



# **NB-IoT** Technology + SmartLighting Control System

CitySys - Smart City IoT open system just based on standards, interoperability, scalable, AI ubiquitous, seamless HW connection, sustainable, Data driven system



# Why Zhaga Sockets with NB-IoT Technology

Zhaga sockets with NB-IoT technology enable the creation of intelligent and responsive street lighting systems that are more energy-efficient, sustainable, and cost-effective to maintain.

By combining the interoperability of Zhaga sockets with the powerful connectivity of NB-IoT, cities can modernize their street lighting infrastructure, reduce energy consumption, and improve overall city management.

IoT NODE Cellular Zhaga Sockets allows for independent control of any luminaire without need of physical access to EDB (Electrical Distribution Box), or need of communication gateway in field. Supporting protocol NB IoT you are no longer limited by possible connectivities.

Autonomous operation based on predefined schedules, light level sensor and adaptive lighting.



# NB-IoT Technology review

NarrowBand Internet of Things (NB IoT) is a standards based low power wide area (LPWA) technology developed to enable a wide range of new IoT devices and services.

## NB-IoT stands for Narrowband Internet of Things.

- It's a cellular technology specifically designed for low-power, wide-area networks (LPWANs) used in the Internet of Things (IoT).
- Think of it as a specialized branch of 4G/5G that excels at connecting a massive number of devices with minimal energy consumption.

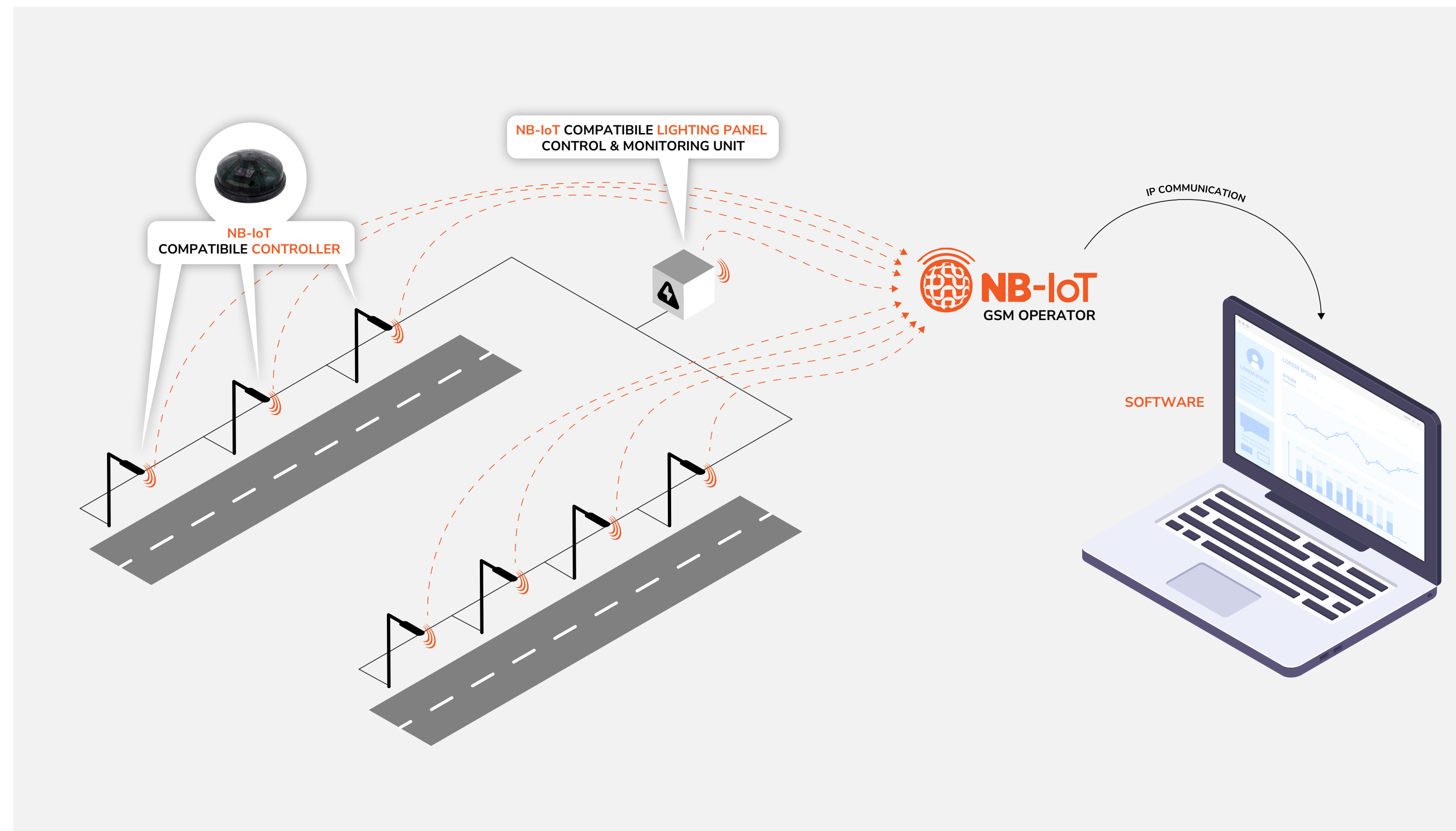
## Key Features:

- **Low Power Consumption:** Devices can operate for years ensuring reliable connectivity in challenging environments.
- **Wide Area Coverage:** Provides extensive coverage, even in rural areas and remote locations with limited cellular infrastructure.

- **High Device Density:** Supports a large number of devices connected within a small area.
- **Low Cost:** Relatively inexpensive to implement and maintain.

## How it Works:

- NB-IoT utilizes existing cellular infrastructure but operates on a narrowband spectrum, optimizing it for low-power devices.
- It leverages power-saving techniques to minimize energy consumption, such as power-down modes and efficient signaling.



# IoT Node Cellular Zhaga Socket

**Key features:**

- Great compatibility and easy installation into luminaires or poles from different manufacturers makes the CitySys IoT Node a perfect choice for remote luminaire control
- Dimming profile upload from luminaire is enabled through continuous real time communication over cellular network
- Built-in control interface DALI enables CitySys IoT Node to save energy by adjusting luminaire dimming level according to the dimming profile
- Street lights can become even smarter by combining sensor technologies like movement sensors or traffic sensors with CitySys IoT Node outdoor luminaire controller
- No need of local gateway, communication through cellular network



| Physical information               |                                |
|------------------------------------|--------------------------------|
| Dimensions                         | Diameter 80 mm, height 40 mm   |
| Weight                             | 70 grams                       |
| Colour                             | Transparent                    |
| Connectors                         | Zhaga Book 18                  |
|                                    |                                |
| Electrical information             |                                |
| Input voltage                      | 24V interface of the SR driver |
| Light sensor                       | Yes                            |
| Number of controllable drivers IoT | 2                              |
| Standby average current            | 8 mA                           |
| Standby average power              | 0,35 W                         |
| Peak current                       | 26 mA                          |
| Peak power                         | 0,65 W                         |
|                                    |                                |
| Environment & Quality              |                                |
| Operating temperature              | -30 °C until 50 °C             |
| Air humidity                       | 10% until 90% non-condensing   |
| Storage temperature                | -30 °C until 50 °C             |
| Storage humidity                   | 5% to 90% non-condensing       |
| IP Class                           | IP66                           |
| IK Class                           | IK08                           |
| UV protection                      | Protection by casing           |
| Quality marks                      | CE                             |
| Digital connection                 | Sensor Ready Drivers D4i       |

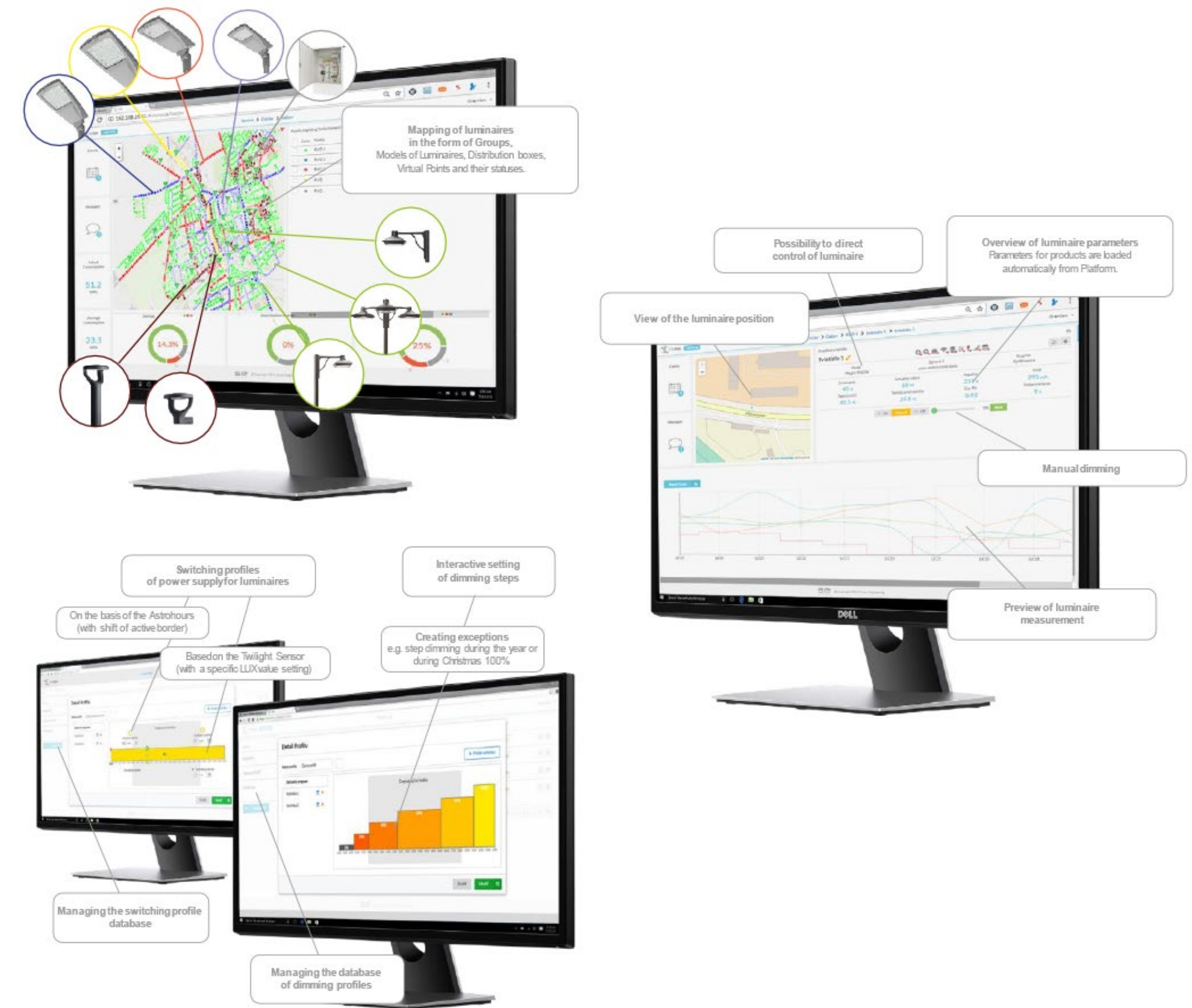
# Public Lighting Control System

Imagine a city where streetlights automatically adjust their brightness based on traffic, pedestrian activity, and time of day. This isn't science fiction; it's a reality made possible by smart public street lighting utilizing Narrowband IoT (NB-IoT) technology. This innovative technology enables the interconnection of streetlights, sensors, and cloud-based systems, resulting in significant energy savings, increased safety, and an improved quality of life for residents.

- Public lighting control systems enable dynamic adjustments to lighting levels based on factors like time of day, traffic, and weather, significantly reducing energy consumption and associated costs.
- Beyond energy savings, these systems enhance public safety by improving visibility in critical areas, deterring crime, and enabling rapid responses to emergencies.
- Furthermore, they optimize maintenance operations by allowing for remote monitoring, predictive maintenance, and faster response times to issues, leading to a more efficient and sustainable public lighting infrastructure.

## Benefits:

- Lamp dimming (0 100%)
- Lamp power measurement (W)
- Lamp status monitoring (functional, fault)
- City audit option visualize lights on the map that are not yet installed. Digital twin
- Node temperature measurement (in the luminaire)
- Lamp voltage measurement
- Luminaire current measurement (mains supply)
- Measurement of cos Fi luminaire
- Measurement of lamp operating time (hours)
- Switch the lamp on manually (ON / OFF)
- Recording of measured values (history) in a graph.
- Digital luminaire label luminaire serial number, mast number, mast type, mast height, luminaire datasheet
- Clear display of lights on the map.
- Possibility of creating groups of luminaires
- Setting autonomous dimming scenarios for luminaires.
- Creation of autonomous dimming scenarios for luminaires.
- Monitoring of errors and error messages
- Sending alarms and alarm messages.
- Monitoring of events and logs





# Thank You



<https://online.citysys.space/>