



Intelligent Light Control System

# iLCS Smartness Components



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## 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 supply during standby time, offering an additional protection.

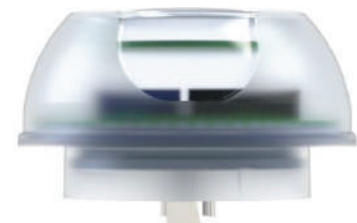
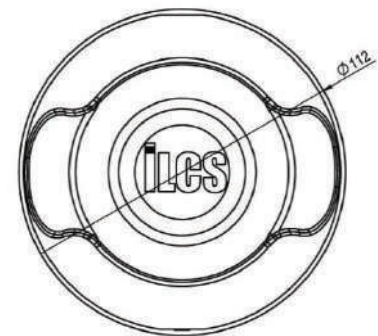
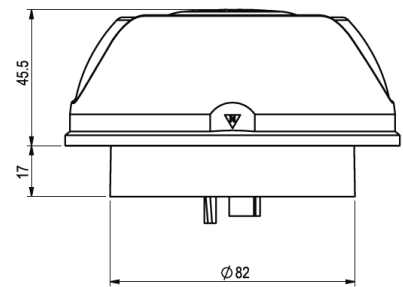
Communication with the data control unit takes place via wireless mesh network on the 2.4 GHz ISM band, with transmission power up to 20 dBm.

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

## Product Size





## 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.

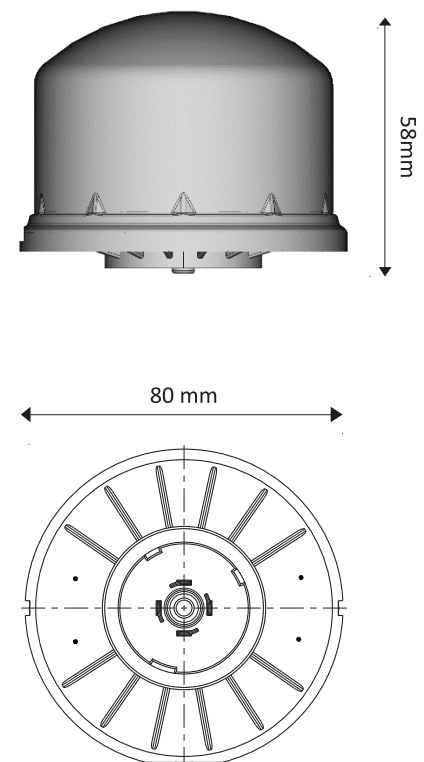
The device is powered at 24 Vdc and is equipped with a DALI2 / SR interface with the role of Master, capable of controlling up to 24 compatible LED drivers and reading diagnostic data on status and consumption.

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

## Product Size





## 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 luminaires 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.

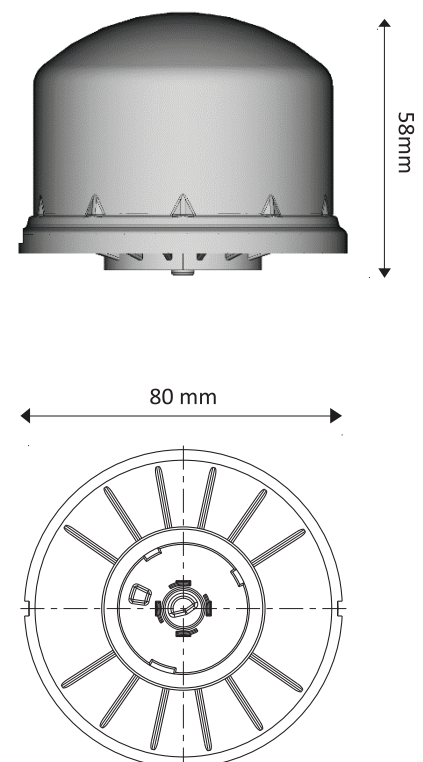
An on board GNSS receiver enables positioning and time synchronisation and the device supports standalone operation for local control when backhaul connectivity is unavailable.

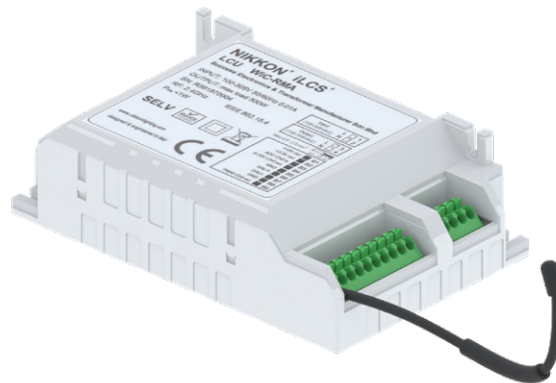
The advantage to use TTL interface is to not introduce extra cost and keep the product competitive without replacing charger. Light Control Unit (Zhaga)-Solar requires MPPT Charge controller with TTL interface.

## Technical Specifications

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

## Product Size





## 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

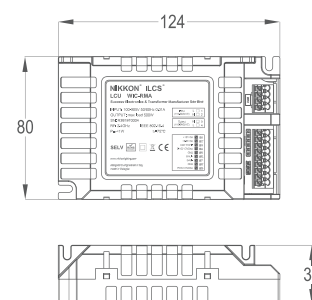
### Built-In Components

- 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





## 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.

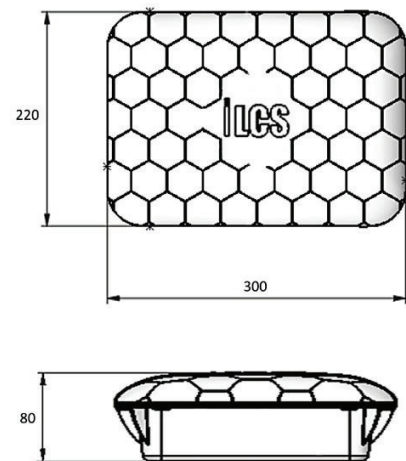
The DCU allows to manage and to acquire data from all the iLCS LCUs and other iLCS smart devices by using state-of-the-art autonomous wireless mesh connectivity.

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

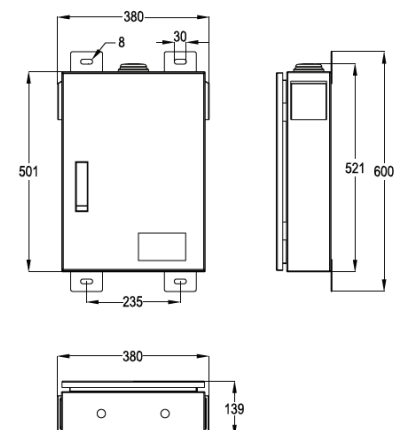
|                       |                                                                                                                                             |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 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<br>Proprietary autonomous wireless mesh<br>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<br>IP66 environmental protection<br>IK08 impact protection                                                    |
| LED indicators        | Power LED<br>Status LED                                                                                                                     |
| Features              | Power button<br>RF hardware redundancy<br>Integrated hardware supervisor<br>High-precision RTC with battery backup<br>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





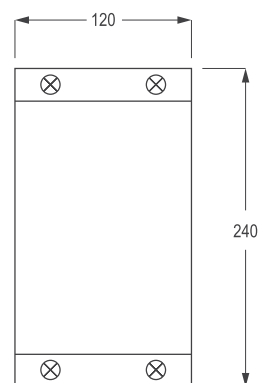
## Description

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)<br>Backward and forward directions                                                                                                                                                                                  |
| Radar                    | 24 GHz asymmetrical beam                                                                                                                                                                                                              |
| Features                 | <ul style="list-style-type: none"><li>• Integrated signal processing</li><li>• Efficient interference suppression</li><li>• Vibration suppression</li><li>• Two lanes counting</li><li>• Integrated IoT wireless controller</li></ul> |
| Power supply             | 100-305V @ 50/60Hz                                                                                                                                                                                                                    |
| Power consumption        | 2 W (max)                                                                                                                                                                                                                             |
| Wireless                 | 2.4 GHz IEEE 802.15.4 with<br>20 dBm maximum Tx power                                                                                                                                                                                 |
| Operating temperature    | -25°C to +70°C                                                                                                                                                                                                                        |
| Environmental protection | IP66                                                                                                                                                                                                                                  |
| Size                     | 120 x 240 x 75mm                                                                                                                                                                                                                      |

## Product Size

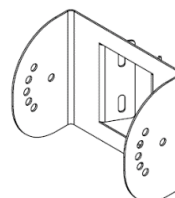


## Installation

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



## 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