



Let's build a Smart City

LUG URBAN
Powered by BIOTCLOUD



Over thirty years of shared experiences



The cooperation of BIOT sp. z o.o. with LUG, the leading European manufacturer of professional luminaires, within one Capital Group enables us to develop innovative Smart-class systems, benefiting from our Partner's over 30 years of market experience.

1989



The modern lighting infrastructure creates neural networks that form the basis of the smart systems. Benefit from this opportunity and create solutions adjusted to the needs of your city, company or local community.

Ryszard Wtorkowski
President of LUG S.A. Capital Group

1989
the establishment
of LUG

2007
the opening
of the lighting factory
in Zielona Góra

2015
the opening
of the LED factory
in Nowy Kisielin

2019
the opening
of the factory
in Argentina

2019
the implementation
of the BIOTcloud
system



**Safety enhancement
and standard of
living increase**

**Significant decrease
in energy consumption
from the first day**

**Carbon footprint
limitation and light
pollution decrease**

**Municipal effectiveness
improvement with
increased work efficiency**

Intelligent lighting this is where it all starts

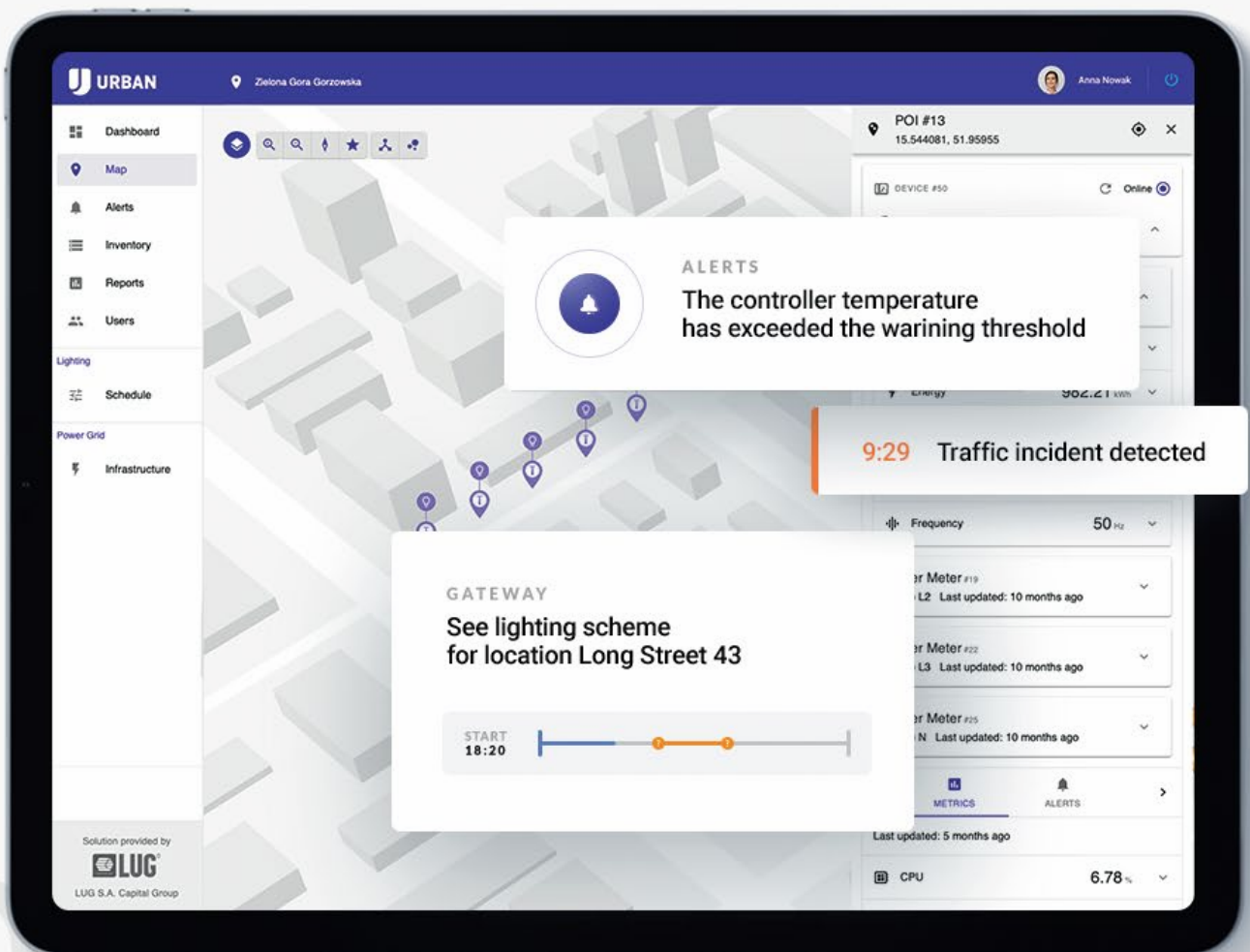
The Internet of Things technology changes our habits, introducing an unprecedented space for innovations and solutions that improve our quality of life.

Use smart technology for automatic infrastructure management. Save on energy and maintenance. Increase the residents' comfort. We will help you diagnose your needs and provide the best solutions.

be a part of the IoT revolution!

The smart platform for you

BIOTcloud Smart System

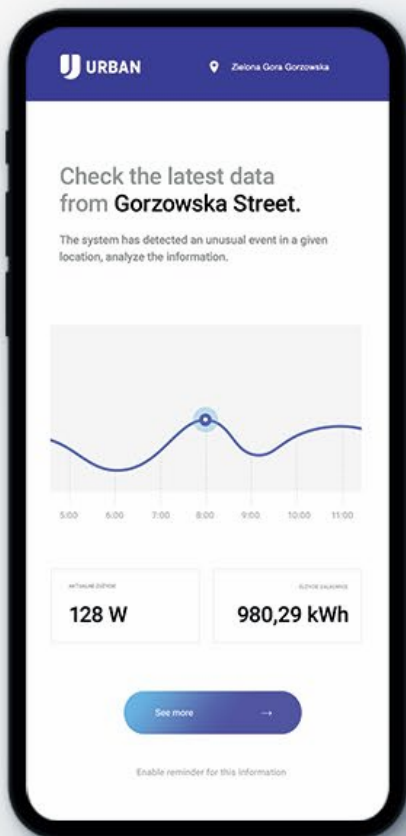




LUG URBAN

The energy of the city in one place

Meet the original LUG URBAN smart city platform, designed and developed to monitor and manage infrastructural lighting and attached sensors!



Smart City workplace

Regain control of the city's infrastructure with the flexible LUG URBAN system! Location of the luminaires on a map, luminaire control, measuring electrical parameters, defining alerts, generating reports and much more.

Smart sensors

Innovate and develop the LUG URBAN system based on the dedicated Smart sensors! Air quality measurements, traffic volume measurements, waste management, parking space management – tell us what you need.

Services

Benefit from our experience and create reliable systems adjusted to the needs of your city! Design, consulting, integration, maintenance, updating, retention – because every city is unique.

Cooperation. From idea to implementation.

We build smart city solutions based on shared experience.
Tell us about your project. We will check what we can do together for your city.



Technical layer Amazon Cloud

BIOTcloud, the state-of-art original smart-class service engine is located on the Amazon cloud. With the highest security standards and powerful functionalities, constitutes the foundations of your everyday smart operations.



Application layer

Powerful smart city tools in web and mobile apps will become a rocket fuel to your operations. Industry- and facility- oriented applications underway.



Infrastructure layer

LUG BIOT works perfectly with LUG Light Factory luminaires as well as all DALI luminaires equipped with NEMA/Zhaga sockets. We will help you develop the solution perfectly matching your requirements.

Savings. Safety. Innovations.

Save on energy and maintenance. Increase the resident's comfort. Innovate to grow your leadership.

Safety

SSL 4096
VPN
2FA
GEOtrapping

Communication

2G/3G/MQTT/SSL
3G/LTE/5G
LoRa/Thread
GEOTrapping

Smart automation

Rule engine
Notifications
Raport configurator

Openness

Open API
NEMA / ZHAGA
Physical ports

Urban Application



Smart City
Management

Maintenance Application

Smart service
Management

Factory Application

Smart business
Management

Facility Application

Smart business
Management

CLUSTER 1 West Street

LUG Urbano
184 szt.

iBLOC
184 szt.

HUBiot
2 szt.

CLUSTER 3 Color Street

CLUSTER 2 City Park

LUG Urbano LED
763 szt.

HUBiot
1 szt.

OFFICE Baltyk Tower

LUG Volica 2.0
120 szt.

LUG Noise
86 szt.

LUG Office
47 szt.

HUBiot
1 szt.

COMMUNICATION HUBiot 2.0 + iBLOC



LIGHTING LUG Urbano



LIGHTING LUG Volica 2.0



Flexible IoT system. Efficient mesh network.

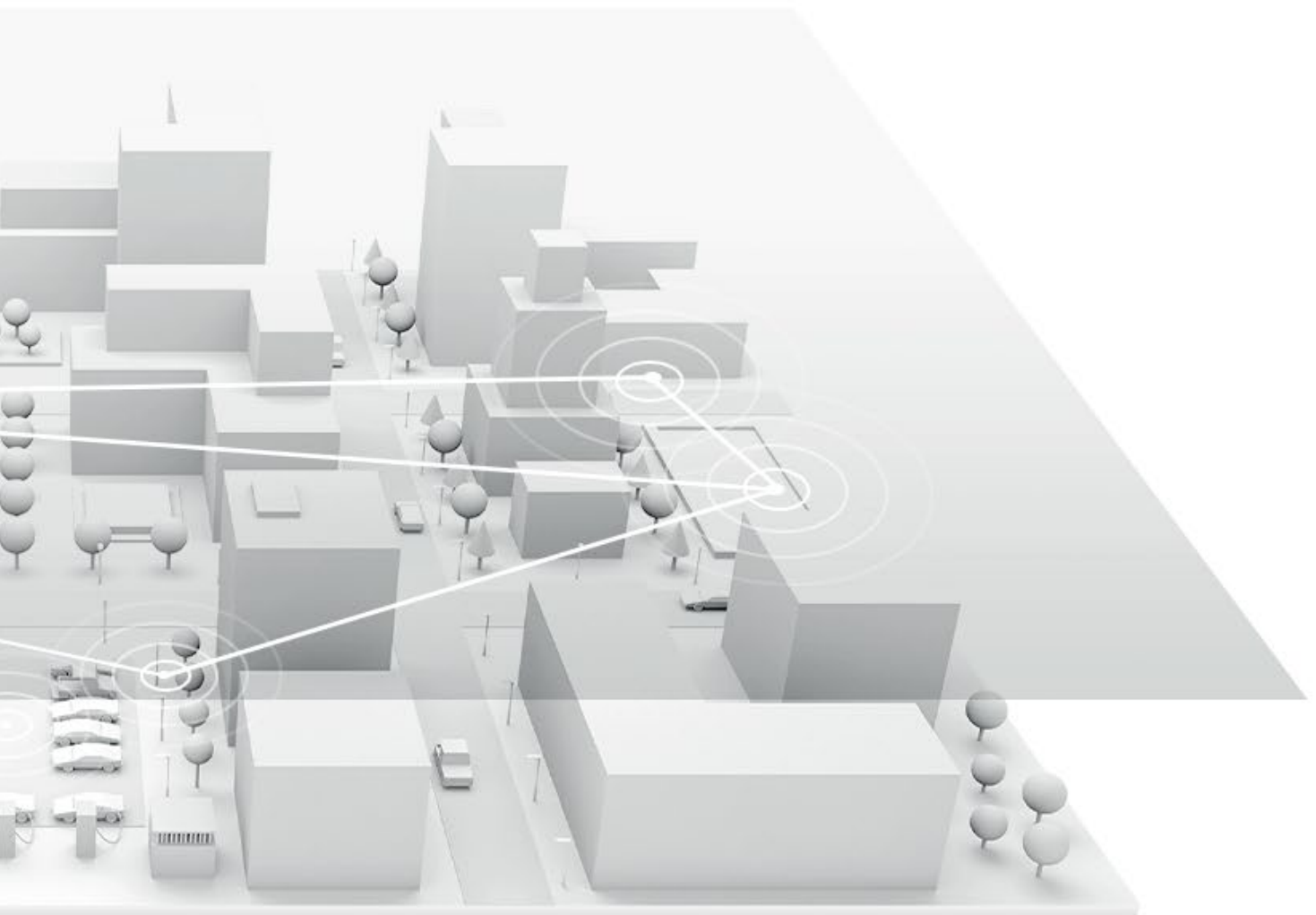
- self-healing
- self-repairing
- automatic configuration
- automatic updates
- controller range up to 300m



The original LUG URBAN system, designed and developed to monitor and manage infrastructural lighting and attached sensors, constitutes a neural mesh network of your city. It forms the fundamentals for the further development of intelligent functions, which we provide within one Smart City platform.

- automatic network reconfiguration in the event of interference or damage to individual devices
- device-to-device connection enabling the use of advanced scenarios (e.g. light on demand)
- no SIM cards in every device

We design future-proof solutions, as we know perfectly well that the passion for improving the city map has no expiry date. If you are searching for the best solution for a city and its citizens - you have found a partner who has reliable knowledge and vision to comprehensively support you in your journey



Controllers.



The iBLOC controller

- 2.4 GHz radio controller with THREAD communication (radio-mesh)
- SMA connector for an external antenna
- Control via DALI interface or 1...10V output
- Can work in connection with an NTC thermistor temperature sensor
- Optional measurement of power consumed by the luminaire, of current, voltage, active, reactive and apparent power, as well as of the power factor
- Real-time clock which continues operation in the case of power break- down
- Relay output for complete disconnection of the luminaire power supply
- 4 universal input/output lines
- Dedicated to the BIOTcloud lighting control system
- Lifetime of up to 100 000 h
- 5 year warrant



The eBLOC controller

- Luminaire controller with NEMA or Zhaga standard connector
- 2.4GHz radio controller with communication with a router in the THREAD standard (radio-mesh). Optionally equipped with LTE-M communication module for communication with the cloud. Optionally equipped with a GPS locator
- Luminaire power control by means of the DALI interface or 1..10V output
- Option to measure the power consumed by the luminaire, measure current, voltage, active, reactive and apparent power and power factor (in the NEMA version)
- Real time clock with sustained operation after a power outage
- Relay output for complete disconnection of the luminaire power supply (NEMA version)
- Dedicated to the BIOTcloud lighting control system
- Lifetime up to 100,000 h
- Up to 5 years warranty

Gateways.



HUBiot-1

- 2G/3G radio module
- 2.4 GHz radio module with THREAD communication (radio-mesh)
- Ethernet 10/100Base-T port (option)
- Can be mounted on a post or on a wall
- Dedicated for the BIOTcloud lighting control system
- Lifetime of up to 100 000 h
- 5 years warranty



HUBiot-2

- GSM/UMTS radio module
- 2.4 GHz radio module with THREAD communication (radio-mesh)
- Ethernet 10/100Base-T port (option)
- Port RS-485
- 4 bineral output lines

Additional devices



iNET-3P

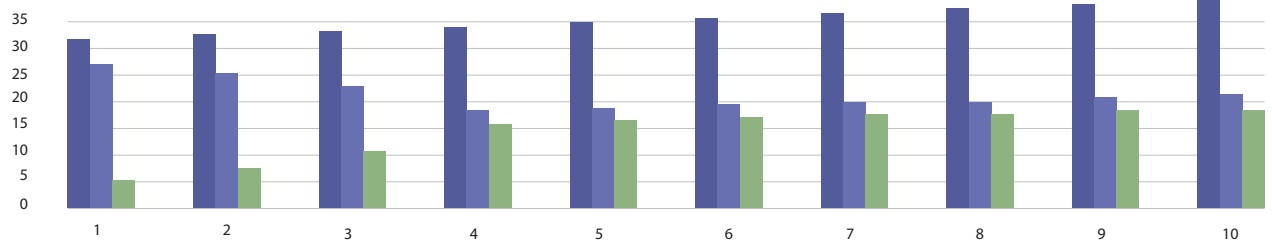
- Measuring transducer for monitoring power parameters of 3-phase 220-240 V 50 Hz circuits
- Works with the Hubiot-2 master device
- Intended for controlling active / reactive power / energy consumption and detecting emergency conditions in street lighting circuits
- Works with standard 5 A current transformers
- RS485 interface in the MODBUS protocol
- DIN TH35 rail mounting (EN50022)
- MTTF 400,000 h reliability
- Up to 5 years warranty

Lighting as a Service.

Immediate benefits in the times of rising electricity prices

In the face of smaller European funds in the new budget perspective and rocketing electricity prices that can raise the cost of maintaining traditional infrastructure by up to half, the local authorities must reach for innovative investment financing methods. Find out how thanks to the innovative LAAS financing you can immediately modernize your infrastructure, reduce costs and even generate additional savings. See how it works!.

Sample calculation model.



OPEX

The increase in electricity prices means that local cities spend more and more money on infrastructure maintenance than on its modernization. The structure of expenses is changing, OpEx is growing - and not modernized lighting infrastructure consumes more and more expensive electricity.

MAINTENANCE

Traditional maintenance operations on shredded infrastructure consumes funds which otherwise could be invested in any other smart project.

Lighting as a Service. Get more free capital.

Assumptions (current period)

Electricity expenditures	20k EUR
Maintenance	5k EUR
Modernization	7.5K EUR
(which translates into 3% annual ledification)	

Assumptions (future periods)

Electricity bill increase t+1	50%
Electricity bill increase t+2	10%
electricity bill increase t+3 ... t+9	5% / year

Thanks to LUG LAAS, local communities gain a powerful tool that will allow a responsible modernization, preparing cities for the upcoming challenges. The service model does not affect the city cashflow, because it is financed from generated savings - in other words: the funds that would be allocated to more and more expensive electricity, with a surplus implements modern SMART infrastructure in the city.

For more information please contact your local sales representative.

Savings in 10 years period

145 000 EUR

Your 10 years savings

ADDITIONAL OPEX

CAPEX

The rocketing electricity prices are holding back the pace of LED modernization. Spending more and more city funds on energy scheme is strenghted by lower modernization pace.

Additional Benefits

- instant carbon footprint limitation
- safety enhancement
- rapid decrease in energy consumption
- municipal effectiveness improved



The Berlin – Warsaw highway link on the section running along the southern tolls of the Poznań agglomeration is used by 60.000 vehicles a day. With multiple highway junctions and city entries, this 6 kilometer long highway is recognized as one of the most critical infrastructure in Poland, where top quality standards of lighting, managment, communication and reliability are crucial. That is why we are very proud that the LUG URBAN met all the requirements of highest quality and functional capability and was chosen among other solutions.

A2 Highway, Poznań




Products

- 1.400 luminaires with internal iBLOC controllers equipped with power measurement devices
- 30 HUBiot-2 gateways

Dedicated solution:

- The function of measuring power from cabinets - a specific model selected by the Investor integrated with the system
- Additional monitoring of the switch status between astrodim and other modes.
- Cabinet opening monitoring
- Possibility of remote control with contactors switching on power supply of luminaires.
- Lighting patterns ignition on the basis of traffic intensity data collected by the cameras installed on the highway

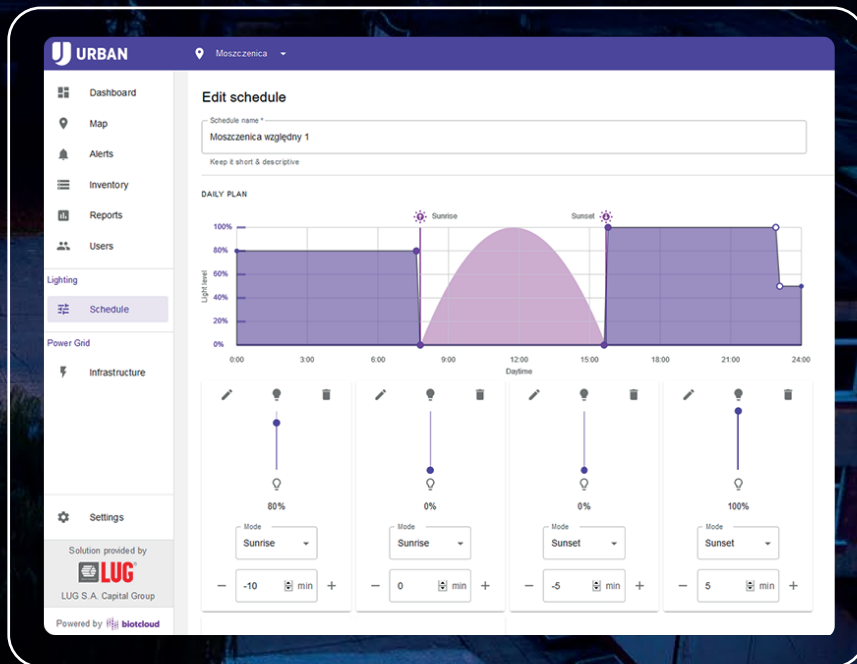
An aerial night view of a town street in Moszczenica, Poland. The street is illuminated by modern LED streetlights, creating a warm glow. The surrounding residential area is visible with houses and buildings. The sky is dark blue, and the overall scene is a smart city implementation.

**Success story.
Intelligent commune
of Moszczenica, Poland.**

**Intelligent LED luminaires
in the Smart City “Future Proof” system.**

2139

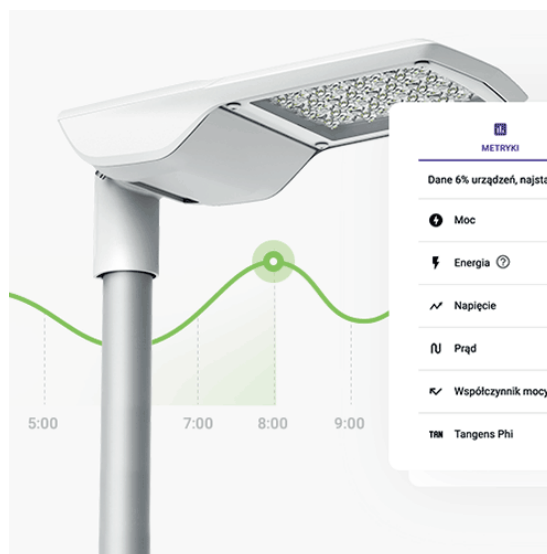
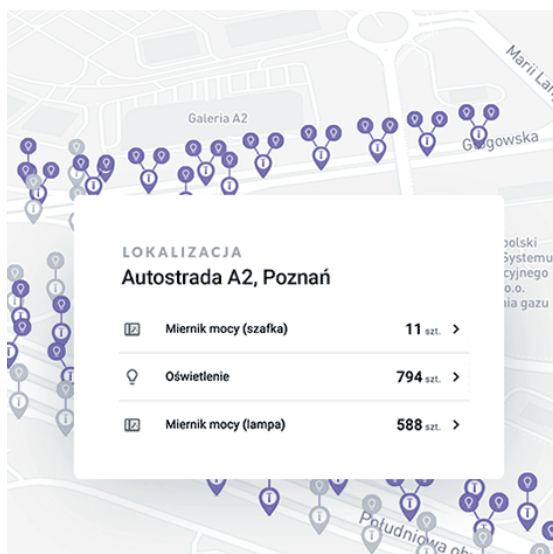
The modernization of street lighting in the Moszczenica county, which began in the summer of 2019, includes the replacement of 1392 existing sodium and mercury luminaires with modern ones made in LED technology, the construction of 705 new lighting points on existing columns and the addition of 150 new lighting poles with luminaires. All the new luminaires were equipped with the internal iBLOC controllers operating in a mesh radio network. Communication with the cloud is provided by over 40 HUBiot-1 gateways connected to the network using municipal Wi-Fi system.



The dedicated lighting schedule for the commune of Moszczenica is based on an astronomical clock and is associated with a daily cycle of sunlight. Launch of the luminaires begins five minutes before sunset and the lumen output increases gradually. The power reduction that occurs late at night generates additional savings

Create an effective and friendly city. Automatically.

Discover the capabilities of the BIOTcloud system. Manage urban infrastructure, set process automatization rules. Use the innovative functions of the BIOTcloud system to create an intelligent city based on the infrastructure you already have.



Location luminaires on the map.
Analyze the situation in your infrastructure on an ongoing basis

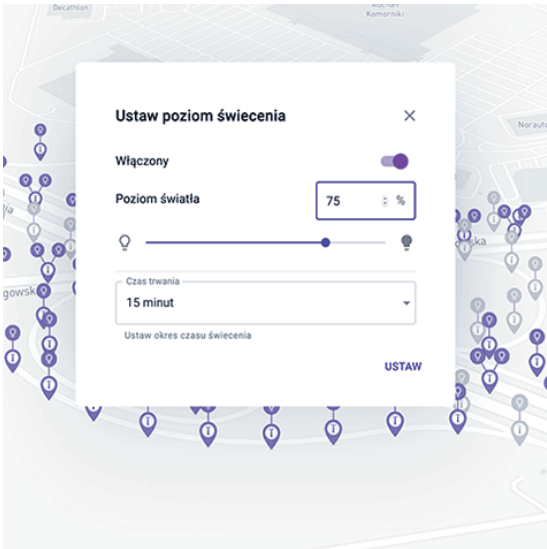
Measurement of electrical components.
Current technical parameters of individual luminaires or luminaire groups defined scenarios.





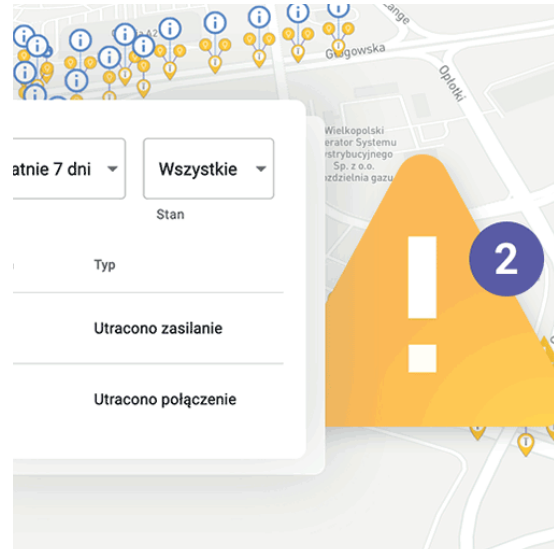
Generating and export reports.

Your infrastructure is a collection of data using report in their analysis is very simple and transparent.



Luminaire control.

Control luminaires individually or in groups, change lighting intensity, adapt to the situation.



Defining alerts.

Early alarm information allows you to quickly respond to changing situations.

Cooperation.
From idea to
implementation.

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