Smart Street Lighting for Smarter Cities

CitySense Plus

v20.03.2023

Why invest in Smart Streetlights?

60% - 90% Energy Savings

Dimming streetlights with pre-defined schedule and smart sensors significantly cuts energy waste.

Predictive Maintenance

Proactive alerts / notifications for faults, alarms or outages optimise maintenance and substantially reduce operational costs.

Total Infrastructure Control

Connected streetlights enable remote monitoring, management and control of complete citywide infrastructure.

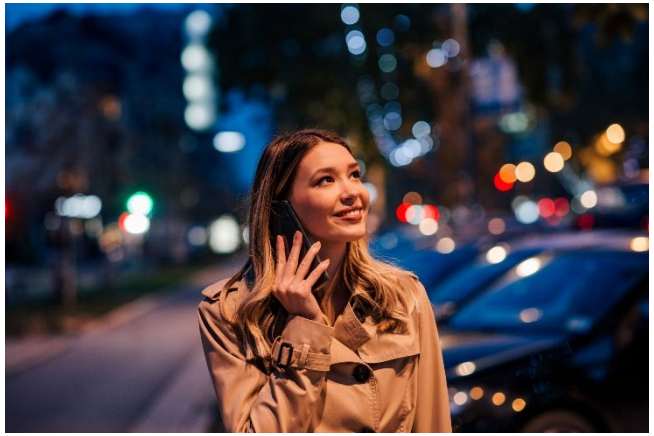
Why invest in Smart Streetlights?

Foundation for Smart City

Standardised interface and Open APIs support inter-connectivity with applications such as traffic lights, security systems, etc.

50% Lower Light Pollution

Dimming streetlights during off-peak hours or through motion sensors significantly cuts light pollution.



Improved Public Safety

Right light and right place and right time enhances citizens' sense of safety.

Why invest in Smart Streetlights?

Address Climate Change

Fine-tuning lighting levels on need-basis dramatically reduces carbon emissions.

Protect Flora and Fauna

Autonomous dimming during off-peak hours lower lighting pollution and benefits local flora and fauna.

Benefits from Day One

Unlike other smart city solutions, deploying smart lighting deliver benefits from day one!

Who are we?

Specialist in Smart Outdoor Lighting

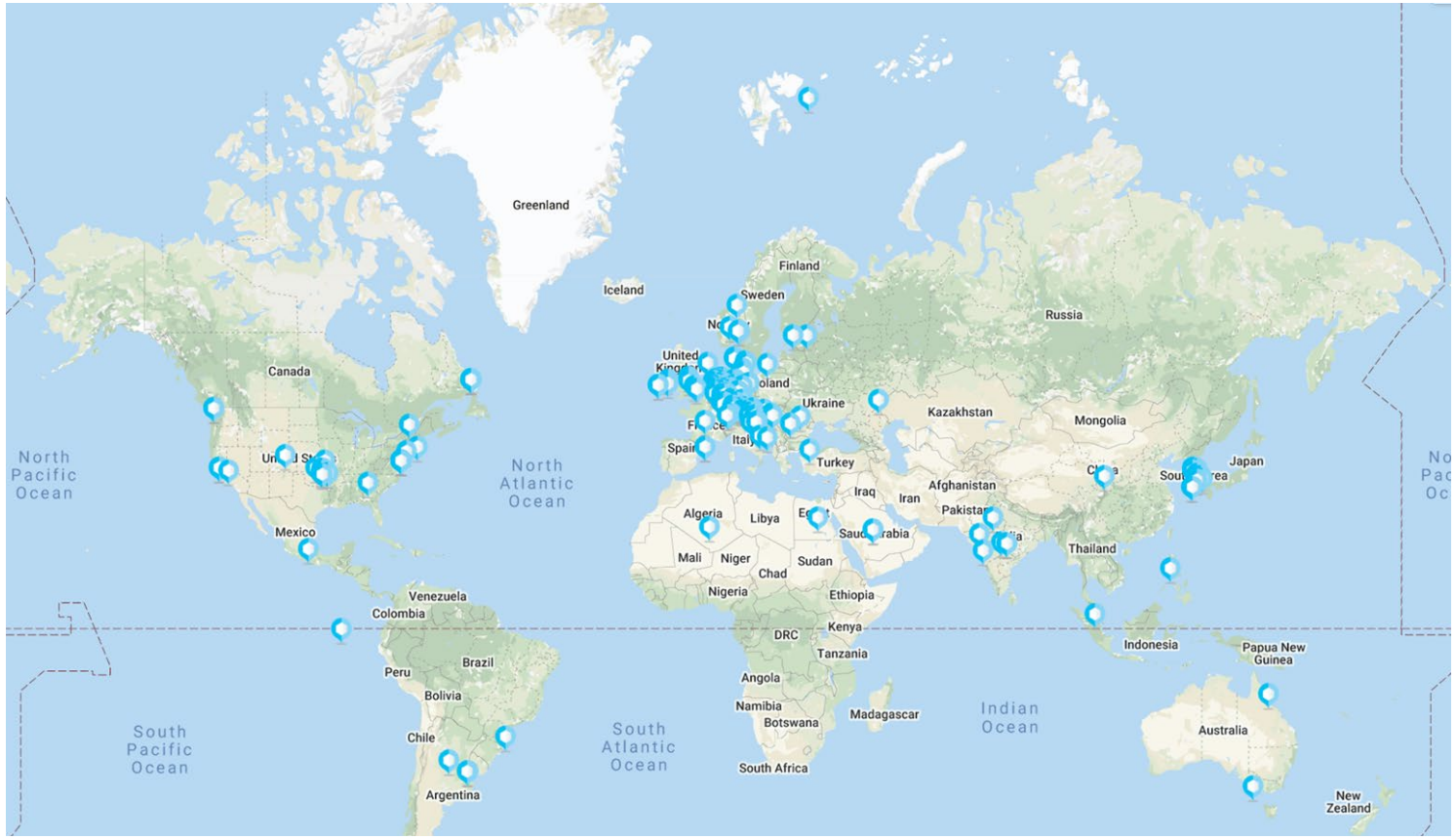
We enable cities to take full control of their Lighting Infrastructure based on Open Standards

Global presence: 100k+ connected streetlights, 650+ projects

Monitored by CityManager and supported by our Service Desk

Selected Projects

- Dortmund (DE) 30.000 smart streetlights
- Düren (DE) 5.000 smart streetlights
- Dutch Railways (NL) 10.250 smart streetlights
- Island of Texel (NL) 3.420 smart streetlights
- Helmond (NL) 8.500 smart streetlights
- Seoul (KR) 2.500 smart streetlights
- Busan (KR) 1.500 smart streetlights
- Bangladesh 4.300 smart streetlights



Smart Lighting solution portfolio

Light Management Platform

- CityManager

DigiHub

- Data & Analytics
- Security & Backups
- Open API TALQ 2.0

Services

- Training
- Network Engineering Project Support
- Service Desk
- Project Based Software Development

Lighting Controls

RF Mesh

- CitySense Plus Motion Sensor
- CitySense Lite Motion Sensor
- SkyLite Prime RF
- SkyLite RF

IoT

- OpenSky NEMA
- OpenSky Zhaga

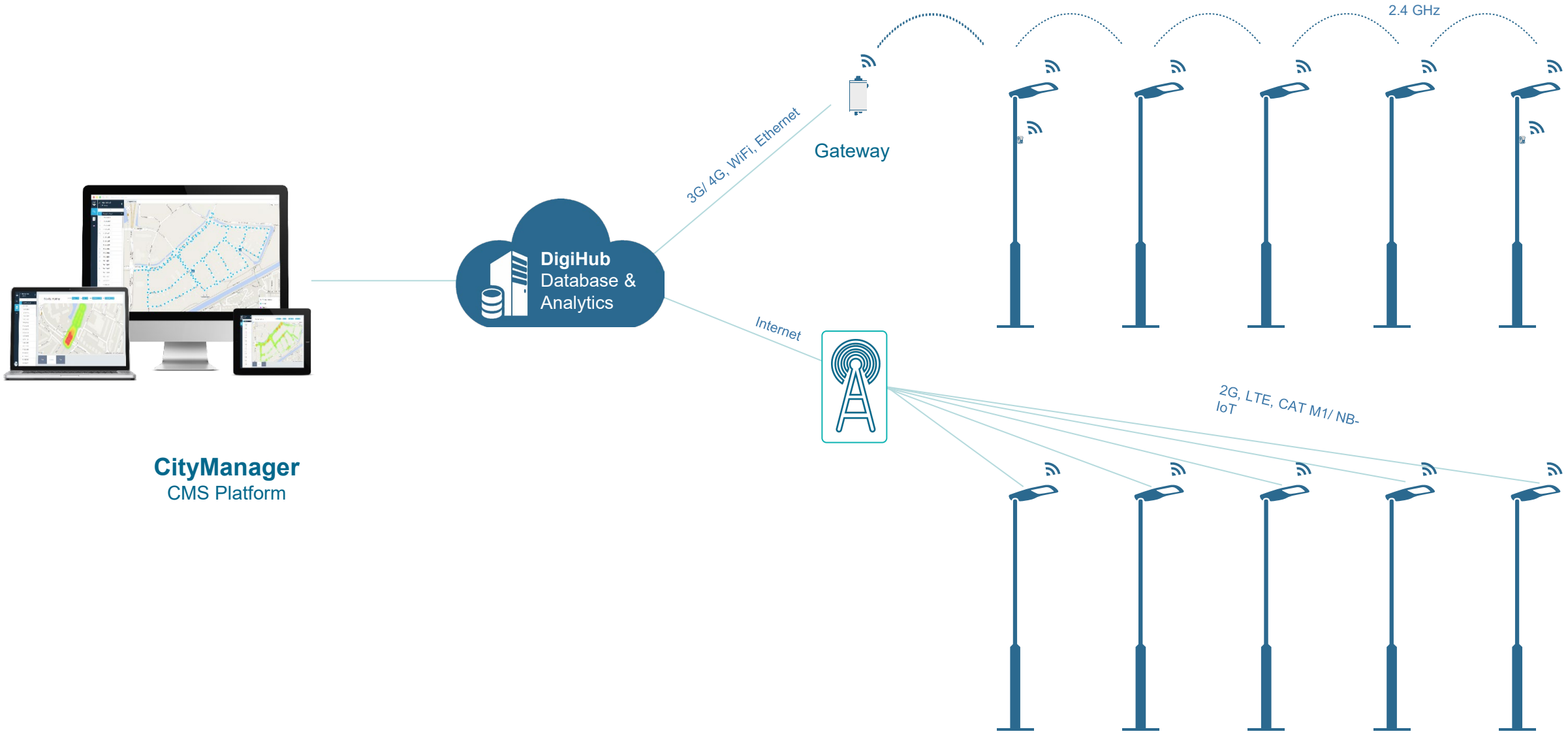
Photocell

- SkySwitch NEMA
- SkySwitch Zhaga

Group

- Control Cabinet

Smart Adaptive Lighting for RF Mesh and IoT Network



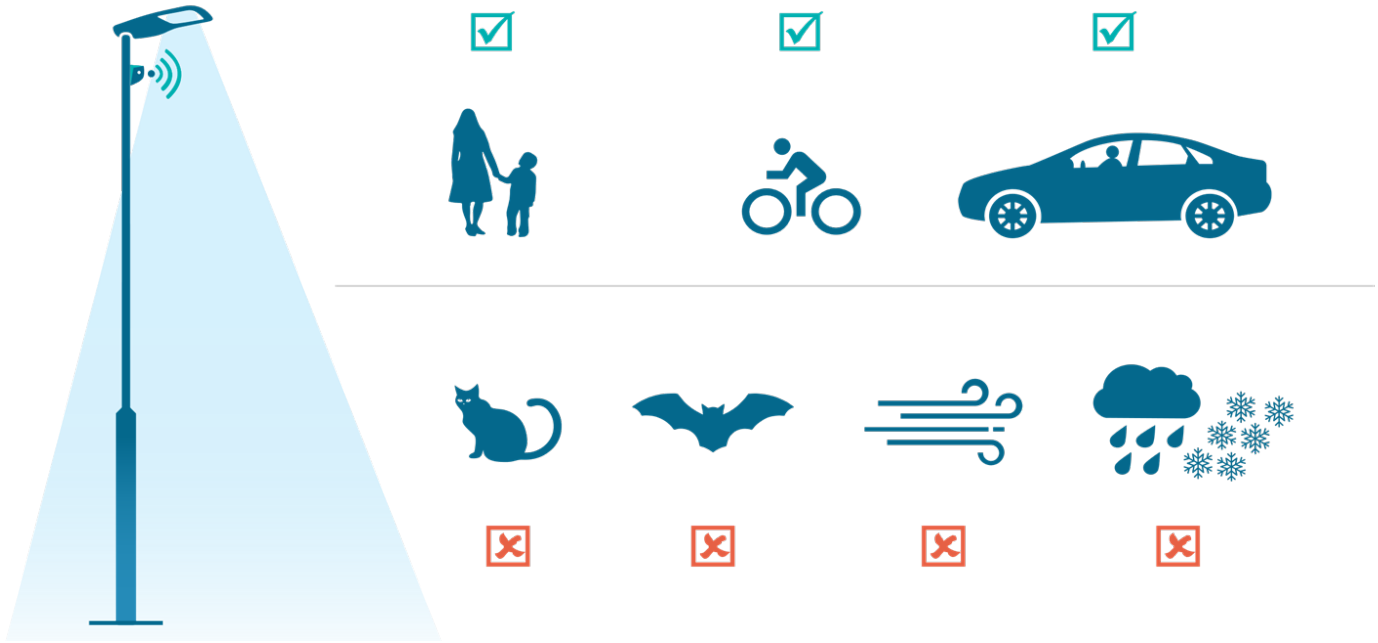
Smart Streetlight Motion Sensor RF Mesh (Option 1)

Option 1

- Award-winning **streetlight motion sensor** with in-built **controller**
- Detects **pedestrians, cyclists and cars**, while filters out interferences such as small animals, wind, rain and snow
- Uses self-forming, self-healing industry standard **RF mesh network**, which enables real-time neighbour trigger (**safe circle of light**)

Advance Human Detection

Option 1

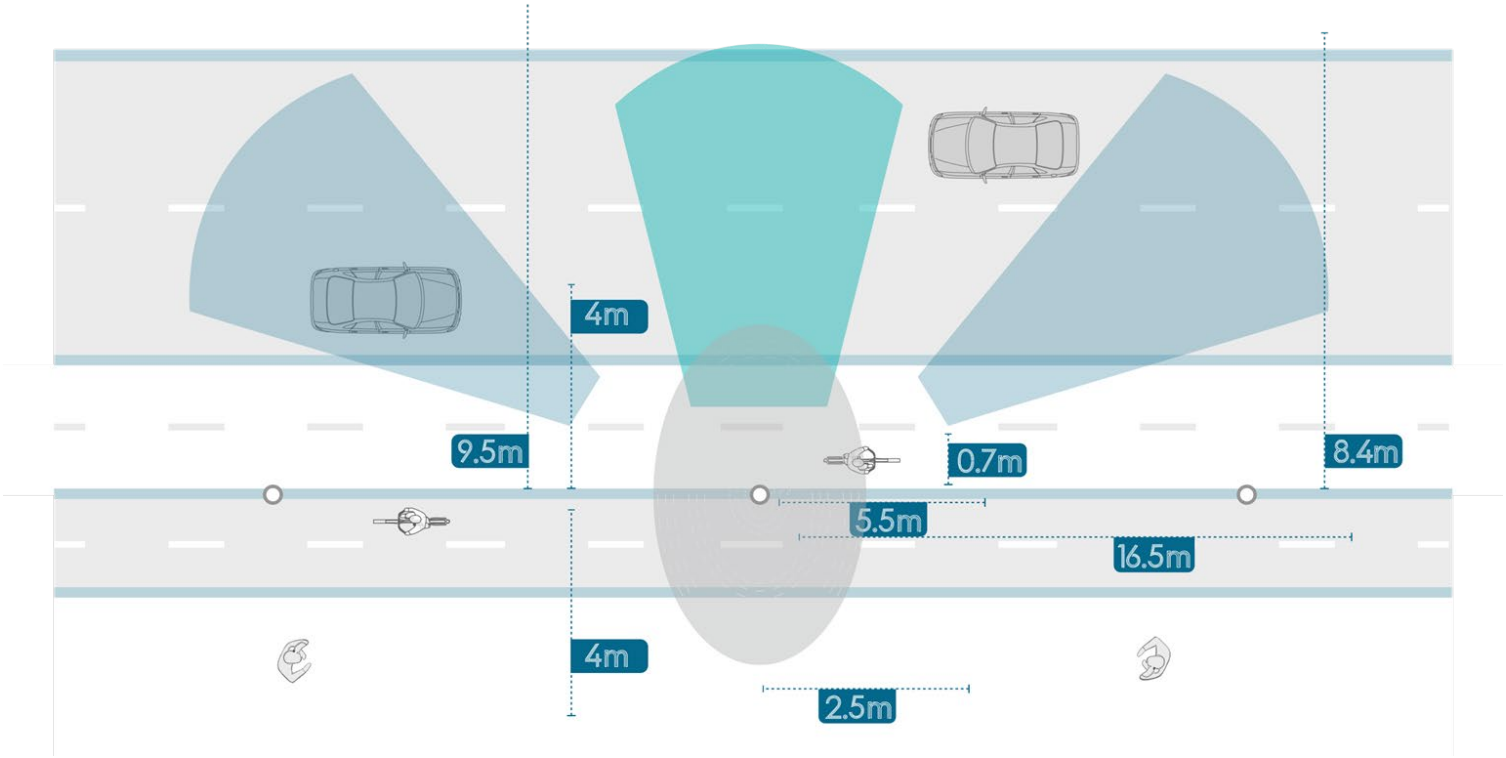


Avoids false triggers, maximises savings

- Only sensor available on the market that detects pedestrians, cyclists and cars
- Filters out interferences such as small animals, moving trees, wind, rain and snow
- Lowers light pollution as the streetlights return to minimum level after road user leaves

Excellent Detection Range

Option 1



Exceptional Coverage Area

- Houses 4 high-precision sensors, including a golf ball sensor for omnidirectional coverage
- Widest detection range with about 16.5m (650”) on each side of the street, about 9m (375”) in front, and up to 4m (135”) behind the pole
- Up to 7.5° up / down tilt to achieve min / max coverage
- Ideally mounts at 5 meters on the street pole

Smart Streetlight Motion Sensor Zhaga based (Option 2)

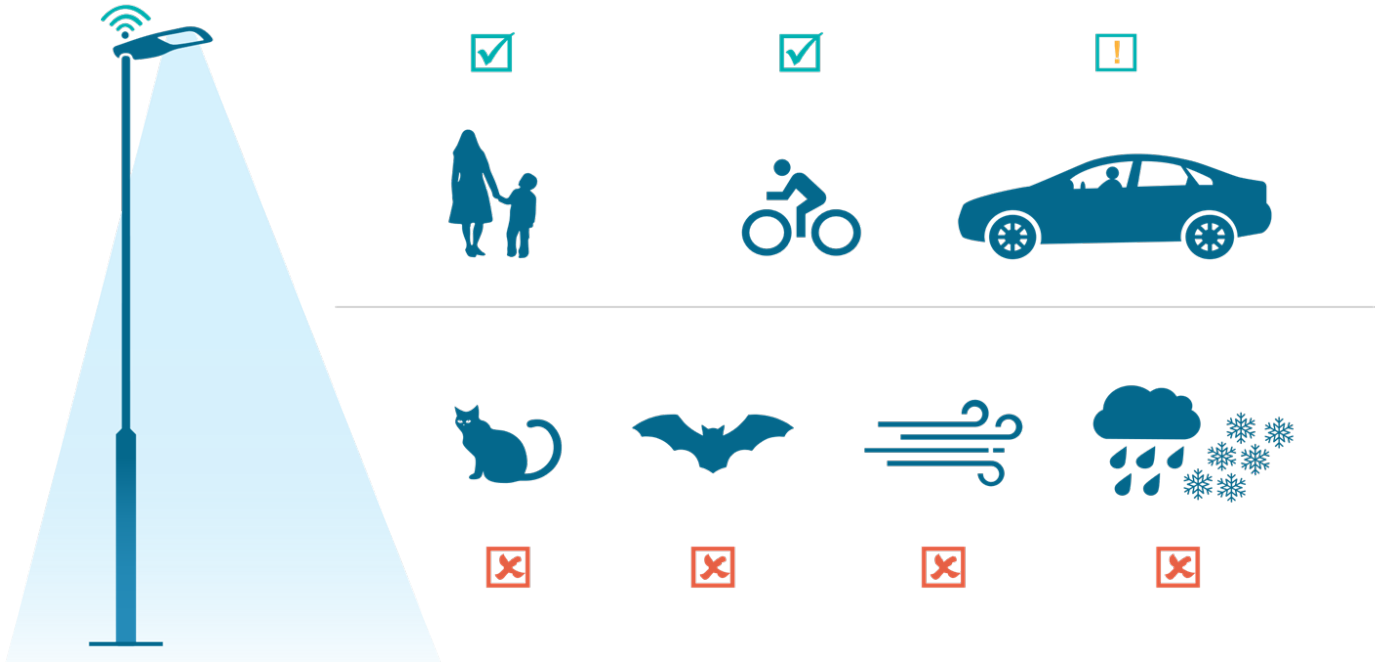
Zhaga DALI

CE IP66 CERTIFIED

- **Plug & play** installation through standardized **Zhaga Book 18** interface
- Detects slow-moving traffic, such as pedestrian or cyclist
- Complies with the **Zhaga-D4i (ZD4i) standard**, ensuring **seamless interoperability** between different luminaires and controllers

Best Suited for Slow Moving Traffic

Option 2

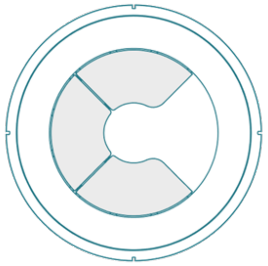


Provide light only when necessary

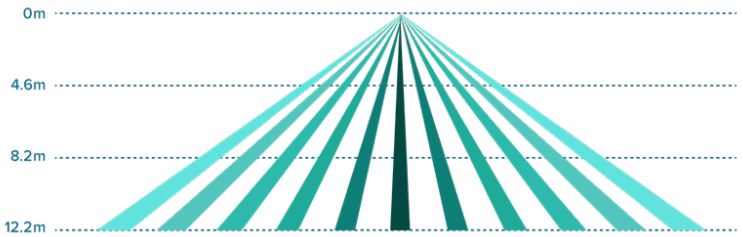
- The sensor can efficiently detect pedestrians, cyclists and slow-moving cars
- Ideal for bicycle roads, pedestrian pathways, residential areas, parking facilities, public parks and university campuses
- Lowers light pollution as lights return to minimum level after road user leaves

Adjustable Coverage Area

Option 2



Top and side coverage patterns



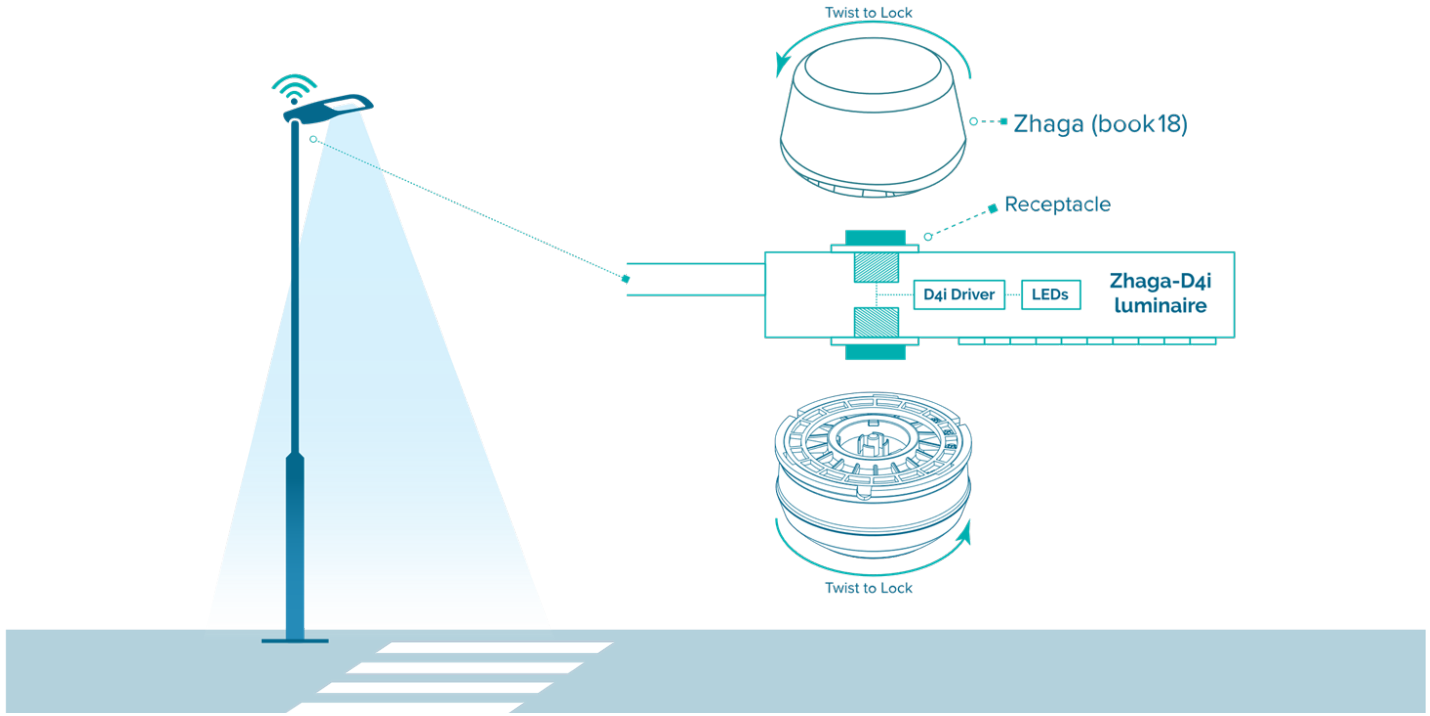
Customize detection area depending on road usage

This sensor comes with a separate (snap on/ snap off) mask that allows limiting the coverage areas

- The mask has three 90° sections
- One or two sections can be removed to adjust the detection coverage pattern

Quick and Tool-free Installation

Option 2

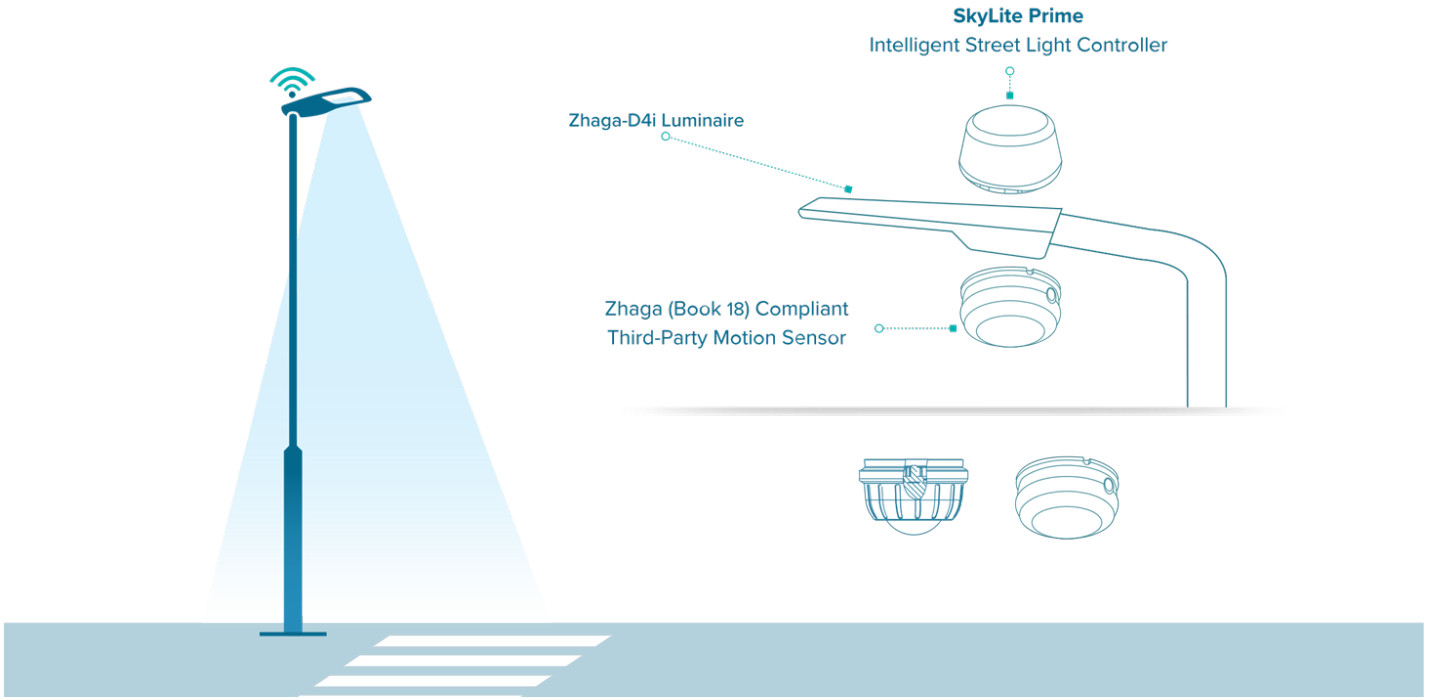


Install the sensor within seconds

- Zhaga Book 18 interface ensures true plug and play installation
- No special training or tools needed
- A simple twist-and-lock motion secures the device onto any Zhaga compatible luminaire

Interoperable – No Vendor Lock-in

Option 2



Open standard and API deliver interoperability

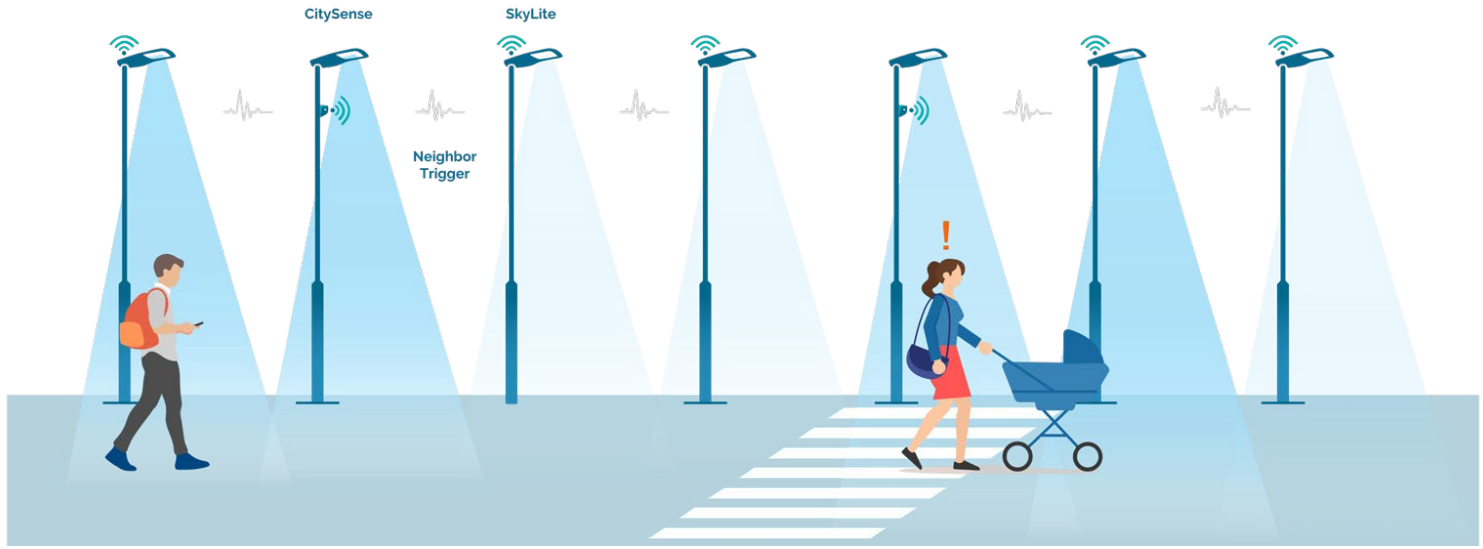
- Select any Zhaga luminaire of your choice
- Use multiple vendors in a single project
- Integrate any Zhaga outdoor light controller

Safe Circle of Light – Automatic Neighbour Trigger

Experience true light-on-demand

- Road occupant is literally surrounded in a safe “circle of light”
- Sensor triggers one to four adjacent lights – once a human presence is detected
- Significantly boosts safety perception
- Works as intrusion detection device in restricted areas
- Select the lights that you want to trigger via CMS

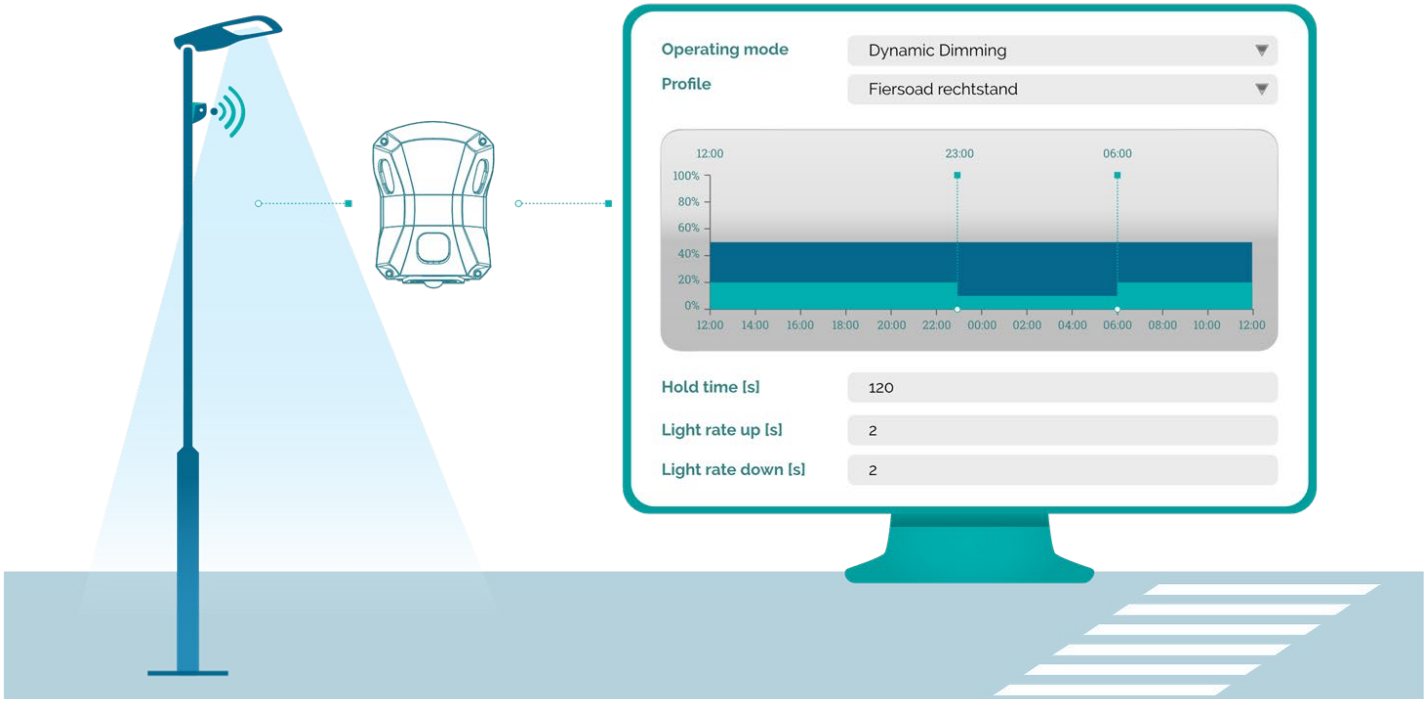
Smart Intrusion Detection



Stay a step ahead

- Streetlights illuminate only when human presence is detected, alerting the person ahead about someone’s presence
- Suitable for general roads and private / restricted perimeters alike
- Detection log data available within CMS analytics

Motion Sensor Parameters in Your Hands



Adjust motion sensor parameters as per need

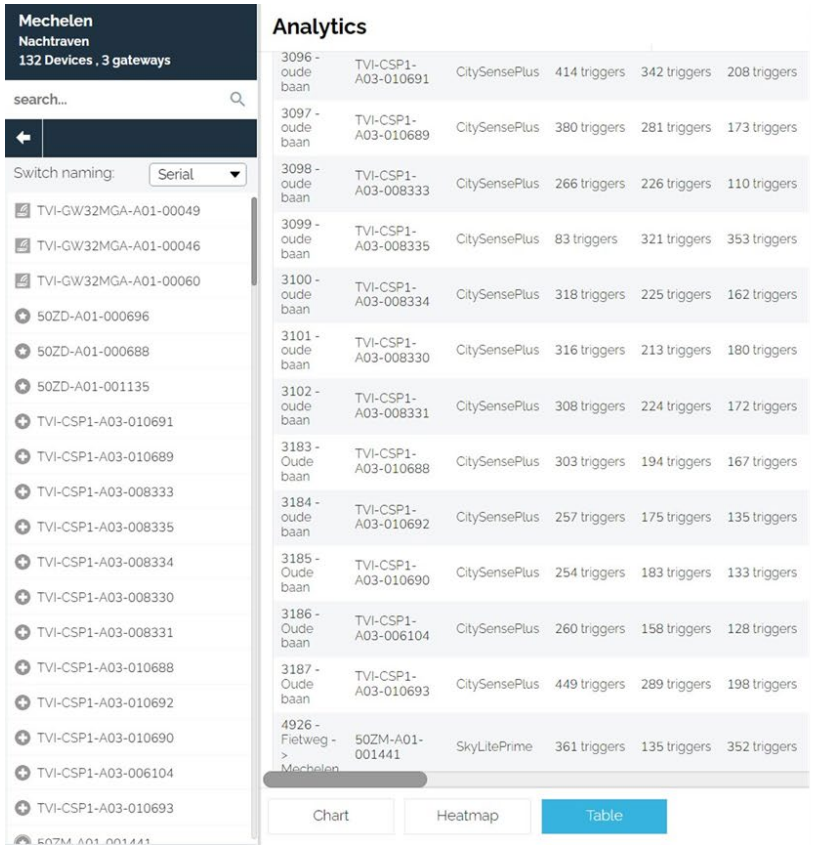
- Make the sensor work as per your requirements
- You can change:
  - Sensitivity
  - Delay
  - Direction
  - Hold Time
  - Light Rate Up
  - Light Rate Down

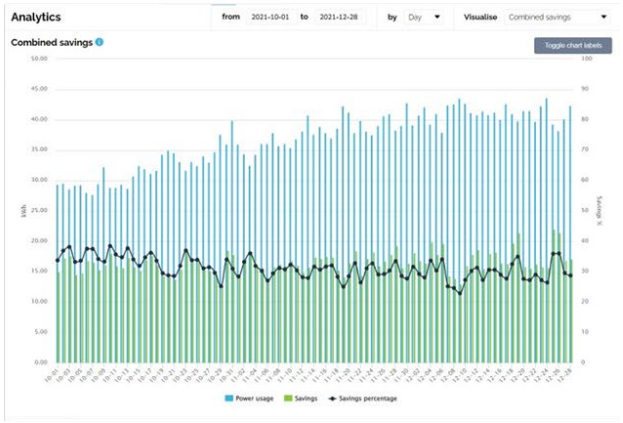
Smart Monitoring of Road Usage

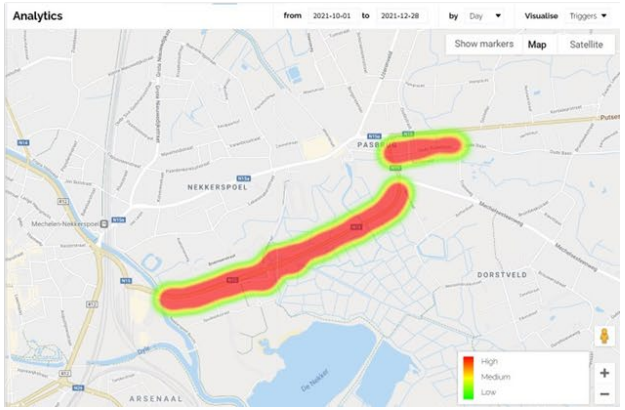
Understand how citizens use roads with heatmaps

- Measure people's movement
- Identify areas and spots that are popular at different times
- Spot trends and patterns to adjust street lighting levels based on road usage data

Smart Street Lighting Analytics



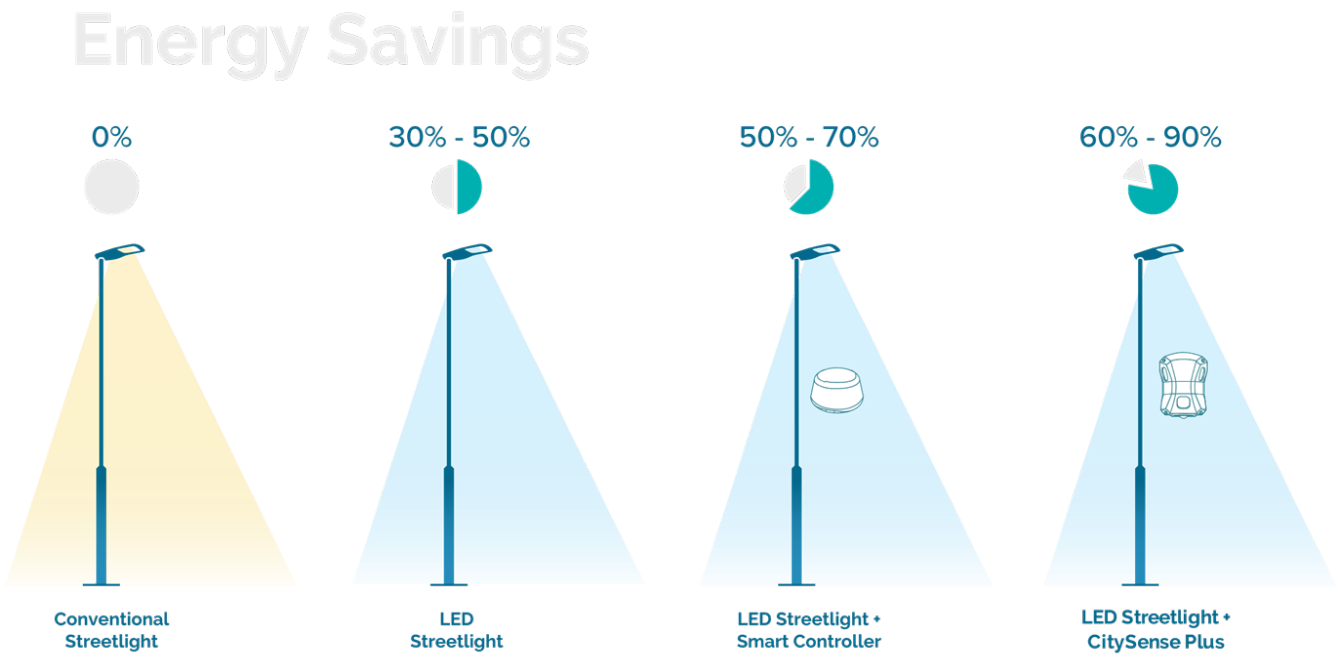




Gain insights to optimize lighting

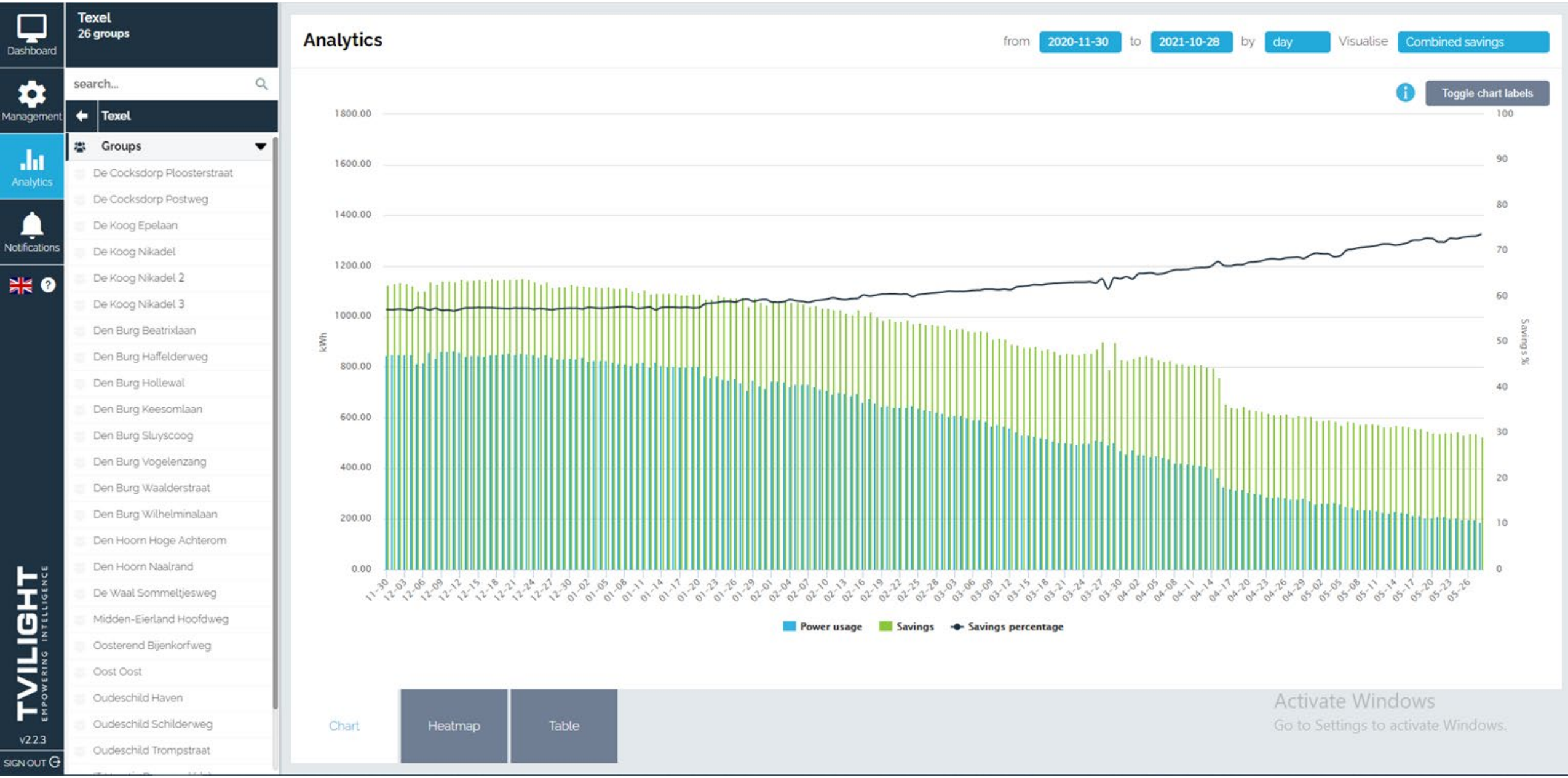
- CMS helps track lighting performance, status, energy consumption, savings of each luminaire
- Insightful graphical data helps make actionable plan to meet sustainability goals

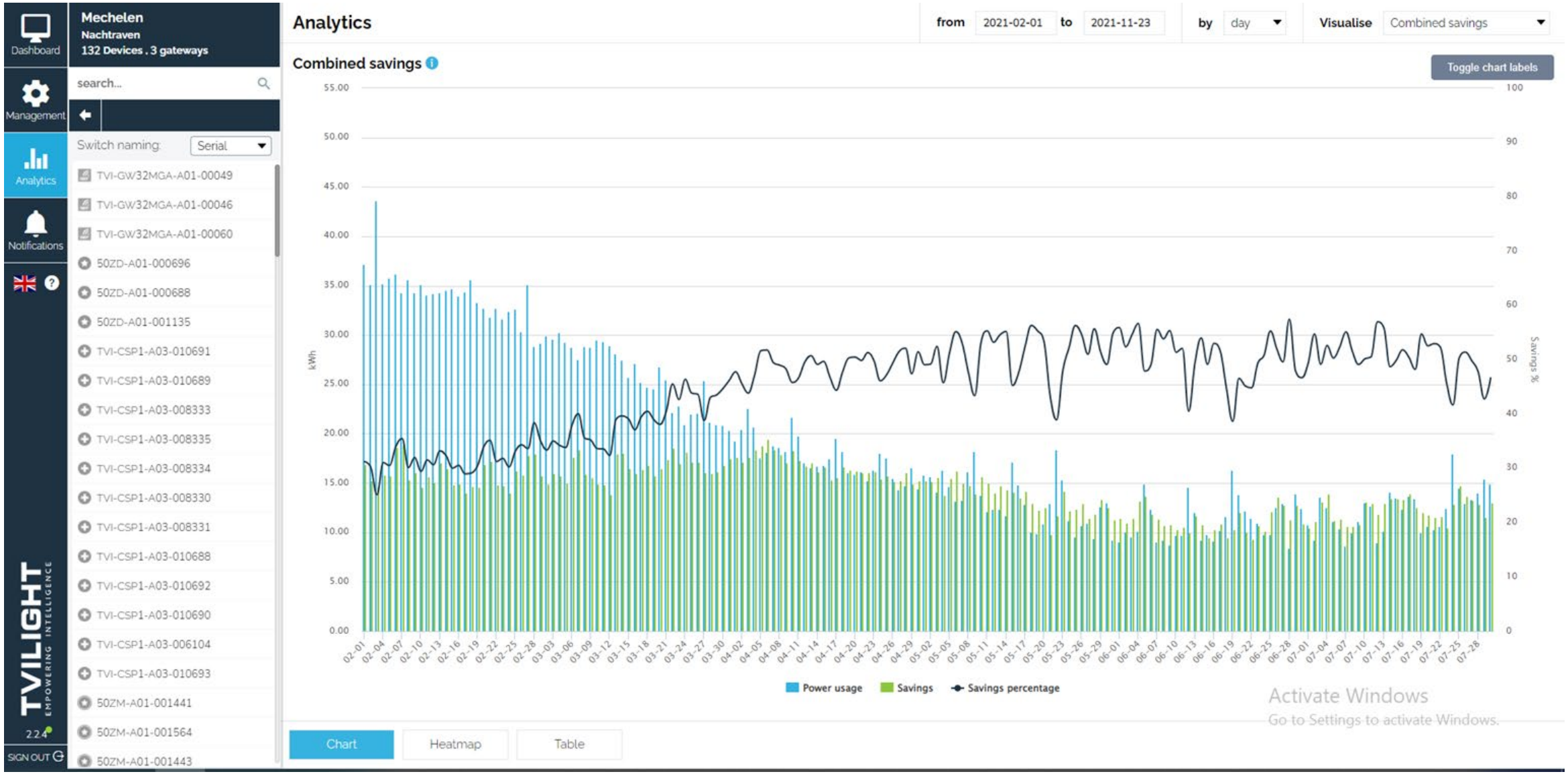
Achieve up to 90% Energy Savings



Energy savings above and beyond networked streetlights

- Motion sensor smart street lighting delivers up to staggering 90% energy savings
- This alternatively reduces significant carbon footprint and light pollution


Dashboard
Management
Analytics
Notifications
Texel
26 groups
search...
Texel
Groups
De Cocksdorp Ploosterstraat
De Cocksdorp Postweg
De Koog Epelaan
De Koog Nikadel
De Koog Nikadel 2
De Koog Nikadel 3
Den Burg Beatrixlaan
Den Burg Haffelderweg
Den Burg Hollewal
Den Burg Keesomlaan
Den Burg Sluyscoog
Den Burg Vogelenzang
Den Burg Waalderstraat
Den Burg Wilhelminalaan
Den Hoorn Hoge Achterom
Den Hoorn Naalrand
De Waal Sommeltjesweg
Midden-Eierland Hoofdweg
Oosterend Bijenkorfweg
Oost Oost
Oudeschild Haven
Oudeschild Schilderweg
Oudeschild Trompstraat
TVILIGHT
EMPOWERING INTELLIGENCE
v2.2.3
SIGN OUT
Analytics
from 2020-11-30 to 2021-10-28 by day Visualise Combined savings
Toggle chart labels
kWh
Savings %
Power usage
Savings
Savings percentage
Chart
Heatmap
Table
Activate Windows
Go to Settings to activate Windows.


Dashboard
Management
Analytics
Notifications
TVILIGHT
EMPOWERING INTELLIGENCE
2.2.4
SIGN OUT
Mechelen
Nachtraven
132 Devices , 3 gateways
search...
Switch naming:
Serial
TVI-GW32MGA-A01-00049
TVI-GW32MGA-A01-00046
TVI-GW32MGA-A01-00060
50ZD-A01-000696
50ZD-A01-000688
50ZD-A01-001135
TVI-CSP1-A03-010691
TVI-CSP1-A03-010689
TVI-CSP1-A03-008333
TVI-CSP1-A03-008335
TVI-CSP1-A03-008334
TVI-CSP1-A03-008330
TVI-CSP1-A03-008331
TVI-CSP1-A03-010688
TVI-CSP1-A03-010692
TVI-CSP1-A03-010690
TVI-CSP1-A03-006104
TVI-CSP1-A03-010693
50ZM-A01-001441
50ZM-A01-001564
50ZM-A01-001443
Analytics
from 2021-02-01 to 2021-11-23
by day
Visualise Combined savings
Combined savings
Toggle chart labels
kWh
Savings %
Power usage
Savings
Savings percentage
Chart
Heatmap
Table
Activate Windows
Go to Settings to activate Windows.

Features to improve day-to-day operations…

Automatic

CitySense enables on-demand lighting by automatically adjusting the brightness of the lamps according to human presence

Full Remote Management & Control

Monitor and control CitySense connected streetlights with our own software, CityManager, or any suitable 3rd party software

Ensure it's Never too Dark

Instead of turning the lights off, CitySense dims them down to a pre-defined level of brightness, maintaining safety perception of the citizens

Features to improve day-to-day operations…

Failproof

3-level back-up system. In an unlikely case of a system failure, street lamps will return to the brightness of 100%

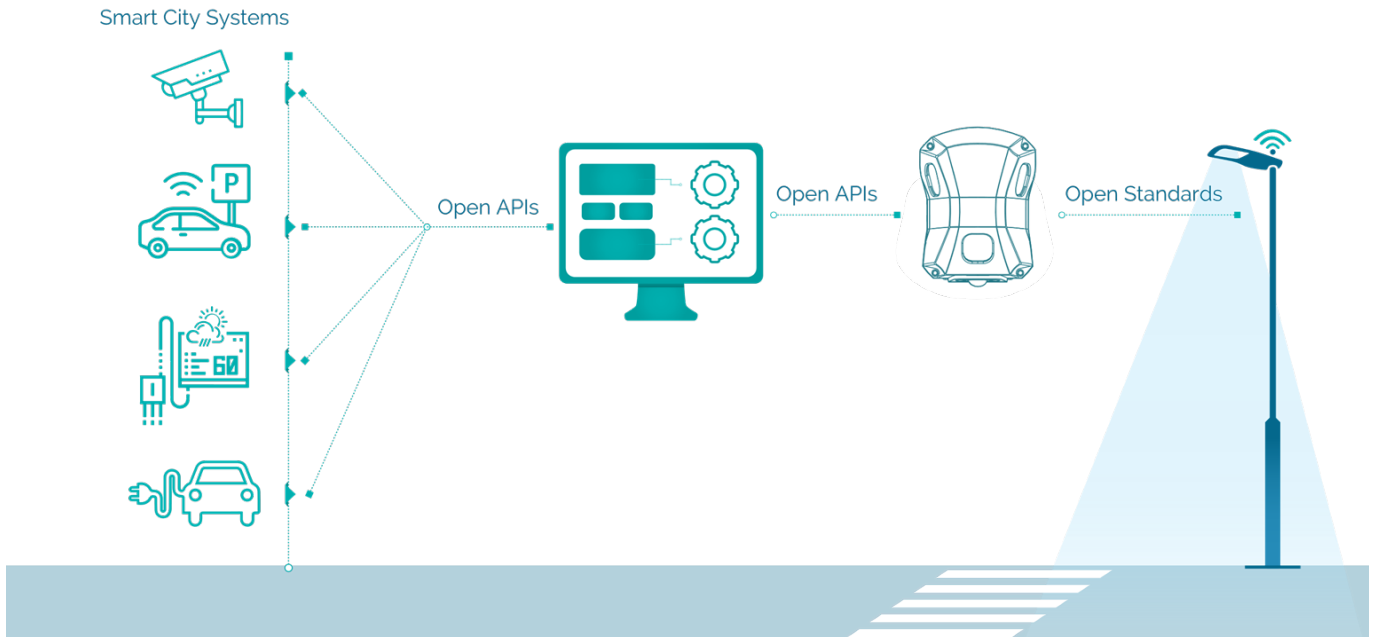
Weather Resistant

IP65 / 66 rating. CitySense Plus and CitySense Lite are specifically designed for harsh outdoor environments

Universal Luminaire Compatibility

CitySense can be integrated easily into the existing lighting infrastructure. External installation means no change in the LED luminaire.

Smart City Ready // Connect to Your Preferred Platform



Built on Open Standards and APIs

- Works with a range of IoT and Smart City systems
- Selected examples:
  - Cisco Kinetics
  - Siemens Atos
  - SixData luxData.light
  - Osram LumIdent

Proven Solution

> Over 25.000 CitySense motion sensors installed in over 20 countries across the globe

Client Testimonials

Tvilight's adaptive lighting control is an excellent solution; it has allowed us to save energy as well as manage the street lights remotely. I truly believe that this is the future for the Netherlands, Europe and the world.

Robin Brekelmans,

Municipality of Nuenen

The beauty of the Tvilight solution is that it doesn't compromise public safety in any way. This true light-on-demand helps to keep the streets safe, while minimizing energy use and light pollution.

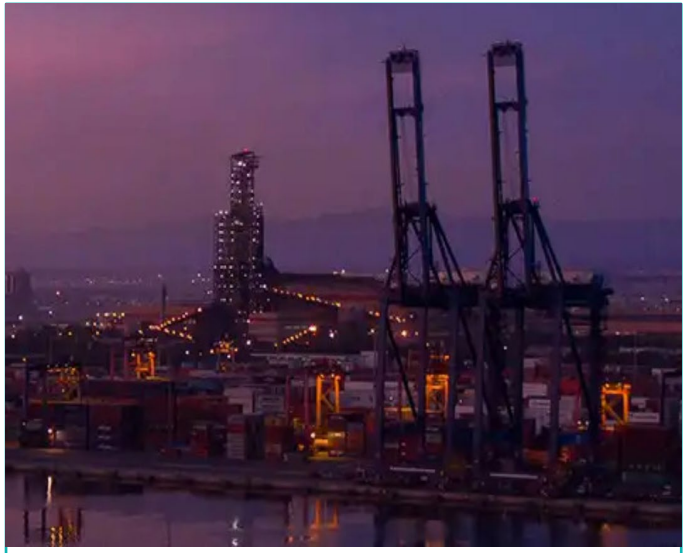
Haye Mensonides,

Dynniq

Selected Case Studies

Motion Sensor Smart Street Lighting in Belgium

Learn more



Light on demand at Sohar Port & Freezone, Oman

Learn more

Largest Sensor-based Smart Lighting Project in India

Learn more

Selected Case Studies

Starry Night on the Island of Texel, NL

Read more

Intelligent Lighting at famous Van Gogh village, NL

Read more

On-Demand Lighting in Park space, NL

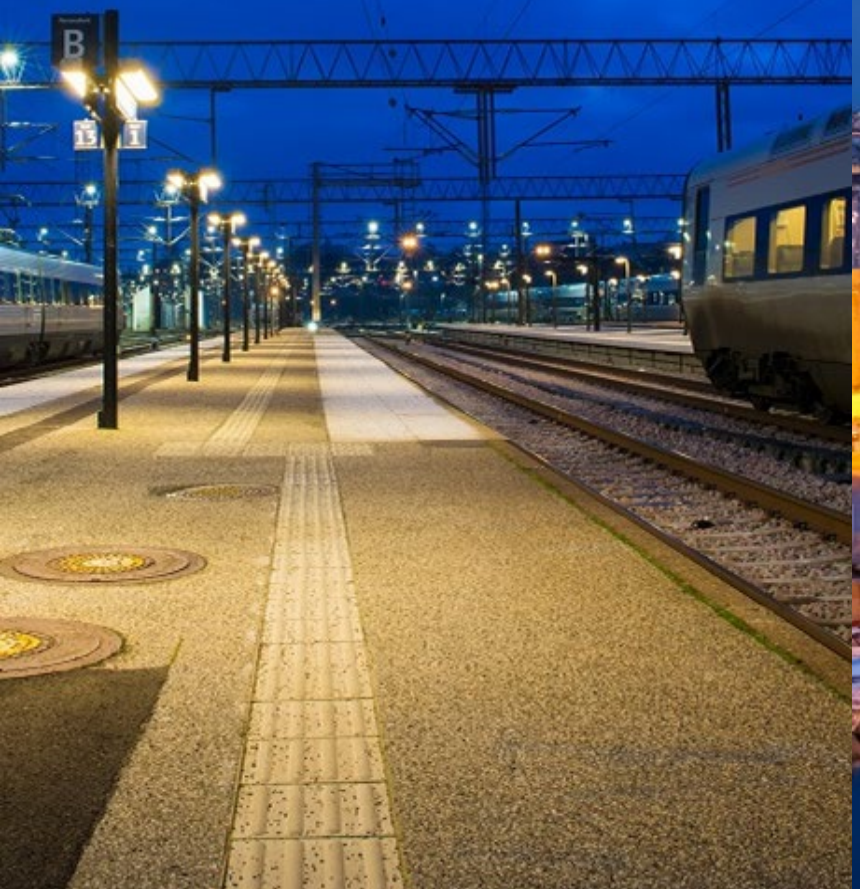
Read more

Urban Streets

Industrial Zones

Residential Areas

Train Station / Railway Lines



Ports / Sea Terminals

University / School Campuses

Bicycle Roads

Outdoor Parking

Public Parks

Like it.

Why not give it a try?

Want to learn more?

Need datasheet?

CitySense (pole mount): https://tvilight.com/citysense-plus

CitySense (zhaga): https://tvilight.com/citysense-lite

Thank You

We look forward to working with you!

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