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smart solutions

Lighting Control Systems

LoRaWAN and NB-IoT Street Light Controller

DALI 2   LoRaWAN   D⁴™   NB-IoT

LCZG
Zhaga® 18 Streetlight Controller

The Zhaga® 18 Streetlight Controller is a cutting-edge wireless remote-control unit engineered for LED streetlights featuring a Zhaga® Book 18–compliant connector. Its plug-and-play installation simplifies deployment across diverse street lighting modules.

Zhaga® 40   Zhaga® 80

This device is robust enough for outdoor environments and seamlessly integrates with both existing lighting setups and third-party solutions. We've prioritized cost-effective system integration by providing open communication protocols, an open-source JavaScript payload decoder, and our dedicated Zenosmart Connect app.

The controller communicates over LoRaWAN® and NB-IoT networks. For streetlight control, it supports DALI, DALI-2, D4i, and 0–10 V analog interfaces. Its sleek, modern design complements slim LED fixtures. Additionally, an optional GPS module is available to streamline map positioning and ensure precise time synchronization.

Measured and Monitored Parameters

- Lamp ontime
- Ambient light
- Controller temperature
- Forwards D4i energy registers for each driver
- Lamp/driver fault
- Controlgear faults
- Controller tilt angle and collision events
- GPS position (optional)

Controller Features

- Control up to 4 DALI / DALI-2 drivers independently powered measurement via DALI driver
- D4i energy registers reported for each driver
- Versatile astronomical calendar-based dimming
- Time-based dimming profiles
- Automatic device time synchronization
- Light intensity sensor
- Remote control and configuration
- Multicast control and configuration
- Configuration via Zenosmart app (iOS & Android)
- GPS positioning (optional)
- Simple push-and-twist lock installation
- Autonomous and adaptive operation (configure once, then operate)
- Realtime control and feedback
- RTC maintains time after power loss
- Built-in tilt sensor
- Surge protection
- Digital input (LSI) for external events (motion sensor, switch, photocell, etc.)
- Fully documented open communication protocol

Technical Data

Supply

Power supply	24 V DC or 100–240 V AC
Peak power consumption	3 W (maximum)
Surge protection	Built-in surge protection circuit
Current protection	Built-in over current protection circuit with auto reset

Communication	LoRaWAN®	NB-IoT
Network interface	LoRaWAN® 1.0.4 Class C	3 GPP LTE Release 14 Cat-NB1 & Cat-NB2 compliant
RF frequency	868 / 915 / 923 MHz	B3, B8, B20 (1710–1880, 880–960, 791–862 MHz)
Rx sensitivity	-137 dBm @ 125kHz BW SF12	-108 dBm sensitivity (Cat-M1) for low band, -107 dBm for mid band
Tx power	up to +22 dBm (depending on region)	up to +23 dBm
Network security	Encrypted communication based on security keys (AES128-bit)	APN / VPN Support
GPS	GPS/GLONASS/BeiDou/QZSS (Optional)	GPS/GLONASS/BeiDou/QZSS
Firmware update (OTA)	via Bluetooth and LoRaWAN®	
Bluetooth	Supported (optional)	

Interfaces

DALI control and power supply	Controls up to 4 DALI ballasts with Internal 15V power supply
Analog output	0–10 V or 1–10 V Analog output
Logical signal input (LSI)	2 x 0–24V Logic signal input configurable alert, dim levels (analog/digital), etc.

Sensors

Light sensor	Integrated, Configurable threshold
Tilt Sensor	2-axis tilt sensor

Lamp Control

Dimming range	0%-100% (linear or logarithmic depending on control gear settings)
Control interface	DALI-2 / DiiA (IEC 62386) / D4i / 0-10 V / 1-10 V Analog

Metering

Built in parameters	A, V, W, Wh, WB, W Fund, and PF, lamp-on time, sag and swell, (Non D4i Drivers)
D4i reported parameters	V, W, Wh, and PF, lamp-on time, and many others (Only for D4i Drivers)
Measurement accuracy	%0.5 for built in measurement circuit

Output Switch	Mechanical Contact Relay	Solid State Relay	Without Switching Output
Switching type	5A (100.000 Operation)	2A (With zero cross detection)	No any switching output

Timing

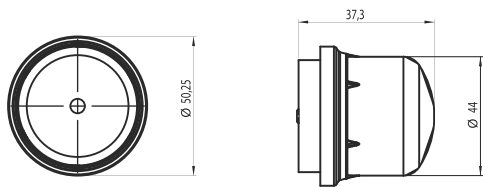| Real Time Clock (RTC)	Yes, super capacitor backup (up to 15 days)

Environmental

Ingress protection	IP67 (IEC 60529)
Operating temperature	-20°C ... +60°C

Mechanical

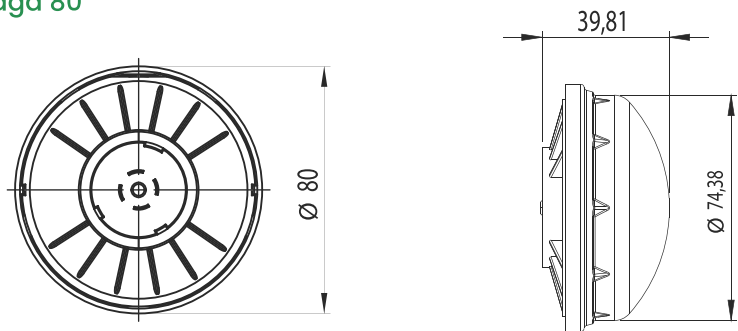| Weight	150 gr
Dimensions	154 x 65 x 59 mm (6.06 x 2.56 x 2.32 in)
Body material	ABS

Compliance

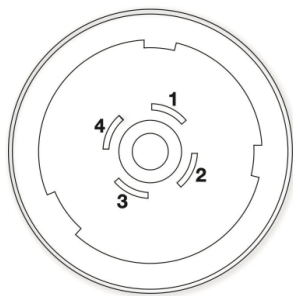| Standards	EN 61347-1, EN 61347-2-11, EN 300220, EN 62368, EN 301489, EN 62479, EN 50581
Certifications	CE

Mechanical Dimensions

Zhaga 40

37,3

Ø 50,25

Ø 44

Zhaga 80

39,81

Ø 80

Ø 74,38

Wiring Guide

PIN	Definition	Type
1	24VDC	DC Power output
2	GND	DC Power output
3	NC	Float
4	0-10V	Dim+ input

Note: That is the pin definition of the front socket, and the docking party is the light controller (foolproof socket).

All dimensions are given by mm.