

Citygrid App Manual

The Citygrid App is used together with a Citygrid dongle to install and configure street luminaires with the Citygrid smart control system.

Go to citygrid.eu for more information about Citygrid systems.





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Terminology

Autolink Automatically generates all links; can be edited manually.

Dongle Device used for connecting the smartphones/tablets to the luminaires (via

Bluetooth).

Gateway and connected

systems

Unit for connection of luminaire installations to a cloud service. A site with a

gateway is a connected system.

Link Defined connections between luminaires.

LMS Light Management system. Go to <u>citygrid.dk</u>

Low Intensity Low intensity is the light intensity provided when there is no motion or traffic.

Idle Scene is used to describe the light intensity provided in the scenario of no

motion / traffic when the Light Scenes is enabled.

Luminaire Street light with citygrid system.

Motion events A registered motion.

Motion Intensity is the light intensity provided when there are motion events or

traffic.

Motion Scene is used to describe the light intensity provided in the scenario of

motion events / traffic when the Light Scenes is enabled.

Power cycle A power cycle is the period where a lamp is turned on. Street luminaires are

commonly powered off during ending a cycle in the morning and a new cycle

begins in the evening when they are turned on again.

RSSI (Received Signal Strength Indicator) is the strength of a wireless signal

received by the dongle.

On Pole Controller Retrofit unit for mounting on luminaire poles.

PIR sensor Passive Infrared Sensor installed in Cityqrid controller detecting motion.

Project and sites A customer (typically a municipality) has a citygrid project. Within that project

they can have numerous sites. A site is an area with linked luminaires with or

without gateway(s).

Unit A luminaire or a gateway.

User key Code for signing in to a configured account with access to a project and site on the

Citygrid App and/or Dashboard.



Key numbers

Max. units per site 500

Max. units per gateway 250

Gateways per site Typically one, but it depends on the number of units and distance

between units.

Dongle range (bluetooth) 10-20 m

Luminaire range (radio) Recommended <50 meters. Maximum 200 meters. The range depends

on the mounting location, luminare location, and environment.

Icons

Luminaires in map view

- Selected
- Selected and with note
- Connected
- Luminaire with error
- Last added
- Luminaire that is not connected
- Gateway
- Gateway with error

Luminaires in groups view

- Belonging to one motion group (default group)
- Belonging to two motion groups
- Belonging to three motion groups
- Belonging to all four motion groups

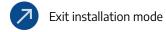
View mode

- Open view mode menu
- Configurations
- Move to your position on the map
- Site overview
- Switch map type (default map view and satellite view)
- Switch between network modes
- Select all luminaries on a site
- Open installation mode
- Close view mode menu

Installation mode

- Open installation mode menu
- Add luminaries
- Convert site to motion groups
- Generate motion graph links automatically
- ightharpoonup Distribute motion graph
- Save







Edit luminaire

- Delete luminaire from site
- **Paste luminaire settings**
- Copy luminaire settings

Indicate Luminaires

Indicate Options settings



1. Download app

Download the Citygrid App from Google Play on your android device.

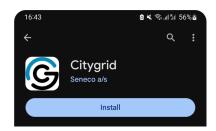
Note that there are other citygrid apps available by slightly different names.

2. Log in

When you open the app you will be asked to **sign in with your user key**.

The user key is obtained from either the Citygrid system provider or the luminaire supplier that delivered the specific installation.





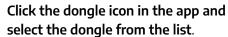


Sign in

3. Connect to dongle

Turn on the dongle by pushing the center button close to the led indicator for one second. The LED will have a constant white light followed by a sequence of colors (red, green, blue, white, and blue).

The dongle is ready for connection when the LED is blinking blue.



The dongle can be identified by looking at the ID on the back of the dongle. When your smartphone/tablet and the dongle are connected, the LED on the dongle will go from flashing blue to constant blue. Note that a dongle can be connected to one android device at a time.

If you can't connect, check that you are using the correct App. For the older ECO system Dongle, use the Seneco App. For a Citygrid Dongle use the Citygrid App.

Check battery status by clicking the button. The LED will indicate the battery status with a green light = full charge, yellow light = medium charge, or red light = low charge. If the battery level is low, the LED turns red. You will also get a warning in the Citygrid App.

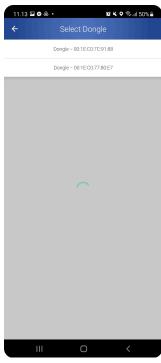
Tap the Dongle status on the notification bar. The Citygrid dongle status can be viewed on the Android mobile notifications bar. This displays the dongle's firmware version, battery level, and RSSI value. When you are on a site in the app, the failure rate is included in the dongle status notification.



Dongle



Click to connect dongle



Select dongle



Dongle Status in Notifications bar



Dongle Status when a site is selected



Dongle range

The mode of connection between the smartphone/tablet and dongle is with Bluetooth. The range is no more than about 10-20 meters. When programming, always have the dongle nearby to avoid connection issues. For the maximum range of wireless communication between the dongle and a luminaire (see Key numbers). For an onsite operation, it's best to maintain a distance of approximately 50 meters or less.

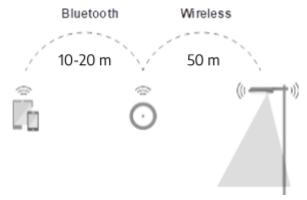


Illustration of connectivity between Android device, Dongle and Luminaire Unit

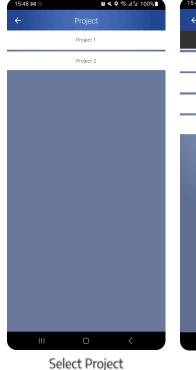
4. Create site

The luminaries will be installed on a site which in turn is part of a project. A project can contain many sites.

Select the project your new luminares will belong to.

A list of sites belonging to the project (if any) will be displayed.

Create a new site by tapping the plus icon in the bottom right corner.





Create site



Type in a site name of at least four characters.

Rename site or remove site by pressing the site name until a dialog box is visible. A site can only be deleted if all luminaires are removed or no luminaires are installed on the site.

Sort the sites by distance from your device (default) or alphabetically in the top menu.



Go to a site by selecting it from the list. You will see a map with your current position and installed luminaires if there are any.

There are two app modes when looking at a site. The settings mode (blue layout) and the installation mode (yellow layout).

The settings mode allows you to view information about installed luminaires and edit the controllers configuration.

The installation mode allows you to install and remove controllers and gateways from the site, move their location on the map and to set motion control system (switch to motion groups or motion graph).

Shift between the modes by tapping

on the menu and then install





or exit installation mode .











Rename or delete site



Settings mode



Installation mode



6. Install luminaires

Go to installation mode (see <u>section 5.</u> The two modes)

Add luminaires

Tap the plus icon to add a

luminaire to the site.

A list of luminaires are shown ordered by signal strength between the dongle and the luminaires.

Pull down or tap Clear List to refresh and make sure the closest unit is at the top after moving.

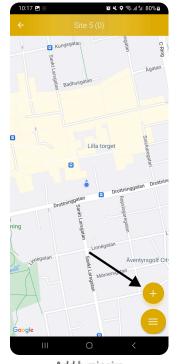
In the bottom you find the **Show all** toggle which allows you to see all units (both installed and uninstalled).

Select the luminaire from the list. The luminaire will blink a number of times (according to the defined indicate type and duration) to indicate that it has been selected and you can check that you have selected the right luminaire.

Tap ADD in the top right corner once you have identified the correct luminaire.

The luminaire will appear near your location on the map with a pin icon (see section 6. Adjust position).

You can add up to 500 units to the site. The total amount of units are shown next to the site name in the top nav bar.







Select luminaire



Indicating - luminaire blinks



Tap to Add a luminaire



Adjust position

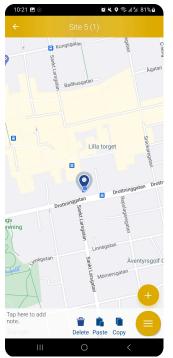
The unit is placed approximately using the phone's location.

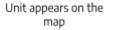
To adjust the position **select the unit** by tapping on the luminaire icon. The

unit is selected 💡 .

Hold down and **drag the unit to the correct position** on the map.

Tap anywhere on the map to deselect the unit.







Move unit to correct position

Remove luminaire

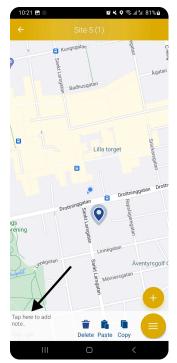
Remove a luminaire by tapping the

delete icon when the luminaire is selected.

Add note

Add a note by selecting a luminaire and tapping the notes tab. Type in the note and tap OK. This can be done in both installation mode and settings mode.

The circle in the position pin is colored when the luminaire has a note.



Tap to add note to luminaire



Add note to luminaire



7. Motion control

There are two systems for motion control of luminaires, **Motion groups** and **Motion graphs**. Both types control the activation of nearby luminaires when a motion is detected.

With the motion groups all luminaires in a defined radius belonging to the same motion group will, if not otherwise configured, dim up when a motion is detected.

With a motion graph, the activation will follow a defined path and activate a defined number of luminaires on that path.

Note that the motion graph system is not compatible with MKII controllers.

Motion groups was released in March 2022 and is the recommended system to use.

Note that all MKI controllers must be updated to firmware version 1.5.0 or higher to enable support for Motion groups.

Adding units to a motion groups site does not require distribution of info to the entire site, as it does with motion graphs, making motion groups sites easier to maintain.

Motion groups

To activate the motion groups system for an existing site with motion graph, go to the installation mode, open the menu and tap the switch to motion

groups button 😇.

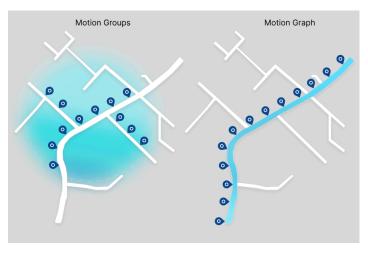


Illustration of motion groups (left) and motion graph (right)



Switch from motion graph to motion groups system



Motion graph removed and motion groups applied



The motion graph link is removed when the motion groups system is successfully activated.

Luminaires on a site can be grouped into four predetermined motion groups.

Newly installed luminaires are automatically assigned a default motion

group (green) with a default range of 80 meters.

To change the motion groups configuration, go to settings mode (see section 9), select a luminaire(s), tap CONFIGURATION in the bottom right corner and select the motion groups menu.

The motion groups submenu shows which groups the luminaire(s) belongs to with a colored circle symbol.

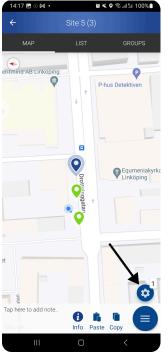
Press the motion groups menu to see and edit the motion groups settings for the selected luminarie(s)

Tap the plus icon to add luminaire to another motion group.

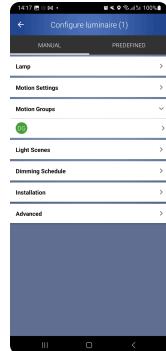
Tap the icon to remove the luminaire from the group.

Individual configurations for communication radius, whether the luminaire reacts to an input (use) or communicates to its group (send) can be made for each luminaire within a motion group.

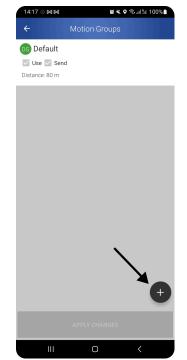
Edit multiple luminaires at a time by selecting multiple units before clicking on CONFIGURATION (see <u>section 9. Edit configurations</u>).







Select Motion Groups



Add a new motion group to selected luminaire(s)



Edit motion group settings for selected luminaire(s)



Tap the distance to edit the activation radius. When receiving a signal from another luminaire in the same group, the distance to that luminaire is checked, and if it is within the defined distance and the USE setting is checked the luminaire will react to the signal.

Check/uncheck use to enable/disable whether the luminaire reacts to its group members' motion events.

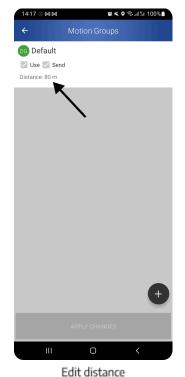
Check/uncheck send to enable/disable communication about motion events to group members within the defined distance.

Note that the luminaires only receive/send information from/to group members within the defined distance.

Tap apply changes to save. If you leave the page without saving the app will ask if you would like to save the changes.

Get an overview of which groups the **luminaires belong** to by going back to settings mode (see section 5. Two modes) and then to groups view in the top menu.

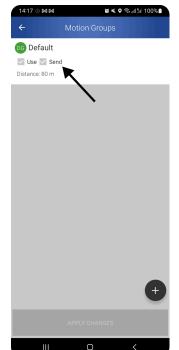
In the picture on the right, each luminaire belongs to a different number of groups to demonstrate what the pins look like.



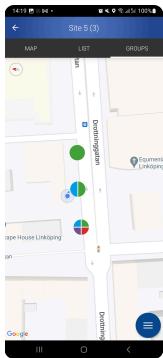




Input distance



Check/uncheck use and send



Showcase of different number of groups in groups view



Motion graph

A blue line between two units indicates a link. All units need to be linked when using motion graphs.

In the Installation mode, tap on the menu and **tap Generate links** to autolink all the luminaires and the gateway.

Check that the automatically generated links are correct. They should naturally follow the road paths and branch out at crossings.

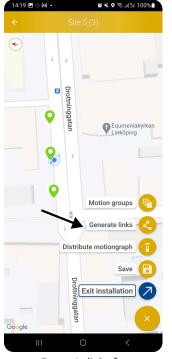
Manually edit or create links by tapping the luminaires in the order you want them to be linked. Tapping already linked luminaires will remove the link.

Gateways linking. A linked gateway will count as a unit in the motion graph. It is therefore advised to position it on a side branch or not include it in the motion graph at all.

Once all luminaires are positioned and interconnected, save and distribute the linked luminaires.

Tap Distribute motiongraph to send the created links to the luminaires or **tap Save** to continue at a later date.

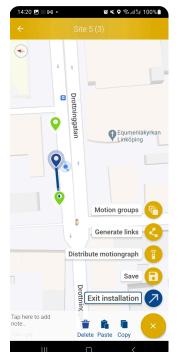
Note that a motion graph is not functioning until it has been distributed to all units.



Generate links for luminaires



Auto links luminaires



Manually link luminaires



Distribute motion graph or save for later



8. Connected systems

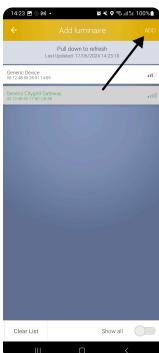
All installation information and data from installing a site will be instantly visible in the Citygrid Dashboard regardless of whether it is a non-connected site (Plug and play or Adapt) or a connected site (Connect).

Connected sites can be configured remotely, the gateway sends data daily and the system has fault detection.

For non connected sites the dashboard's data is static until changes are made on the site in the Citygrid App and no configurations can be made remotely.

Visit the Citygrid Dashboard/LMS at citygrid.dk.





Add gateway

Add gateway

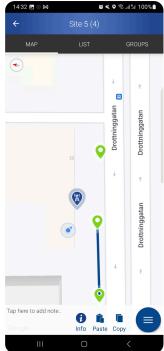
Adding a gateway to a site is identical to adding a luminaire (see section 6. Add luminaires and gateway to site).

Place the gateway near the center of the site to keep the communication distance short. A single gateway is enough for a site with up to 250 luminaires, unless the site has distances exceeding the luminaire range between units, then more gateways can be necessary.

Read the MAC address on the device to identify the gateway from the list during installation.



Place gateway in Installation mode



Select gateway in Settings mode



9. Edit configurations

Go to settings mode (see <u>section 5</u>. <u>The two modes</u>)

Choose between map view or list view in the top menu when editing configurations.







Settings mode

Select the luminaire(s) to be configured. The selected luminaires are highlighted in blue.

Tap the configure icon to access the configuration screen.

Only the luminaires can be configured, not the gateways.



Map view with two luminaires selected

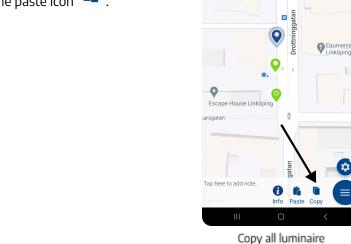


List view in settings mode with two luminaires selected

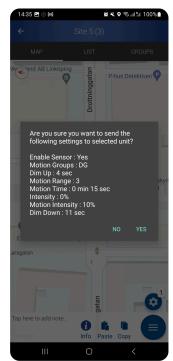


Configurations can be copied from one luminaire to another.

Tap the copy icon when the luminaire with the desired settings are selected, select the receiving luminaire and tap the paste icon .



Copy all luminaire settings



Paste luminaire settings

Select between using predefined settings or manually configure the luminaire(s) in the top menu.

Predefined configurations

The predefined configurations are created by the luminaire manufacturer.

Predefined configurations helps you to quickly set the configurations for both a single luminaire and all luminaires at a site.

Manual configuration

The manual configuration has seven drop down menus; Lamp, Motion settings, Motion Groups, Light Scenes, Dimming Schedule, Installation and Advanced.



Predefined configurations



Manual configuration



Lamp

Set the low intensity of the luminaire (%). This is the light level at a normal/unactivated state. Use the circular slider to set a value and tap SEND in the top right corner to apply the intensity. The notification "Completed" is displayed after applying the light intensity.

The low intensity is typically 15-25 %.

Ask the luminaire to indicate. The luminaire blinks to help you easily identify the location of the luminaire.

Motion settings

Adjust the settings for what the luminaire should do when motion is detected.

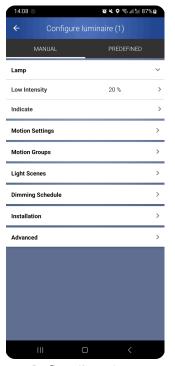
Enable sensor using the toggle.

Set the sensor sensitivity to high or low. Tap SEND in the top right corner to apply sensor sensitivity.

Set the motion intensity - the intensity of the light (%) when the sensor has been activated by detected motion/traffic. Tap SEND in the top right corner in the Citygrid app to apply motion intensity.

The motion intensity is typically 100 %.

Set the motion time - the time span between activation (dim up) and dim down. Scroll to set a value or tap to manually input value. Tap SEND in the top right corner to apply motion time.



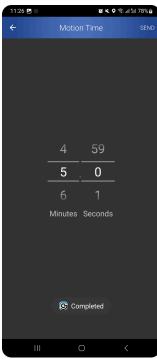
Configurations - Lamp



Lamp - Set intensity



Motion settings - enable sensor



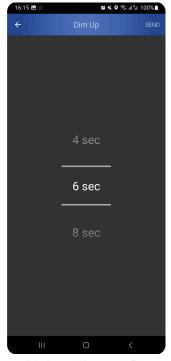
Motion - set motion time



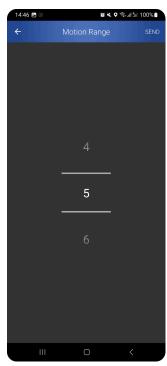
Set dim up time - the time it takes for the lamp to reach motion intensity. Scroll to set a value or tap to manually input value. Tap SEND in the top right corner to apply dim up time.

Set dim down time - the time it takes for the luminaire to dim down after the motion time has passed. Scroll to set a value or tap to manually input value. Tap SEND in the top right corner to apply dim down time.

Set motion range for motion graph - the number of luminaires in any direction (following the motion graph) that will be activated. Scroll to set a value or tap to manually input value. Tap SEND in the top right corner to apply motion range.



Motion setting - set dim up time



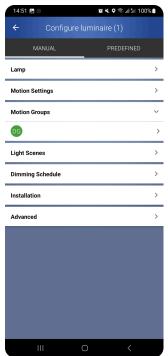
Motion setting - set motion range

Motion groups

The motion groups menu allows you to change motion group settings for the selected luminaires.

Luminaires in a motion group can communicate with each other, but do not necessarily share settings for distance or whether to use or send motion events.

The configuration options for motion groups are explained in <u>section 7</u>
<u>Motion control - Motion groups</u>.



Motion groups



Edit Motion groups



Light Scenes

Some LED luminaires have warm, cold, colored, and/or amber LEDS.

Light Scenes utilizes these to customize the light warmth or color.

Assigning Light Scenes overwrites other light settings, specifically the values set in Lamp and Motion Settings as well as any dimming schedules.

Enable light scenes by tapping the toggle button. If there are Light Scenes assigned, the names of the light scenes are visible in the Light Scenes menu, in this case named "warm" and "cold".

In most cases it is a good idea to make sure the channels correspond to the right color. Go to Configure Channels in the bottom of the menu and tap the color the luminaire is showing one by one.

Create, edit or delete scenes in Scene Management. Existing scenes are shown in the list.

Tap the plus icon in the right bottom corner to **add a new scene** and type in the scene name.

If you instead want to **edit a scene**, select it from the list and tap the pencil icon to edit.

Note that you need to reassign the edited scenes to the luminaire(s).

To delete a scene select one or more scenes and tap the trash icon.



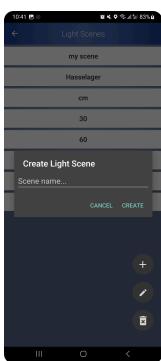




Configure channels



Manage Light Scenes



Create Light Scene



Edit the settings of the created scene. With the luminaire preview box selected, the change of settings will show in real time on the luminaire.

The Intensity slider controls the lumen for warm and cold light. The share of warm and cold light is adjusted right below.

In the middle there is a color wheel controlling the hue setting. The center dot is a representation of the color you get from adjusting hue, saturation and value.

The amber slider adds an amber white to the color mix.

Tap the pencil icon in the top right corner to type in values instead of using the sliders.

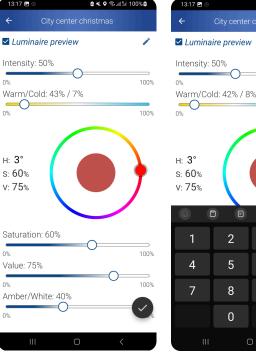
When satisfied with the settings, tap the ok icon in the bottom right corner.

Assign the created Light Scenes to the selected luminaire(s). The luminaires has two scenes or modes: Idle and Motion.

Idle Scenes is used when there is no motion/traffic and is typically a scene with a softer, less bright light.

Motion Scenes is used when a motion/traffic has been detected and is typically a scene with a brighter light.

Assign Idle or Motion Scene to selected luminaire(s) by tapping the scene menu, select a light scene from the dropdown menu and tap ASSIGN SCENE. In this case the name of the selected Idle scene is 'City center christmas' and the Motion scene is 'Cold'.



Edit scene settings with sliders

Edit scene settings by typing in values

1

50%

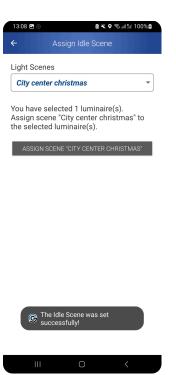
14%

 \otimes

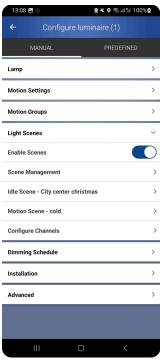
3

6

100%







Assigned Light Scenes



To unassign the idle scene, tap on UNASSIGN 'City center Christmas'.

Dimming Schedule

Select a dimming schedule from the list and tap Assign.

Dimming schedules allow you to have different light settings at different times of the day. An example could be that you have a constantly powered site, so you turn off the lamps during the day when there is sufficient daylight, set the luminaires to a high intensity during commuting hours and dim them down in the quiet hours of the night.

The dimming schedules can only be created in the Citygrid Dashboard.

Dimming schedules are available for connected sites only since a Gateway is needed to provide the correct time for activation.

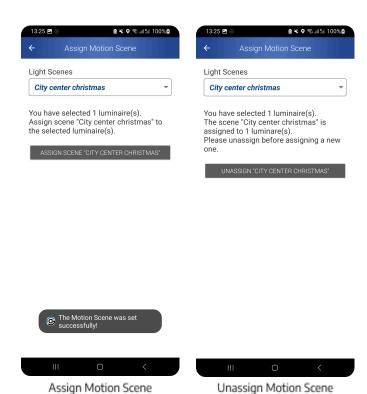
Installation

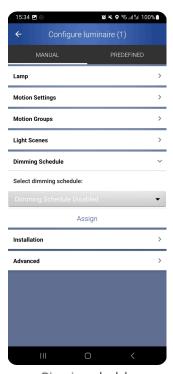
Set the pole height - the height of the luminaire pole. The unit of measurement is meters. Scroll to set a value for the exact pole height and then tap SEND in the top right corner to apply the settings.

Add pictures of the installation.

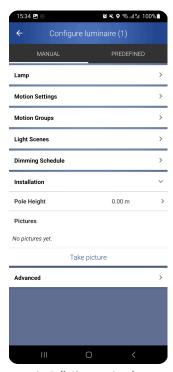
Advanced

Calibrate lamp to get a graph of the intensity (%) vs. power consumption (W). Tap on Calibrate to begin the calibration process. The selected luminaire's intensity increases from 0 to 100% while calibrating.









Installation - set pole height



Check for firmware update (FOTA).

Follow the instructions on screen. The FOTA process takes about 1 hour.

Fetch diagnostics data.

Only to be used when instructed to by Seneco.

10. View luminaire info

View product and statistical information about the luminaire.

In Settings mode, map view, select a luminaire and then the information icon
i.

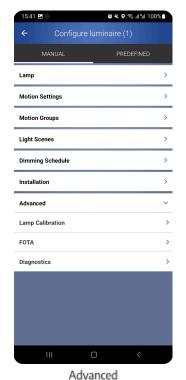
The information screen has six drop down menus; Device information, Measurements, Uptime statistics current power cycle, Uptime statistics last power cycle, Uptime statistics total and D4i Data.

Device information

View manufacturer, model, unit ID, Mac address, firmware version, COM firmware version, hardware version and FOTA.

All luminaires and gateways have a unique unit ID. The unit ID is assigned when the unit is installed and starts from 1.

FOTA is given as a percentage and indicates the progress of an ongoing firmware update.





Lamp Calibration







Info - Device information



Measurements

View the voltage, current, power and power factor. These measurements are only available if the luminaire supports it.

View the control temperature. The control temperature is the current controller temperature.

View average signal quality or test the current signal quality between the dongle and selected controller. To start a test, tap on START TEST. On completion, this will display the minimum, maximum and average RSSI values of the selected controller. You can set the attempts count by tapping 'Change' and type in a value.

Upon test completion, if the RSSI avg is 169 or lower, the signal quality is Critical. RSSI from 170 to 189 is Poor, 190 to 209 is Acceptable, 210 to 229 is Good, and 230 to 255 is Excellent.

View the reachable units under the neighbor list. This can be visualized as a list or on the map in the settings mode.

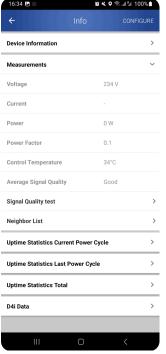
Uptime stat. current power cycle

View the Control On Time. The total time of the current power cycle.

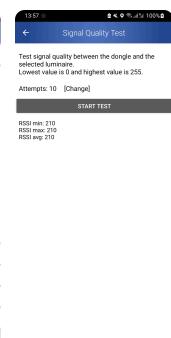
View the number of motions detected during the power cycle.

View the device temperatures (minimum, maximum and average) for the power cycle.

View the power consumption of the unit in kWh.







Signal Quality Test



Uptime stat. current power cycle



Uptime stat. last power cycle



View the number of cycles the luminaire has had.

View number of hours the luminaire has been turned on during the current power cycle.

Uptime stat. last power cycle

The same as the above section, but for the previous power cycle.

Uptime statistical total

The same as the above two sections, but for the total lifetime of the luminaire.

D4i data

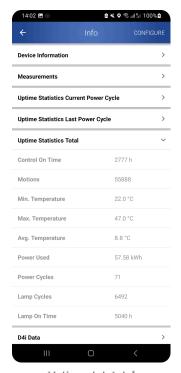
View D4i data.

If the LED driver is D4i compatible and the firmware version on the controller and the dongle is 1.7.0 or newer, the D4i data will be available. D4i is an extension of the DALI-2 standard, a protocol for communication between lighting-control devices.

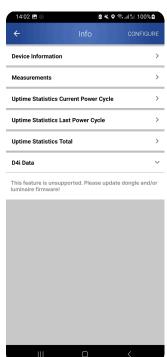
The D4i data is fetched from the luminaire when installing a luminaire to a site. The data are refreshed when opening the info menu in the Citygrid app. The D4i data can be displayed in both the Citygrid app and in the Citygrid Dashboard.

The following D4i data is available:

- Active energy and power (202).
- Apparent energy and power (203).
- Load side energy and power (204).
- Control Gear Diagnostics (205).
- Light Source Diagnostics (206).
- Luminaire maintenance Data (207).
- Luminaire information (1).







Empty D4i menu



Fetching D4i data



D4i sub-menus



11. Additional settings

There are two additional app settings to configure the Luminaire's indicate duration and Indicate type.

Luminaire Indicate Options

Tap on the Menu on the Dongle screen

and **Tap on the Options icon** to change the Indicate Duration and Indicate Type.

Note that the Menu icon is only available on the Dongle screen, to change the indicate settings from any screen in the app, slide from left to right to open the side menu

Indicate Duration

The Indicate duration is the time it takes for a Luminaire to blink when you tap on indicate in the Lamp configurations (See Ask the luminaire to indicate) or select a single luminaire on the map view in the settings mode.

To change the Indicate duration value, move the slider to set the duration.

Indicate Type

The Indicate type is the speed at which a Luminaire blinks, there are four types; Auto, Slow, Fast and Relay.

Tap on the dropdown icon and select the preferred Indicate Type.

It is recommended to use the default Indicate settings (Indicate Duration - 5 seconds, Indicate Type - Auto) to easily locate a luminaire on a Site.



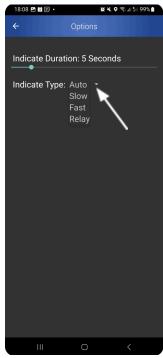
Indicate Options Menu



Indicate Options Settings



Indicate Duration



Indicate Type

12. Troubleshooting

Connection to dongle

Ensure that the dongle is charged and ready for connection via Bluetooth. If the dongle battery is nearly discharged, the LED will flash red instead of blue. Click the dongle once to view the battery status. For more information, see the manual for the dongle.

Download the Citygrid app

At present, there is only a Citygrid app for Android devices (not available for iOS). Download the app from Google Play. Internet connection is required for the app to work correctly.

Activate Bluetooth

Bluetooth must be activated.

Activate GPS

GPS function must be activated.

Problem discovering luminaires

If the app doesn't discover any luminaires, tap the back arrow and then tap again. A new search begins. You can also refresh the list by swiping down. If the luminaire(s) still does not appear in the list, follow the troubleshooting steps as described in the Citygrid Troubleshooting Guide section 7.3. You can find citygrid resources at citygrid.eu/resources.

Programming incorrect

When building the installation and uploading to the system and database, all devices are highlighted in green when programming has been correctly executed. If one or more units are highlighted in red, it means that the RF signal cannot be reliably relayed to the next unit. This may be due to the distance between the units, physical barriers or other problems with information transfer.

When uploading the system, do not take any other actions, such as turning off the programming unit. Wait until the system has finished loading.