



Smart Street Lighting for Smarter Cities

OpenSky Zhaga IoT

v2022.04.06

Why invest in Smart Streetlights?



60% - 80% 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

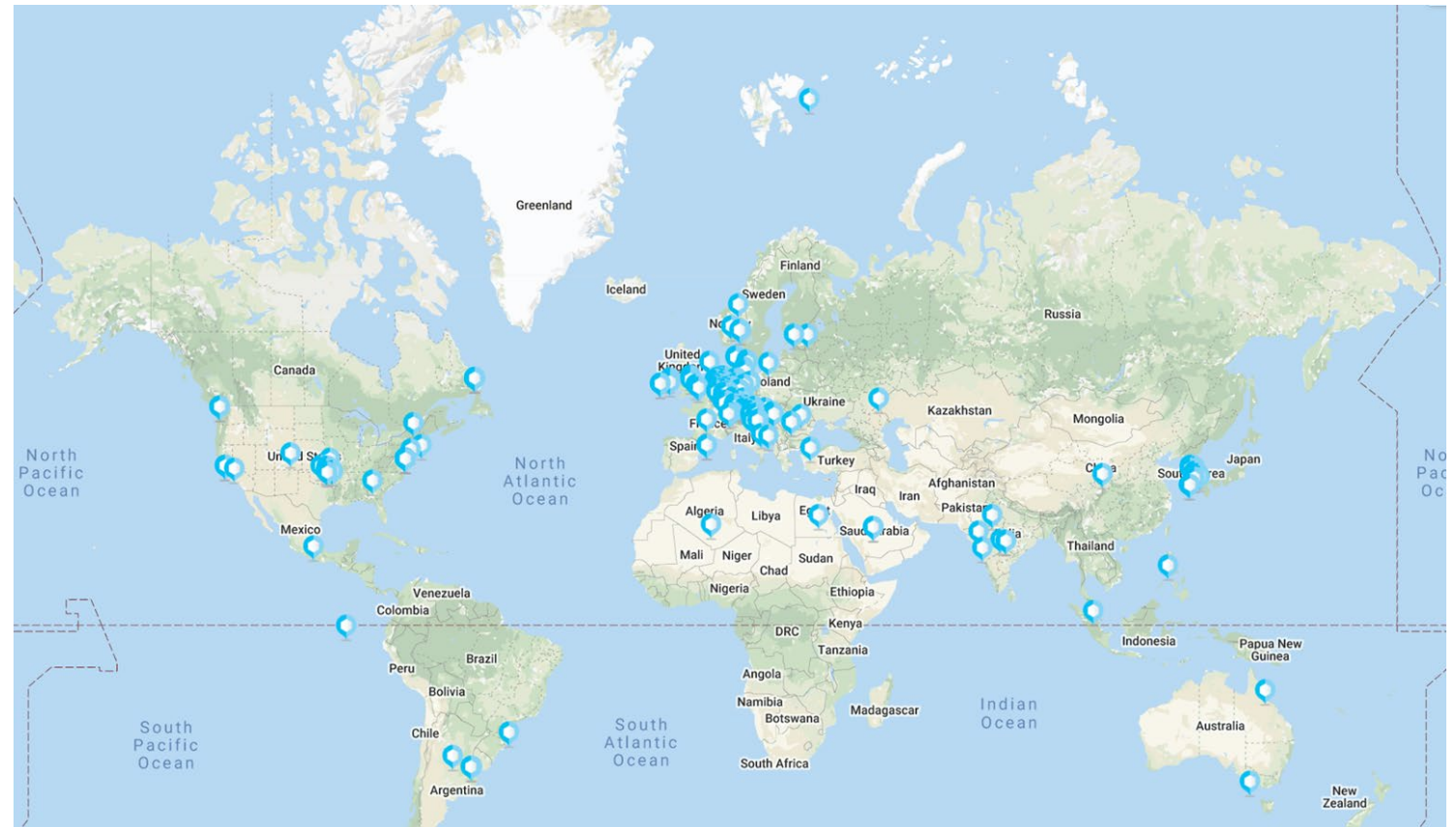


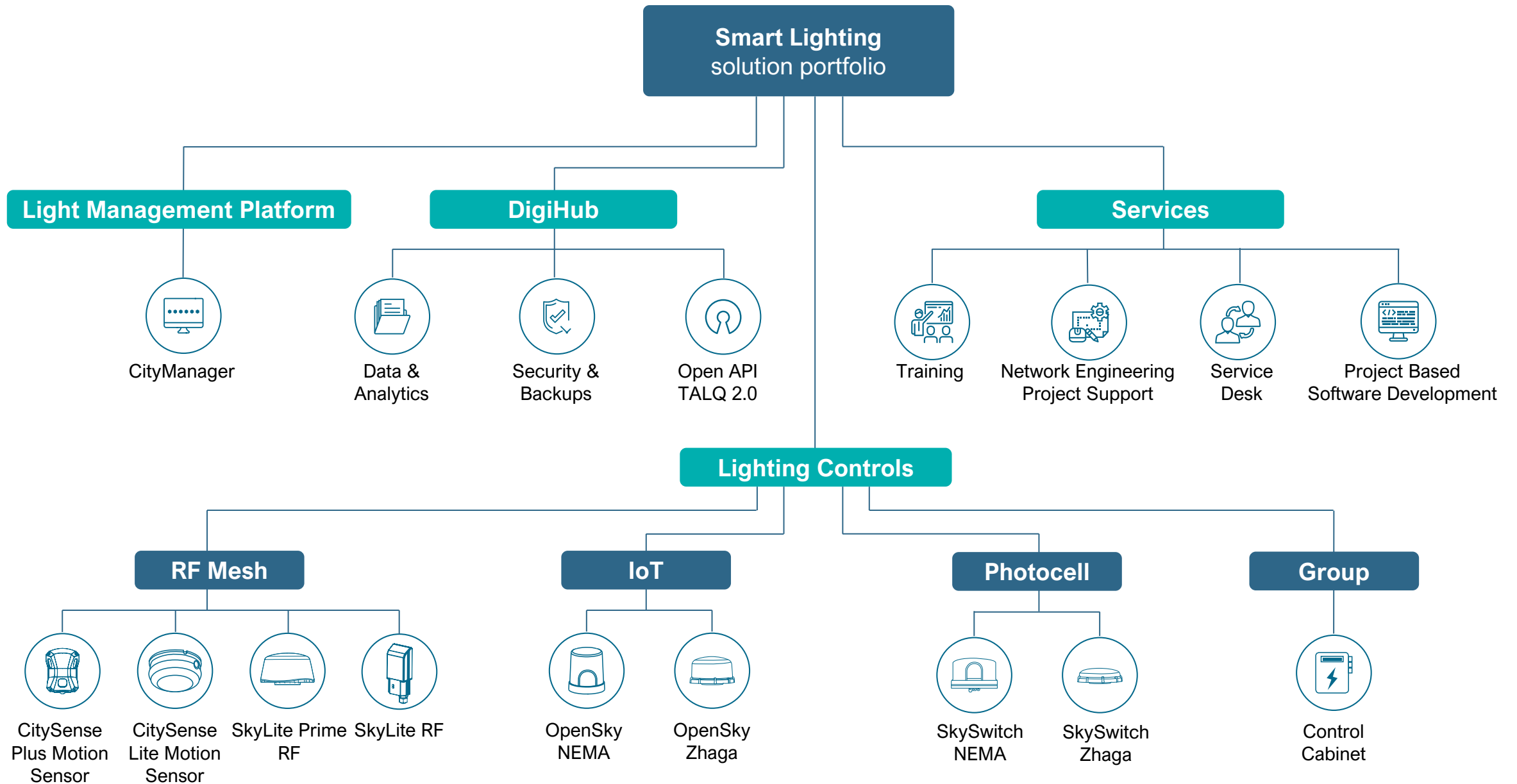
Global presence: 100k+ connected streetlights, 650+ projects

Monitored by CityManager and supported by our Service Desk

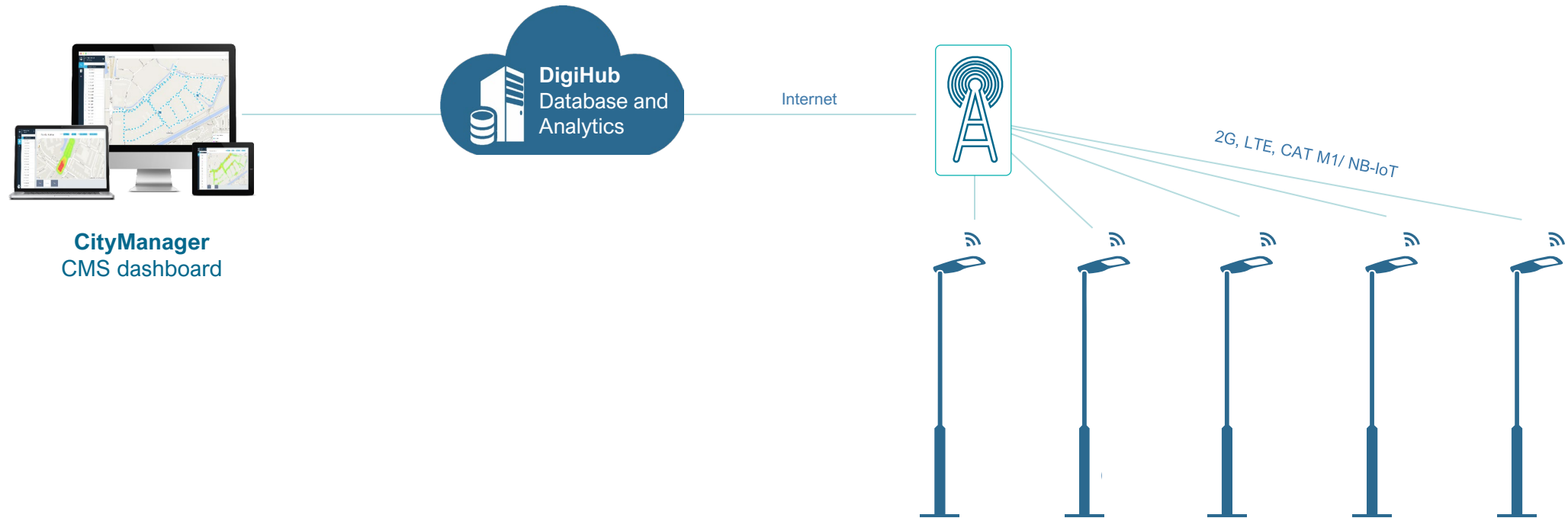
Selected Projects

- Dortmund (DE) 25.000 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 with secure IoT network



Wireless Smart Lighting

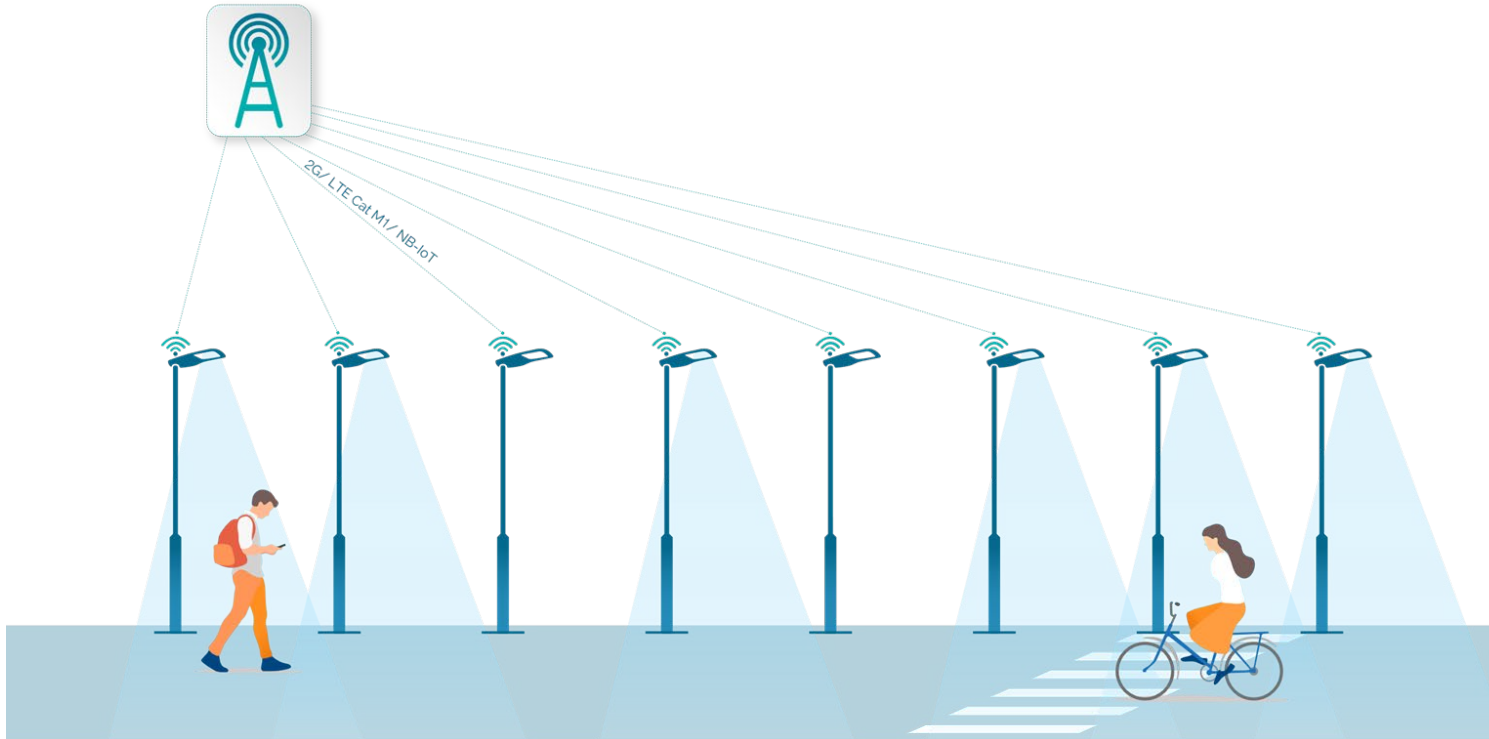
- Open Standard Cellular Network
- Edge (EGPRS), LTE CAT M1 and NB-IoT (NB2) connectivity
- No local gateway needed
- Highest security standard regulated by 3GPP

Zhaga IoT Street Light Controller



- Remotely **monitor, manage** and **control** citywide streetlights
- **Plug & play installation** through standardized Zhaga book 18 socket and auto-commissioning system
- Connects directly to **local secure cellular network**

Global Standard, Local Network



Lamp connects directly to local cellular tower

- Highest available security (3GPP)
- Fully managed network by local telco
- Excellent network uptime
- Automatically selects the best signal and the best operator: EGPRS (Edge/ 2G), LTE Cat M1, NB-IoT (NB2)
- Long range, deep coverage

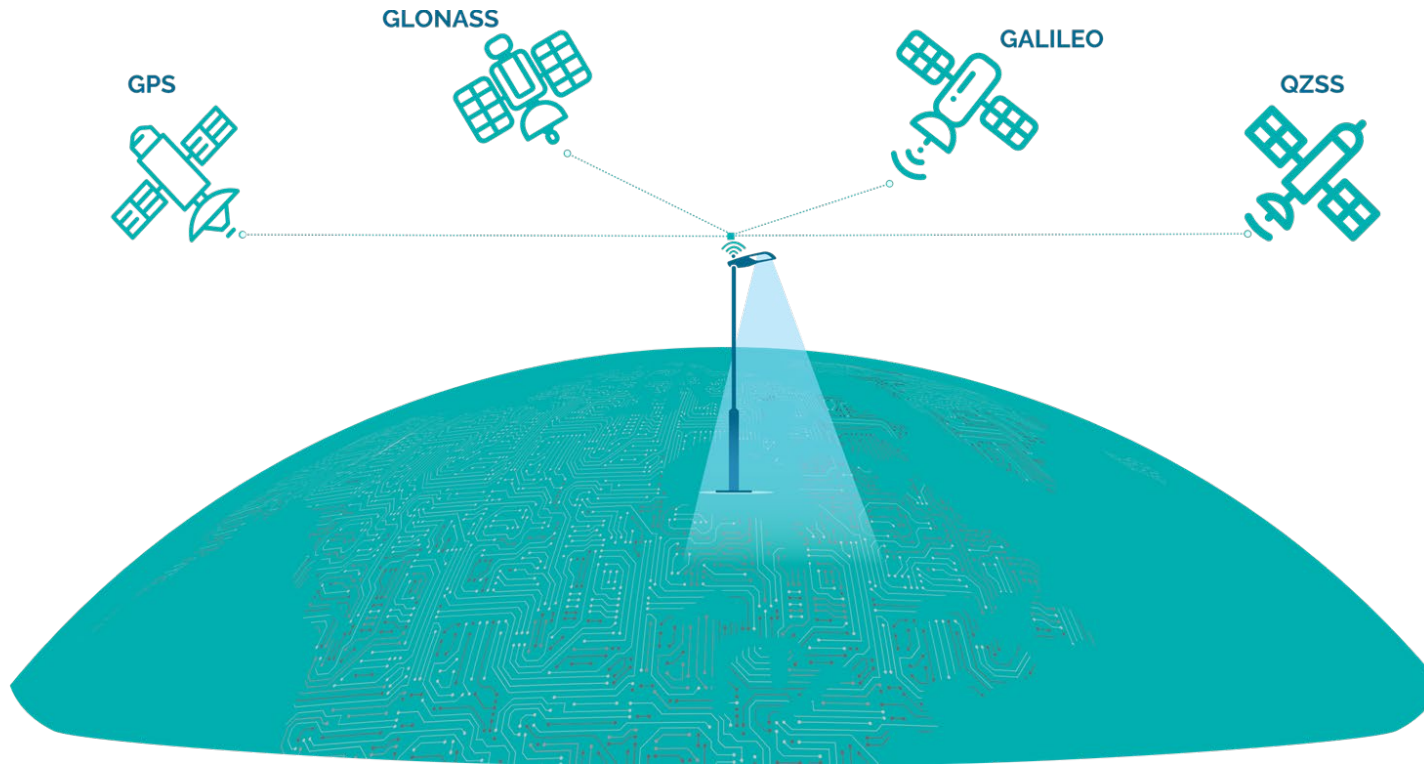
Gateway free installation



Devices communicate directly with LMS

- Full control over individual streetlights
- Eliminates cost and hassle of installing and maintaining multiple gateways
- Live dimming / switching response

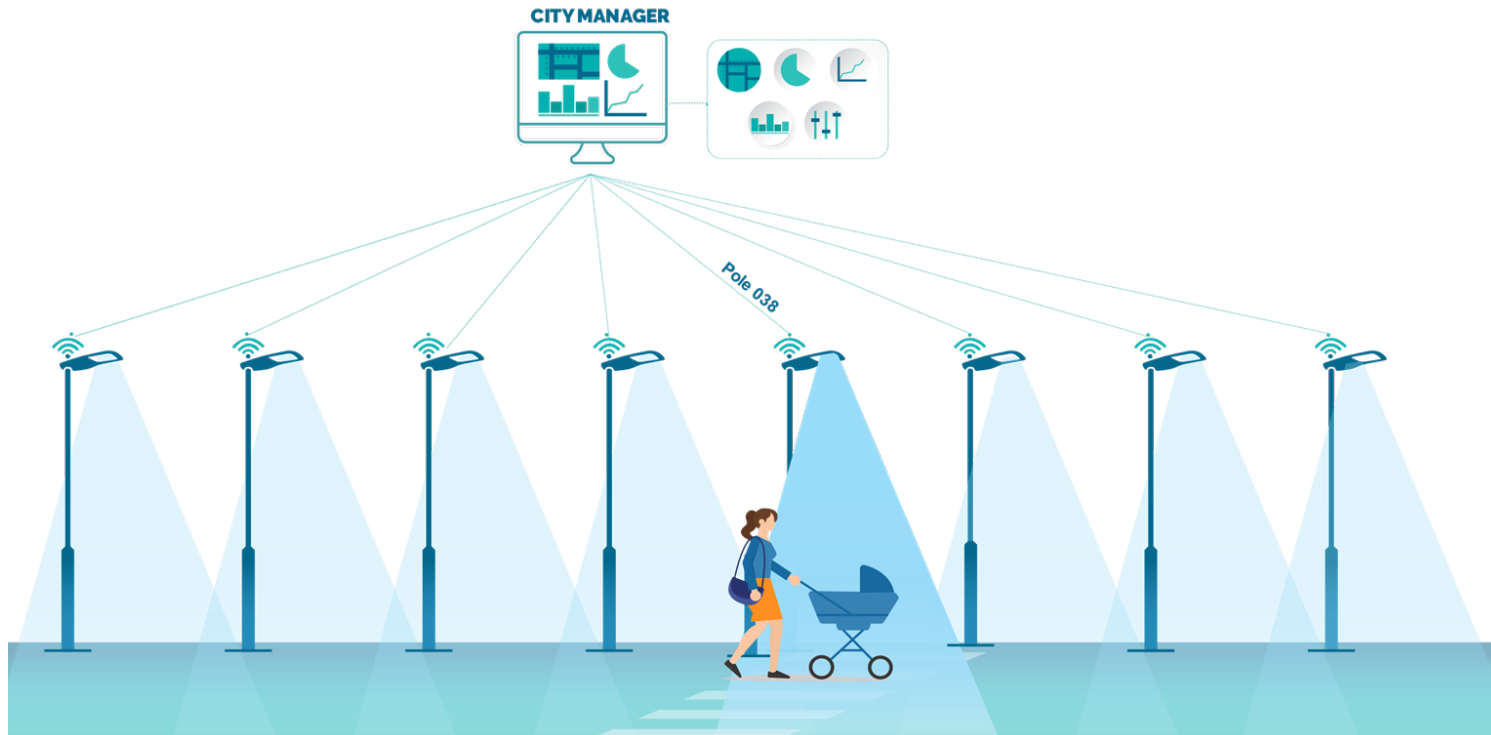
Auto commissioning, easy deployment



In-built GPS activates device

- True plug-and-play installation
- Device geo-locates automatically upon power, and auto-registers to your LMS
- Eliminates entire network engineering efforts

Point level control at your fingertips



Manage each light individually

- Switch or dim each luminaire using custom light scenes
- Set different light levels for main roads, traffic junctions and zebra crossing.
- Maintain flexibility to adapt light profile to future city needs.
- Receive meaningful alerts and insightful data of every street light

Adjust street light colours



Create the right ambience

- Choose from a broad spectrum of colours or any shade of white to find the right tone (RGBW)
- Adjust colours based on:
 - Profiles
 - Specific days
 - Certain events
 - Human movements (motion sensing)

* Currently works with OpenSky Zhaga IoT Controllers

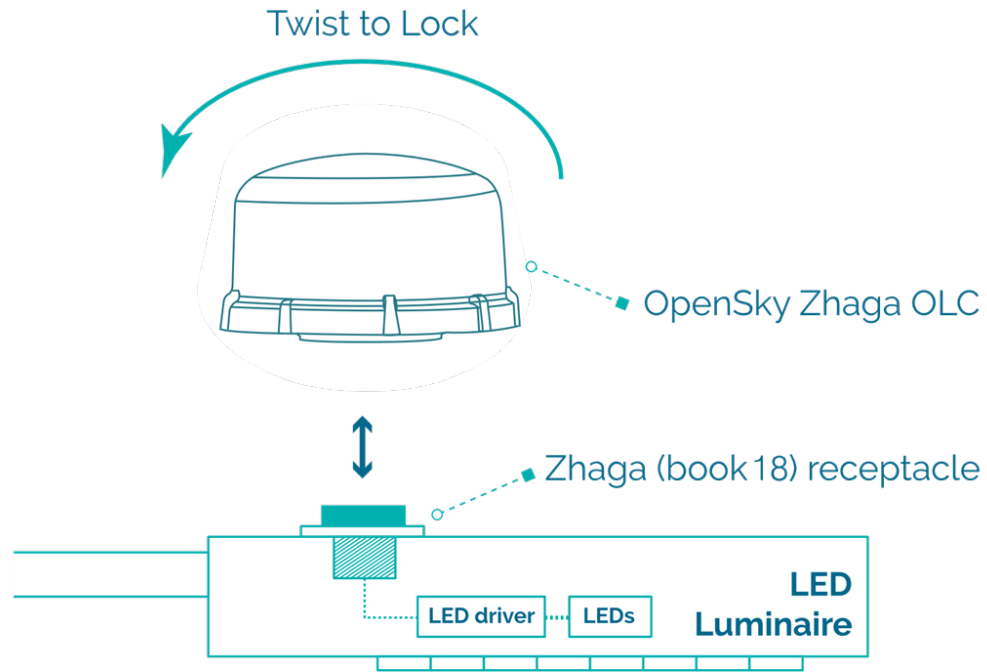
Finer control over Dimming & Switching



Regulate light levels as situation demands

- Photocell
- RGBW (through multi-addressable DALI, DT6, DT7, DT8 drivers)
- Twilight (Photocell / Ambient Light Sensor)
- AstroClock (Astronomical Clock)
- Time-based Light Scene
- Calendar-based Schedules
- Central ALS (Photocells in City)
- Adaptive (Motion Sensor)
- Autonomous Mode

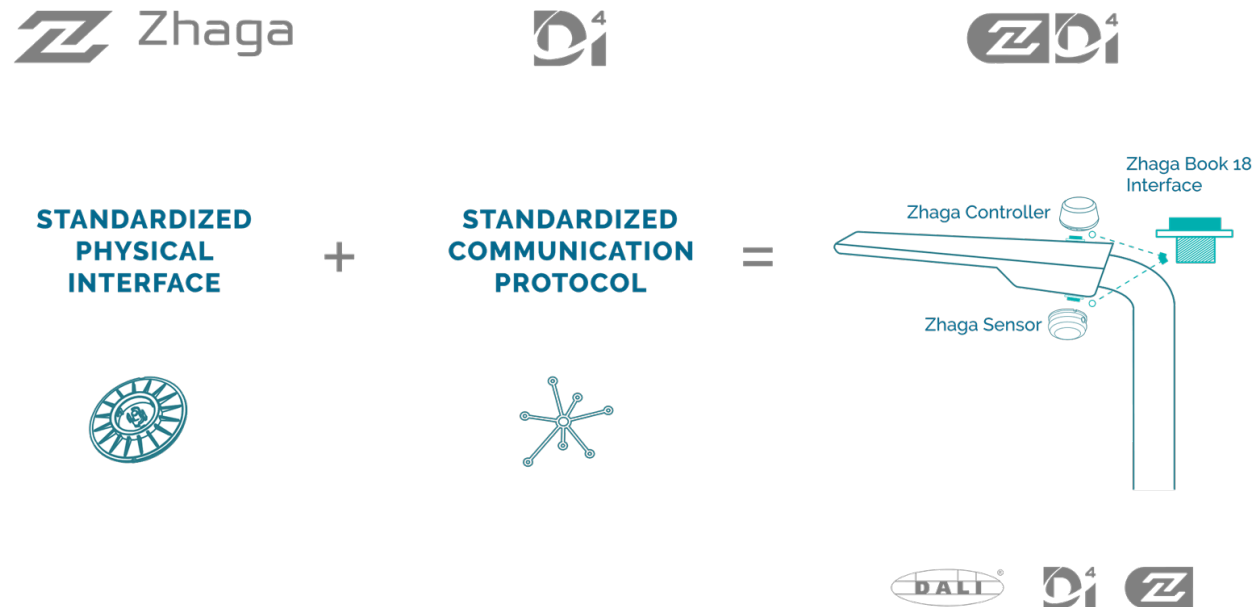
Standardized interface, Luminaire agnostic



Fully Compliant to Zhaga Book 18 Standard

- Plug and play installation
- No special tool or training needed
- Works with any Zhaga compatible luminaire/ street lighting fixture

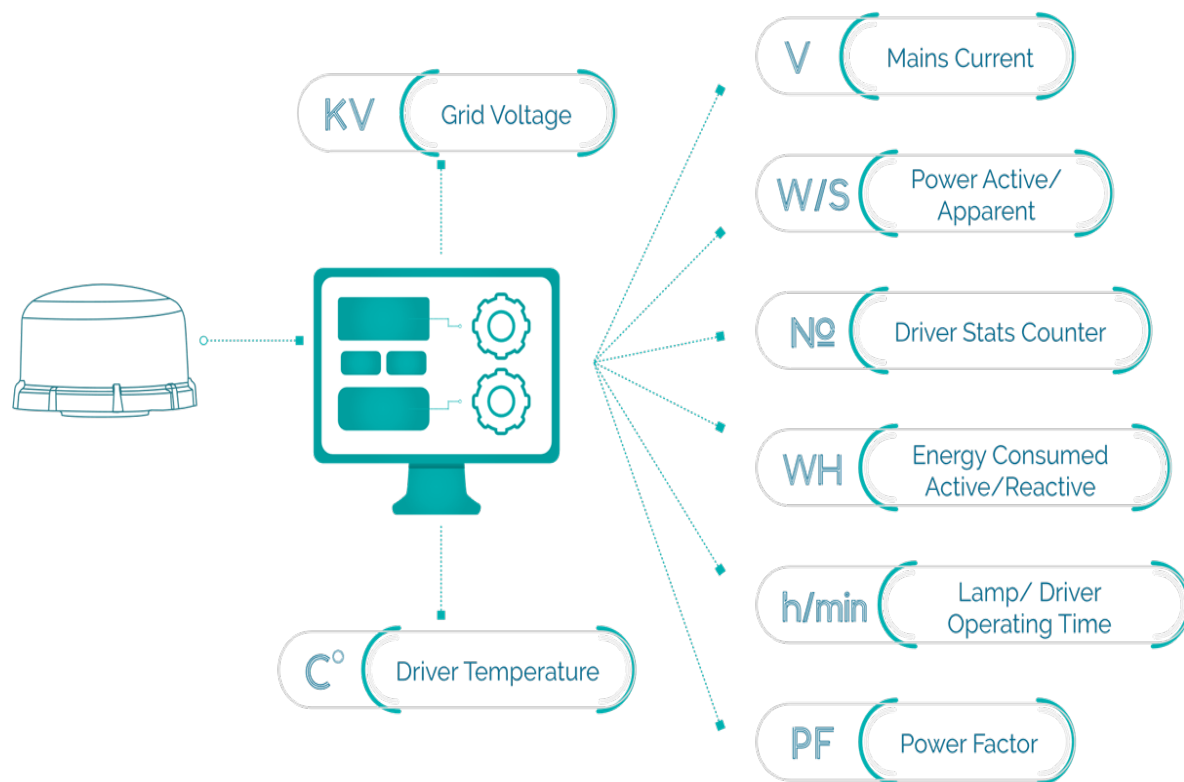
Interoperable – No Vendor Lock-in



**Open architecture
enables excellent
interoperability**

- Select any Zhaga street light fixture of your choice
- Use multiple vendors in a single project
- Integrate any D4i or LSI based motions sensors

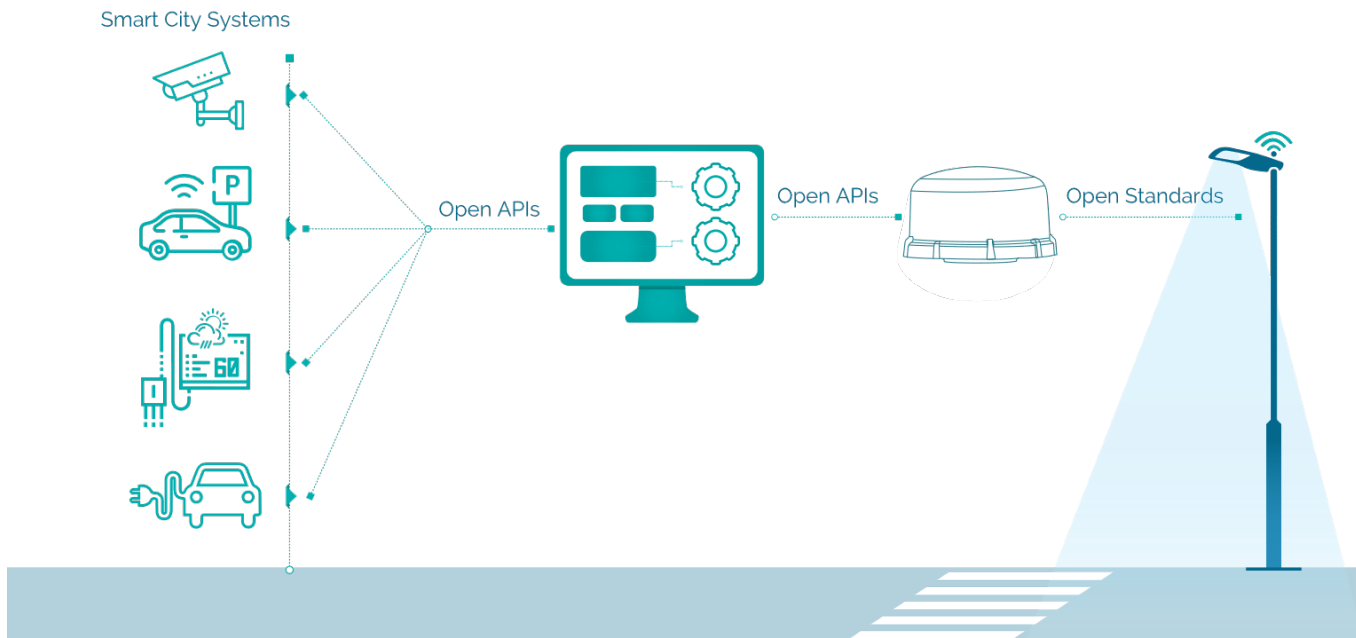
Advance health monitoring data



Achieve Predictive Maintenance

- Pairing Smart D4I Driver delivers advance luminaire, driver and power-grid data
- Data set includes driver temperature, input voltage/ power/ current/ power factor, etc.
- Notifications, alerts and error logs

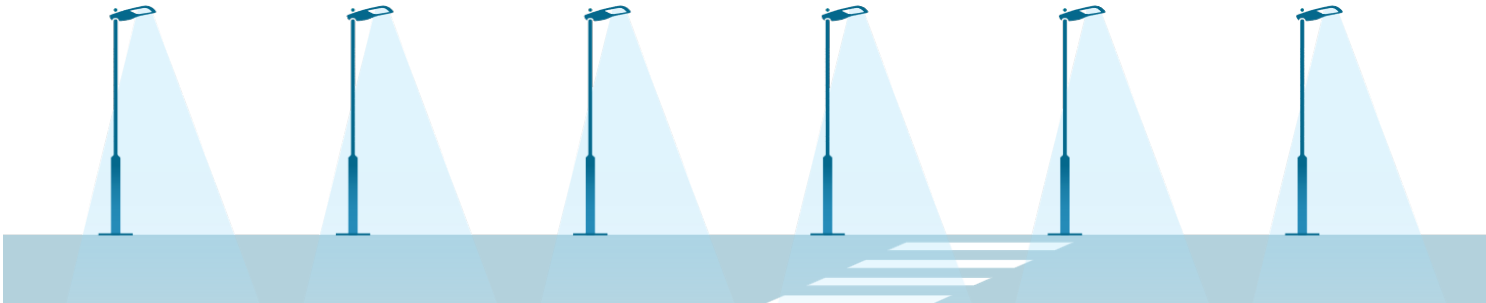
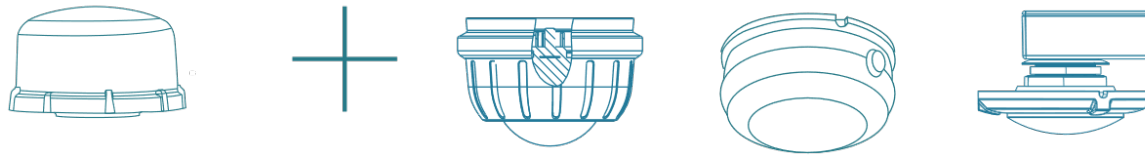
Smart City Ready



Built on Open Standards & APIs

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

On-Demand Adaptive Lighting



Connects with any DALI D4i and LSI-based motion sensors

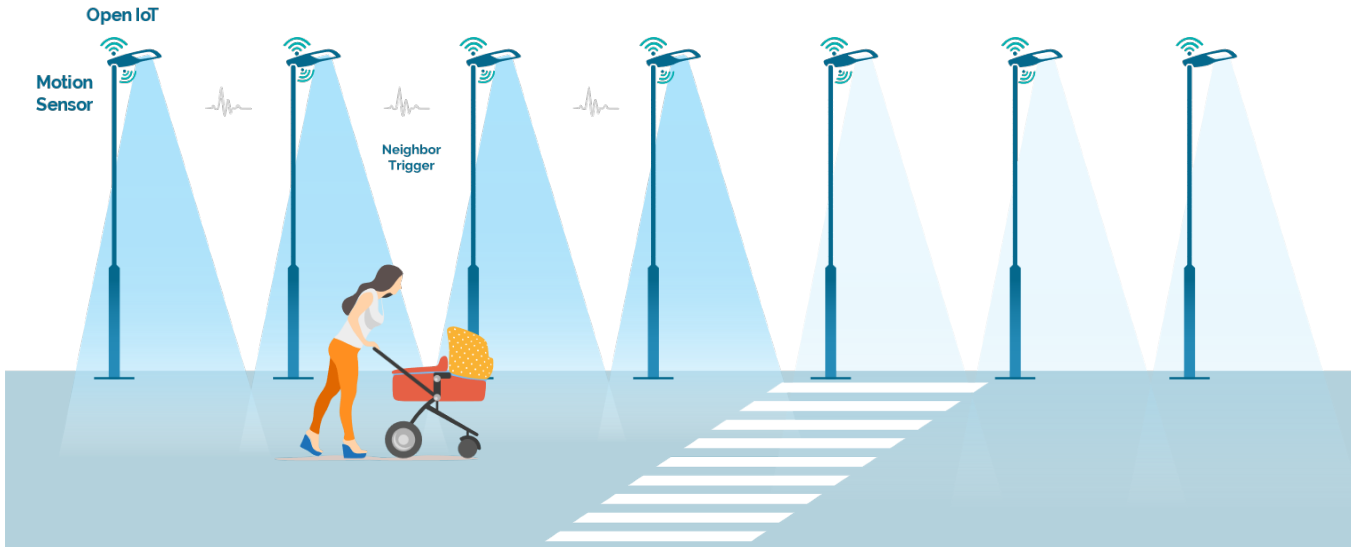
- Light-on-demand based on presence detection
- Suitable for pedestrian, bicyclist and road traffic
- Motion sensors improve public safety perception

Safe circle-of-light – automatic neighbour trigger

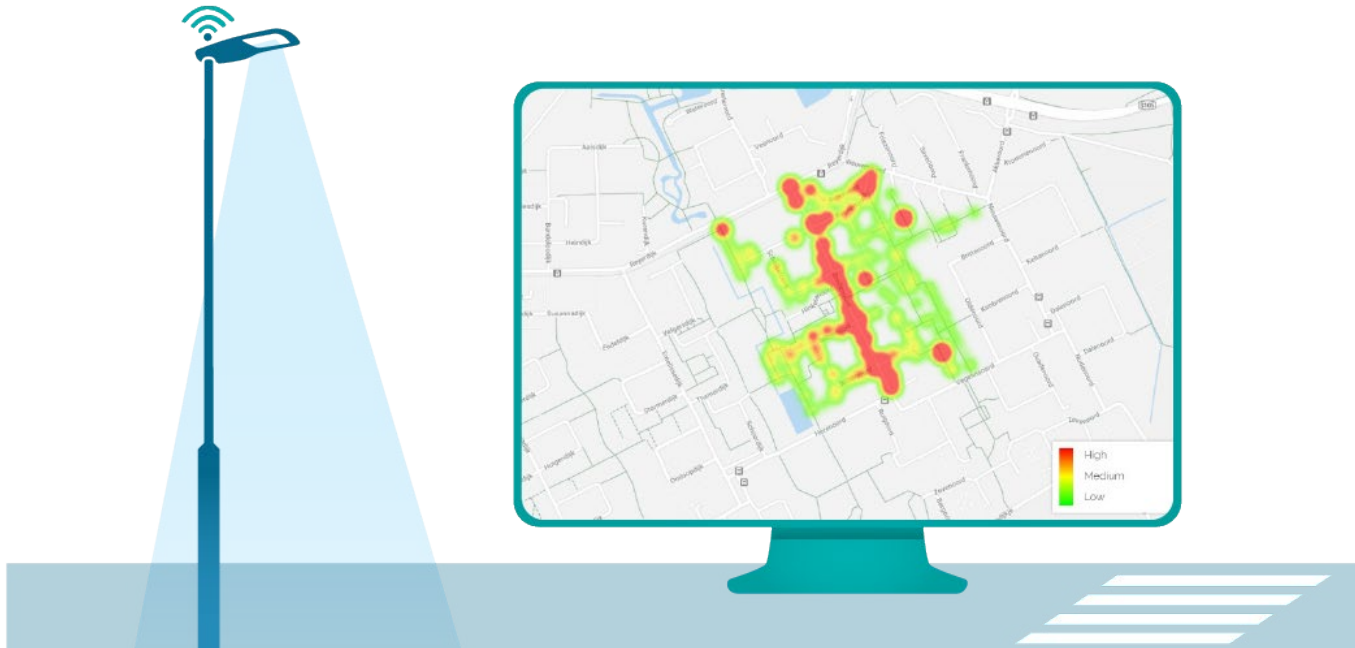
Beta

Experience light-on-demand

- Road users drive through a safe circle-of-light ([Skyglow Beta](#))
- Motion sensing enhances public safety perception
- Achieves 60% - 90% energy savings
- Significant reduction in carbon footprint and light pollution
- Benefits local flora and fauna



Visualize Road Usage with Heatmaps



Understand how citizens use roads

- Pairing motion sensors helps:
- 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

Features to improve day-to-day operations...



Integrated Light Sensor

Integrated photocell (twilight sensor) enables streetlight switching based on the naturally available ambient light



Interoperable

Supports multiple dimming protocols (0-10V, DALI, DALI 2, SR, D4I and ANSI C137.4)



Timely Notifications

Receive all updates about your street lighting infrastructure via email and CityManager platform

Features to improve day-to-day operations...



Pole Knock-Down Alert

In-built tilt sensor sends an automatic alert if the street pole suffers damage due to car crash



Over-the-Air Updates

Thanks to the faster communication with the device, software updates take place in matter of minutes



IP66 + UV Stabilised

IP66 and UV stabilised housing protects the device in the harsh environment and ensures prolonged life

Urban Streets



Industrial Zones



Residential Areas



**Train Station /
Railway Lines**



Ports / Sea Terminals



University Campus



Bicycle Roads



Outdoor Parking



Public Parks



Like it.

Why not give it a try?

Want to learn more?

Need datasheet?

Contact us at: sales@tvilight.com

We look forward to working with you!

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