

# Minimizing Light-

# emissions

Guideline to Efficiency



Traffic lights have turned green for a new generation of street lighting. Innovative, energy efficient and guiding towards a new direction.

Light. when needed. As much as needed.



# Smart. Sustainable. Efficient.

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# Smart Street Lighting

Traffic lights are green - for sustainable street lighting

Light emissions, electricity shortages as well as climate change and climate protection are topics of concern across all age groups. When it comes to lighting, sustainable concepts, future-proof lighting management systems and individual, digital and automated solutions are becoming increasingly important.

By controlling LED luminaires on demand, energy consumption and thus running costs can be significantly reduced without sacrificing comfort and safety. Meanwhile increasing the service life of the luminaire, as well as significantly reducing unnecessary light emissions.

With esave's intelligent solutions, street lighting can be controlled either volume-based or on demand.

esave revolutionizes street lighting

- 1 Stand alone lighting control**  
Self-sufficient, intelligent light management system for on demand control. Lighting can be configured on site.
- 2 Intelligent lighting control**  
Intelligent light management system based on real-time data from sensors.
  - Light upon motion detection
  - Volume-based lightingConfiguration and data export can be done remotely.
- 3 Replacement ring control**  
Smart replacement solution for ring controls

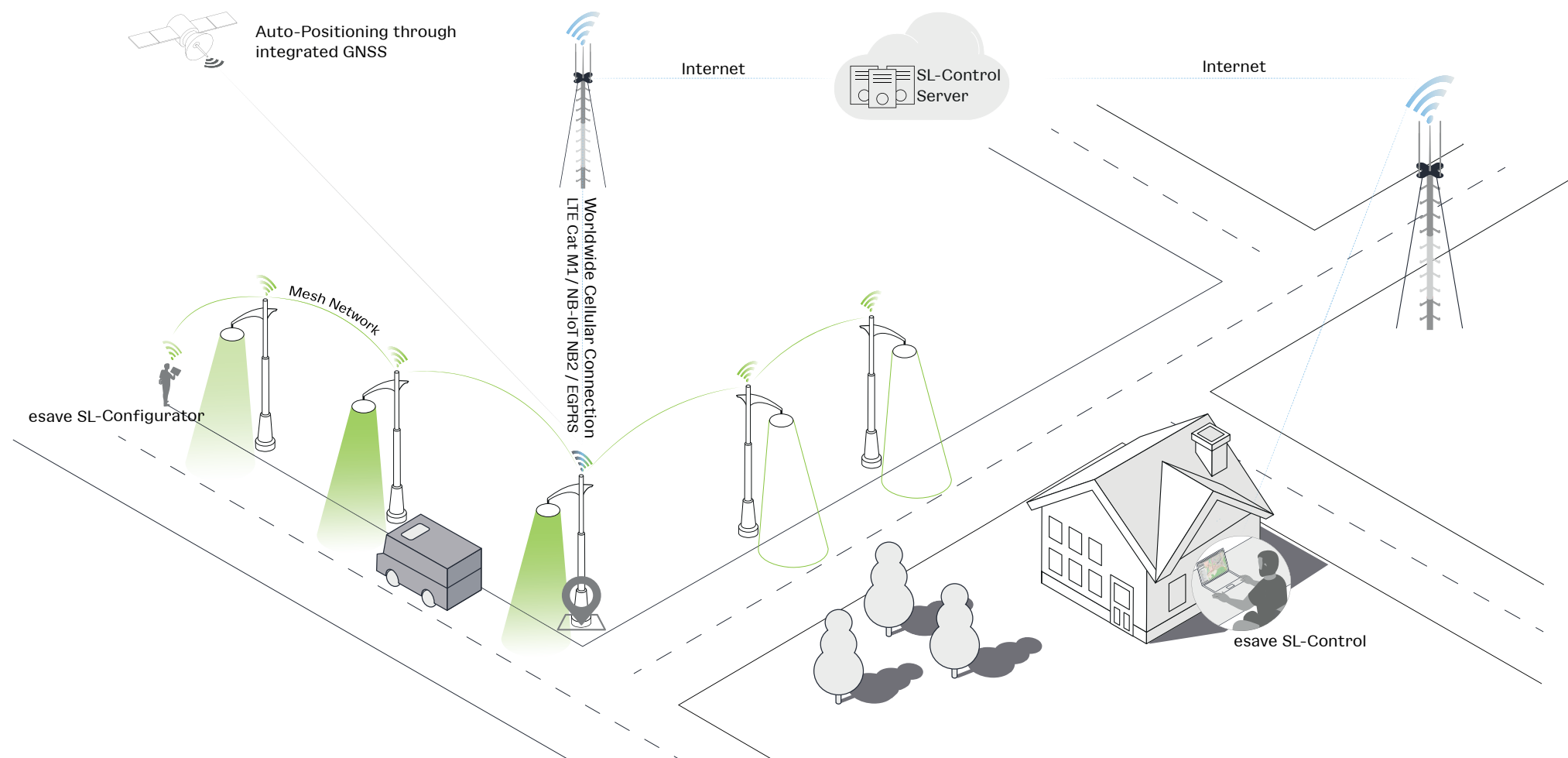
# Stand Alone Lighting Control

## Stand alone smart lighting control

- + One-off purchase cost for a SLC-USB stick including software license
- + Updates at no additional cost
- + Configuration stored directly in the light

As soon as electricity is supplied to lights equipped with an esave controller i.e. SLC-Hub203, an automatic wireless mesh network is established. The installation can be accessed configured, controlled and monitored on site, using a laptop or tablet in conjunction with a SLC-USB-Stick.

The user-friendly and intuitive interface of the SL-Configurator software is most supportive with the above



# Smart Lighting Control

## Cloud-based, smart street lighting

- + Export current luminaire data
- + Evaluation of traffic data
- + Export energy consumption
- + Real-time monitoring and real-time maintenance
- + System remote management and monitoring

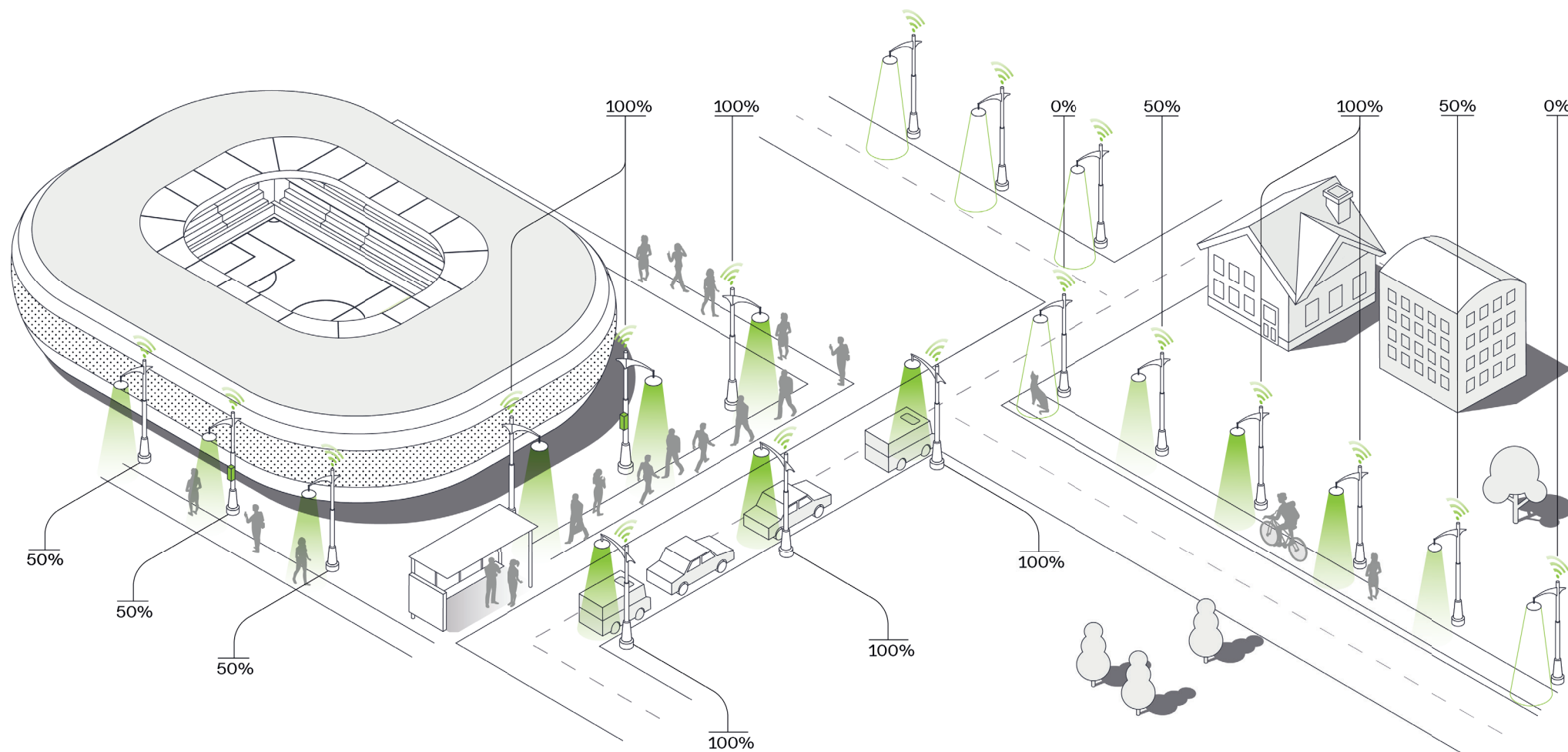
Thanks to the integrated eSIM and gateway function, an SLC-Hub203-C can establish a connection to the SL-Control web platform while maintaining a network with all other esave equipped lights within reach e.g. SLC-Hub203. The user friendly and intuitive SL-Control web platform allows remote configuration, control and monitoring of any esave lighting system. It also offers unique functions for detailed visualizations, analysis of data and display of measurement results.



# Volume based Lighting Control

Intelligently implementing  
the perception of our  
environment

esave's volume-based control makes your lighting system smart. By integrating sensors that analyze traffic density, your system develops into a traffic-dependent lighting system. This allows the brightness of the street lighting to be adjusted as required. In this way, valuable energy can be saved and unnecessary light emissions can be reduced. This without sacrificing safety for pedestrians or traffic participants.



# Light on Demand

Light - when needed,  
as much as need,  
where needed

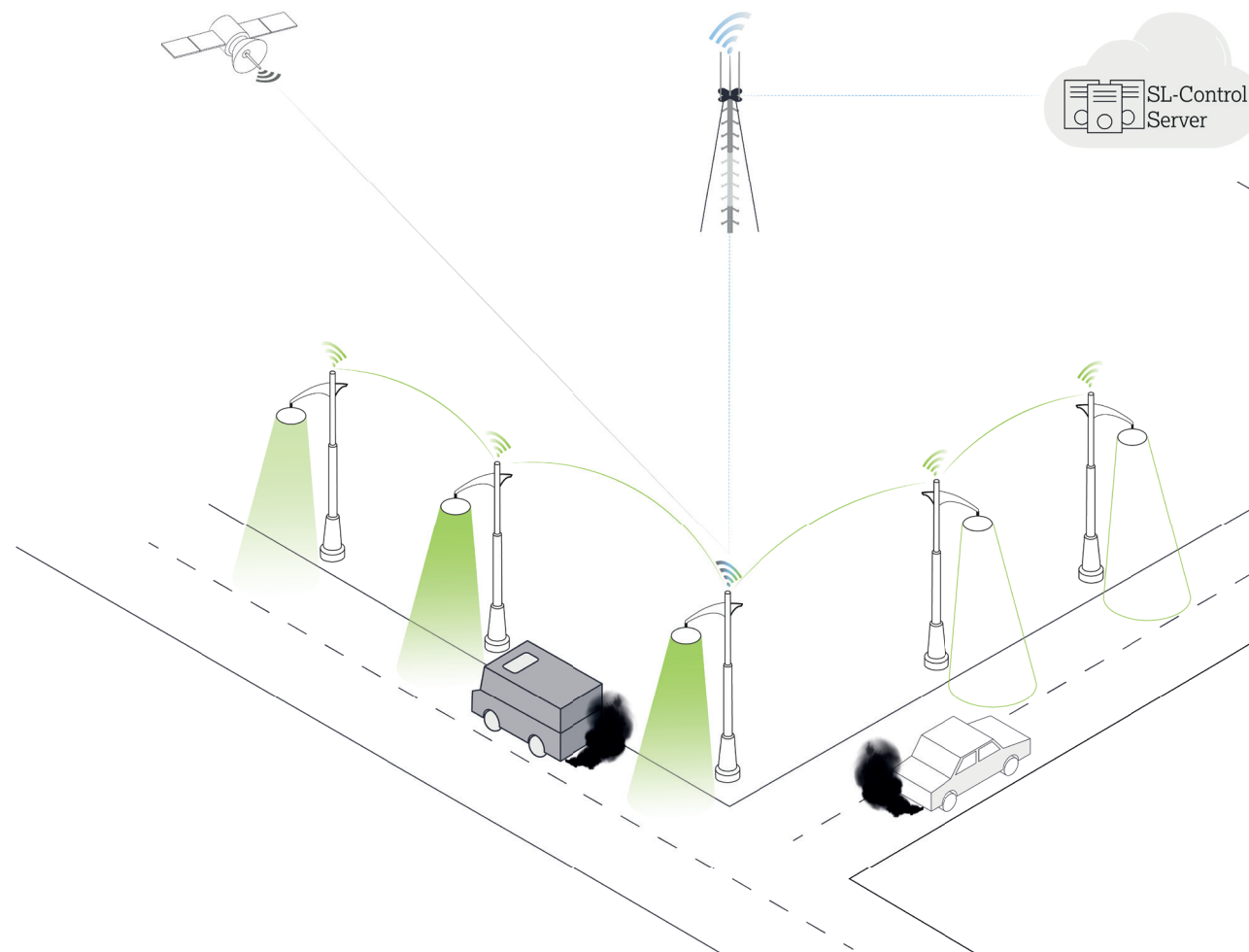
Light on demand can be provided with ease by equipping each street light with a motion sensor which reacts to traffic participants. As soon as movement is detected, the luminaires light intensity increases automatically. After a set time, the luminaires then dim back to the pre-set idle value.



# Environmentally conscious lighting

## Light management and air quality monitoring

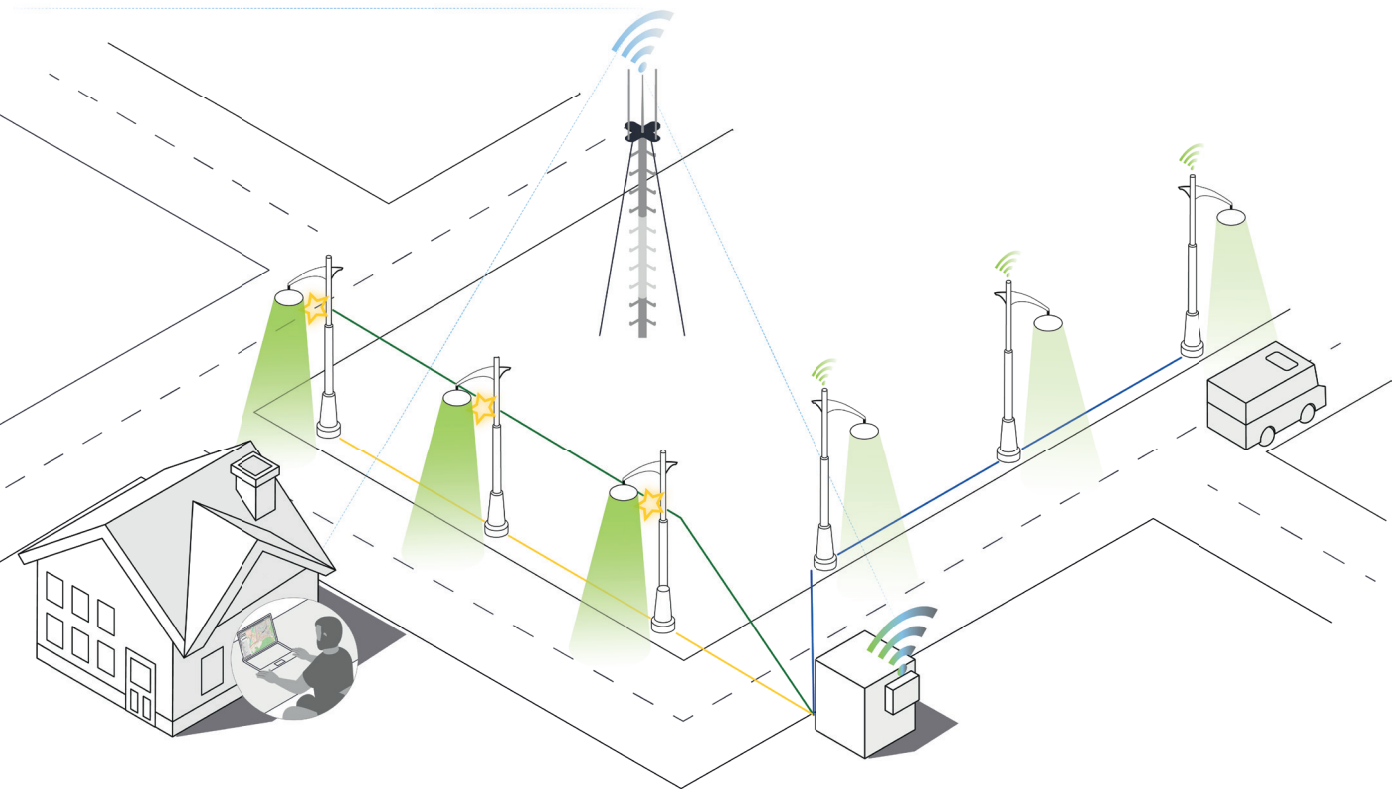
The combination of the SLC-Enviro203-C with a particulate matter sensor opens up the possibility of measuring air quality. This integrated feature extends the functionality of the SLC-Enviro203-C by providing comprehensive monitoring and improvement of the environmental conditions within a City.



# Ring Control Replacement

## Revolutionized Ring control

With its three built-in relays, the SLC-RC Switch can replace a ring control. An integrated eSIM card enables the connection to the esave SL-Control web platform, where various parameters can be synchronized and processed in real time. The SLC-RC Switch can be mounted on a DIN rail in place of a ring control within a control cabinet.







# Office and Building

## Smart lighting control

An esave „smart lighting solution“ can integrate lighting into a central control system. That way, office lighting can be optimally controlled according to daylight, movement and individual needs.

## Savings

The smart lighting system turns lighting on or off at set times. Depending on the amount of daylight, lighting can adapt and then shine brighter or less bright. It switches off automatically when a room is not occupied. As a result, energy costs can be saved by up to 90%.

## Wellbeing and productivity

It is a scientifically known fact that environmental influences affect people's mood and productivity. Equipped with environmental sensors, any office facility can easily become a modern space with a focus on employee well-being.

Use of appropriate lighting - neither blindingly bright nor too dark creates a pleasant atmosphere.

Use of poor lighting, such as yellow or orange light from conventional lamps, can lead to eye strain, blurred vision and headaches. Bright, glare-free LED lighting, in turn, can improve concentration. Which results in fewer errors

### 1 Choice of light color

Simple factors such as light colors have a significant impact on brain activity and on mental and physical energy. With colored light, this can be stimulated in a targeted manner and lead to an increase in energy and relaxation.

### 2 Humidity

CO<sub>2</sub>, humidity and temperature sensors measure the air quality in the room. This either can be displayed to your employees or a signal directly being sent to an associated ventilation system, which can make adjustments to the air in the building in real time.



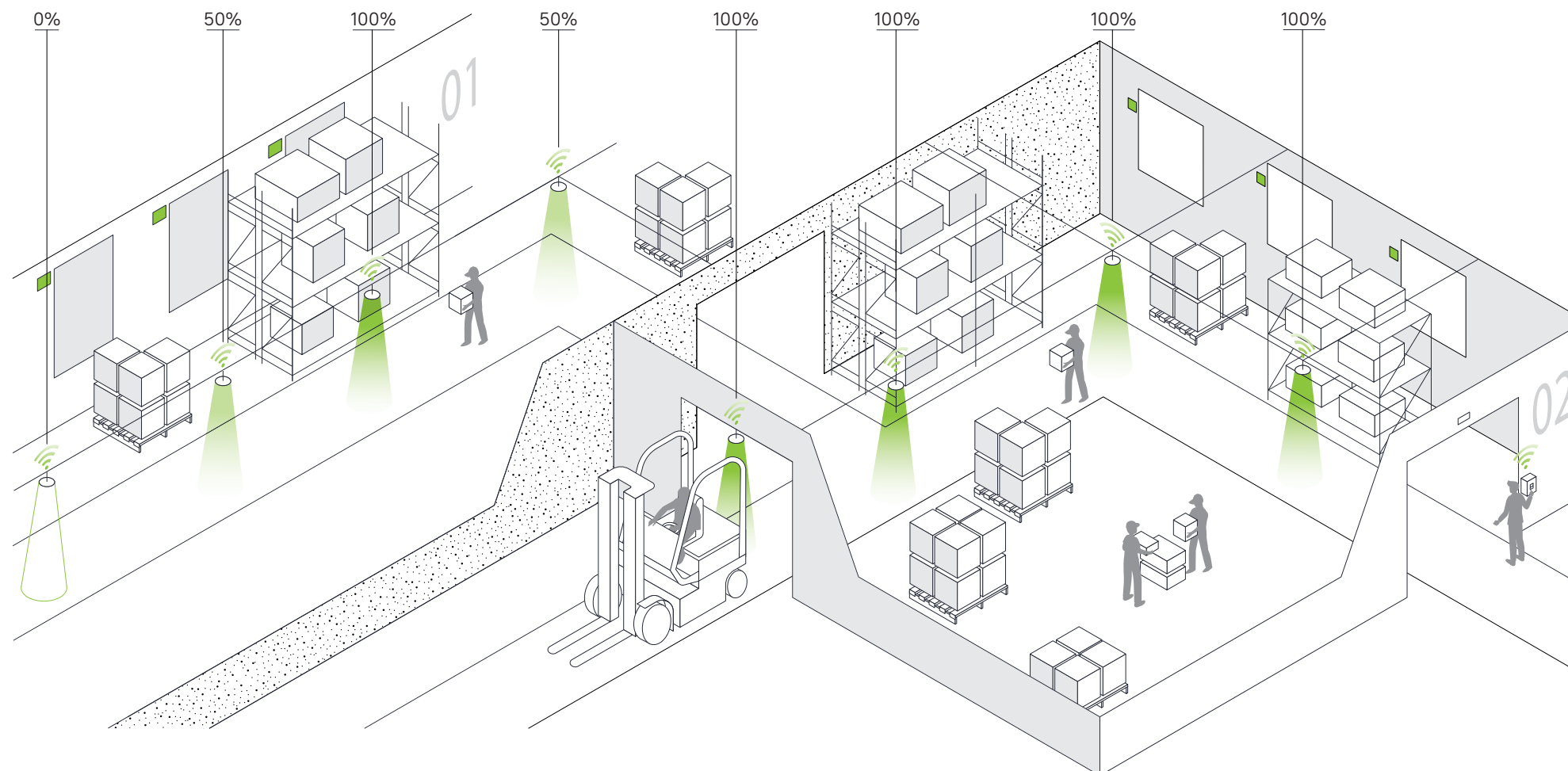
# Path to the IoT Building

## Adapting the amount of lighting to the needs of office buildings

Good lighting is much more than just illuminating streets or rooms. With motion sensor equipped luminaires, lighting is always one step ahead. Which results in significantly lower energy cost. Brightness or motion sensors ensure an optimal amount of lighting in office buildings. Thanks to the esave controllers, the luminaires can be grouped, configured, controlled and monitored.

## Higher-level light switch

A button or switch can be defined as a higher-level switching point. It can be used to control a group of luminaires in a room. That way, the programmed configuration can be overridden manually, any time.





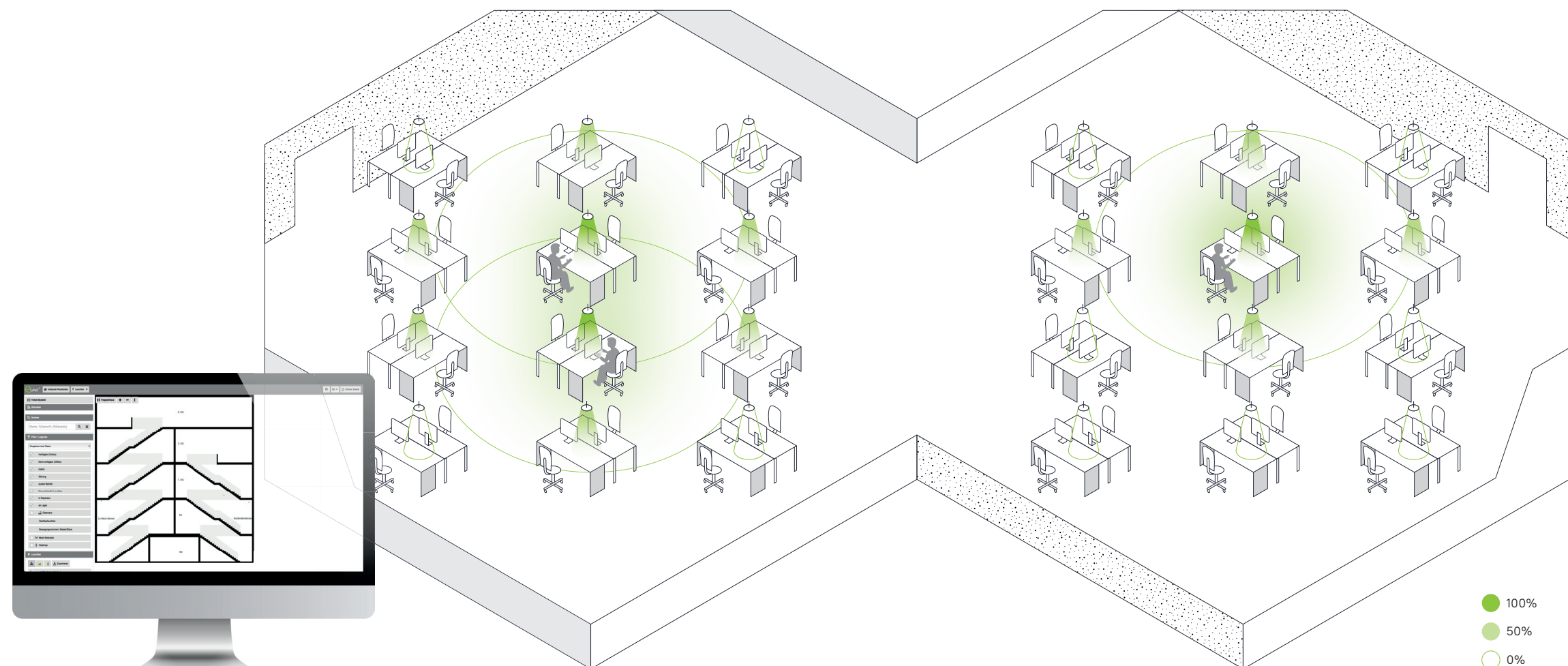
# Swarm Intelligence

## Smart lighting for smart spaces

Real-time and historical analyses provide data about the use of space. This creates the opportunity to optimize space and save energy cost. In the event of a fire, it allows to check which rooms people are in. The IoT-enabled, interconnected lighting system opens up new perspectives. Your office space will become intelligent and thus becomes a smart office.

## Intelligent lighting for efficient use of space

With swarm control, luminaires are transformed into an intelligent lighting system. This technology offers particular advantages in the areas of energy efficiency, lighting comfort and flexibility. Luminaires can be adapted to the amount of daylight, the number of people in a room or the time of day.





# Public Lighting

## Efficiency, Safety & Comfort

Smart LED lighting ensures safety and well-being. Esave offers a wide range of lighting solutions. In order to reduce energy consumption to the absolute minimum while comfort and safety are increased.

## IoT-Ready Solutions

„Internet of Things“ (IoT) allows collection and evaluation of data from nodes. The information and data generated by the system provides increased operational efficiency and reduced energy consumption. For example, ventilation can be switched on in the event of increased particulate matter pollution, the humidity in multi-storey car parks can be monitored and maintained at a desired level. Or in the event of an incident, an emergency signalization can be controlled.





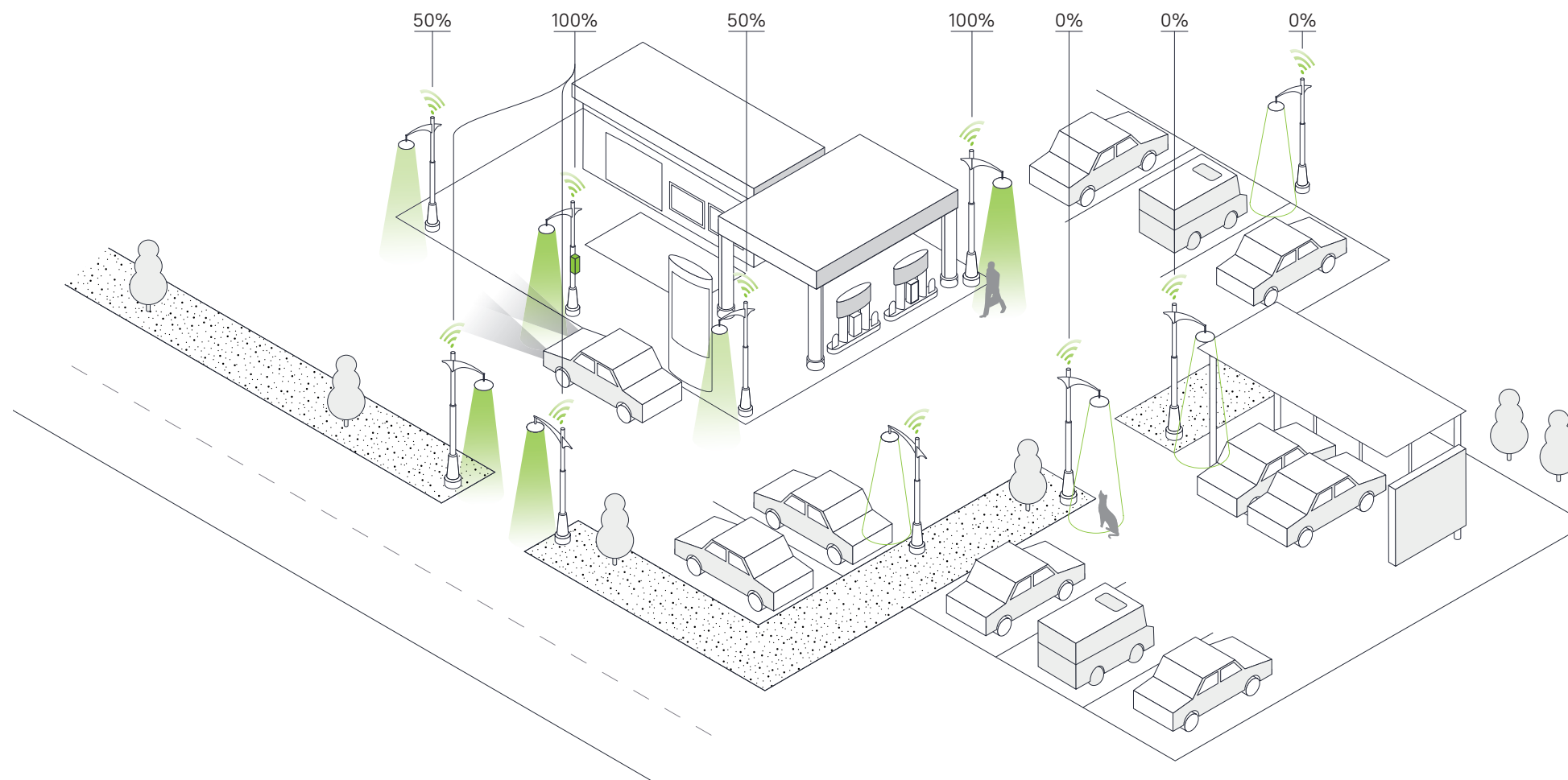
# Light on Demand

## Convenience and savings

Motion sensors report presence to the controller. When inactive, lighting is dimmed to the desired lighting intensity. Depending on daylight or weather conditions, lighting intensities can be programmed. Therefore, brightness can be kept constant throughout the day. This depends on the natural light conditions.

## Special Situations

Automatically switching on or increasing the brightness of lighting in a car park, underpass or bus stop as soon as there are people in the area. Illumination of monuments, sacred buildings or at special events, lighting can be programmed accordingly and thus a special atmosphere can be created.



# Zhaga Controller

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## SLC-Hub203 with or without Cellular

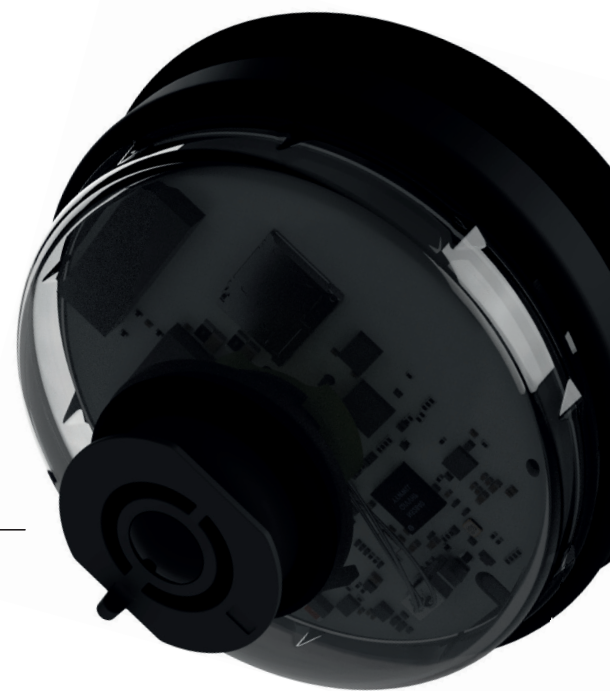
The SLC-Hub203 is a smart, flexible and cost-effective controller, available with an optional eSIM card. Installation is done by plug and play. Thanks to the optionally integrated eSIM and gateway function, an SLC-Hub203-C can establish a connection to the SL-Control web platform while maintaining a network with all other esave equipped lights within reach e.g. SLC-Hub203.

The user friendly and intuitive SL-Control web platform allows remote configuration, control and monitoring of any esave lighting system.



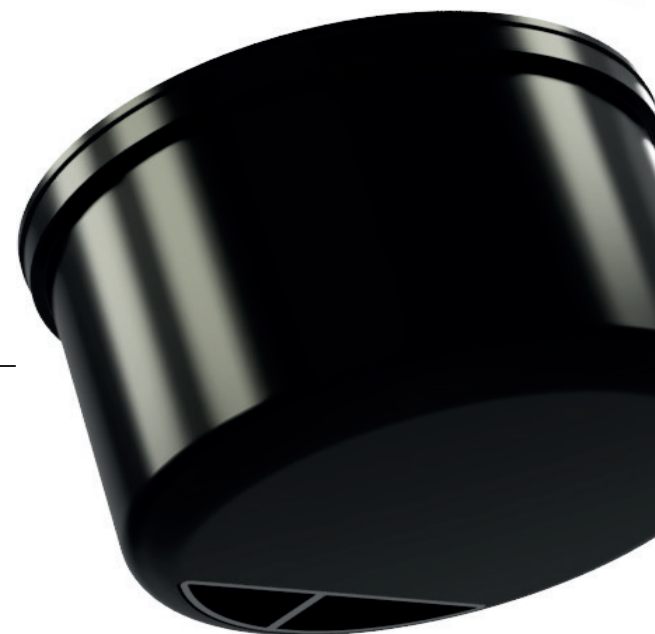
## SLC-Motion203 with or without Cellular

The SLC-Motion203 facilitates the implementation of smart lighting solutions. It consists of the SLC-Hub with a PIR-Zhaga sensor. It combines the smart, flexible and cost-effective controller with a motion sensor. Like the SLC-Hub, it can be ordered with or without an eSIM card as well as used as a gateway.



## SLC-Enviro203-C (Cellular)

The SLC-Enviro203-C is based on the SLC-Hub203-C. Thanks to its integrated eSIM card, it can be used as a gateway. In addition, it measures important air quality parameters, displays the status of the luminaire and offers efficient energy tracking.

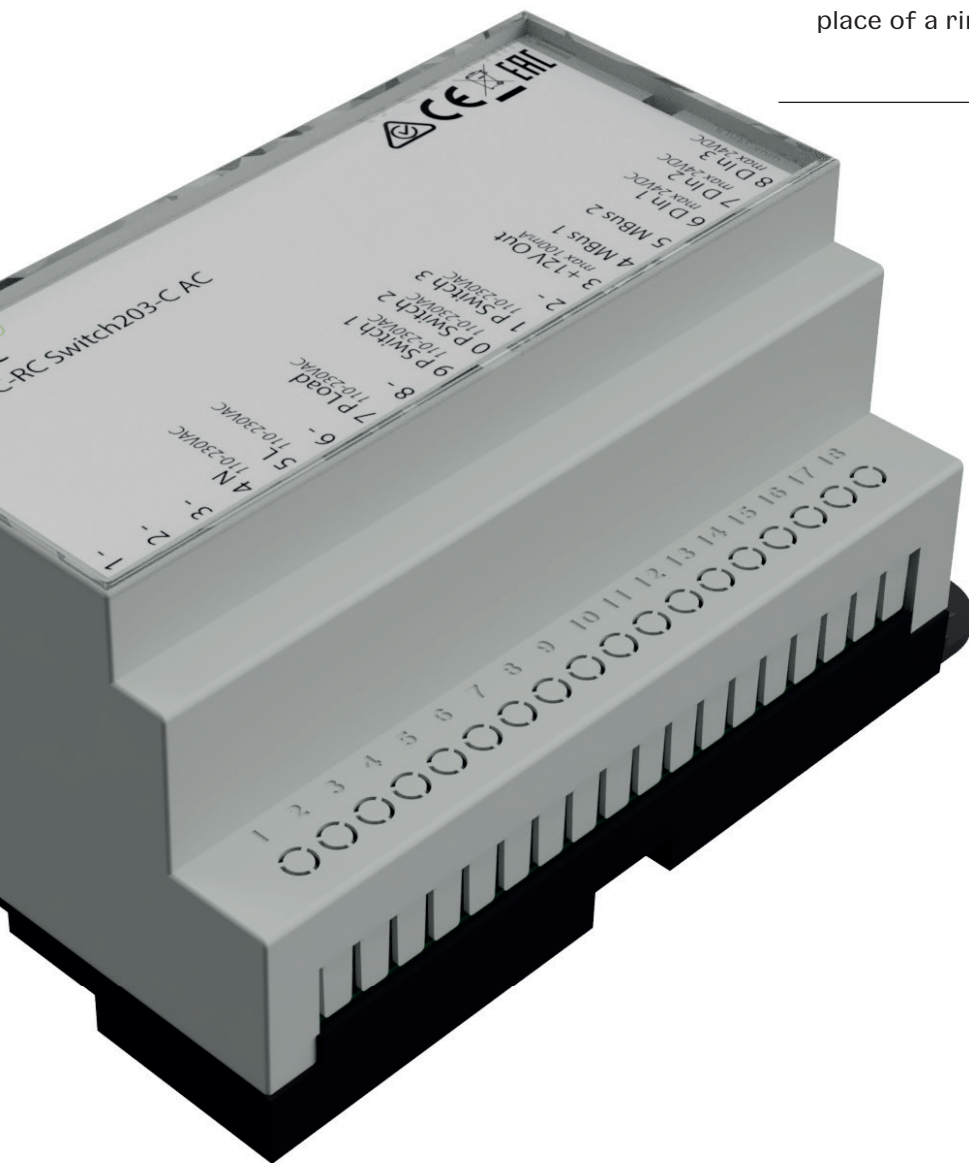




# Ring Controller

## SLC-RC Switch 203-C (Cellular)

Switching several lights on and off at once in order to replace a ring control. Made possible with the SLC-RC Switch. The SLC-RC switch can synchronize current parameters, such as ambient brightness, by integrated cellular connection via the esave SL-Control application. The SLC-RC switch can control the three built-in relays as required. In addition, the cloud allows the user to configure and control the device remotely. The SLC-RC Switch can be mounted on a DIN rail in place of a ring control within a control cabinet.



# Integrated Controller

The esave street lighting controllers can be operated with any light source and common driver. This reduces energy consumption and maintenance costs to an absolute minimum.

## SLC-CORE 100 / SLC-CORE 103

The SLC core can be integrated into customer-specific electronics. This means that luminaires can be controlled individually. The SLC-Core opens up new possibilities for your hardware. Thanks to the integrated mesh network, various lighting control functions are possible. The SLC-Core thus makes your luminaire or sensor intelligent.



## SLC-AC and DC

The SLC-AC and SLC-DC controllers are compact devices that can be installed in any LED luminaire. These work with all well-known electronic drivers (electronic ballasts). These controllers can be easily combined with a wide range of external devices and sensors, making them an ideal basis for numerous smart city applications.



# Motion Sensors

Light when needed, as much as needed

Smart street lighting automatically adjusts lighting intensity of the luminaires to its needs. Depending on the location, various sensors are used. As a result, in addition to energy savings, undesirable light emissions can also be reduced.

## PIR-sensor

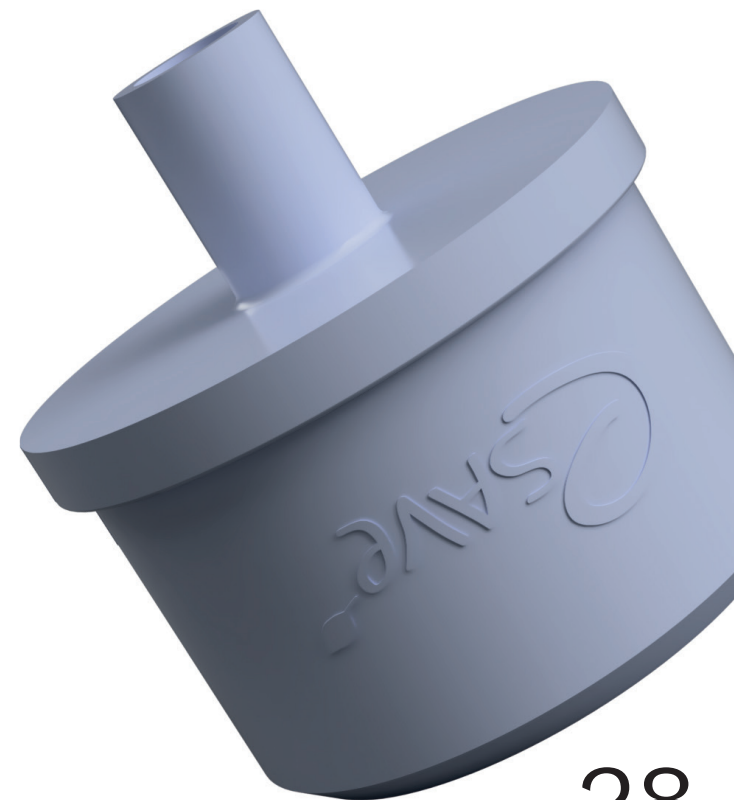
A PIR motion sensor is based on passive infrared technology. As soon as an object has a temperature difference of at least 4°C to the ambient temperature, the sensor reacts.

## PIR ZHAGA-Sensor

The PIR-Zhaga motion sensor is utilised in combination with an SLC-Hub which enables connection to the SL-Control web platform. This allows remote configuration and control. Due to the PIR-Zhaga sensor not being D4i ready, pin 4 on the Zhaga socket is required to be inter connected.

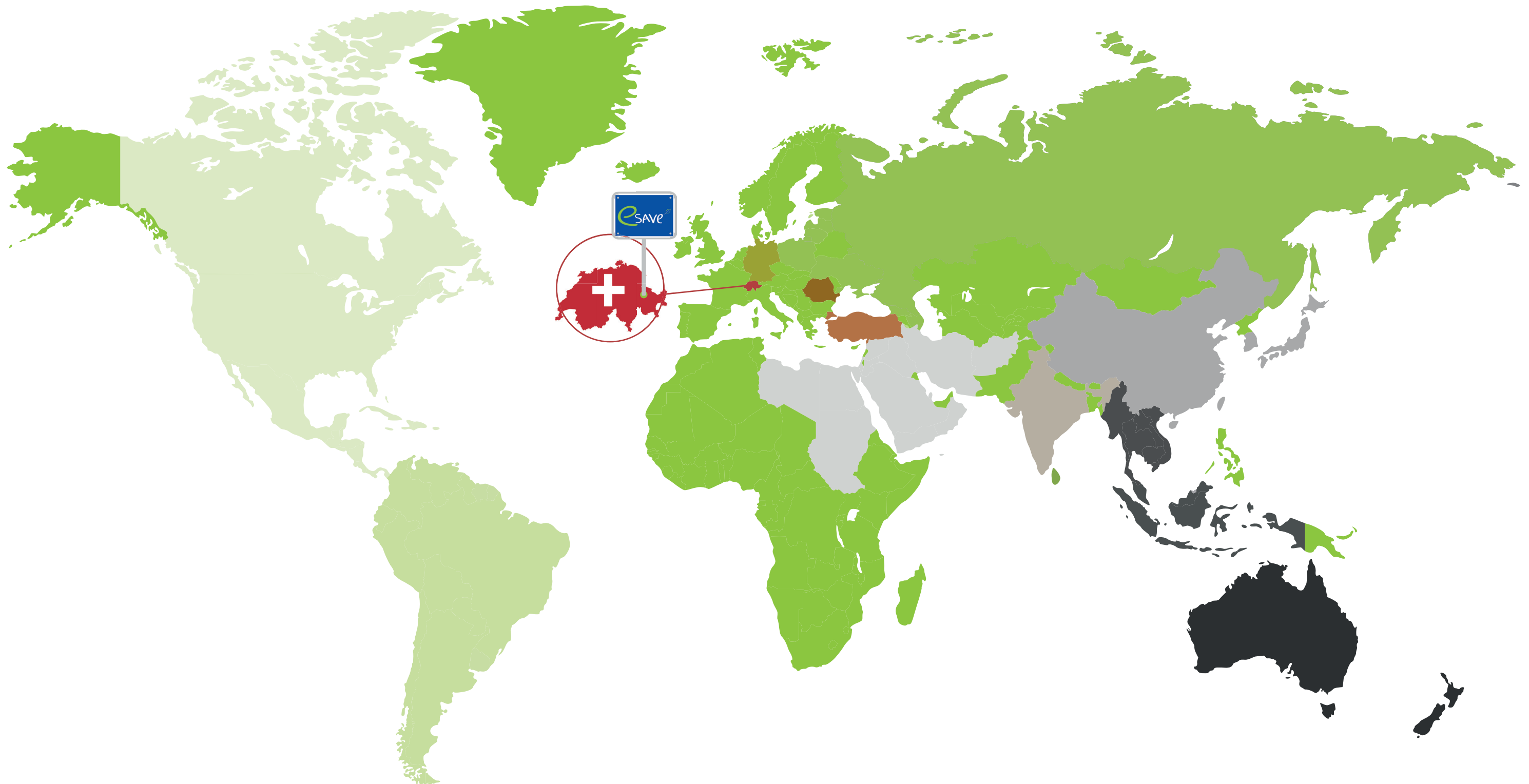
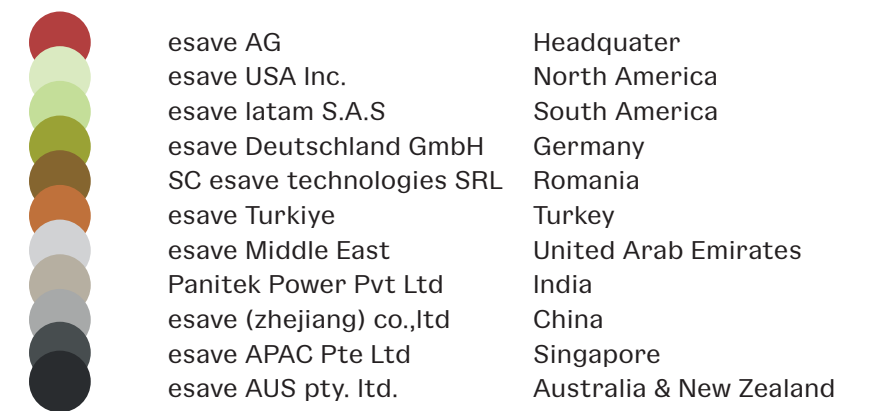
## LightRadar-Sensor

The LightRadar sensor is based on an object tracking system. Radar technology can be used for object movement detection. In addition, a distinction can be made between people, bicycles, motorcycles, cars and trucks.





# esave Locations



esave  
for the sake  
of our  
environment

Reduced light pollution  
Conservation of biodiversity  
Environmentally sustainable

