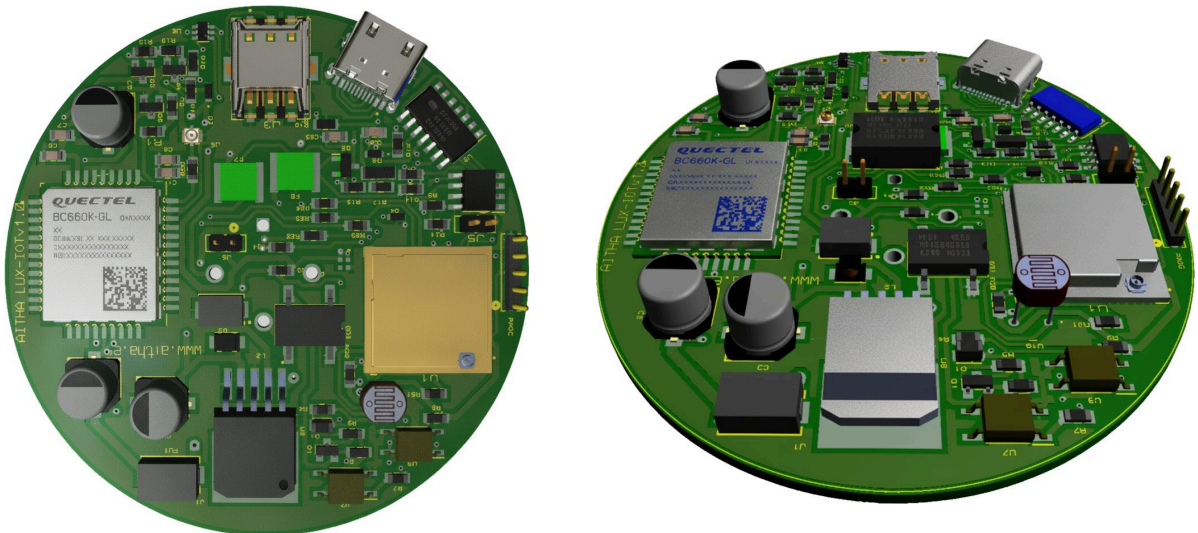


TECHNICAL DATASHEET

Lux AITHA NB-IoT

Cellular controller (4G LTE-M / NB-IoT) for connected lighting



Type:
Technical datasheet

Product:
Lux AITHA NB-IoT

System:
AITHANEX

Audience:
Engineering, installation, integration and support

Document version:
1.0

Revision date:
2026-10-04

Product type

Cellular controller (4G LTE-M / NB-IoT) for connected lighting.

It allows light points to be controlled, scheduled and monitored from **AITHANEX** or from the customer's management system.

Role within the system

Lux AITHA NB-IoT turns each luminaire into an identified, monitored and manageable operational asset.

It keeps the capabilities of **Lux AITHA LoRa**. It replaces the LoRa link and its dedicated router with 4G (LTE-M) / NB-IoT cellular connectivity through a SIMCom SIM7080G module.

The architecture uses an ESP32-S3-MINI microcontroller and keeps the Zhaga format, the power supply and the DALI interface of Lux AITHA LoRa.

Functional architecture

Luminaire | Lux AITHA NB-IoT

-- Luminaire control and reading

-- Light sensor

-- Programming USB

-- Scheduling and event management

-- SIMCom cellular module (4G LTE-M / NB-IoT) | -- Mobile network --> AITHANEX Things

Each node manages the light point and communicates its data over a compatible mobile network (4G LTE-M or NB-IoT). It does not require a **Router LoRa** to link to the platform.

Technical capabilities

Area	Scope
Control	Switching on, switching off and dimming of connected luminaires.
Communication	4G (LTE-M) or NB-IoT cellular link through a SIMCom module.
Coverage	Subject to availability, bands and conditions of the operator's LTE-M / NB-IoT network.
Scheduling	Schedules, scenes, profiles and operating rules.
Status	Reporting of operation, consumption and events of the lighting asset.
Sensing	Integrated ambient light sensor.
Management	Individual and group control.

Synchronization	Integration of data, alarms, scheduling and commands with AITHANEX Things.
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Update	ESP32 OTA firmware through AITHANEX Things.
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Hardware and connectivity

Parameter	Value
Microcontroller	ESP32-S3-MINI.
Cellular module	SIMCom SIM7080G (LTE-M and NB-IoT).
Module type	LTE Cat-M1 (4G IoT) and NB-IoT.
Coverage	Subject to a compatible LTE-M / NB-IoT network and operator conditions.
LoRa network	Not required for communication with the platform.
Dedicated Router LoRa	Not required.
Sensor	Ambient light sensor.
Local programming	USB.
Remote update	OTA through AITHANEX Things.

Luminaire interface

Parameter	Value
Mechanical format	Zhaga.
Physical connection	4-pin Zhaga Book 18.
Power supply	From the Zhaga connector, with nominal supply of 16 VDC.
Luminaire control	DALI from the Zhaga connector, compatible with DALI-2 and D4i (not certified). DMX on request.
Consumption reading	Reading and reporting of the luminaire's consumption.

Operation and data

- Individual and group control.
- Scheduling of schedules, scenes and profiles.
- Reporting of status, consumption and events.
- Fault detection and reporting according to the signals available.
- Ambient light measurement through the integrated sensor.
- Synchronization with AITHANEX Things.
- Remote OTA update of the ESP32 firmware through AITHANEX Things.
- Local programming and service through USB.
- Remote operation subject to coverage, permissions and deployment configuration.

Typical applications

- Municipal street lighting.
- Industrial estates, logistics warehouses and distribution centers.
- Tunnels and bridges.
- Campuses, hospitals and outdoor car parks.
- Roads, walkways and open areas.
- Installations where each light point needs its own cellular connectivity (4G LTE-M / NB-IoT).

References

- AITHANEX: <https://aitha.es/en/platform/>
- Lux AITHA NB-IoT: <https://aitha.es/en/products/lux-aitha/>
- Lux AITHA LoRa: <https://aitha.es/en/products/lux-aitha/technical/>
- Router LoRa: <https://aitha.es/en/products/lux-aitha/technical/>