



ZHAGA AIRQ CONTROLLER /GATEWAY

TECHNICAL
SHEET



DESCRIPTION

The **Urbio Zhaga AIRQ Street Light Controller** is an intelligent lighting control module with integrated **Air Quality Sensor**. It has all the capabilities from the standard Zhaga Controller, such as Bluetooth Mesh Network, brightness sensors, tilt sensor and GPS module.

But also comes with an **air quality** sensor able to measure Particulate Matter, VOC, NOx, humidity and temperature.

With its **smart control and diagnostic capabilities**, lighting performance can be **monitored and managed remotely**, optimizing energy efficiency and maintenance operations.

A **gateway option** is also available, offering **cellular connectivity** via leading **IoT low-power protocols**. The gateway supports both embedded **eSIM** and **physical nanoSIM** cards for flexible deployment

FEATURES

- Air Quality sensor with the following characteristics:
 - PM1.0, PM2.5, PM4 and PM10
 - VOC 0-500
 - NOx 0-500
 - Temperature -40°C +80°C
- Detection height of up to 14m
- Automatic dimming based on real-time ambient brightness conditions.
- Tilt detection for immediate notification of pole inclination or movement.
- Customizable operating schedules to enhance efficiency, improve visual comfort, and reduce energy consumption
- Comprehensive electrical monitoring and configuration, including:
 - Energy consumption
 - Current, voltage, and power factor
 - Dimming level and temperature
- Automatic fault detection for under/over voltage, under/over current, lamp failure, and driver fault.
- GPS by default in all the devices, for precise localization and date/time
- Gateway includes eSIM and physical nanoSIM
- Internal memory to save user programs, events, etc



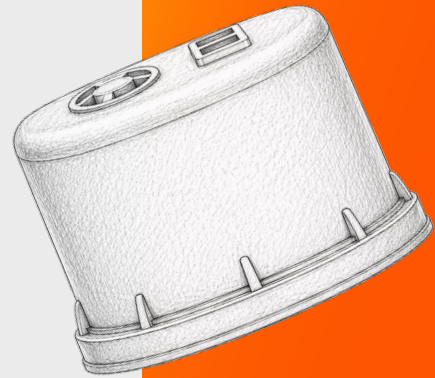
BLE MESH FEATURES

- Long range, up to 300m point to point
- Up to 200 nodes associated to a gateway
- Easy to install, nodes are commissioned automatically
- Automatic gateway switching if one gateway is down
- AES-CCM 128bits encryption

MANAGEMENT FEATURES

- Remote management of the nodes using Urbio's NEOS Lightning platform.
- Access to real-time and historical data.
- On-site data collection and management is also possible. Through a gateway or directly to a node.
- Possibility to perform remote firmware updates (Over-the-Air).

TECHNICAL SPECIFICATION



ELECTRICAL CHARACTERISTICS

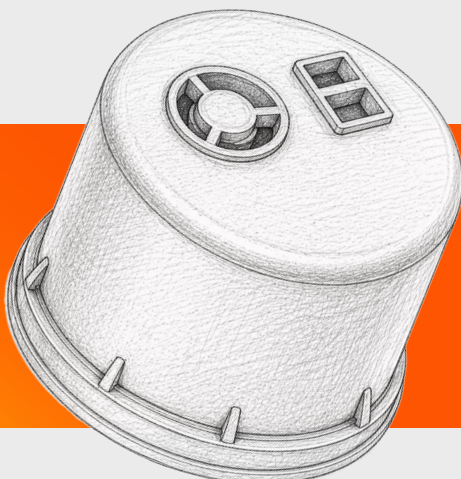
Supply voltage	12–30 V DC (typ. 24 V DC)
Power consumption	<0.6W (controller) <2W (Gateway)
Max voltage	34V DC
Operating temperature	-40...+80 °C
Dimming interfaces	DALI / PWM / 1...10V
RTC supercapacitor	For RTC (48h autonomy)

DIMMING CHARACTERISTICS

DALI	
Protocol	D4i (IEC62386+DiiA Part 351) *D4i pending
Device type	Type D
Voltage levels	0...7V Low 7V...30V High
PWM / 1...10V	
PWM	0V-10V @1.2kHz
1...10V	10mA max

MECHANICAL CHARACTERISTICS

Dome diameter	80mm
Thickness	1.5mm
Height	40mm (controller) 50mm (gateway)
Weight	TBD



COMMUNICATION

Bluetooth Mesh	
RF Range	2402 – 2480 MHz
Receiver Sensitivity	-98dBm
Transmit Power	Max ~19.0dBm
GSM (for Gateway model only)	
Protocols	LTE Cat M1, NB-IoT NB2, EGPRS
Bands	Cat M1 & Cat NB2: B1/2/3/4/5/8 /12/13/18/19/20/25/26/27 /28/66/85 * B26/B27 for M1 only * B71 for NB2 only EGPRS 850/900/1800/1900
Interfaces	eSIM + nanoSIM

GNSS CHARACTERISTICS

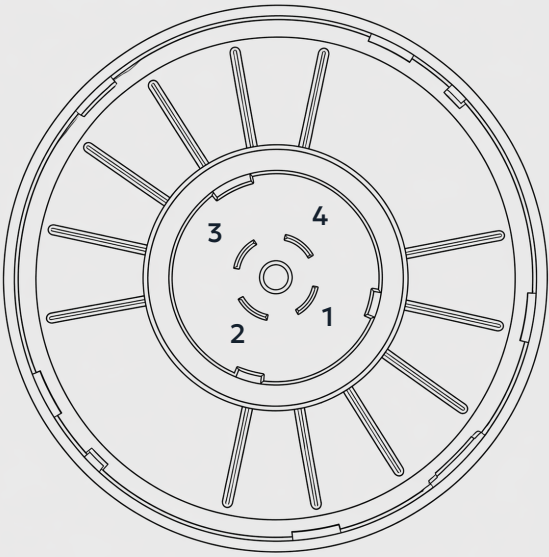
Supports	GPS, GLONASS, SBAS, QZSS and AGPS
Position accuracy	<2.5m Up to 4 devices

DIGITAL INPUT

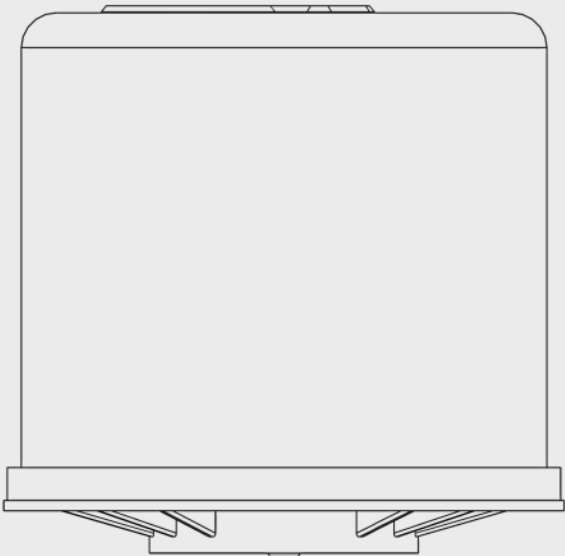
Voltage	0...30V
Levels	0...7V Low 7V...30V High

HOUSING

Material	Polycarbonate
Colour	Smoke grey
Protection Class	IP66



- 1: +24V
- 2: GND
- 3: DA+ / PWM / 1...10V
- 4: DIGITAL INPUT



MZPL-Q-XX-AAA-BBB

PARTICULATE MATTER	
Mass concentration precision	±10%
Mass concentration range	0 -1000 µg/m³
Lifetime	> 10 years
Particle size range	PM1.0, PM2.5, PM4 and PM10
Mass concentration precision	PM1 and PM2.5 ±5 µg/m3 (0 to 100 µg/m3)10% m.v (0 to 1000 µg/m3) PM4 and PM10 ±25 µg/m3 (0 to 100 µg/m3)25% m.v (0 to 1000 µg/m3)

TEMPERATURE	
Typical accuracy	0.45°C
Response time	< 60s

HUMIDITY	
Typ. relative humidity accuracy	4.5 %RH
Operating relative humidity range	0 – 90 %RH
Response time	< 20s

VOC	
Index	0 – 500 VOC Index
Measurement range	0 -1000 µg/m ³
Response time	< 10s
Device to device variation	< ±15%
Repeatability	< ±5

NOX	
Index	0 – 500 VOC Index
Measurement range	0 -1000 µg/m ³
Response time	< 10s
Device to device variation	< ±50%
Repeatability	< ±10

ORDERING CODE

MZPL-Q-XX-AAA-BBB
Q: Air Quality Sensor
XX: GW = With GSM; 00 = No GSM
AAA: GPS = With GNSS; 000 = No GNSS
BBB: RTC = With RTC; 000 = No RTC

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