

# E-SENSE MOTION

*Configuration manual*



# FAGERHULT

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## Terminology

Android	Operating system for smartphones and tablets. At present, there is only an e-Sense Motion app for Android devices (not available for iOS).
Dongle	Used for linking between smartphones/tablets and luminaires (via Bluetooth).
Link/Autolink	Wireless connection between luminaires. Autolink automatically generates all links; can be edited manually.
On-Pole unit	Unit for connection of luminaires where sensor and control unit are not integrated into the luminaire housing.
PIR sensor	Sensor installed in a luminaire or On-Pole unit; detects moving infrared body heat. Is not affected by objects such as shrubbery or leaves.
Project	Refers to a customer or installation. Factory programmed by Fagerhult.
Site	A project's physical installation, such as a street or area. Chosen on site during installation.
User key	Code for signing in to a project and site; provided by Fagerhult.
Gateway	Unit for connection of luminaire installation to cloud service.

### Icon key

	Automatically create links		Selected luminaire		Luminaire with additional information added.
	Save to database and distribute links		Linked luminaire		Trash/delete
	Save to database		Incorrectly linked luminaire		Locked configuration mode
	Zoom in on the user's position		Last added luminaire		Open configuration mode
	Zoom in on the site's position		Luminaire that is not linked		Gateway
					Gateway with error



# Fagerhult e-Sense Motion

Welcome to the installation procedure for e-Sense Motion.

e-Sense Motion is a wireless system for outdoor lighting control. Pole luminaires have integrated PIR sensors for presence detection and all luminaires are connected via a radio protocol. The system is easily installed using an app.

## The right light at the right place – when needed

e-Sense Motion is an energy efficient control system that is configured for high light levels when people are present and low light levels when there are not. When presence is not detected at a location, the luminaires are automatically dimmed. When presence is detected, the light level for a specified number of luminaires is increased to a predefined level, e.g. 100 %. They remain at this level behind the person or persons moving through the area for a predefined period. With the help of advanced lightning control, a feeling of security is created and with good visual comfort while, at the same time, the solution saves energy.

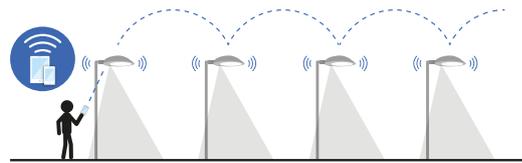
## Easy installation with app

The system is easily programmed using an app and a Bluetooth dongle at the installation site. The system is duplex, which means that all luminaires serve both as masters and slaves and they control and communicate with each other. After initial programming, just connect to one luminaire to reach them all.

Each site is issued a unique identity and password that you enter when connecting. A clear overview of all luminaires allows you to specify how many luminaires should light when someone is present, for how long and at which light level they should be dimmed to. You can use custom settings to match traffic conditions or choose between the predefined lighting scenarios that come with the app.

## Linked Solution

This is the actual platform for e-Sense Motion – the solution for one or more luminaires at bus stops or car parks, for example, all the way up to dozens of luminaires along foot-paths and bicycle paths or neighbourhood streets.



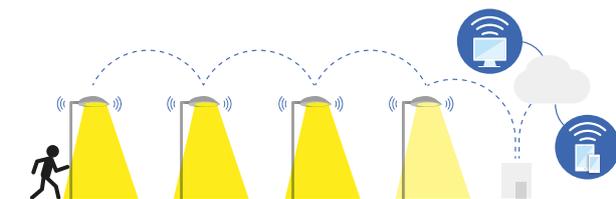
*The PIR sensors detect variations in heat emissions within an angle of 115°. All luminaires serve both as masters and slaves that control and communicate with each other via radio waves.*

Regardless of the area of application, you can program the luminaires via the app to create a sustainable lighting solution. You can change the number of luminaires in the system at any time.

Contact your Fagerhult sales representative for more information.

## Connected Solution

This is a cloud and web-based solution that allows you to remotely control the lighting via a gateway that is connected to the installation.



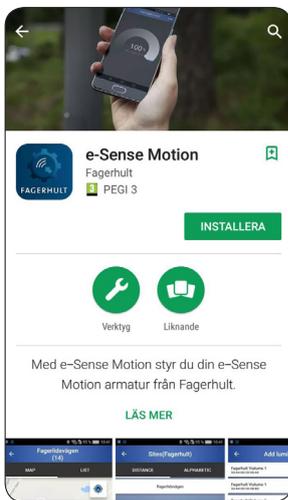
*A connected Gateway makes it possible to monitor the installation remotely via a cloud service from Fagerhult.*

The gateway is usually installed on an electricity distribution cabinet or in the power station. Metal enclosure must not prevent radio communication. The gateway is made for mounting on the outside of the cabinet or on a post.

# Sign in and get started

The **e-Sense Motion** app is downloaded from Google Play. Fagerhult's e-Sense Motion app is only available for Android smartphones and tablets.

A userkey (15 digits) for your project is created by Fagerhult during luminaire production. The security code is sent via email to the person specified in the customer documentation.



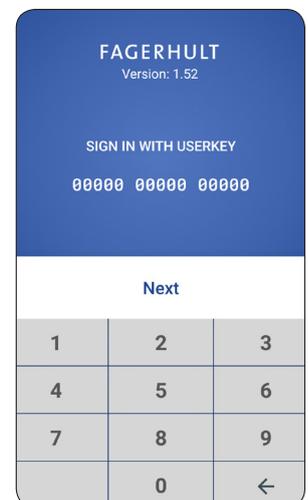
Download the app from Google Play.



Fagerhult is displayed for 3 seconds.



Sign in with your userkey.



Tap Next.

# Connecting to the dongle

To communicate with an e-Sense Motion system, you must use the dongle.

## Turning on the dongle

Press the button for 1 second and the dongle turns on. The LED will have a constant white light followed by a sequence of colours.

*Press the button for 1 second.*

## Ready mode

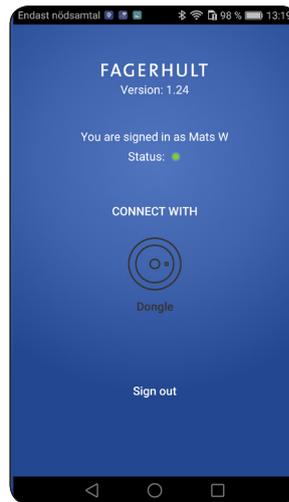
The dongle is ready for connection when the LED is blinking blue.



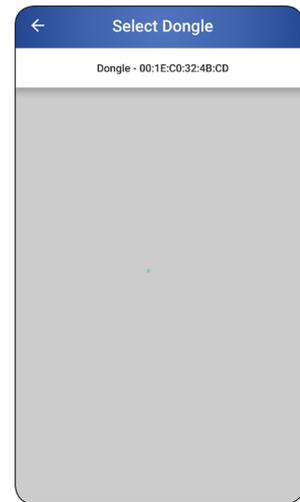
## Connecting to a smartphone or tablet

Once you have signed in with your userkey, tap the dongle icon on the menu, if there is more than one dongle in the vicinity, make sure that the last four characters (BT\_MAC: XX XX) are the same as those on the label on the back of your dongle. Select the dongle on the list.

When your smartphone/tablet and the dongle are connected, the LED on the dongle will go from flashing blue to constant blue. You will be connected to the dongle via Bluetooth after 5-20 seconds.



Connect to the dongle.



Select the dongle on the list.



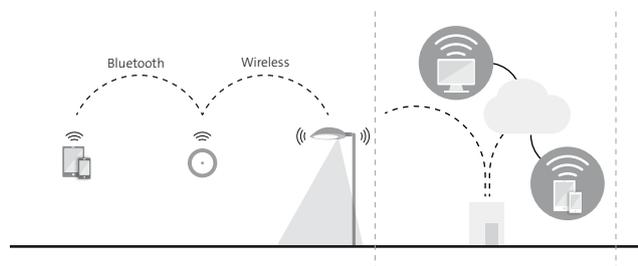
## Range/sensitivity

### Smartphone/tablet and dongle

Keep in mind that the connection between the smartphone/tablet and dongle is with Bluetooth. The range is no more than about 10-20 metres. When programming, always have the dongle nearby to avoid connection issues.

### Dongle and luminaire

The dongle's maximum range of communications is 60 metres. The luminaire being programmed is normally the one you are at.



# Creating a site

The project name is created by Fagerhult during luminaire production. Within a project, you can create a number of different sites. A site can be a road, an area or a car park, for example.

## Create a new site

Tap **(+)** to create a new site in your project. The name must include at least 4 characters.

## Change name/remove site

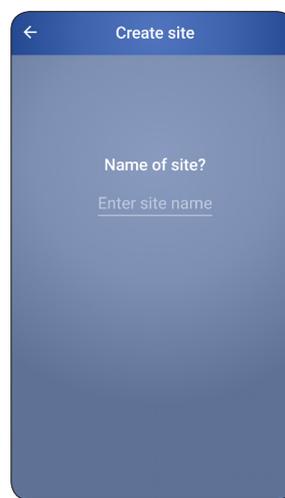
Tap the list row for the specific site at least two seconds until a dialog box with change name/remove site is visible. A site can only be removed if all luminaires are removed.



A list of all projects. Tap a project for which you want to create a new site.



Tap **(+)** to create a new site.



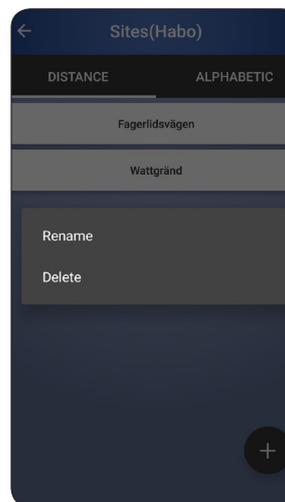
Give the site a name.



Tap Next.

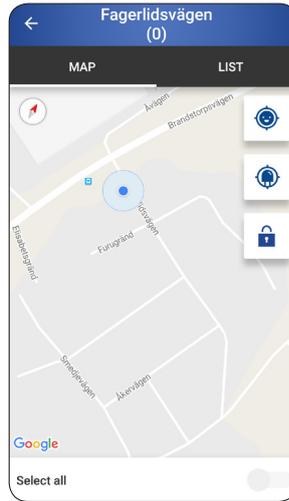


The list of displayed sites can be sorted by distance or alphabetically.

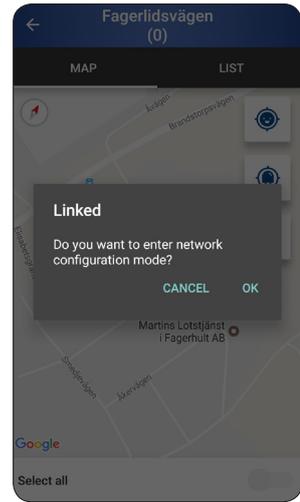


# Configuration mode

To enter configuration mode, where you configure your settings, tap **the padlock** and then **OK**. In configuration mode, you can configure settings for each individual luminaire or for the entire installation.



Your position is shown on the map with a blue dot. The light blue marking indicates positioning accuracy. The smaller the marking, the more precise the positioning.



Tap **OK** to open configuration mode.

# Finding luminaires

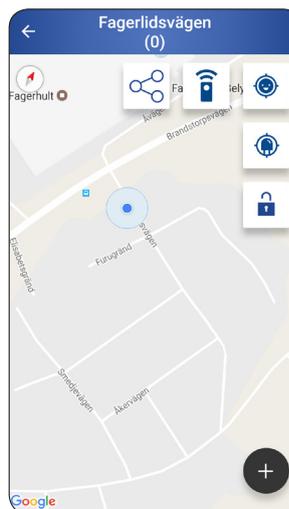
Tap **(+)** to search for luminaires in the area. The dongle conducts a search and the results are presented in a list view.

## Signal strength

The list view provides an indication of signal strength between the dongle and the luminaires the dongle has discovered.

### Levels

- Excellent
- Good
- Acceptable
- Low
- Critical



Tap **(+)**.



A list of luminaires in the vicinity will be displayed, sorted by signal strength. The top luminaire is likely the one you are at.

# Find a Gateway

Adding a Gateway to an installation is no different from adding a luminaire. The gateway becomes visible in the list view, highlighted it can be placed on the map, and later linked to the installation. The icon differs clearly from the luminaire icon.

Unlike luminaires, the Gateway cannot blink. Read the MAC address of the device if you are unsure which device is the right one.

# Adding a luminaire

## Identifying a luminaire

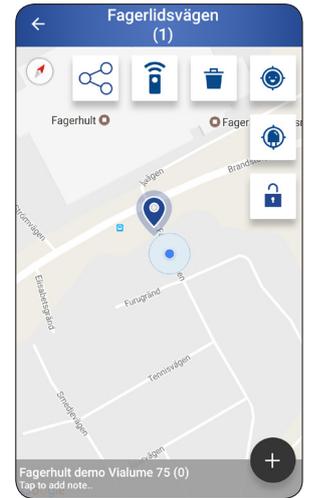
To identify a luminaire, tap the list row for the specific luminaire. The luminaire will flash several times. Always stand nearby or under the luminaire during identification. Once you have identified the correct luminaire, tap **ADD**.

## Adjusting luminaire position

If you need to adjust the luminaire's position, tap and hold the luminaire's position pin for about 2 seconds until it turns blue. Now, without lifting your finger, drag the luminaire to the desired position.



Select a luminaire and tap **ADD**.



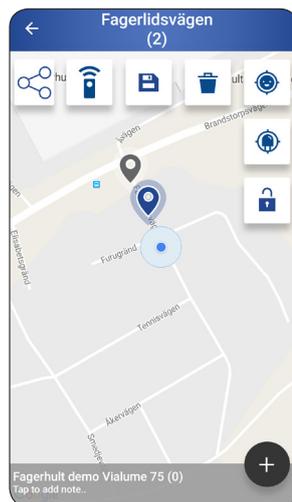
The luminaire is automatically placed on the map with a blue position pin.

# Adding multiple luminaires

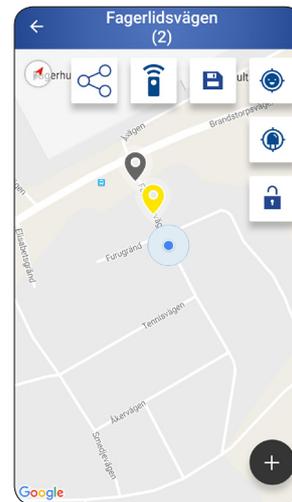
A site consists of several luminaires. Repeat the steps “Finding luminaires” and “Adding a luminaire” until all luminaires have been added.



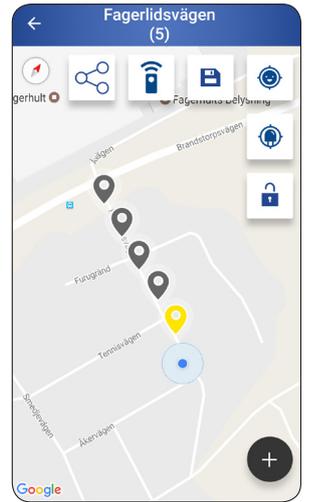
Add multiple luminaires.



The most recently added luminaire is always selected and displayed with a blue position pin.



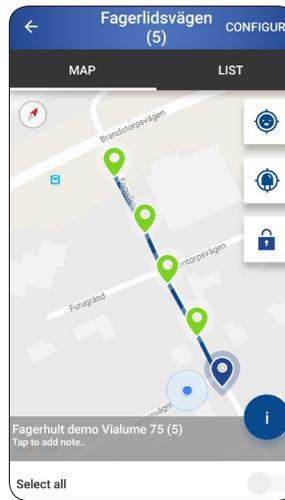
Tap a neutral area on the map to clear luminaire selection. The luminaire will instead be displayed with a yellow position pin.



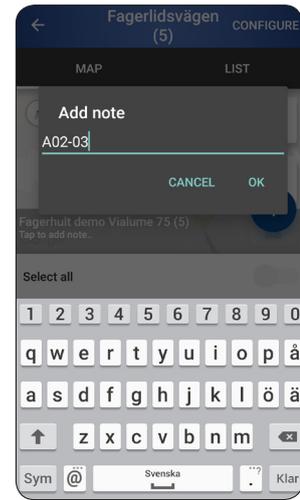
Continue adding your luminaires until all have been added.

# Adding information

Additional information for each luminaire can be saved in the database, including pole and luminaire information. To indicate that information has been saved, the position pin will be filled in. Pole height can be added elsewhere in the app; see page 15.



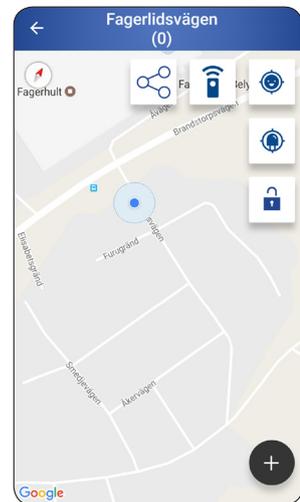
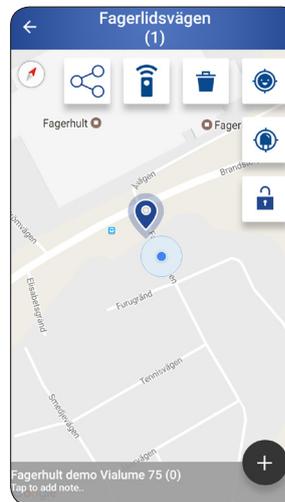
Select a luminaire and tap **Tap to add note** ...



Here you can enter text that specifies, for example, the luminaire's name. Maximum 48 characters.

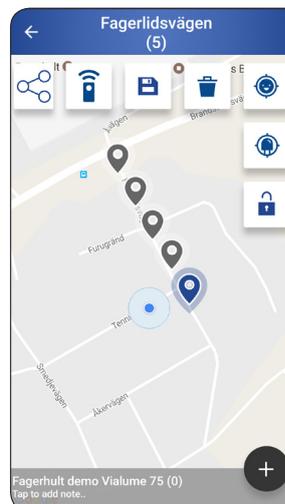
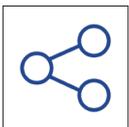
# Removing a luminaire

If you want to remove a luminaire, tap the luminaire to select it and then tap the **Trash** icon or drag the luminaire to the **Trash** icon.

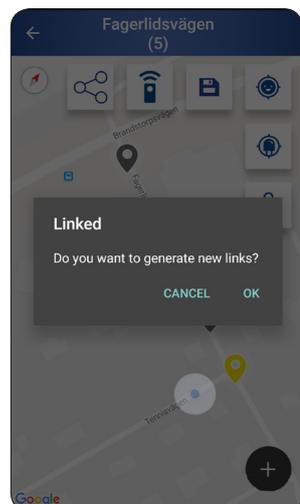


# Automatically create links

Once all the luminaires have been added, you can automatically generate links between all the luminaires by tapping the **LINK** icon followed by **OK**.



Tap the **LINK** icon.



Tap **OK** to create a link between all luminaires.

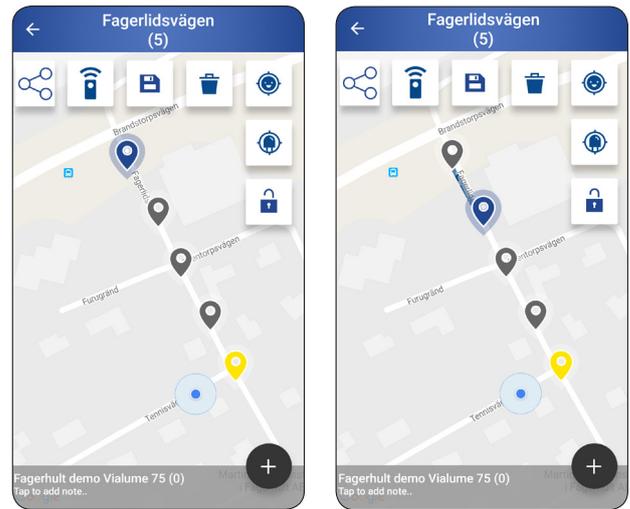
# Adding/Removing a link

## Adding a link

Select a luminaire and then the other luminaire you want to have a link to. A link has now been created between the luminaires. Tap a neutral area on the map to clear luminaire selection.

## Removing a link

Select a luminaire and then the other luminaire in the link.



# Important to keep in mind

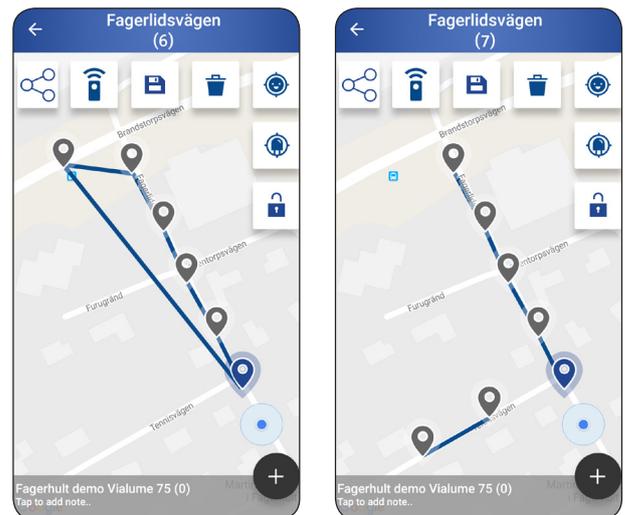
Be careful when you add and remove links. The following examples illustrate incorrect configurations.

## Do not create loops

Avoid creating links that form a continuous loop.

## A missing link,

a configuration where not all luminaires are interconnected will not work. If you do not wish to link these luminaires, the two linking's should instead be programmed as two different sites, i.e. you create and name them with two different names.



*Avoid creating links that form a continuous loop. Here, a link must be removed.*

*A link is missing here between the luminaires; this configuration will not work.*

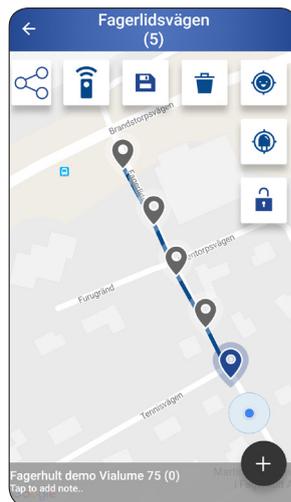
## Saving configurations to database

Because installation of a project can span several days, previously made settings can be saved. If the luminaires are correctly positioned and links are created, a temporary save is made.

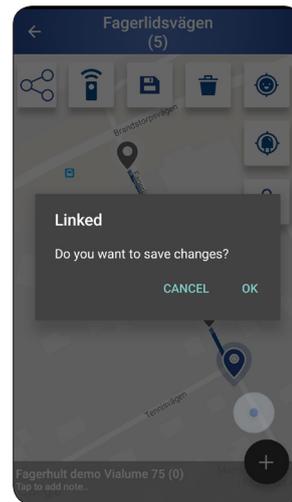
Tap the icon for **Save to database** followed by **OK**. Installation can continue at a later date with no loss of information.



To save all information and distribute the configuration in the system and to the database, follow the information further down on this page.



Tap the **Save to database** icon.



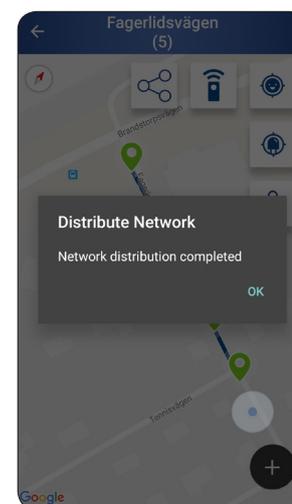
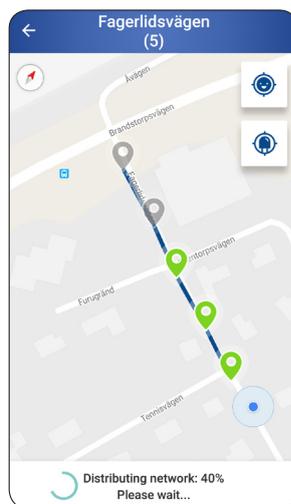
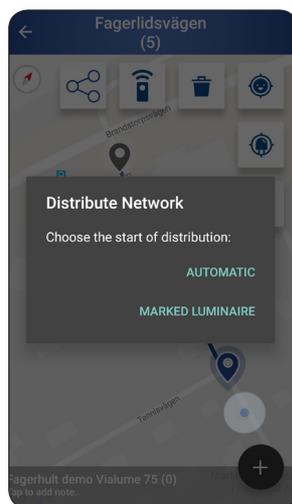
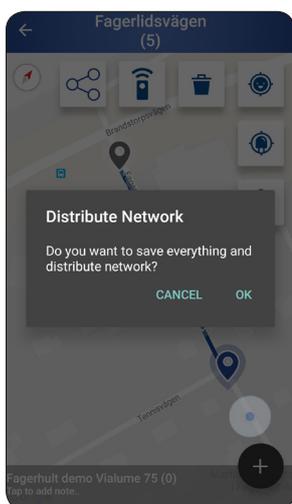
Tap **OK** to save the settings.

## Saving configurations to database and distributing links

Once all luminaires are positioned and interconnected, it is time to save and distribute the linking of your configuration. To do this, tap the **Save to database and distribute links** icon followed by **OK**.

Distribution of all data to the system now begins. How long it takes depends on the size of the installation. You can monitor the update with a view of the luminaire icons turning green and a percentage increase of the saved information being displayed in the lower part of the app

window. Wait until all luminaires in the map view are marked in green. It is important that you do not touch anything while this is underway. It is only now that your settings are saved to the database and it is only now that all luminaires are programmed and receive information about how they are interconnected.



You can start the configuration from the selected luminaire, such as in the middle of the installation, and updating will go faster.

# Connected System

By connecting an installation to a Gateway, you will have access to all information about the facility's status through Fagerhult's cloud service.

## Find a Gateway

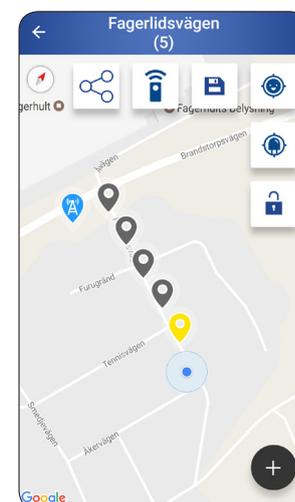
Adding a Gateway to an installation is no different from adding a luminaire. The gateway becomes visible in the list view, highlighted it can be placed on the map, and later linked to the installation. The icon differs clearly from the luminaire icon.

Unlike luminaires, the Gateway cannot blink. Read the MAC address of the device if you are unsure which device is the right one.

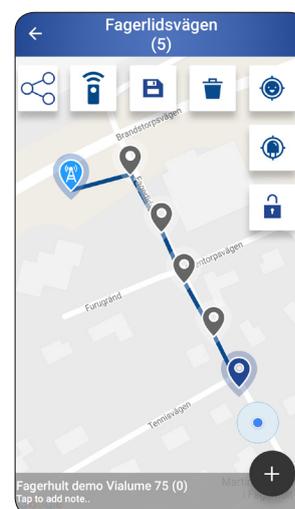
The gateway will be treated equally with luminaires in the final configuration of the facility. Save and configure according to page 11.



A list of nearby luminaires is displayed, arranged for signal strength. The top luminaire is probably the one you are at.



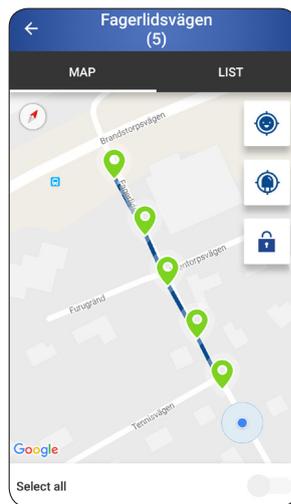
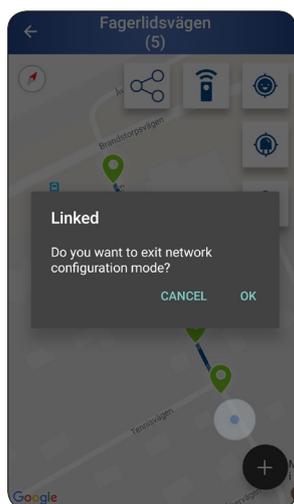
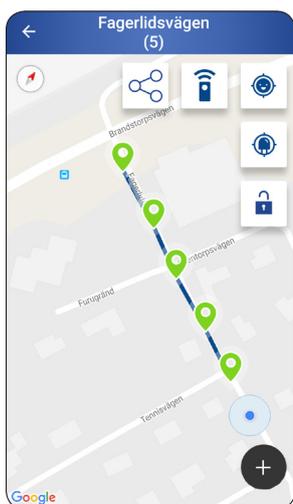
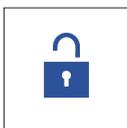
Continue adding your fixtures until all have been added.



Click the Save to Database icon.

# Exit configuration mode

When commissioning/programming of the site is complete, you should exit configuration mode. Tap the **Padlock** followed by **OK**.



You are now finished with your e-Sense Motion installation and the site is ready to be used. You can always connect via the dongle and make adjustments and additions.

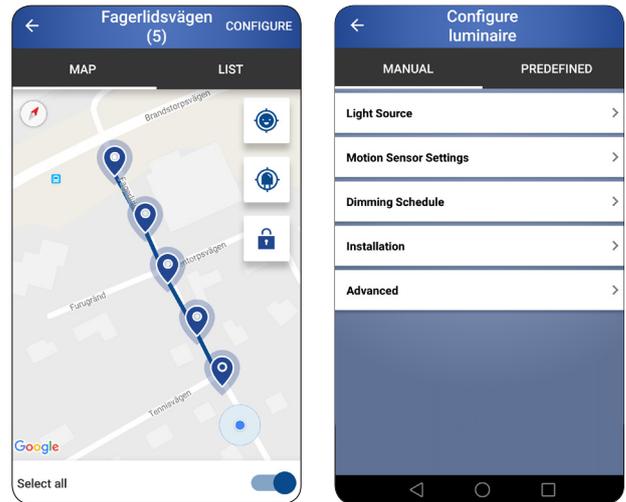
# Configuring luminaires

## Configuring a luminaire

If you want to configure just one luminaire, tap the position pin for the luminaire and then **CONFIGURE**.

## Configuring all luminaires

If you want to configure all of the luminaires for the site, choose **Select all** (displayed at the bottom) and then tap **CONFIGURE**. Note that all values will be displayed as reset.



## Light source

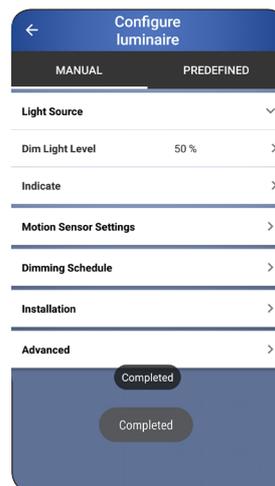
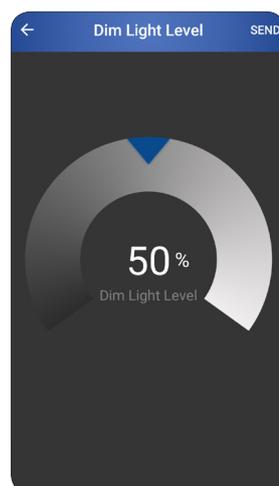
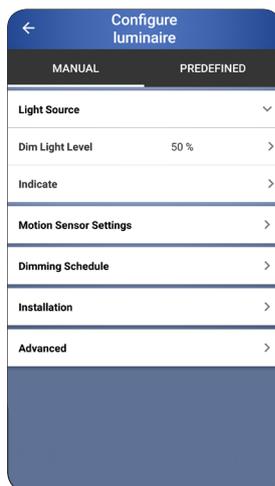
To adjust the settings for what a luminaire should do when presence is not detected, tap **Light Source**.

## Dim Light Level

Tap **Dim Light Level** and set the desired light level by dragging the slider and tapping **SEND**.

## Indicate

If you want the luminaire to flash to make sure you have selected the correct luminaire, tap **Indicate**.



Completed is displayed when the luminaire has flashed.

## Motion Sensor Settings

To adjust the settings for what the luminaire should do when presence is detected, tap **Motion Sensor Settings**.

### Enable Sensor

Activate the sensor by tapping **Enable Sensor**.

### Max Light Level

To set the luminaire's light level for presence detection, tap **Max Light Level**. Set the desired level by dragging the slider and tapping **SEND**.

### Delay Time

To set how long the luminaire should maintain a high light level after presence detection, tap **Delay Time**. Manually enter the preferred time and tap **Done** or scroll to the preferred time and then tap **SEND**.

### Dim Up/Dim Down

To set how quickly the light should go from one mode to another, tap **Dim Up** or **Dim Down**.

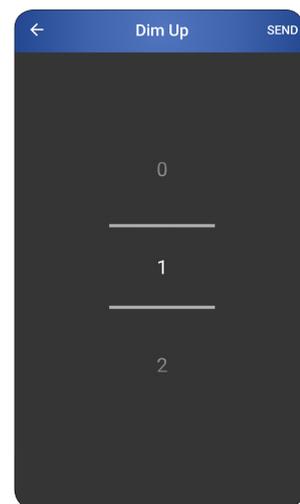
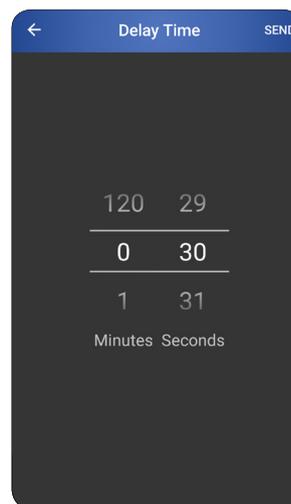
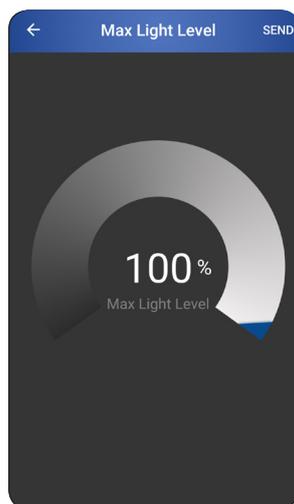
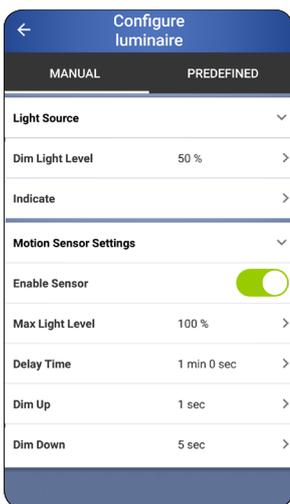
For example: **Dim Light Level** is set at 20 %, **Max Light Level** is set to 100 %.

With a **Dim Up** value of 1 second the system will dim up from 20 % to 100 % in 1 second.

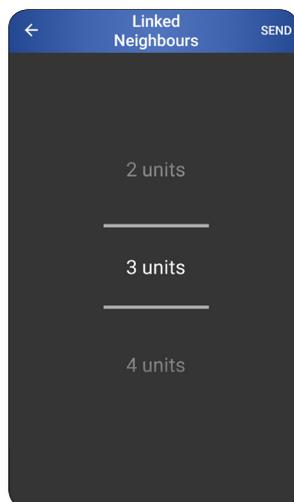
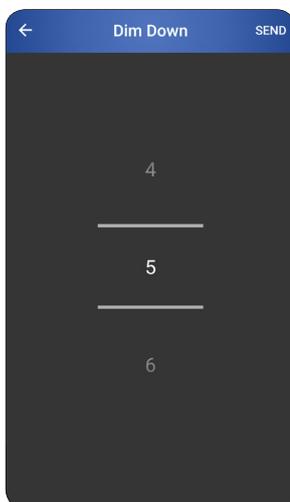
With a **Dim Down** value of 5 seconds the system will dim down from 100 % to 20 % in 5 seconds.

### Linked Neighbours

To set the number of luminaires that will simultaneously be set at high light level upon presence detection, tap **Linked Neighbours**. Select the number of the desired luminaires in one direction. For example: 3 means that three luminaires on both sides of the luminaire that detects presence will react. Manually enter the preferred number and tap **Done** or scroll to the preferred number and then tap **SEND**.



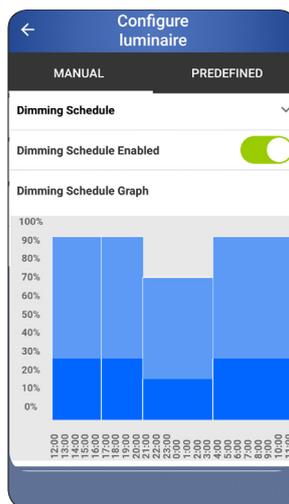
Activate the sensor.



## Dimming schedule

If there is a dimming schedule available for the luminaire, information regarding dimming levels and times will be presented in this view.

There is the possibility to disable the dimming schedule. For dimming schedule settings and to enable the dimming schedule again, use the Light Management System view for the Connected solution.

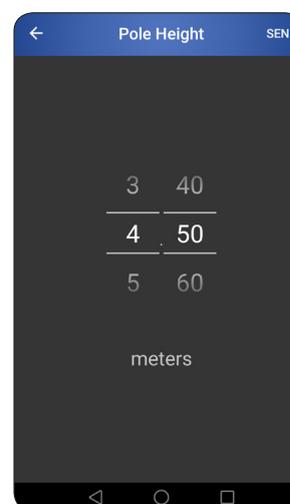
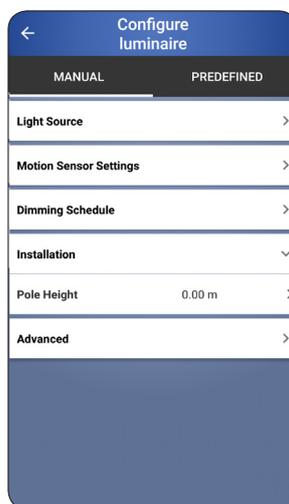


## Installation

To add pole height for gathered information about the installation process, tap **Installation**.

### Pole Height

The unit is in meters. Manually enter the height and tap **Done** or scroll to the right height and then tap **SEND**.



## Advanced

For more Advanced settings and operations click **Advanced**.

### Lamp calibration

Use this functionality to get a new power calibration for the unit. This function is typically used when a part is replaced in the luminaire or when an On-Pole unit is installed.

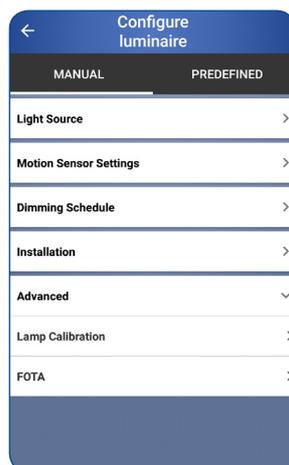
### FOTA

FOTA, Firmware Over The Air, is used when a site shall be updated with a new controller unit firmware. This could be to fix errors or to get access to new features.

Start with the “Check for updates” option to see if there is a need for a firmware upgrade.

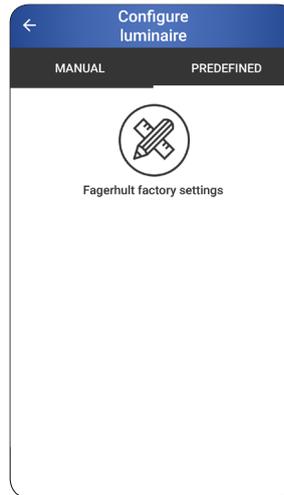
“Status” will show the firmware version status for all of the control units in the site.

“Start” will start the transmission which will take 30-60 minutes and the installer needs to be at the same place all the time. Follow the instructions on the screen.



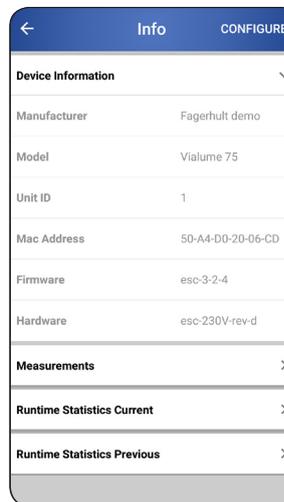
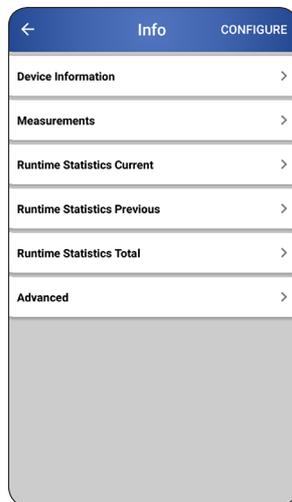
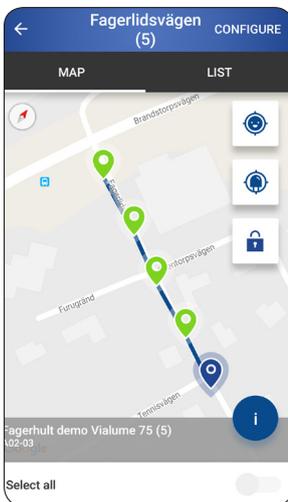
# Configuring luminaires – predefined

Predefined helps you to quickly configure settings for both a single luminaire and all luminaires at a site. With the push of a button, you can get predefined settings for maximum light level, dim level, control times and number of neighbouring luminaires to light upon detection.



# Luminaire information

To obtain information about a luminaire, tap a position pin for a luminaire and then (i).



# 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. Tap the dongle once to view battery status. For more information, see the manual for the dongle.

## Download the e-Sense Motion app

At present, there is only an e-Sense Motion app for Android devices (not available for iOS). Download the app from Google Play.

## Internet connection

For the app to work correctly, a connection to the Internet is required.

## Activate Bluetooth

Bluetooth must be activated.

## Activate GPS

The device's GPS function must be activated.

## Problem discovering luminaires

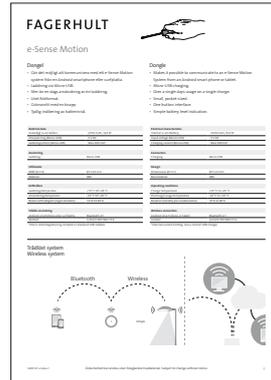
If the app doesn't discover any luminaires, tap the back arrow and then tap (+) again. A new search begins. You can also refresh the list by swiping down.

## Programming incorrect

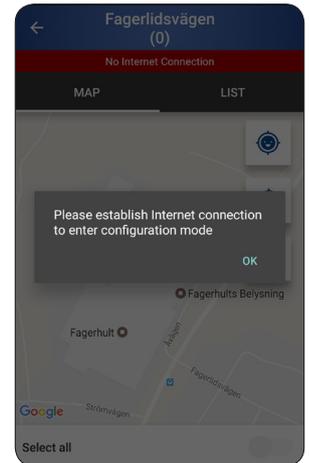
When building the installation and uploading to the system and database, all devices are highlighted in green when programming has been correctly executed. If one or more units are highlighted in red, it means that the RF signal cannot be reliably relayed to the next unit. This may be due to the distance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

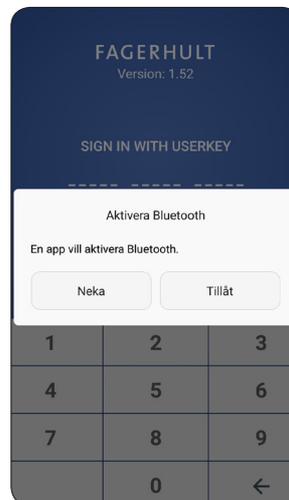
Contact Fagerhult for further information and troubleshooting.



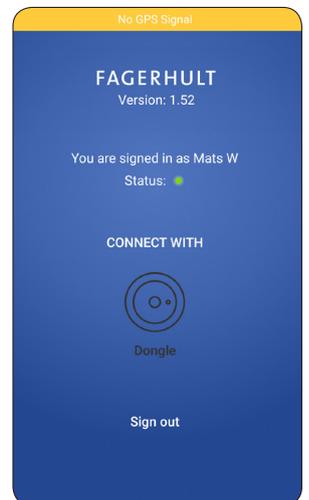
Dongle manual.



Connection to Internet.



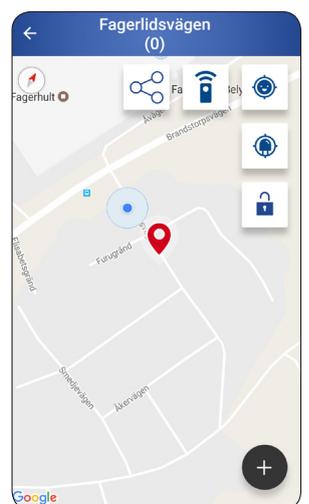
Activate Bluetooth.



Activate GPS.



Problem discovering luminaires.



Luminaire that is difficult to communicate with is displayed with a red position pin.