

# iLC

## intelligent Luminaire Controller for Built-in into Luminaires

Developed for use in street lighting and lighting in the vicinity of buildings, the interoperable iLC controls magnetic and electronic operating devices fitted with a luminaire control interface via standardised powerline communication in the C/B band according to CENELEC 50065-1 based on the OLC LonMark® profile.

Standardised data transmission is in accordance with ANSI/CTA and EN. Operation is possible both in the light management system and in stand-alone mode.

Individually programmable and updateable, it performs all the tasks of a modern light management system.

### Typical Applications

- Street lighting and lighting in the vicinity of buildings
- Car parks, bus stops and railway stations
- Company premises, warehouses
- Sports facilities

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### Product Benefits

- Luminaires can be switched off when connected to a switched lighting cable
- Power consumption: 1 to 3 W
- Adjustable control input to suit various tasks
- Connection of various sensors such as motion sensors, key switches and light sensors
- 10 dimming levels with individual dimming sequences in stand-alone mode
- Lighting can be switched on earlier and switched off with a delay with individual dimming sequences
- Compensation of reduction in luminous flux with freely definable values for lamp service life as well as start and end levels
- Burning in of high-pressure discharge lamps after lamp replacement
- 2 years warranty

**iciti**  intelligent.  
efficient.  
controls.

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*Interoperable Communication Technology  
for Smart Cities and Buildings*

## Technical Details

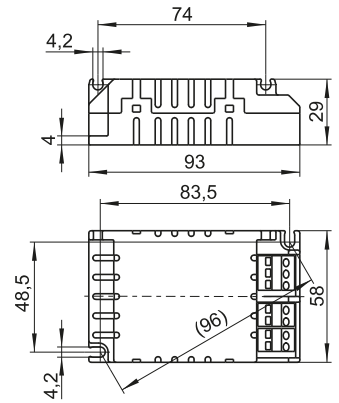
| Electronic Luminaire Controller            | iLC   |
|--|---|
| Type                                       | iLC-100   |
| Ref. No.                                   | 200003  |
| Input voltage                              | 110–240 V AC (± 10%)  |
| Mains frequency                            | 50/60 Hz  |
| Power consumption                          | 1–3 W   |
| Communication                              | Via the power supply line (powerline) in acc. with CENELEC 50065-1, class 2 acc. to 2000/299/EC   |
| C Band                                     | Primary band 125–140 kHz  |
| B Band                                     | Secondary band 95–125 kHz   |
| Data transfer (USA)                        | ANSI/CTA 709.1, ANSI/CTA 709.2  |
| Data transfer (Europe)                     | EN 14908-1, EN 14908-3  |
| Galvanic isolation                         | No electrical isolation from input to output (as soon as the electronic device is connected to the iLC, the control input ceases to be electrically isolated)                           |
| Switching current                          | 4 A (at $\lambda = 0.8$ )   |
| Switching cycles                           | 50,000 switching operations per function (at $\lambda = 0.8$ )  |
| Programmable                               | Yes   |
| Configurable parameters                    | Yes   |
| High-voltage control input                 | 110–240 V AC  |
| Switching output luminaire                 | 1 x for connecting one luminaire  |
| Control output electronic operating device | Short-circuit proof, switchable 1–10 V, PWM or digital interface (1200 Bit/s, serial asynchronous, 8 mA voltage level 16 V); Addressing range of the digital interface: max. 4 ballasts |
| Connection terminals                       | 0.5–1.5 mm <sup>2</sup>   |
| Conductor type of the connection terminals | Single, stranded  |
| Firmware update / parameter configuration  | Via powerline   |
| Control and monitoring parameters          | Switch on and off, power reduction  |
| Capture of measured data                   | Voltage, current, power factor, power consumption, energy, temperature, lighting hours with an accuracy of better than 1%   |
| Software interface                         | Interoperable in acc. with the LonMark® OLC profile, use of network variables and configuration parameters, repeatable  |
| Operating temperature range tc             | –25 to +80 °C   |
| Storage temperature range                  | –25 to +85 °C   |
| Mean time between failure                  | 50,000 h  |
| Humidity                                   | 90% non-condensing  |
| Surge voltage protection                   | 10 kV in acc. with EN 61000-4-5   |
| Degree of protection                       | IP20  |
| Protection class                           | Suitable for luminaires of protection class I and II  |
| Casing material                            | PC  |
| Dimensions (LxWxH)                         | 93 x 58 x 30 mm   |
| Weight                                     | 120 g   |
| Custom tariff number                       | 8543 7090   |



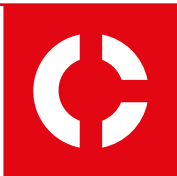
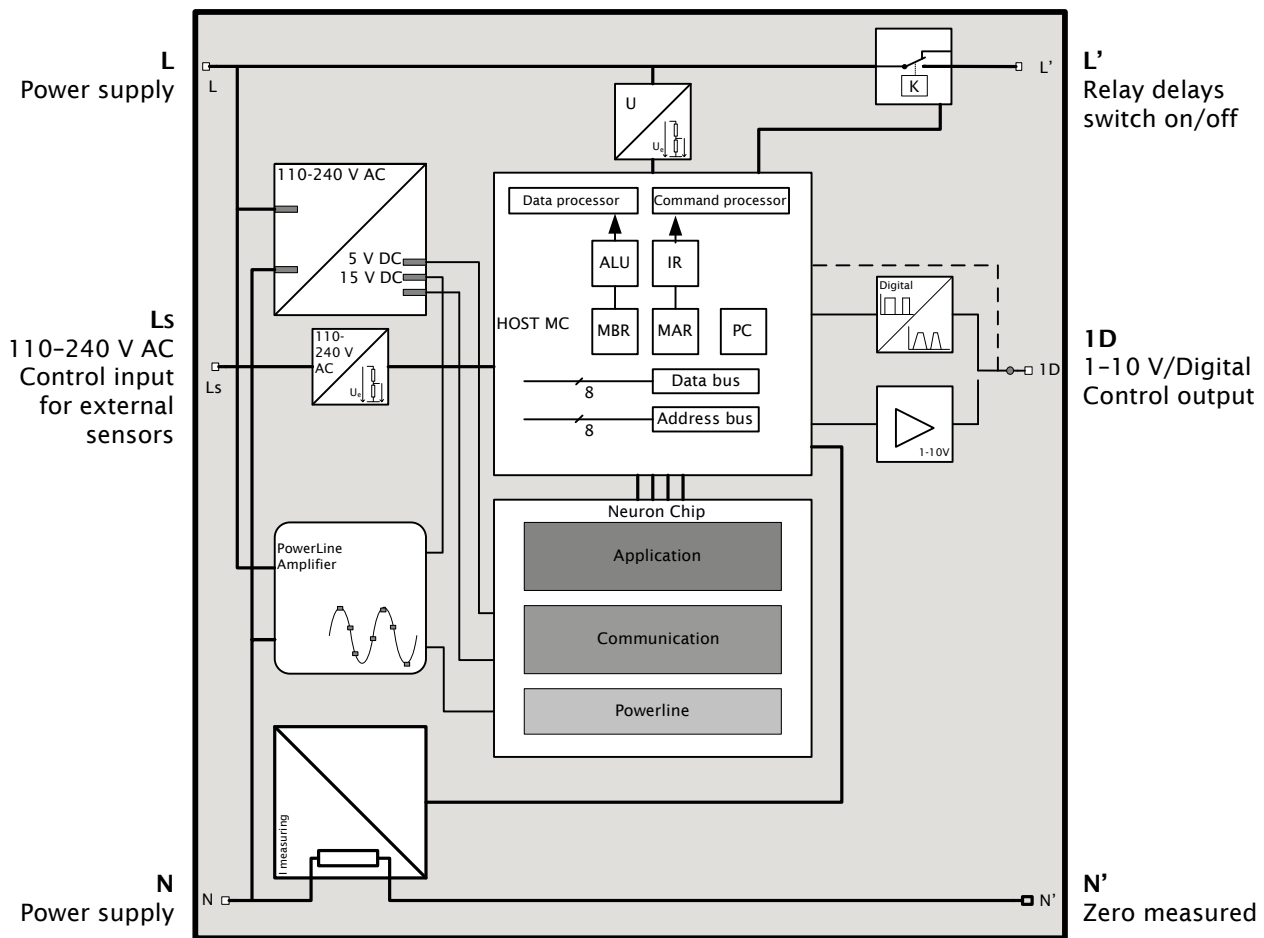
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- The luminaire controller is designed for built-in into luminaires.
- The non-galvanically isolated control output operates up to 4 DALI operating devices. Since up to 10 DALI channels are supported, more devices can be operated as long as the total load does not exceed 8 mA. Separate firmware must be loaded for this purpose.
- The controller supplies the connected operating devices with bus voltage supply and is not suitable for an external supply.
- The digital control input ceases to be electrically isolated as soon as an electronic operating devices is connected to the controller.
- The configurable parameters of the applications as well as optional firmware updates ensure a high degree of investment protection.
- Both, OEM and customer-specific versions can be protected against unauthorised distribution with a special software key. Please contact your iCiti representative for more information on this function.



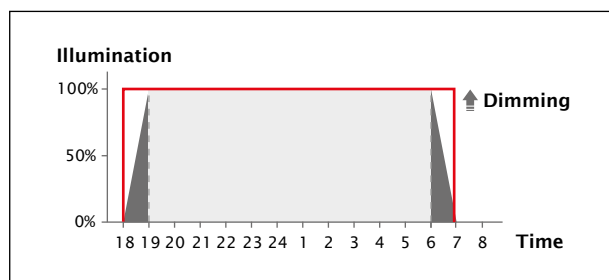
## Block Diagram



## Functions of the Light Controller

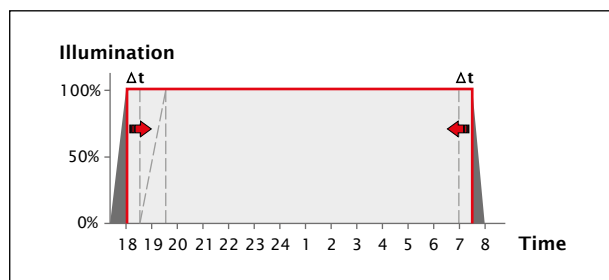
### DOO (Dimming, ON/OFF)

The lighting system can be programmed to ensure the lighting level of luminaires slowly increases to the desired brightness upon being switched on and to dim down within a certain timeframe before switching off. The brightness of luminaires based on LED technology can also be increased slowly up to a defined lighting level immediately after they have been switched on. This function enables a brightness-dimming sequence of max. 36 minutes to be set.



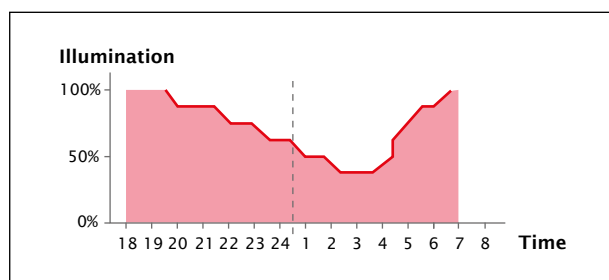
### DPC (Delayed Switching for Pedestrian Crossing)

Delayed switching off or early switching on of the lighting in the closer area of pedestrian crossing zones. For instance, street lighting is typically activated at 40 lux within pedestrian crossing zones, but at a lower lux level in areas outside of this zone. If the cabling infrastructure needed to set up such a system is missing, the iLC controller can emulate a similar effect thanks to its ability to “learn”. Pedestrian crossing zones can be switched for a longer period, whereas the remaining lighting can be switched independently and/or dimmed after a certain “learning” period.



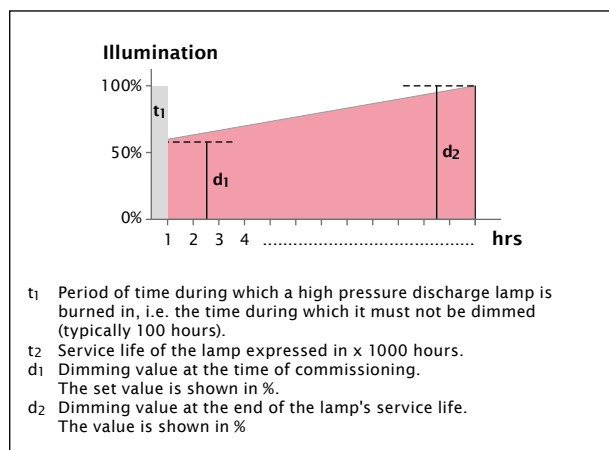
### ISD (Intelligent Switching Time Dimming)

A season-specific reference value is derived from the period of time the lighting cable is switched on. In line with this reference value, the controller can manage the lighting system with up to 10 dimming levels and dimming sequences. Accidental (erroneous) configurations that can arise, for instance, during maintenance work, are suppressed by the controller as it ignores short lighting periods of less than 6 hours and long periods of more than 18 hours.



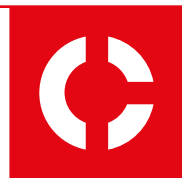
### MFF (Maintenance Factor Function)

Lamps age, mirrors and luminaire cover glass become dirty. This unwanted effect is compensated over the service life of the lamp to ensure a constant luminous flux. The effect can be combated by quantifying the expected decrease in luminous flux over the lamp’s service life, which helps to save energy costs. This function can also be used to precisely set the luminaire to suit the lighting task if the lighting level would otherwise be too high as a result of a substitute luminaire.



### L<sub>ST</sub> (Control Input)

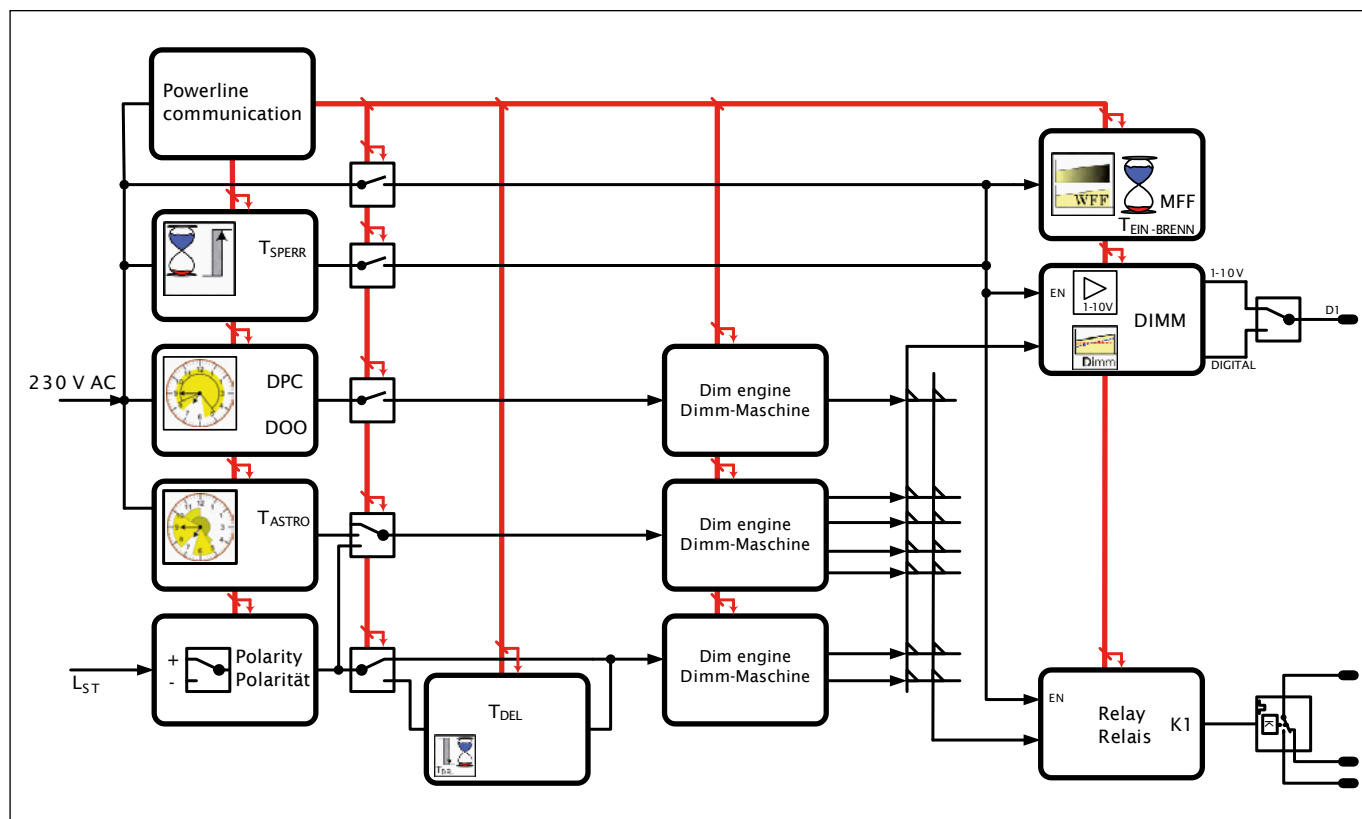
In addition, using a control input (e.g. with a push button or motions ensor) the system can be switched to a certain lighting level for a freely configurable period of time.



## Configuration and Graphic User Interface

If the controller is initially operated without a light management system, the configuration process is undertaken using a programming tool. Despite being a highly complex piece of technology, the controller's intuitive software interface makes it both user-friendly and easy to configure. The GUI enables direct configuration via the powerline.

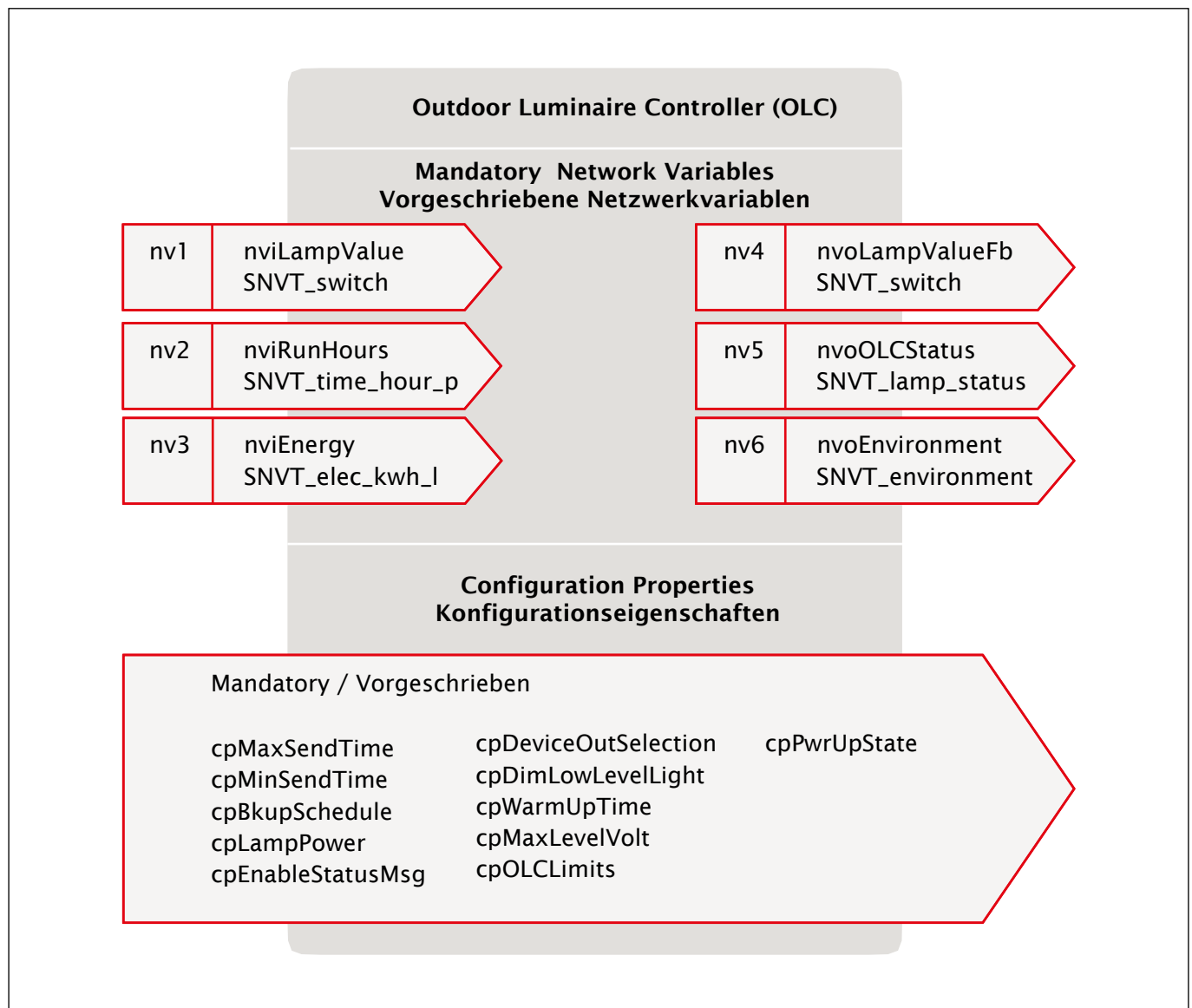
If the controller is integrated into a light management system, the same functions are available, but the parameters are configured from a central control point and lighting control is web-based. In this case, time control using the "synthetic" midnight is only used as a redundant application.



## LonMark® OLC Profile

In accordance with the mentioned ANSI and EN specifications, the controller is fitted with an interoperable network interface, which is essential for setting up heterogeneous networks. The definition of the exact data structure for data transfer purposes is fixed in accordance with the LonMark® definition in line with the so-called OLC profile (Outdoor Luminaire Controller).

Controllers that are manufactured in line with this standard, even if produced by different manufacturers, can be integrated into a common network. All communication data are completely routable to other medias like FT (Free Topology), wireless or narrow band powerline (PLC).



## Circuit Diagrams

### Connection of electronic ballasts with an 1-10 V / serial digital control input

Apart from being able to address all commonly available ballasts, the controller also makes it possible to completely switch off electronic ballasts if connected to a switched lighting cable.

This provides luminaires operated with 1-10 V electronic ballasts, in particular, with an important additional function.

