



# Smart Lighting Solutions

Application  
and product  
catalog

# Light. When needed. As much as needed



## **Light. When needed. As much as needed**

At esave we believe that the key to success for our customers is the ability to provide efficient, sustainable and smart lighting solutions. This is exactly what we offer to our customers and our brand is built around this message.

Our new catalogue reflects our expanding expertise, know-how and ability to offer intelligent and innovative lighting solutions. Light efficiency remains our core competency and is still central to our offering, and our new capabilities take us beyond traditional light management. We are in the business of cutting edge Smart Cities and Smart Lighting Solutions with data-driven light management systems for different application fields, tapping into the full potential of automated solutions and Internet of Things principles.

Discover our extended offering from a new perspective – by Industry Applications. We are sure our range of solutions, coupled with our team of professionals will convince you. We look forward to becoming your reliable partner and together improving the world.

## **Rico Kramer**

*CEO esave AG*

# Street Lighting

## HOW IT WORKS

### Ensuring the right approach

Depending on a city's ambitions and vision, defined development strategies, local requirements and technical potential – and available financial resources – esave offers solutions to help transform the city to a contemporary Smart City.

Modernization of available infrastructure, or installation of a completely new intelligent lighting network, can be done in stages or as a turnkey solution as per the pre-defined project scope.



1

### Phase 1 Change to controlled LED Lighting

- Fixed Light Control System
- Quick energy savings up to 50%

2

### Phase 2 Change to connected LED Lighting

- Light on Demand
- Based on real data from motion sensor
  - Energy saving
  - Operational savings due to real-time monitoring and maintenance

- Volume-based Light Control
- Based on traffic intensity
  - Energy saving
  - Operational savings due to real-time monitoring and maintenance

3

### Phase 3 Change to Smart LED Lighting

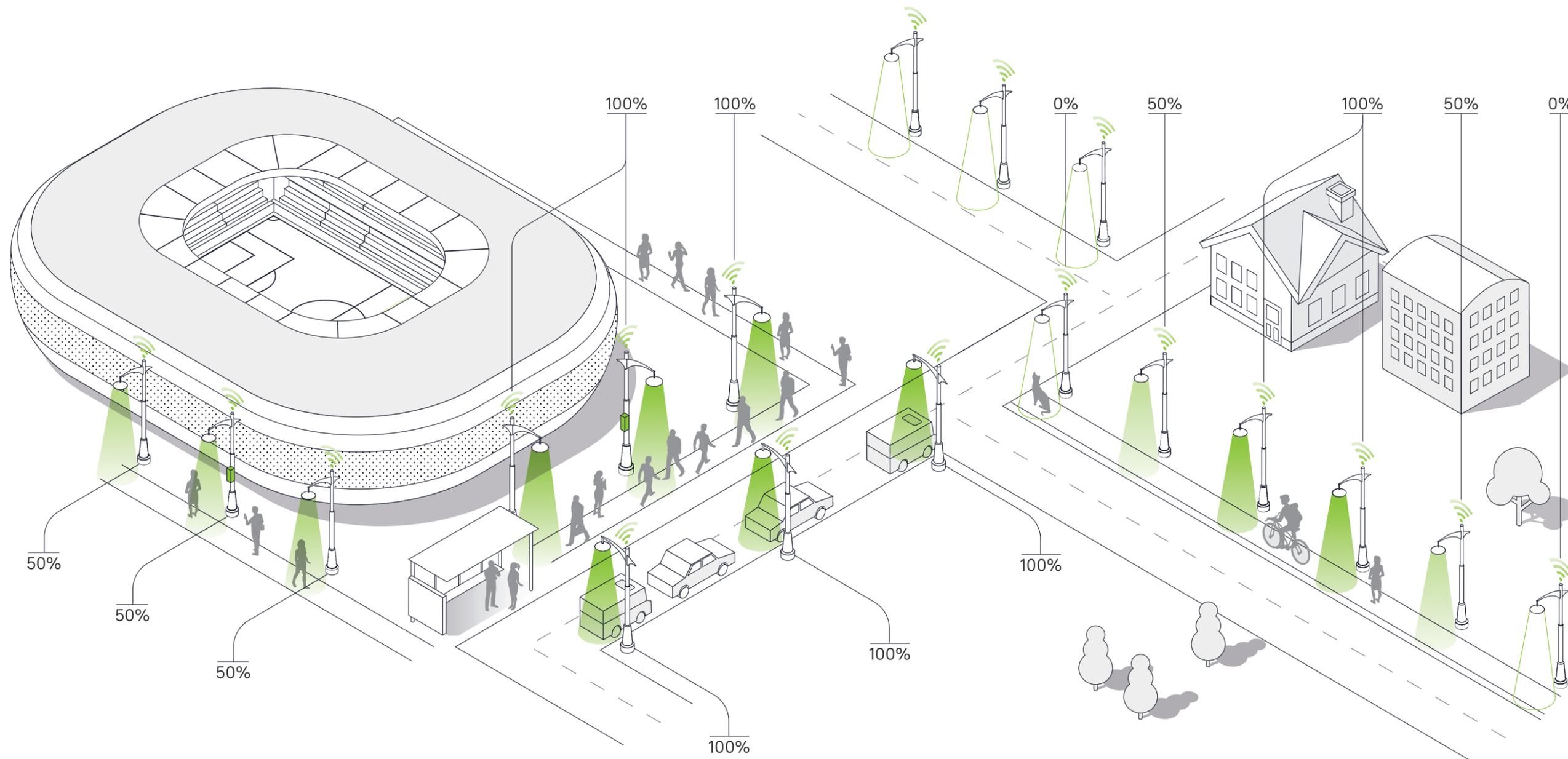
- Cloud-based Light Management
- Energy saving
  - Operational savings
  - More City comfort and safety

## Public Lighting

Public Lighting ensures safe and pleasant streets and roads, but it's not limited to this application area. Many different infrastructure objects are illuminated at night, however this might not be really necessary all the time.

# Volume-Controlled Light

# Light on Demand



The volume-based light control solution from esave makes your lighting system even more intelligent. The lighting system is equipped with sensors to detect traffic density. When it recognizes increased traffic density (e.g., during the rush hours or for a special occasion such as football match) a higher level of light intensity will automatically be activated, providing better visibility and safety.

The idea behind esave's Light on Demand solution is very simple: Each luminaire is equipped with a motion sensor that registers whether there is traffic on the street or not. Once the sensor registers analogue movement in the illumination area, light intensity is automatically increased to a higher level and a message is sent to the next luminaire(s), which also increase light intensity before the pedestrian or vehicle reaches the next luminaire position.

# Offices & Buildings

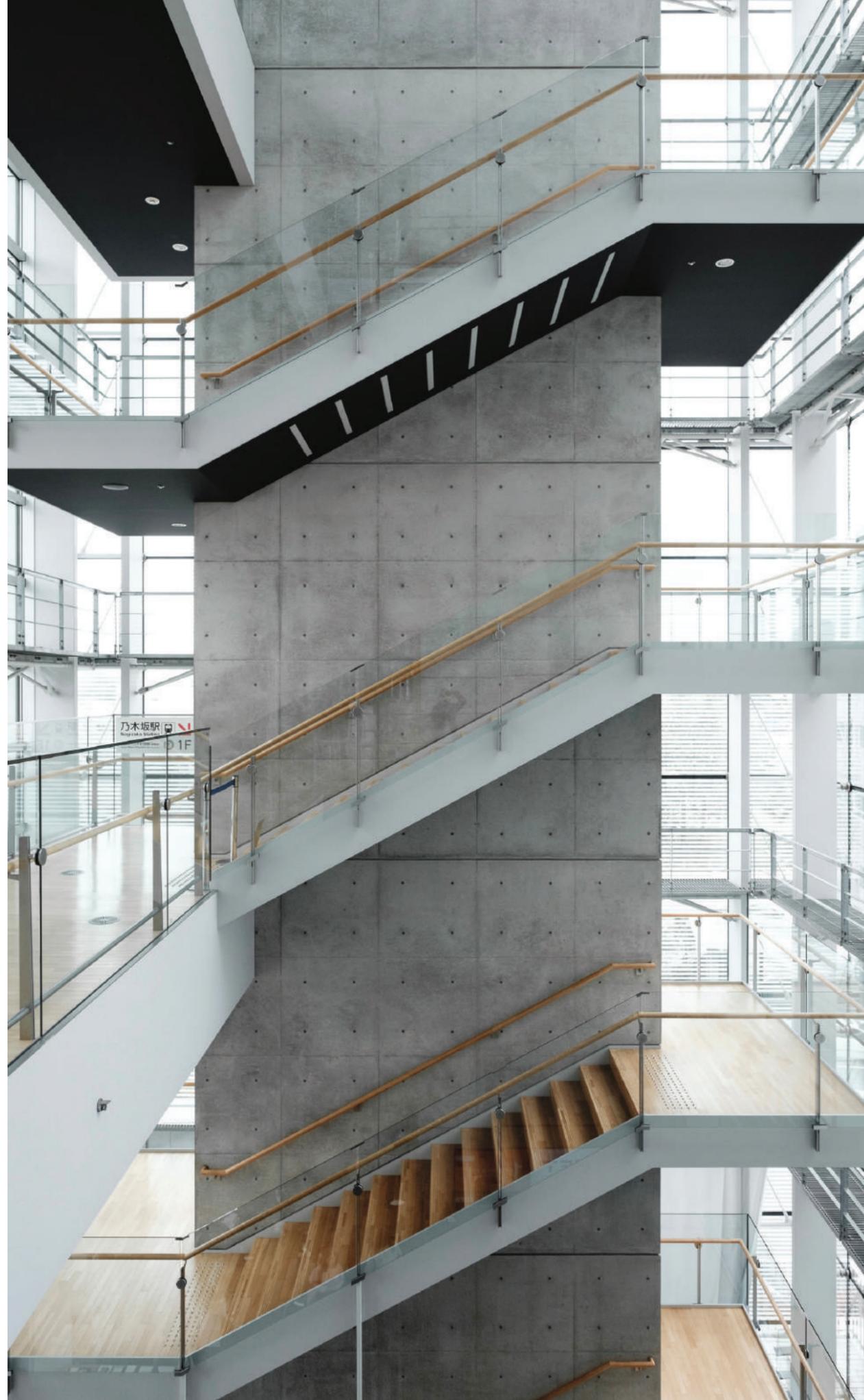
## HOW IT WORKS

### Smart Control

Smart Lighting Solutions from esave can put lights on a central control system and provide optimal amounts of light in office buildings based on daylight and motion.

### Savings

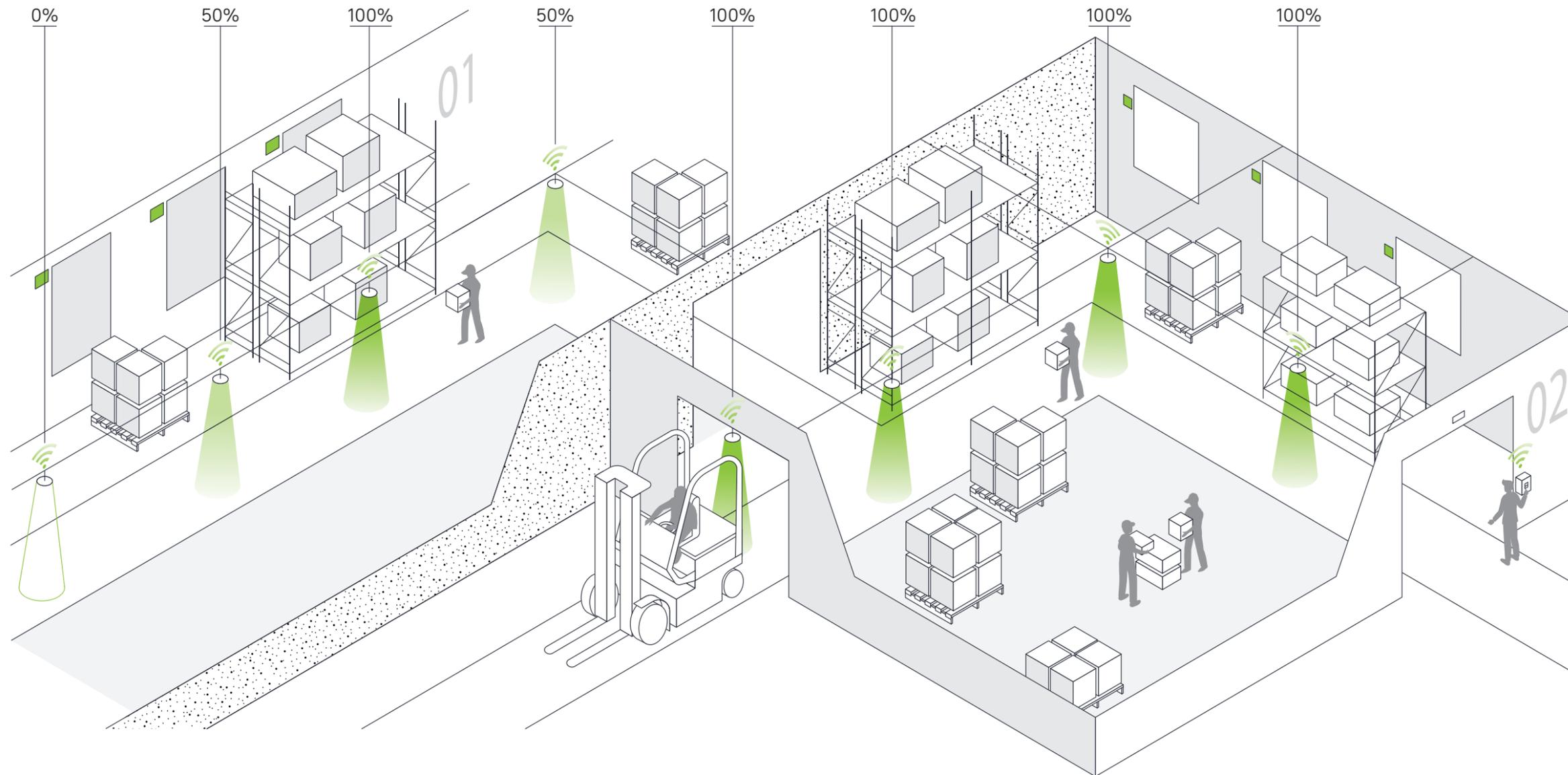
An Intelligent Lighting System will turn lights on or off at scheduled times, dim or brighten lights in accordance with the amount of daylight, and automatically turn them off when a room is unoccupied, resulting in energy cost savings up to 90%.



## Well-being and productivity

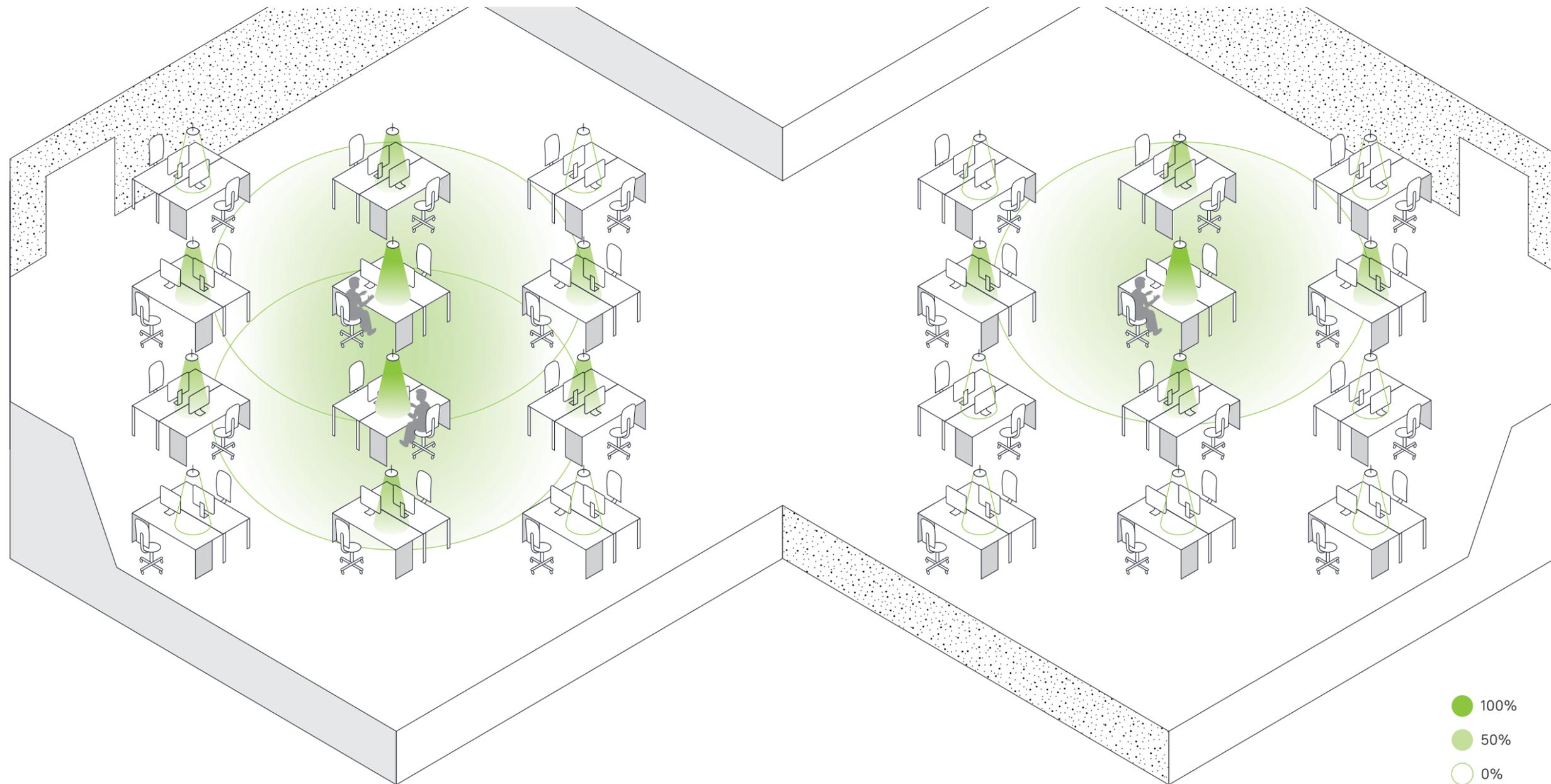
It is a well-known scientific fact that environment influences our mood and productivity. Equipped with environmental sensors, any office facility can easily become modern office space with a focus on employee well-being:

- *Deploy right lighting – neither blindingly bright nor too dim – and provide eye-pleasing illumination*
- *Poor lighting: yellow or orange from traditional lamps, can cause eyestrain, blurred vision and headaches. Bright, glare-free LED lighting can improve concentration levels, helping avoid operational errors.*
- *Simple factors like light colors have a significant impact on brain activity, mental and physical energy. These can be stimulated with coloured light to add a pop of energy to chill-out areas.*
- *CO<sub>2</sub>, humidity, and temperature sensors will check air quality in the room and inform your employees, or even signal an HVAC system directly, to make adjustments based on real-time building occupancy levels.*



Good light is much more than simply illuminating streets, rooms and other objects. If luminaires are equipped with a motion sensor, the light is always a step ahead. Those who use Light on Demand benefit from significantly lower energy costs and increased lighting comfort. Make your building more responsive and smarter. Various lights can be configured, controlled and managed by using our controllers. They will be on a central control system and provide optimal amounts of light in office buildings based on daylight and motion.

With our latest development it is possible to build our intelligence into a light switch. This can be used when a group of lights should illuminate a room to 100% for a certain time. The "Light on Demand" configuration can be completely overridden with the light switch. After a certain time or if you press it again, the light switch turns off and the conventional configuration is used.



## Lighting is an Entryway to IoT Buildings

IoT-enabled lighting can provide information about where employees prefer to work and how they move during the day. Real-time and historical analytics will provide insights about space usage, offering possibilities for space optimization and keeping energy costs as low as possible. In case of a fire you will be able to check where the people were, possibly saving lives. Thus, an IoT-ready connected lighting system will open new perspectives to transform your office facility into a Smart Office and the building itself can become an essential part of the Smart City.

## Swarm Intelligence

With swarm intelligence, luminaires are transformed into intelligent lighting systems. This technology brings advantages, especially in the areas of energy efficiency, lighting comfort and flexibility.

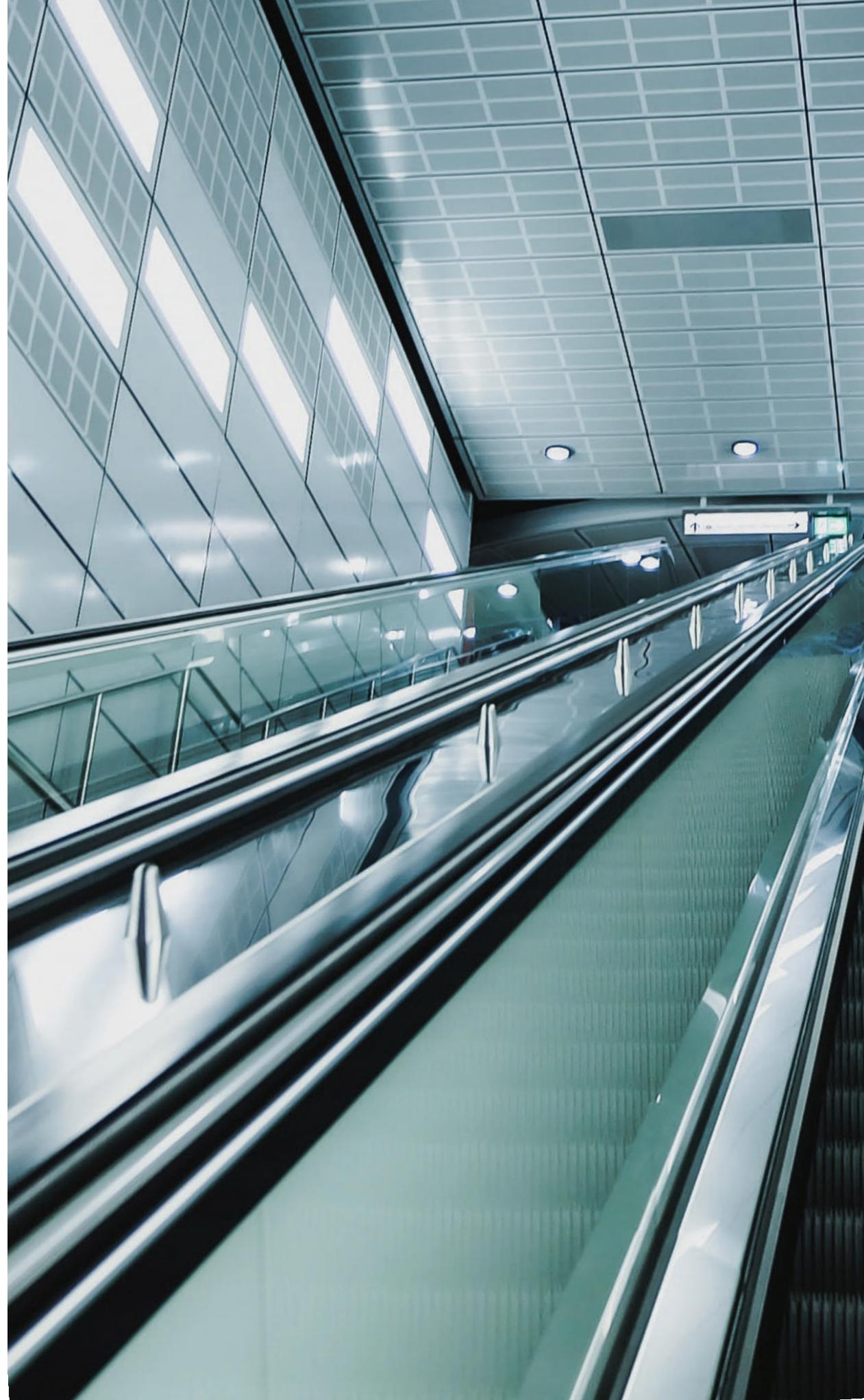
Luminaires can adapt to the amount of daylight, people, time and many other aspects. If there are only a few people left in a room, almost all the lights switch off. Luminaires which are located in the immediate vicinity of the people stay on.

# Public Lighting

## HOW IT WORKS

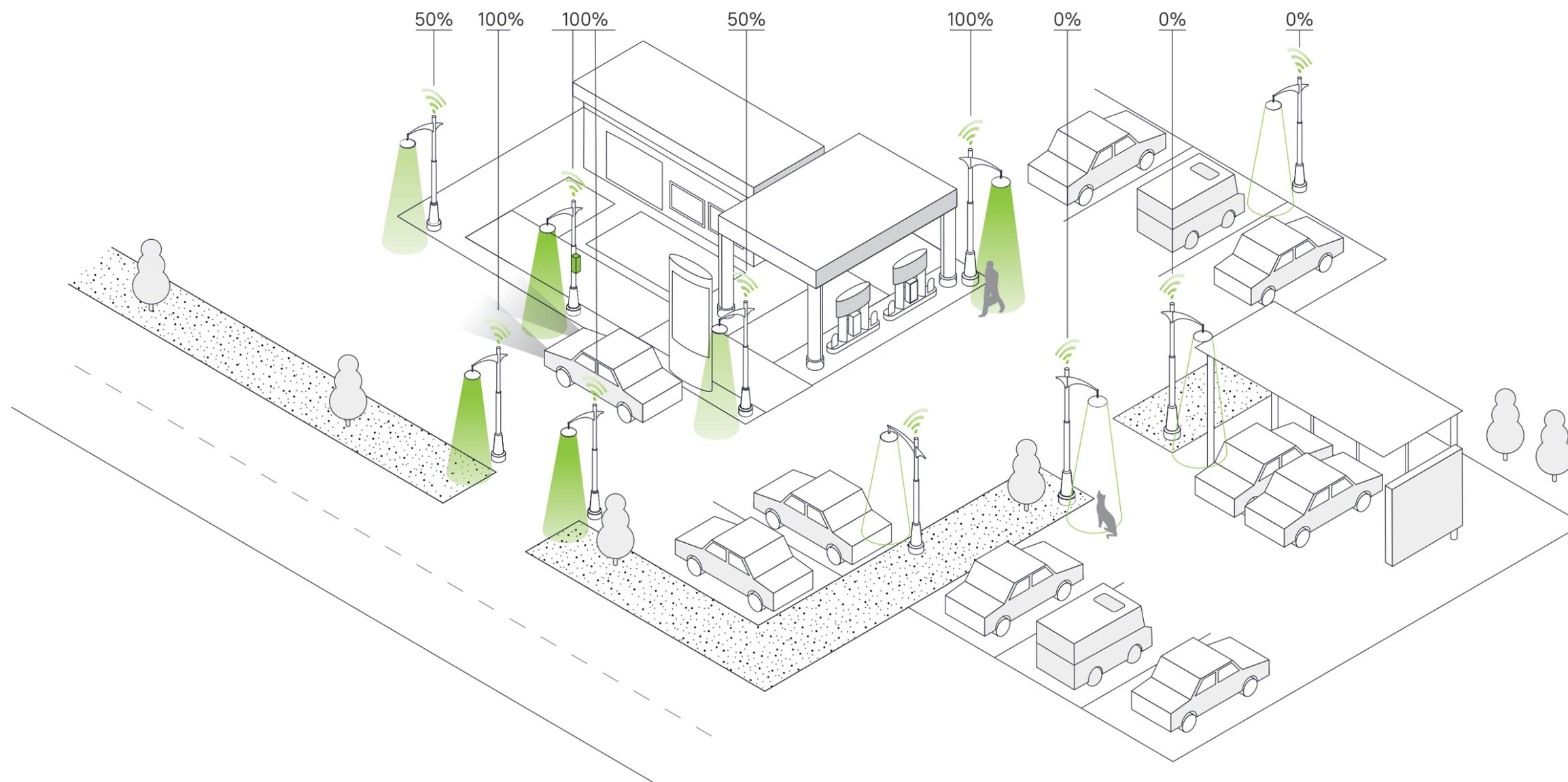
### Efficiency, Safety & Comfort

Public Lighting ensures safe and pleasant streets and roads, but it's not limited to this application area. Many different infrastructure objects are illuminated at night, however this might not be really necessary all the time. There is a portfolio of lighting solutions for infrastructure to reduce energy consumption to the optimal level, increasing comfort and safety while staying environment-friendly.



### IoT-ready solutions

Internet of Things (IoT) makes it possible to collect and evaluate data from every node. This can increase operational efficiency and reduce effective energy consumption. IoT can also make life safer: It becomes possible to avoid fluctuating temperatures, exhaust fumes and humidity in parking spaces, signposts can light up in a case of an accident, temperature-sensitive road markers can change colours to warn of ice on the road, and exciting new functionalities become possible every day.



### Comfort and Savings

Thanks to integrated motion sensors, the control system sends a signal to the lighting network to dim luminaires when inactive. It can also be programmed to different light levels depending on the amount of daylight. If special sensors are used, the light intensity can be adapted to special conditions.

### Special Sensors

- *Somebody is entering a parking garage, commercial district, tunnel, bridge, etc.*
- *Pedestrians want to cross the street*
- *Bus stops can be illuminated when people sit there for safety and comfort, and alerting bus drivers to stop from a distance*
- *Monument lighting and festival lighting can be programmed to provide a special atmosphere whenever it is really needed*

# Solution Components



## STREET LIGHT CONTROLLER

# D4i Ready Devices



### SLC-HUB102

The esave SLC-Hub offers operational specialists a smart, flexible and cost-effective control. From static long-term to dynamic high-performance projects, the SLC-Hub exceeds monitoring demands of today and tomorrow. An operator can easily retrofit a luminaire via Plug and Play.

SLC-Hub102 is D4i ready / Type A device.



COMPATIBLE SENSORS:  
 • esave PIR-Zhaga Sensor

D4i READY SENSOREN (EN 62386-303)  
 • Legrand wattstopper FDP-301  
 • Tridonic PSensor SSI31



### SLC-MOTION102

The new SLC-Motion102 enables an easier implementation of the smart solution. Like its predecessors, the SLC-Hub102 and PIR5 Zhaga Sensor, it was designed for the Zhaga interface and can be attached to the luminaire within a few seconds. It combines the intelligent street light control with the "light as required" solution in one product.

Der SLC-Motion102 ist D4i ready / Type A device.



MODELLE  
 • esave SLC-Motion102 ST  
 • esave SLC-Motion102 HS



### SLC-AC AND DC

The Street Light Controller (type SLC-AC and SLC-DC) is a compact device that can be easily embedded in any LED street light and used with all major electronic control equipment. The Street Light Controller is easily combined with a variety of external devices, creating a platform for numerous Smart City services.



### SLC-Switch102

The esave SLC-Switch102 converts your wall socket or conventional street light into an intelligent and controllable device. Thanks to the integrated SLC-Core102, it is straightforward to configure, operate and monitor. Light switches, street lights and other devices can be easily upgraded by the SLC-Switch102.



### SLC-Core100

The SLC-Core100 can be easily integrated into your customised electronic circuit and assembled on your PCB (printed circuit board). It contains the heart of the SL-Controller in the smallest footprint, thus allowing full control of the luminaire. It will give your hardware new opportunities through an integrated mesh network and various light control functions.



### SLC-Core102

The SLC-Core102 and its integrated antenna make your luminaire or sensor intelligent within a very short development time. It can be easily assembled on your PCB and can be expanded and combined as required with your hardware.

Thanks to its integrated antennas and the antenna amplifier, no additional antenna is required.

## MOTION SENSORS



### PIR SENSOR

PIR motion sensors are based on Passive Infrared Technology. They detect motion as a result of differences in the surrounding temperatures: if an object with a temperature different than the surroundings enters into the detection area, the sensor reacts.



### LIGHTRADAR SENSOR

LightRadar Sensor is an object tracking system that uses radar technology to characterize the motion of an object. It is designed for use with a wide range of applications due to the use of algorithms to differentiate between pedestrians, cyclists, motorbikes, cars and trucks.



### PIR ZHAGA SENSOR

The PIR Zhaga Motion sensor can be combined with an esave SLC-Hub. Together they are a solution for the intelligent control of outdoor public lighting, converting a conventional system into a smart connected lighting system.

The PIR Zhaga Sensor is not D4i Ready and pin 4 of the Zhaga connector must be connected.

## ENVIRONMENTAL SENSORS



### esave Meteodata

The weather station records temperature, brightness and wind speed. Additionally, a rain sensor is installed on the top. The Meteodata can be used to read, visualize and analyze weather data. Thanks to the integrated esave SLC-Core, the Meteodata connects automatically to the mesh network.



### esave Particulate Matter Sensor

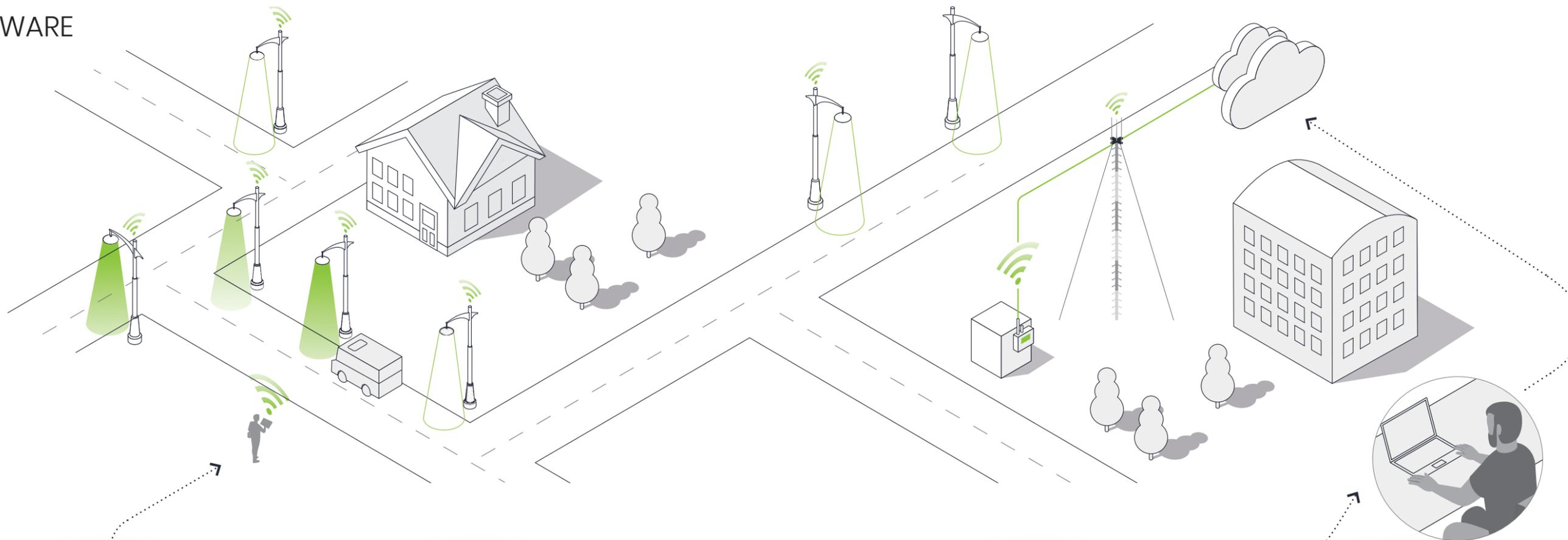
The Particulate Matter (PM) Sensor represents a new technological breakthrough in optical PM sensors. The measurement principle is based on laser scattering and makes use of Sensirion's innovative contamination-resistance technology. Integration into the esave wireless network is straightforward and the sensor can be easily retrofitted. You can evaluate the sensor data on our SLControl web platform and check your air quality.



### CO<sub>2</sub> SENSOR

Carbon dioxide is a key indicator of indoor air quality. Thanks to new energy standards and better insulation, houses have become increasingly energy efficient, but the air quality can deteriorate rapidly. Active ventilation is needed to maintain a comfortable and healthy indoor environment, and to improve the well-being and productivity of the inhabitants. Sensirion's SCD30 offers accurate and stable CO<sub>2</sub>, temperature and humidity monitoring.

SOFTWARE



making it possible to react quickly and efficiently in an operational daily routine.



making complicated configurations easy and intuitive.



**SL-Control**

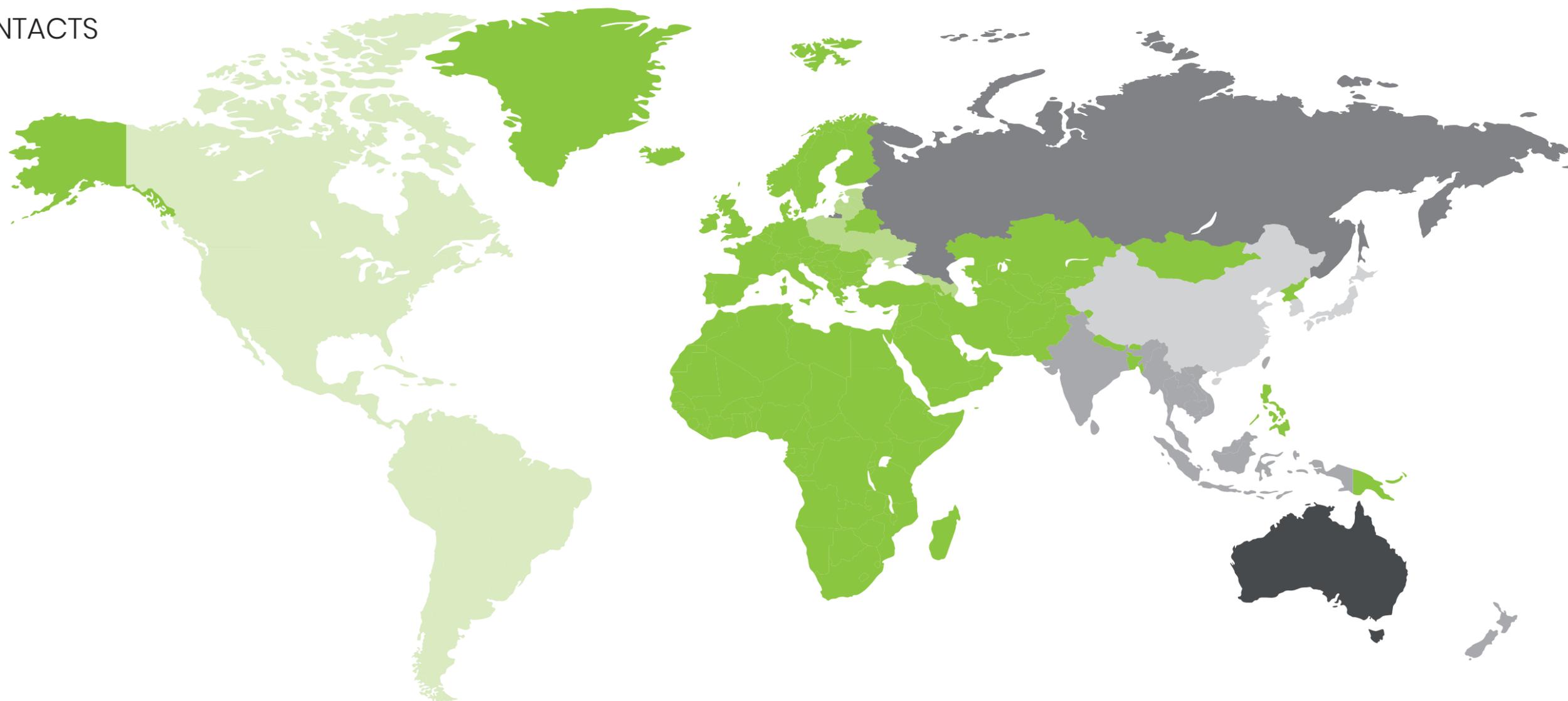
Lighting installations can be monitored, configured and controlled centrally from the office or on the road without the need to be in wireless range of the installations. SL-Control is a stand-alone, cloud-based application, which offers unique capabilities for remote in-depth information visualization and analysis of measurement results.



**SL-Gateway**

The SL-Gateway is a small device placed in the proximity of an SL-Control installation. The SL-Gateway establishes a connections between an esave SL-Control wireless network and the esave SL-Control Server. The esave SL-Control Server collects the data and presents it on the user-friendly SL-Control Webplatform.

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