

Luxiona Allight IoT

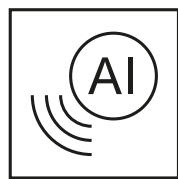
**Intelligent lighting control
system based on AI**

LUXIONA

EN

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AI-Light IoT

AI in lighting

Luminaires that learn from you

Artificial Intelligence is no longer the future – it's the present, transforming the way we live, work, and experience space.

It enhances well-being through personalised lighting, adaptive environments, and smarter workplaces that inspire creativity and innovation.

At the same time, AI becomes a powerful ally in sustainability – optimising energy use, minimising waste, and driving the efficiency of modern buildings.

More than technology, it's a partner that empowers us to create brighter, healthier, and more responsible spaces for all.



Energy efficiency

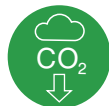


Well-being



What's Luxiona AILight IoT

AILight IoT represents Luxiona's luminaires enhanced with Artificial Intelligence – designed to deliver:



Lower carbon footprint of installations thanks to lower consumption of energy.

Reduction of electrical consumption down to 80% when compared to on/off systems.



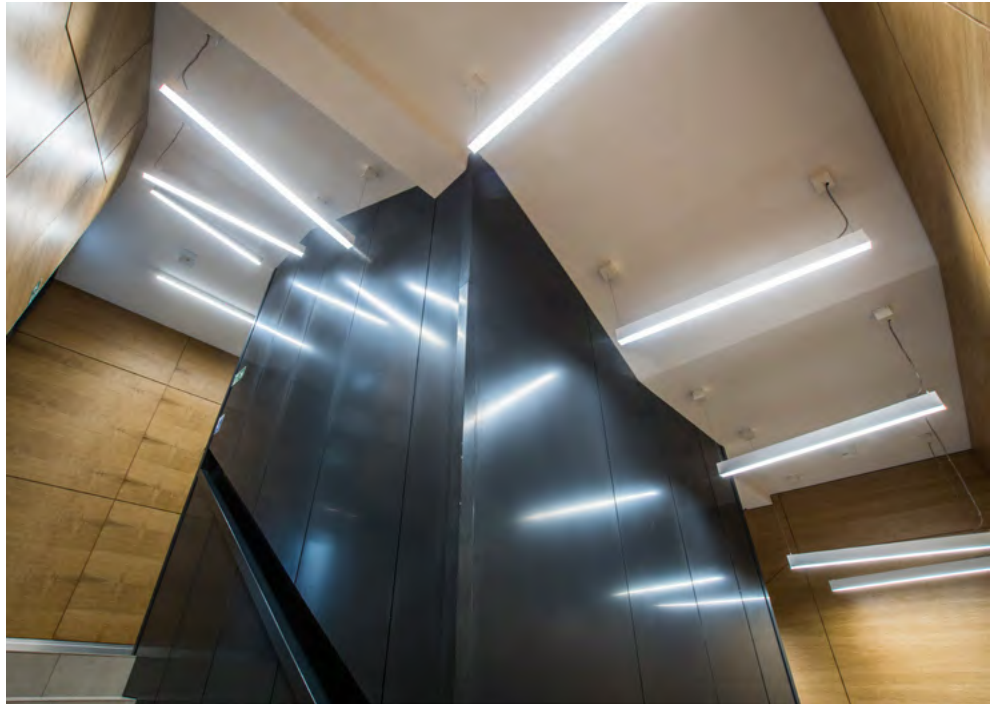
More durable installations thanks to lifetime extension.

Up to **50,000 additional hours** of lifetime.



Enhanced well-being through lighting fully tailored to users' individual needs.

Up to 76% increase in employee's satisfaction & 20% increase in productivity.



Luxiona Allight IoT functionalities



Presence sensor with adjustable range

The light turns on only when needed.



Dynamic mixing of daylight and artificial light

Intelligent room lighting designed to optimise the use of natural resources.



Twilight light sensor

It's dark, so the lights are on. The luminaire turns on based on ambient light levels, not the time of day.



Possibility to dynamically adjust the light colour

Warm light in the afternoon and cold in the morning.

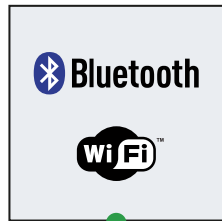


Normal and reduced light power mode

Light intensity adjusts precisely to needs, with fine-tuning in 1% increments.

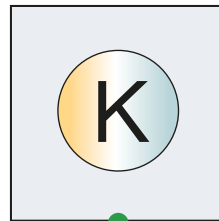
Mesh network support

Wireless communication and cloud integration



CCT.ai

Dynamic light control adjustment



Remote Control

Convenient remote access and configuration

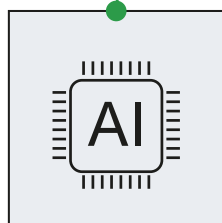
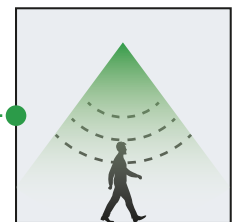


Luxiona ALLight IoT luminaire includes at its heart an electronic stand alone control that combines sensors with AI, accordingly to LLLC



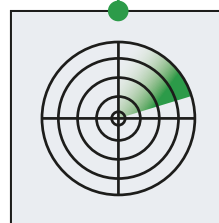
Motion sensor

With adjustable range



AI Optimisation

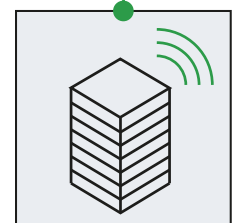
Automatic light adjustment for comfort and efficiency



RADAR Sensor

Motion and presence detection with AI analysis

5GHz, 24GHz



BMS Integration

Smart building management connectivity

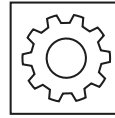
Luxiona AILight IoT – How AI works



AI-Light IoT

AI level

When the luminaire detects consistent patterns in natural light intensity, it uses learned data to propose an optimal control strategy that maintains Constant Lighting Output (CLO) within the space.



Automation level

The luminaire operates according to the configured settings for presence detection, daylight intensity, and light levels, and can function in one of three modes: Standard, Still, or After time mode.



The Lighting processor module included in the luminaire consists of three independent layers:

Mesh network comms

Communication layer – responsible for secure and stable data transmission in the BLE Mesh network.

Adjust luminaire operation in real time

Algorithm layer – contains intelligent AI algorithms that analyse data from sensors and adjust the operation of luminaires in real time.

Autonomous operation of each luminaire

Computing layer – enables local data processing and autonomous operation of each luminaire.

Independent or networked operation

Thanks to the 3-layer processor included in each AILight luminaire they can operate in a 1-to-1 or many-to-many modes, guaranteeing in this way reliability, scalability and fault tolerance.

Independent mode

Each luminaire analyses local conditions and operates autonomously accordingly to their set-up, without the need for communication with the network. Data processing takes place locally, ensuring continuity of operation even in the absence of connectivity.

In autonomous mode, each luminaire operates independently and can be individually configured (sensor parameters, light control, detection levels, CCT, scheduling, etc.) — both using a mobile application (free app available on the App Store and Google Play) and with a dedicated remote control. Ongoing control and luminaire management are carried out exclusively via the mobile application.



1 Account creation

The AILight IoT app is available to download from the App Store and Google Play and allows quick account setup



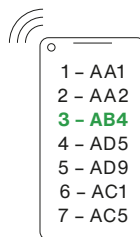
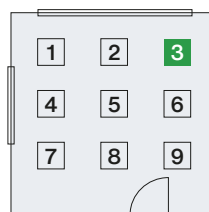
2 Discovery and assignment

All luminaires within the installation are displayed in the app.

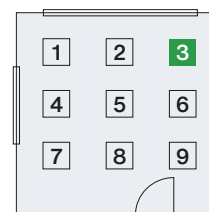
By tapping on a luminaire, it will blink to facilitate easy identification.

Once identified, the luminaire needs to be assigned to the corresponding building and specific space within the building.

set name of each luminaire, (saved in luminaire)



set room of each luminaire, (saved in luminaire)



back up in cloud of name-room



3 Individual setting up

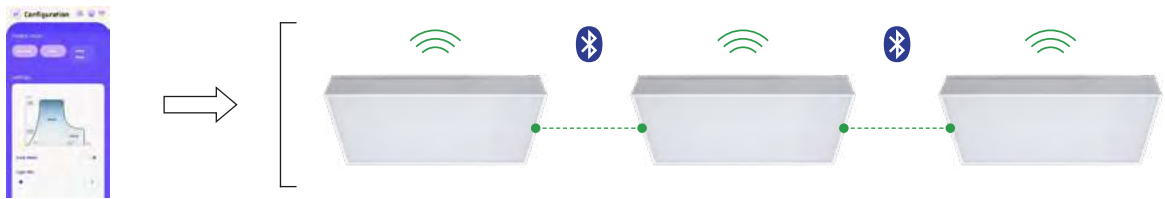
a  Maintenance privileges

b  User privileges

Network mode (BLE mesh)

The luminaires work together within a single BLE Mesh network, synchronising their operation and adapting to conditions in a larger space (e.g. an entire floor, corridor, open space).

In network mode, in addition to a mobile application, a specific remote intended specifically for both installers and end users allows configuration of luminaires without a smartphone, but with a reduced set of parameters to be configured.

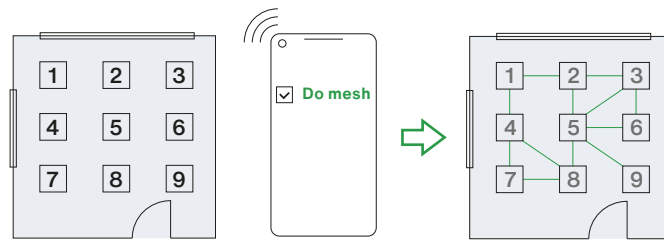


1

Mesh setting up

Once all luminaires are updated in the app, the system automatically allows the creation of the BLE mesh.

mesh creation order



Room 1

2

Groups and scenes

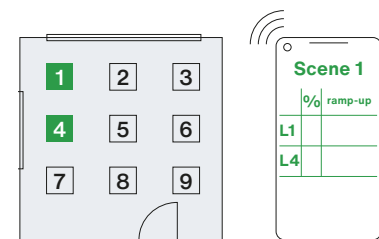
Grouping of several luminaires can be done directly in the app by tapping them.

Scenes involving several luminaires can be created from the app based on created groups.

grouping information



scenes information



3

Individual setting up

To get the most of Ailight IoT possibilities, unlimited number of users can be created and easily assigned different profiles to each one.



User 1
User 2
User 5
User 9

Profile A



User 3
User 6
User 8
User 10

Profile B



User 4
User 7

Profile C

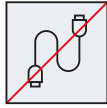
Luxiona AILight IoT: Operating Modes



No PC



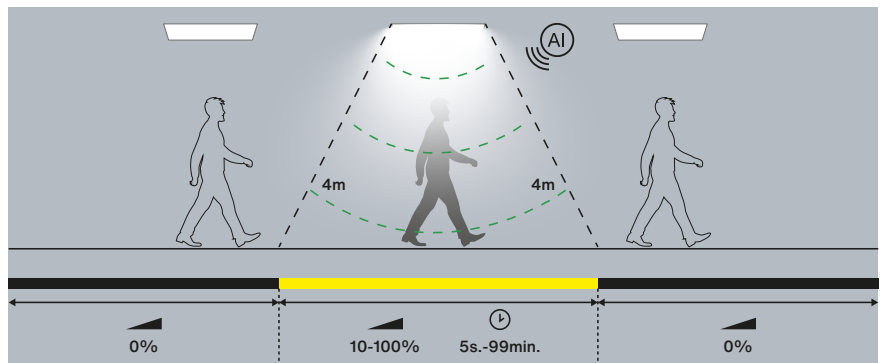
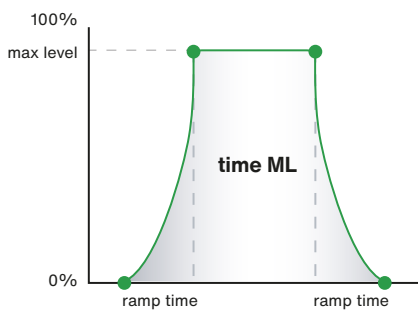
No server



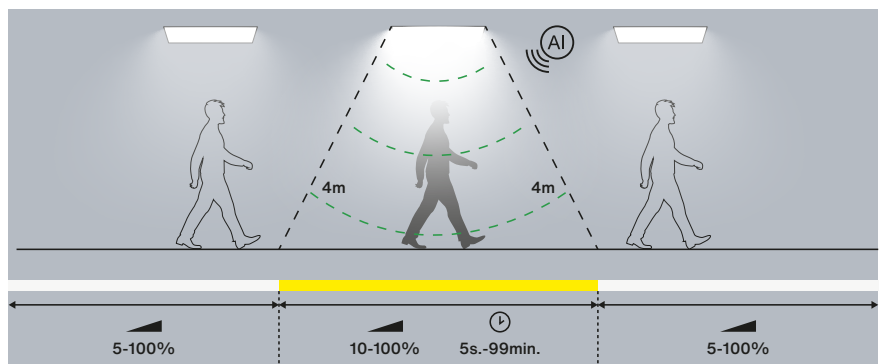
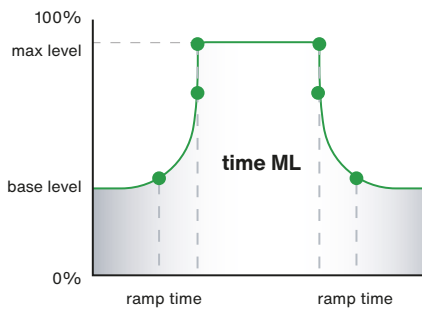
No cabling

AILight IoT is an autonomous system where each luminaire operates independently, eliminating the need for additional software, dedicated infrastructure, or servers.

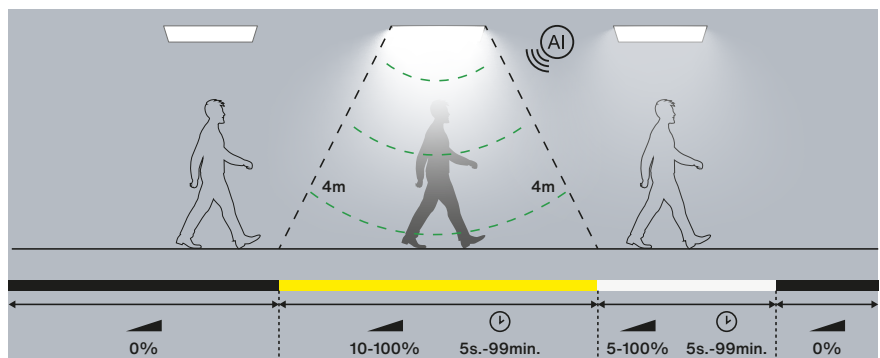
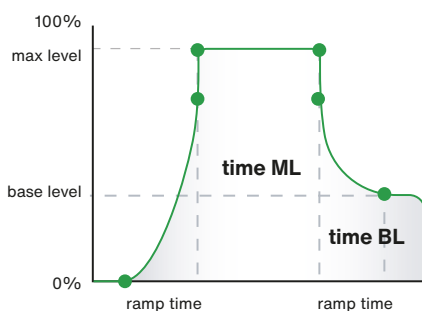
Standard mode



Still mode



After time mode



Luxiona Allight IoT: Daylight & user detection

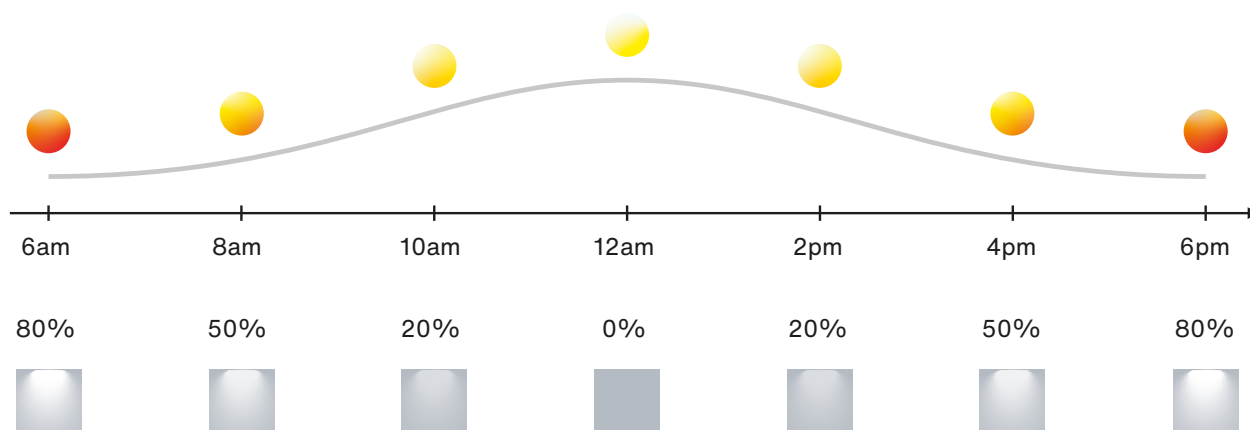
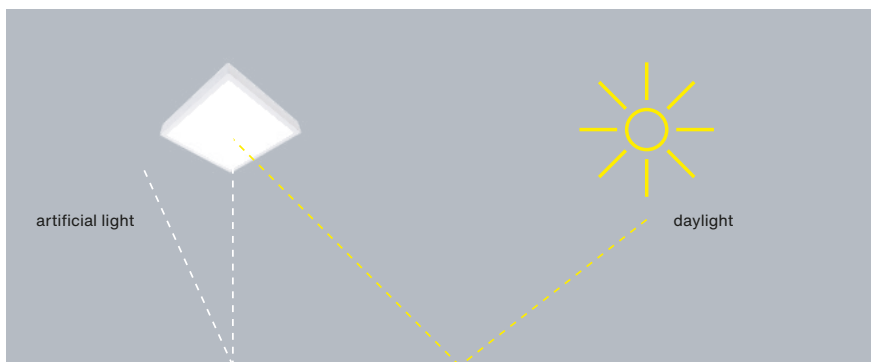
Thanks to its advanced sensor technology, the luminaire can accurately measure level of natural daylight intensity together with its colour temperature. When daylight increases, it automatically adjusts and reduces its light output proportionally within a defined time frame.

Each luminaire is equipped with light intensity sensors that enable dynamic light mixing for optimal illumination and energy efficiency.

Corridors, staircases, toilets



Offices, classrooms, gyms



Motion and presence detection

AllLight luminaires can be delivered in 2 variants of Radar Technology; 5GHz and 24GHz in both cases having:

- static presence detection – detection of micro-movements (breathing, body vibrations),
- quick response to user movement,
- possibility to calibrate sensitivity levels depending on the type of space,
- generation of presence heatmaps – real-time visualisation of user activity.



Recommended for large, open spaces (underground garages, parking lots, warehouses); bringing own detection zone management technology



For detecting micro-vibrations in spaces (e.g. at desks, bathrooms, meeting rooms, conference rooms, open spaces in offices), which enables:

- division of the detection field into independent areas,
- disabling selected zones, e.g. in places where there is interference (hot water pipes, lifts, air vents),
- calibration of sensitivity in each zone to eliminate false alarms

Thanks to its high precision and the ability to continuously detect even static presence, the system can act as an intelligent space occupancy counter.



Security in accordance with NIS2

LUXIONA AILight IoT technology is guided by safety considerations and international requirements.

BLE Mesh security should comply with the NIS and NIS2 Directives (Network and Information Systems Directive), which mandate technical and organisational cybersecurity measures within the EU, directly affecting the design and deployment of networks in industrial, infrastructure, and building applications.

Implemented BLE Mesh security mechanisms:



Authentication and access control

Each device is authenticated during provisioning using ECDH (Elliptic Curve Diffie–Hellman) for secure key exchange. Unique UUIDs identify devices, and only authorised administrators can add new nodes to the network.



Data encryption - AES-CCM with a 128-bit key

Data transmission is encrypted at three levels: network layer (protects node-to-node communication), lower transport layer (secures application content), and application layer (ensures data privacy and integrity).



Key management and network segmentation

Separate Network Keys (NetKey) and Application Keys (AppKey) limit the impact of a single compromise. The system enables functional segmentation (e.g. sensors and luminaires using different keys) and supports secure key rotation when required.



Integrity and protection against replay attacks

Each message includes a sequence number and source address to prevent replay attacks and is secured with a MAC (Message Authentication Code).



Secure updates and device lifecycle

The protocol manages device software updates (e.g., FUOTA) and allows removal of compromised devices by revoking their network keys.



Resilience and continuity of operation

The mesh topology allows messages to travel via multiple paths, eliminating a single point of failure, and the network automatically reroutes if a device fails.

LUXIONA AILight IoT technology meet the key requirements of the NIS/NIS2:

- Confidentiality (encryption),
- Integrity (authentication, MAC),
- Availability (distributed architecture),
- Risk management (key rotation, restricted access),
- Incident and update management (FUOTA, provisioning, deprovisioning).

Luxiona AILight IoT addresses the key needs of core markets

Offices & Workplaces



Clean & Medical



Warehousing & Industry



Luxiona ALLight IoT: luminaire series available with AI technology



RUBIN BASIC C-LED



RUBIN CLEAN LED



RUBIN BASIC LED



X-LINE SLIM



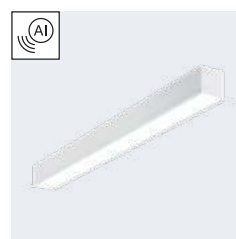
METEOR V2



RUBIN ROUND



AGAT LED & POS LED



AGAT SLIM



AGAT CLEAN LED



NEPTUN LED V2

Luminaires maintain IP and IK ratings regardless of sensor integration, without the need for costly external IP/IK-rated sensors.

System that learns

ALLight IoT learns from users' habits and automatically adjusts its programming to maximize energy savings while enhancing user comfort.

Lower maintenance

Thanks to its self-learning capabilities, the system automatically adapts to real usage without the need for updates or reprogramming.

Invisible technology

With integrated radar technology, the sensors are hidden within the luminaire, preserving the original design while maintaining IP and IK ratings.



Luxiona ALight IoT: Technical data summary

	Applicable to all Luxiona luminaires equipped with ALight IoT
Daylight and artificial light mixing sensor	special dual sensor that selectively recognizes natural sunlight and artificial light
Daylight and artificial light intensity settings	smooth adjustment from 2 lx to 999 lx (with 1 lx increments), off
Light power adjustment after motion detection	YES, adjustable between 10% and 100%, with 1% increments
Motion detection field diameter	12m max., Range adjustment: 20% / 40% / 60% / 80% / 100%
Normal lighting time	from 5s to 60s - adjustment every 1s, from 1min to 99min - adjustment every 10s.
Lighting time with reduced power	from 5s to 60s - adjustment every 1s, from 1min to 99min - adjustment every 10s.
Reduced power	Possibility of change by 1%
Maximum installation height	0-6 m / 8, 10, 12 m

LUXIONA

LUXIONA worldwide

Commercial offices:
Spain, Poland, France, Italy, Germany

Logistics centre:
Spain

Production:
Poland / Spain (emergency)

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