iLCS®

Intelligent Light Control System

iLCS Smartness Components

iLCS®
Intelligent Light Control System

Contents

Note: All specifications are subject to change without prior notice for product improvement.

Light Control Unit (NEMA)

Intelligent Light Control System

Description

Light Control Unit (NEMA) is an intelligent control device for remote control and monitoring of streetlights.

LCU (NEMA) provides a Plug-and-Play installation on the lamp via a 7-pin NEMA connector that meets the ANSI C136.41-2013 standard.

The device is directly powered by the AC line, has an integrated power and energy meter for diagnostics and is equipped with a relay to cut off the driver power suppy during standby time, offering an additional protection.

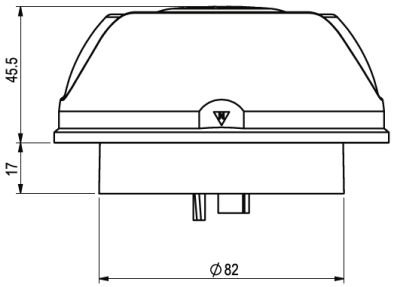
Communication with the data control unit takes place via wireless mesh network on the 2.4 GHz ISM band, with transmission power up to 20 dBm.

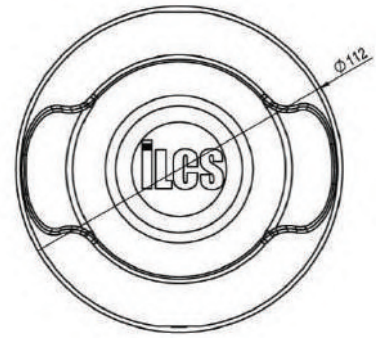
Equipped with brightness sensor and on-board GPS, it can also work in standalone mode.

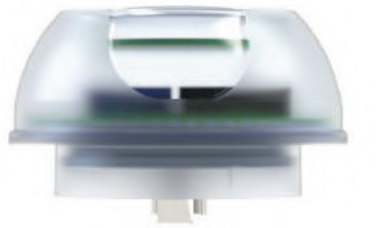
Technical Specifications

Product code	WiSN-RMGA
RF communication	IEEE 802.15.4 Wireless Mesh Radio 2.4 GHz ISM band 16 radio channels +20 dBm max TX power
Output ports	Max load of 500W @ 230 Vac 0-10 V output (max 10 mA) DALI master output (optional)
Power supply	110/305 Vac @ 50/60Hz 1.4 W (max) Overvoltage, overload and thermal protection Short-circuit and open-circuit protection
Features	Integrated energy metering Standalone operation Firmware update over-the-air (OTA) Dedicated redundant EEPROM Ambient brightness sensor ADC input for external signal 3-axis accelerometer Compatible with TAI and FAI installation
Built-in GPS	GPS, GLONASS with SBAS receiver High precision map positioning Automatic dusk and dawn calculation
Encryption	Hardware-based with 256 bit key
Temperature range	-25°C ÷ 70°C (operation) -40°C ÷ 120°C (stockage)
Protection grade	IP66
Size	112 x 112 x 62.5 mm

Product Size







Light Control Unit (Zhaga)

Intelligent Light Control System

Description

Light Control Unit (Zhaga) is an intelligent control device for remote control and monitoring of streetlights.

LCU (Zhaga) complies with the specifications of the Zhaga Consortium Smart Street Lighting (Book 18), ensuring universal compatibility with all LED lamps equipped with standard Zhaga socket.

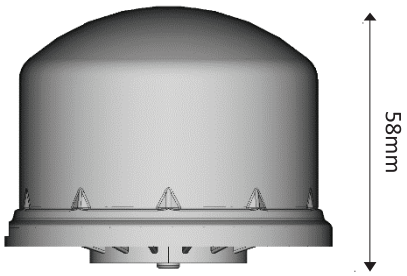
The device is powered at 24 Vdc and is equipped with a DALI2 / SR interface with the role of Master, capable of controlling up to 24 compatible LED drivers and reading diagnostic data on status and consumption.

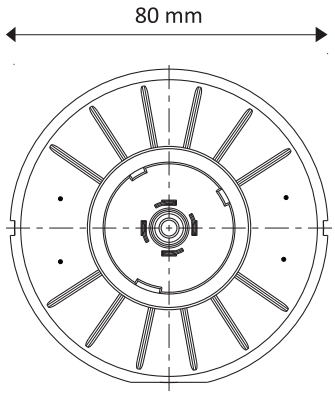
Communication with the data control unit takes place via wireless mesh network on the 2.4 GHz ISM band, with transmission power up to 20 dBm. Equipped with brightness sensor, RTC and in the full version, with on board GPS, it can also work in standalone mode.

Technical Specifications

Product Code	WiSZ WiSZ-GPS
RF Communication	IEEE 802.15.4 Wireless Mesh Radio 2.4 GHz ISM Band 16 Radio Channels +20 dBm Max TX Power
Interface	DALI2 / SR Master On / Off - Dimming Metering & Diagnostics Read from Driver (Supports up to 24 Drivers on Bus)
Power Supply	+24 Vdc WiSZ: 0.25 W (Max) WiSZ-GPS: 0.375 W (Max)
Features	Standalone Operation Firmware Update Over-The-Air (OTA) Integrated RTC (Battery Free) Dedicated Redundant EEPROM Ambient Brightness Sensor ADC Input for External Signal 3-Axis Accelerometer Compatible with TAI & FAI Installation
GPS Version	GPS, GLONASS with SBAS Receiver High Precision Map Positioning Automatic Calculation of Sunrise & Sunset
Encryption	Hardware-Based with 256-Bit Key
Temperature	-25°C to 70°C (Operation) -40°C to 120°C (Storage)
Protection Grade	IP66 / IK09

Product Size





Light Control Unit (Zhaga)-Solar

Intelligent Light Control System

Description

Light Control Unit (Zhaga)-Solar is an intelligent control device for remote monitoring and regulation of Solar LED street luminaires. Compliant with ZIO interface, it ensures universal compatibility with solar luminaries equipped with standard ZIO sockets.

Powered at 24 Vdc, it features a 3.3V TTL communication interface, collecting status, diagnostic and energy consumption data. Light Control Unit (Zhaga)-Solar integrates IEEE 802.15.4 wireless mesh network (2.4 GHz, up to 20 dBm) to manage nearby nodes without individual SIM cards, reducing deployment and operating costs.

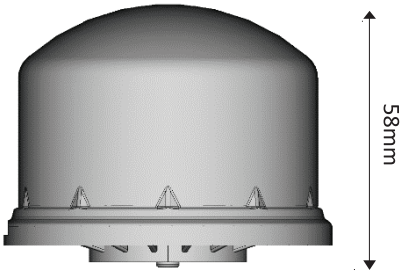
An on board GNSS receiver enables positioning and time synchronisation and the device supports standalone operation for local control when backhaul connectivity is unavailable.

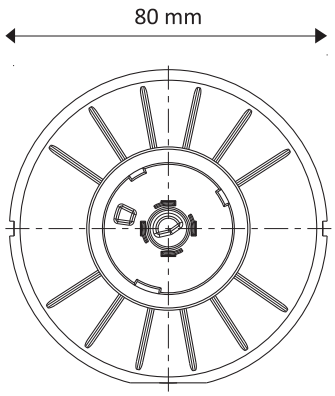
The advantage to use TTL interface is to not introduce extra cost and keep the product competitive without replacing charger. Light Control Unit (Zhaga)-Solar requires MPPT Charge controller with TTL interface.

Technical Specifications

Product Code	WiSZ-Solar
RF Communication	IEEE 802.15.4 Wireless Mesh Radio 2.4 GHz ISM Band 16 Radio Channels +20 dBm Max TX Power
Interface	TTL 3.3V Interface On / Off - Dimming Reading of Consumption & Parameters Supplied by the Drivers
Power Supply	10 to 30 Vdc
GNSS	GPS / BDS / GLONASS / Galileo / QZSS / SBAS, L1 High Precision Map Positioning Automatic Calculation of Sunrise & Sunset
Encryption	Hardware Based with 256-Bit Key
Temperature	25°C to 70°C (Operation) 40°C to 120°C (Storage)
Protection Grade	IP66 / IK09
Size	80 x 80 x 58mm

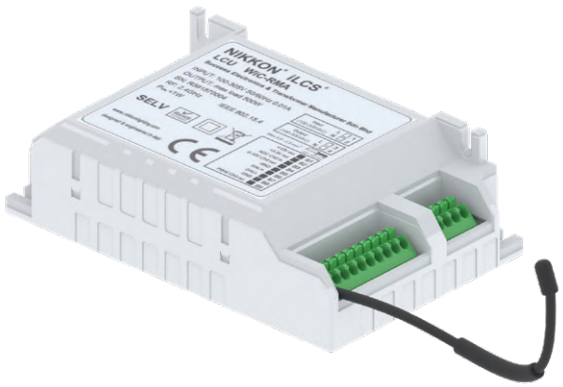
Product Size





Light Control Unit (WiC-RMA)

Intelligent Light Control System



Technical Specifications

Enclosure

• Operating Voltage	100 ~ 305Vac 50/60Hz
• Standby System Power	< 1W
• Maximum Load	1000W@230Vac
• Analog Input Availability	0 - 30Vdc
• Dimming Interface	0 - 10V DALI (optional)

Enclosure

• Dimension	124 x 80 x 33mm
• Nett Weight	146g
• Build	Polycarbonate (White)
• Ingress Protection	IP20
• Impact Protection	IK09

Temperatures

• Storage Temperature	-40°C to +120°C
• Operating Temperature	-25°C to +70°C
• Case Temperature	+75°C

Communication

• Network	Autonomous Wireless Mesh Radio Frequency
• Protocol	IEEE 802.15.4 (2.4GHz)
• Security	128 AES Encryption
• Wireless Range	Up to 1km
• Transmission Power	Max +20 dBm

Protection

- Overvoltage, Overload, Short-Circuit, Open-Circuit and Thermal Protection

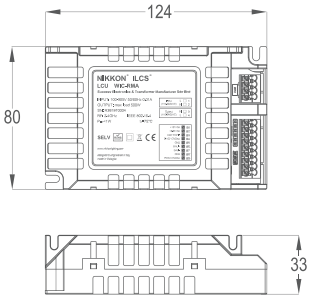
Built-In Components

- Antenna, Power Meter

Compliance Standard

- EN55015, EN60598-1, EN61000-3-2, EN61000-3-3, EN61547, EN61347-1, EN61347-2-11, ETSI EN300328, ETSI EN303413, ETSI EN301489-1

Dimension



Data Control Unit (DCU)

Intelligent Light Control System

Description

The iLCS Data Control Unit (DCU) offers a robust construction with a sleek design carrying LED status indicators and external power button. The internal components have been designed to provide improvements in terms of network reliability and stability.

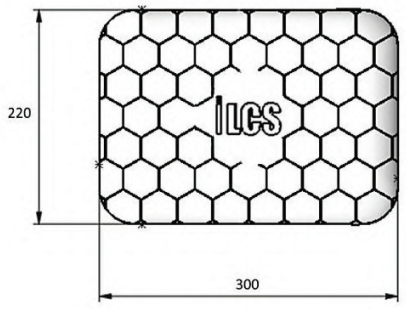
The DCU allows to manage and to acquire data from all the iLCS LCUs and other iLCS smart devices by using state-of-the-art autonomous wireless mesh connectivity.

The DCU has built-in data hardware encryption and VPN configuration to allow a secure transmission of data to the iLCS Cloud platform.

Technical Specifications

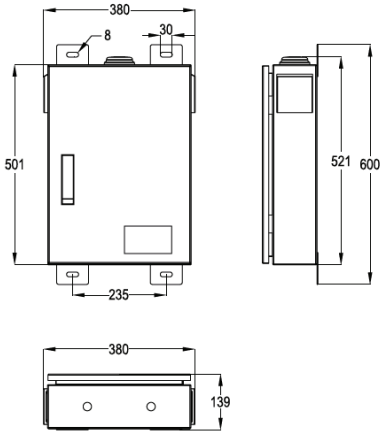
Product code	ILCS-DCU v2.0
Power supply	+24Vdc via Power over Ethernet (PoE)
Power consumption	4W (max)
Network	IEEE 802.15.4 @ 2.4 GHz Proprietary autonomous wireless mesh Up to +20 dBm Tx power
Coverage range	Up to 1 km for a single link in LoS
Network capacity	Up to 150 nodes
Security	256-bit hardware encryption
Housing material	Polycarbonate Makrolon AL2447 IP66 environmental protection IK08 impact protection
LED indicators	Power LED Status LED
Features	Power button RF hardware redundancy Integrated hardware supervisor High-precision RTC with battery backup LTE module (optional)
Operating temperature	-25°C to +70°C
Weight	1.5 kg
Size	300 x 200 x 80 mm

Product Size



Optional

IP65 DCU Control Gear Box



Traffic Adaptive Illumination (TAI) Sensor

Intelligent Light Control System

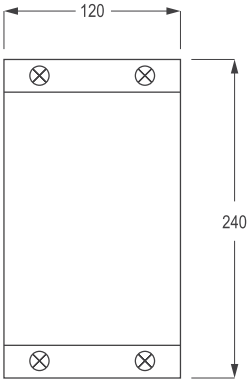
Description

The TAI sensor, compliant with UNI 11248 standards, is a high-accuracy traffic counter capable of bidirectional vehicle detection and real-time adaptive dimming to generate significant energy savings. Equipped with arrays of tuned 24 GHz digital radar motion detectors, it enables long-range detection even under adverse weather conditions such as mist, rain and snow.

Technical Specifications

Product code	C-T-WiC
Vehicle detection	Up to 30 m (cars) Backward and forward directions
Radar	24 GHz asymmetrical beam
Features	• Integrated signal processing • Efficient interference suppression • Vibration suppression • Two lanes counting • Integrated IoT wireless controller
Power supply	100-305V @ 50/60Hz
Power consumption	2 W (max)
Wireless	2.4 GHz IEEE 802.15.4 with 20 dBm maximum Tx power
Operating temperature	-25°C to +70°C
Environmental protection	IP66
Size	120 x 240 x 75mm

Product Size

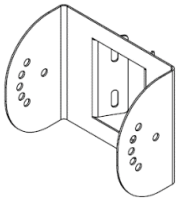


Installation

Suggested height of installation of the sensor:
between 4 and 5 m

Suggested pole placement:
1 m from the border of the road lane

Accessory



Mounting bracket
Titling angle: +22.5° to -45°
Material: Stainless steel

Smart Node

Specifications

- **Input** 85 ~ 264VAC
- **Consumption** 200mA
- **Backup Battery** 4000mAh LiFePO4 6.4V
- **Installation** Pole Mounting
- **Dimension** 210 x 220 x 58mm

Particulate Matter (PM) Sensor (Air Quality)

Technological breakthrough in optical PM sensors. Its measurement principle is based on laser scattering and makes use of an innovative contamination resistance technology. Advanced algorithms provide superior precision for different PM types and higher-resolution particle size binning, opening new possibilities for the detection of different sorts of environmental dust and other particles.

Parameter	Conditions	Value	Units
Mass concentration specified range	-	0 ~ 1000	µg/m³
Mass concentration size range	PM1	0.3 ~ 1.0	µm
	PM2.5	0.3 ~ 2.5	µm
	PM4	0.3 ~ 4.0	µm
	PM10	0.3 ~ 10.0	µm
Mass concentration precision for PM1 and PM2.5	0 ~ 100 µg/m³	±5 µg/m³ and 5% m.v.	
	100 ~ 1000 µg/m³	±10	% m.v.
Mass concentration precision for PM4 and PM10	0 ~ 100 µg/m³	±25	µg/m³
	100 ~ 1000 µg/m³	±25	% m.v.
Maximum long-term mass concentration precision	0 ~ 100 µg/m³	±1.25	µg/m³ / year
	100 ~ 1000 µg/m³	±1.25	% m.v. / year

Traffic Sensor

The radar sensing device with internal signal processing guarantees an optimal detection capability and high reliability.

- Small and low cost digital 24 GHz radar motion detector
- Detection distance up to 15m (human) 30m (cars)
- High immunity against interferences
- Integrated FFT signal processing with digital outputs
- Advanced detection data read-out over serial interface
- 2x4 patch antenna with 80°/34° beam aperture

Noise Pollution Sensor

Noise pollution is a major problem, both for human health and the environment. It is considered to be any unwanted or disturbing sound that affects the health and well-being of humans and other organisms. Its monitoring allows to be conscious about it and act with potential countermeasures.

- Measuring range of 30dB ~ 120dB
- Frequency response range of 20Hz ~ 12.5kHz
- Using frequency A-Weighting