

TVILIGHT

EMPOWERING INTELLIGENCE



Smart Street Lights for Smarter Cities
Zhaga RF Mesh

v2023.04.06

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

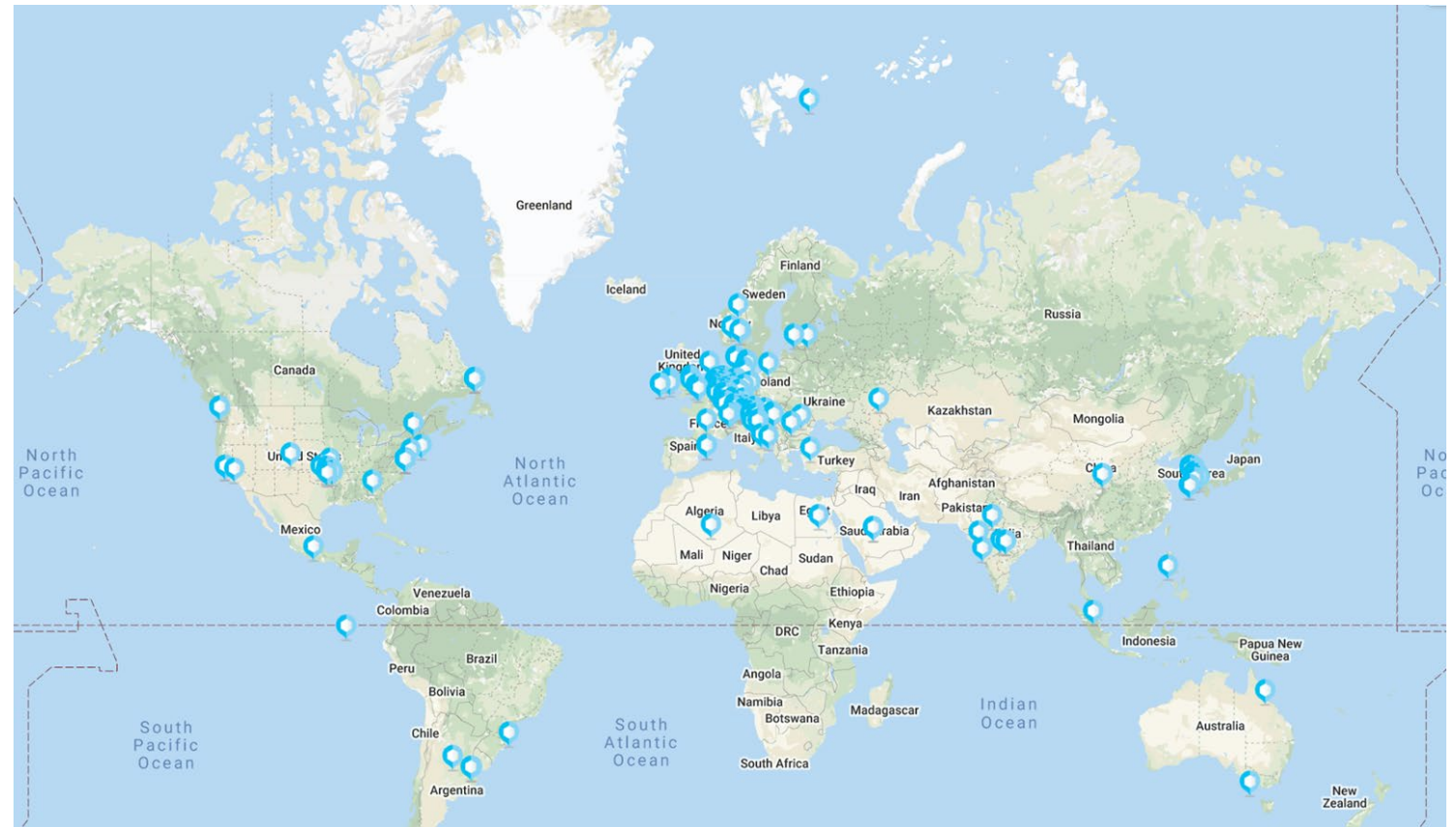


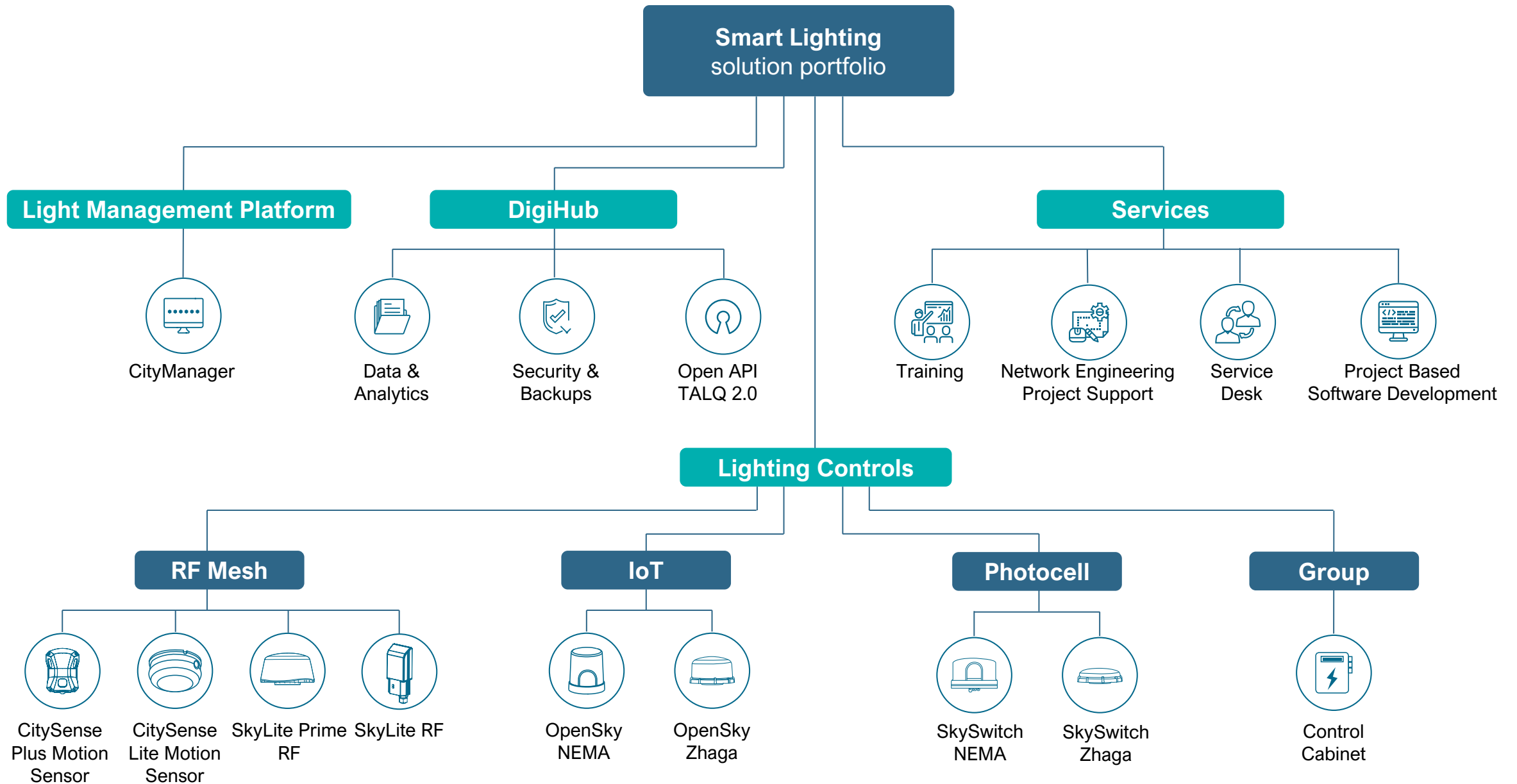
Global presence: 100k+ connected streetlights, 650+ projects

Monitored by CityManager and supported by our Service Desk

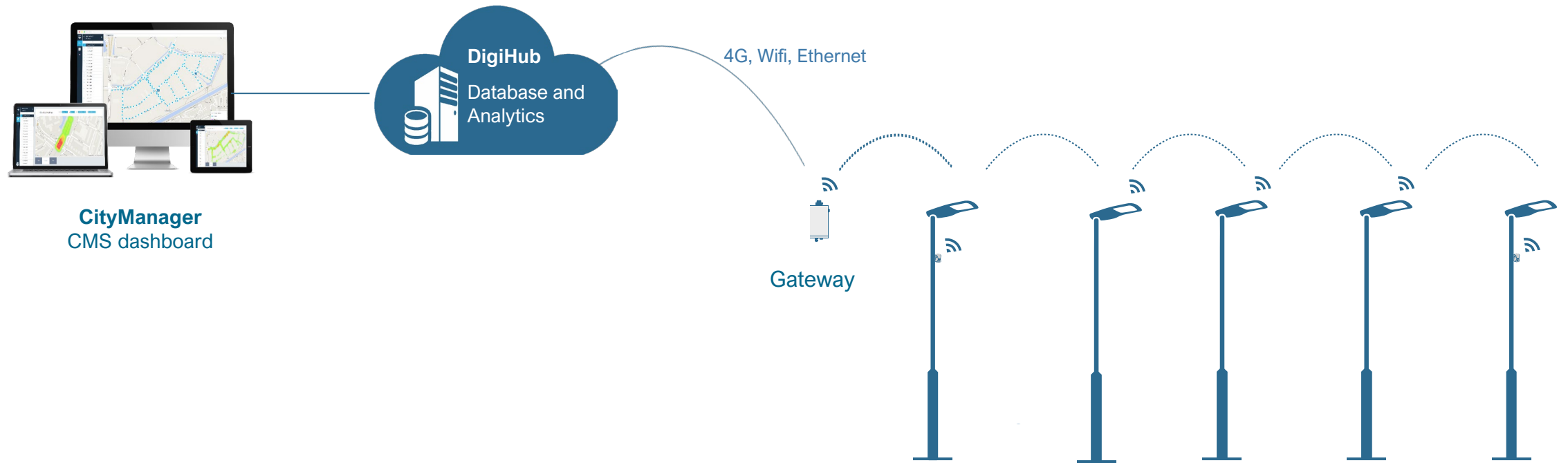
Selected Projects

- 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 Wireless mesh network



Wireless Smart Lighting

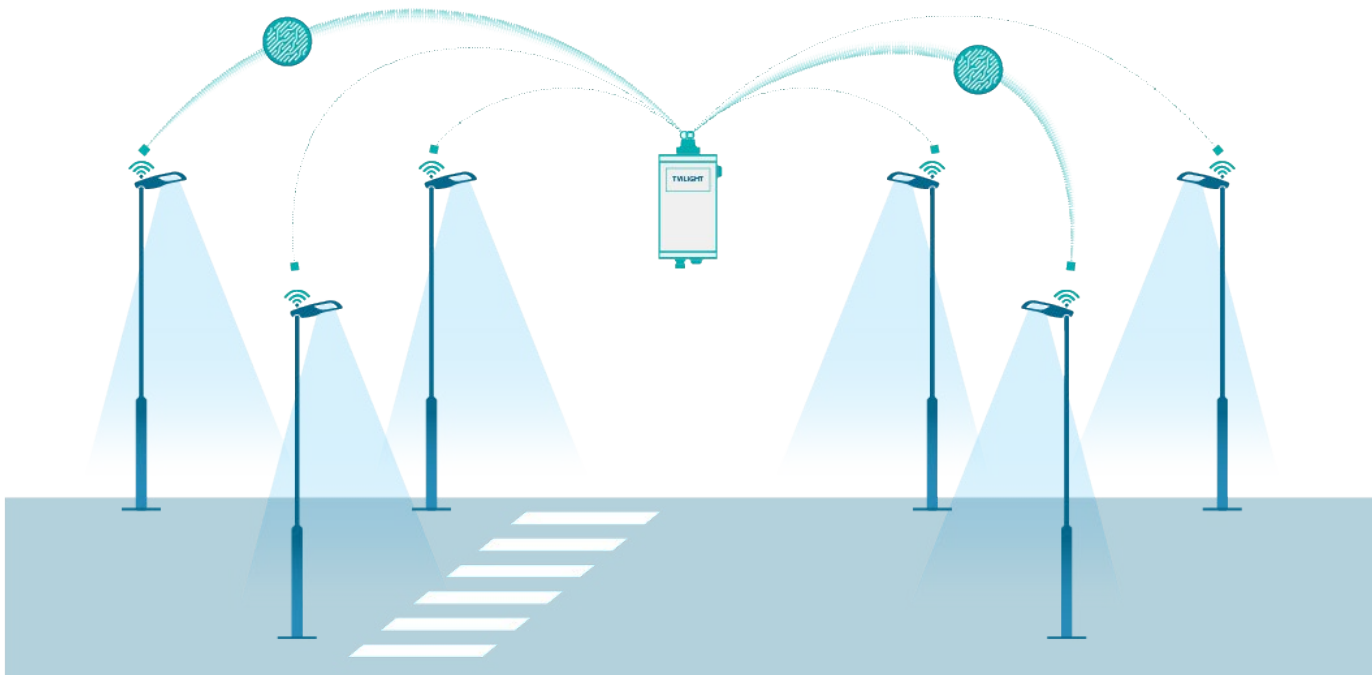
- 2,4 GHz network, 250 kbps
- High bandwidth, low latency
- Real-time RF Mesh network
- High security 128 AES encryption
- Light-on-demand (140 km/h)

Smart Street Light Controller Zhaga RF Mesh



- Remotely **monitor, manage** and **control** citywide streetlights
- **Plug & play installation** through standardized Zhaga book 18 socket and auto-commissioning system
- Uses self-forming, self-healing industry standard RF mesh network

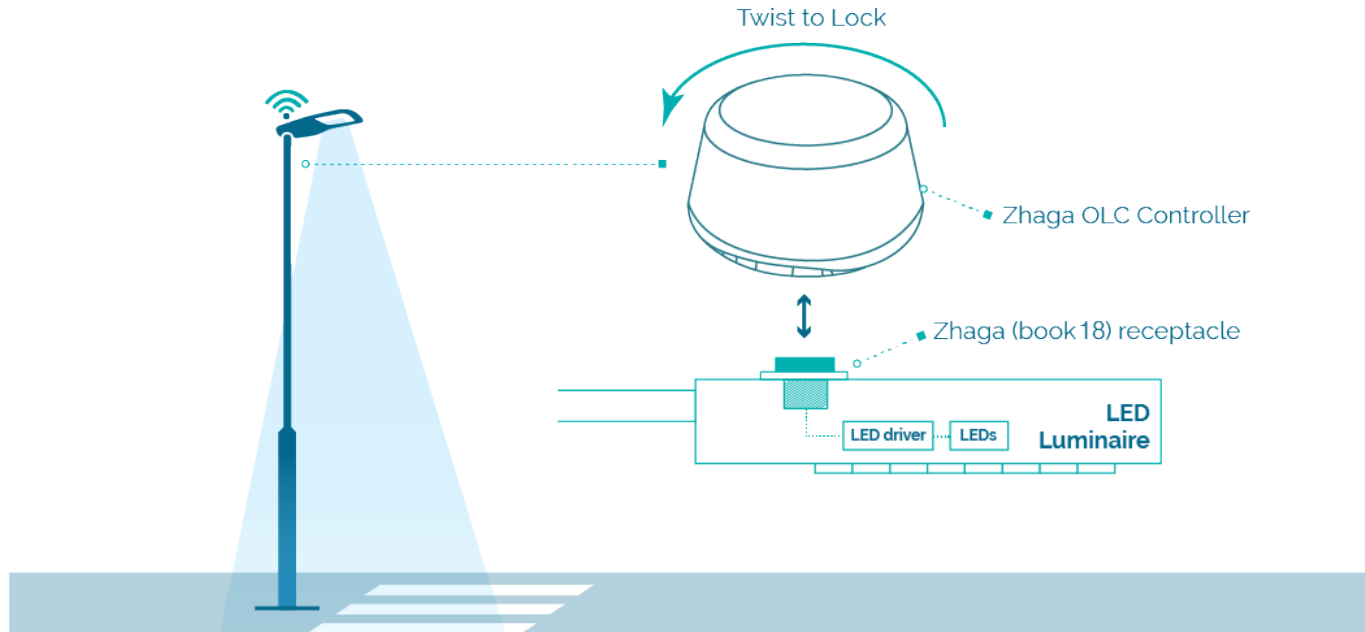
Secure Wireless Mesh Network



Secure communication over wireless network

- Self-forming and self-healing network
- Real-time communication
- Automatic Gateway connection
- Suitable for small and large areas alike
- IEEE regulated high encryption

Quick and Tool-Free Installation



Standardized Zhaga Book 18 Interface

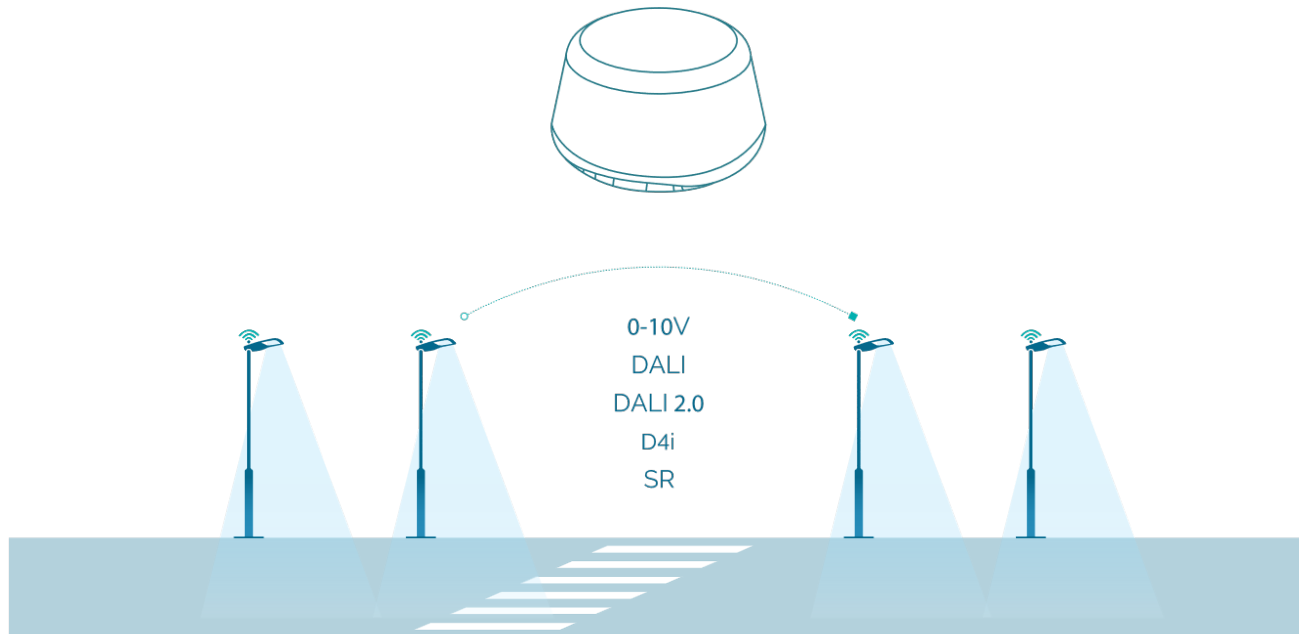
- True plug-and-play installation
- No special training or tools needed
- Connects with any Zhaga equipped luminaire

Flexible Dimming Control

Supports multiple dimming protocols

between Controller and LED Driver

- 0-10V (analog)
- DALI
- DALI 2.0
- D4I
- SR



Finer control over Dimming & Switching



Regulate light levels as situation demands

- Twilight (Photocell / Ambient Light Sensor)
- Adaptive Lighting (Motion Sensor)
- Time-based Light Scene
- Autonomous
- AstroClock (Astronomical Clock)
- Calendar-based Schedules
- Emergency (HiLight App)
- Central ALS (Photocells in City)

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

Interoperable – No Vendor Lock-in

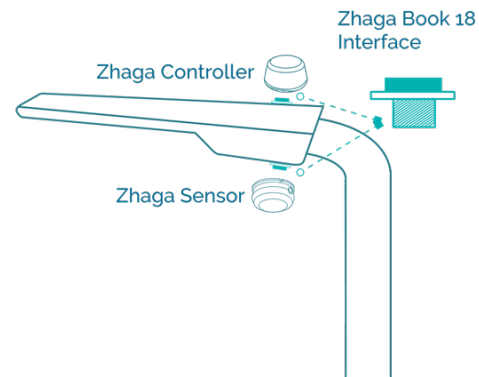


STANDARDIZED
PHYSICAL
INTERFACE

+

STANDARDIZED
COMMUNICATION
PROTOCOL

=



**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

On-Demand Adaptive Lighting

Connects with any DALI D4i and LSI- based motion sensors



- Motion sensors improve public safety perception
- Suitable for pedestrian, bicyclist and road traffic
- Real-time communication over wireless mesh network enables real-time neighbour trigger / follow light

Safe circle-of-light – automatic neighbour trigger



Experience true light-on-demand

- Road users drive through a safe circle-of-light
- 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 are using the 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 lights

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



Integrated Light Sensor

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



Programmable


Program street lights as situations demand. Control when, where and how the street lights turn on or off



Timely Notifications

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

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




Fail Proof

Inbuilt multilevel backup system ensures lights go to their standard (predefined) mode in case of unlikely failure



Over-the-Air Updates

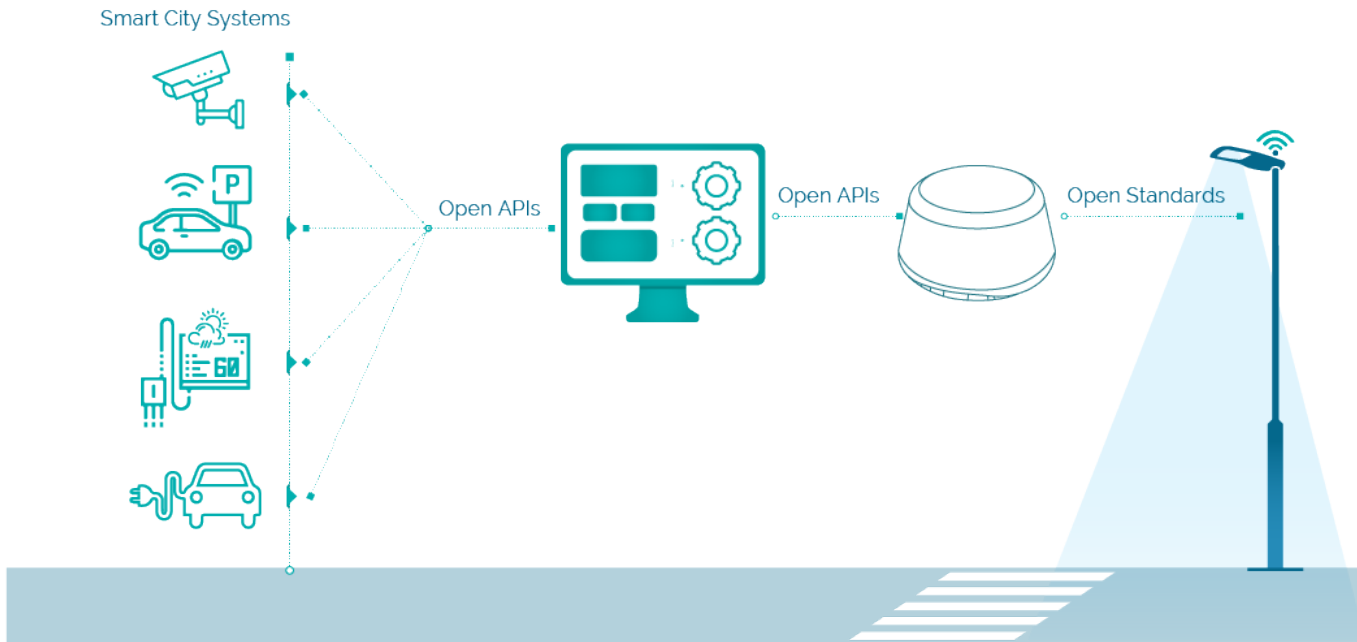
Thanks to the faster communication with the device, software updates take place in matter of minutes



IP65 + UV Stabilised

IP65 and UV stabilised housing protects the device in the harsh environment and ensures prolonged life

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

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?

Visit: <https://tvilight.com/skylite-prime>

**We look forward to working
with you!**

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