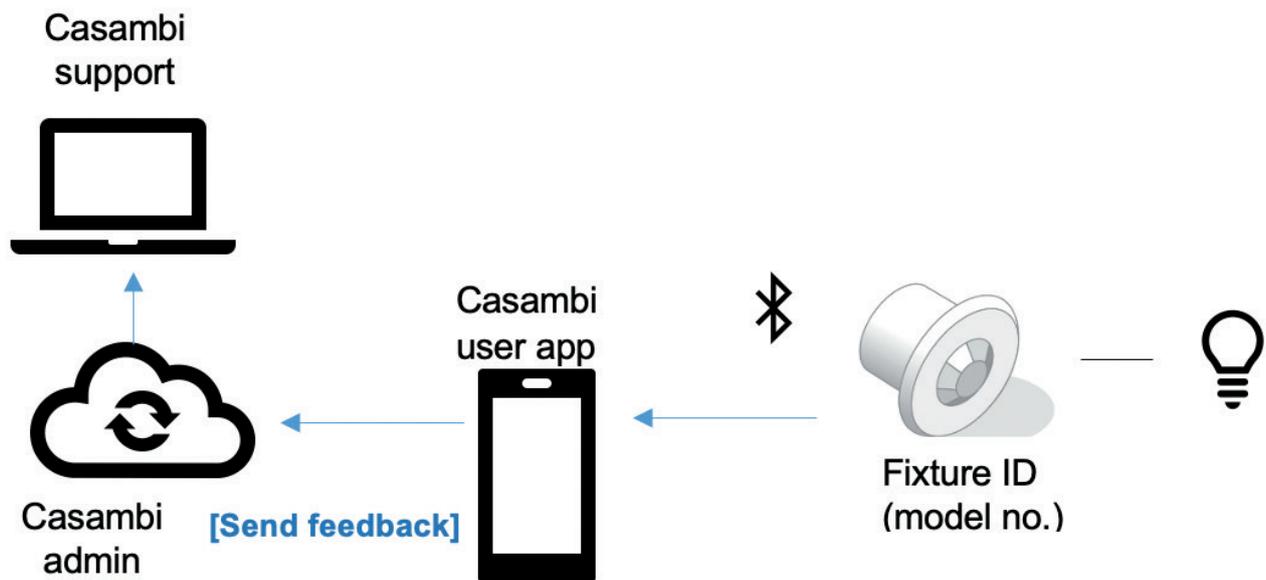
[More ...] -> [Nearby devices] -> tap device and select 'Unpair'.
It will ask you to tap 'Start' and within five seconds cycle the power OFF -> ON to that device to complete the unpair process.



E. EXPERT SUPPORT FROM CASAMBI

For development works within R&D, contact with Casambi directly may be required from time to time. Should any bugs or special requirements arise, a further path to offer site information is possible as a direct app function call, **[Send feedback]**. This is to be used with co-ordination from the product manager or the R&D engineer.

Using **[Send Feedback]** function will send all app data to Casambi support directly via the cloud. This can be done under the [... **More**] tab at the bottom left of the app screen => **[App settings]** => **[Send feedback]**





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Issue 1.1 Casambi Wireless Mesh Network Detectors System manual. Designs and specifications are subject to change without notice.

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