



iPC-HD

intelligent Luminaire Controller for Broadband Communication

Developed for the use in street lighting and lighting in the vicinity of buildings, the iPC-HD operates with a standardised high-definition powerline for communication purposes and enables control of electronic operating devices fitted with a 1-10 V, PWM or DALI interface and the usage of devices with ethernet-connector via TCP/UDP/IP, like CCTVs, voice guidance systems, emergency products, advertising panels, support for WiFi access points etc.

Individually programmable and updateable, the controller provides all the functions of a modern light management system and thus ensures a high degree of investment protection. It offers the wide range of Smart City applications for the future.

Typical Applications

- Street lighting and lighting in the vicinity of buildings
- Car parks, bus stops and railway stations
- Company premises, warehouses
- Sports facilities
- For Smart City applications the benefit of IP and LON communication can be used



Product Benefits

- Interoperable luminaire controller in acc. with the OLC LonMark® profile
- High-definition powerline communication using the broadband between 2 and 28 MHz
- Power consumption: ~3 W
- High precision measurement of voltage, current, power factor, output, energy, temperature, lighting hours with very high accuracy
- Connection of various sensors such as motion sensors, key switches and light sensors
- High-speed communication up to 240 Mbit/s including 2.5 Mbit independent LON channel
- Up to 10 self-organised repeaters to overcome large distances for communication
- 2 years warranty

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Interoperable Communication Technology for Smart Cities and Buildings



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Technical Details

| Electronic Luminaire Controller | for Broadband Communication |
|--|--|
| Type | iPC-100-HD |
| Ref. No. | 200011 |
| Input voltage | 85-305 V AC |
| Mains frequency | 50/60 Hz |
| Power consumption | ~ 3 W |
| Communication | Via high-definition powerline in acc. with CENELEC 50561-1 / IEEE 1901, class 2 acc. to 2000/299/EC |
| Band | 2-28 MHz |
| Coding | OFDM |
| Data transfer (USA) | ANSI/CTA 709.1, ANSI/CTA 709.8 |
| Data transfer (Europe) | EN 14908-1, EN 14908-8 |
| Galvanic isolation | Isolation of control outputs for 1-10 V / PWM / DALI operating device |
| Switching current / cycles | 10 A resistive load -> 100,000 switching cycles 6 A PF = 0.7 inductive load -> 15,000 switching cycles 2.5 A PF = 1 LED driver -> 25,000 switching cycles For any further load please ask for support |
| Programmable | Yes |
| Configurable parameters | Yes |
| High-voltage control input | 230 V AC |
| Switching output luminaire | 2 x for connecting several luminaires |
| Control output electronic operating device | DALI / 1-10 V / PWM: short-circuit-proof, suitable for respective ballasts, DALI bus master interface for max. 4 ballasts |
| Connection cable | 1 mm ² , length: 900 mm |
| Conductor type of the connection terminals | Stranded with ferrule bare end of core |
| Firmware update / parameter configuration | Via high-definition powerline |
| Control and monitoring parameters | Switch on and off / power reduction |
| Capture of measured data | Voltage, current, power factor, output, 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 +70 °C |
| Storage temperature range | -25 to +85 °C |
| Humidity | 90% non-condensing |
| Surge voltage protection | 4 kV / 1.2 / 50; acc. to EN 61547 |
| Degree of protection | IP65 |
| Casing material | PC |
| Dimensions (WxHxD) | 60 x 300 x 38 mm |
| Weight | 400 g |
| Custom tariff number | 8543 7090 |



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- The Controller is designed for built-in into the pole.
- The 1–10 V / PWM / DALI output of the controller can simultaneously address max. up to 10 operating devices, which must not consume more than 8 mA in total.
- 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.

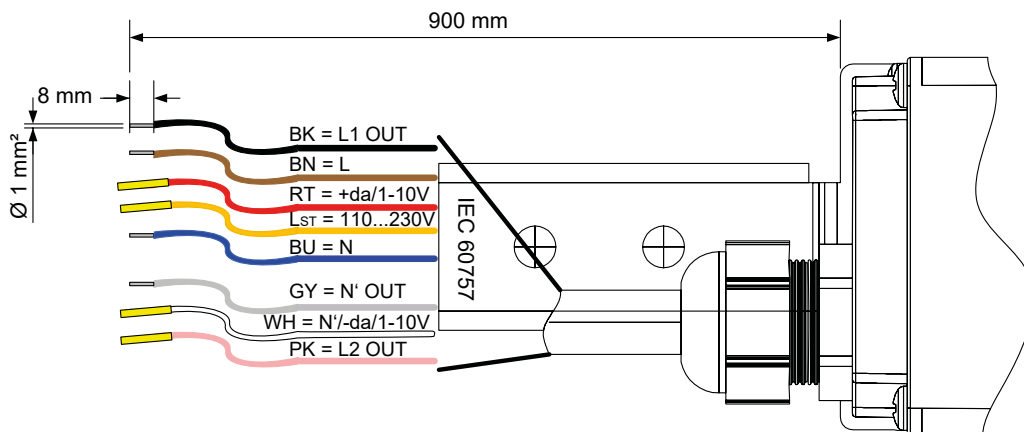
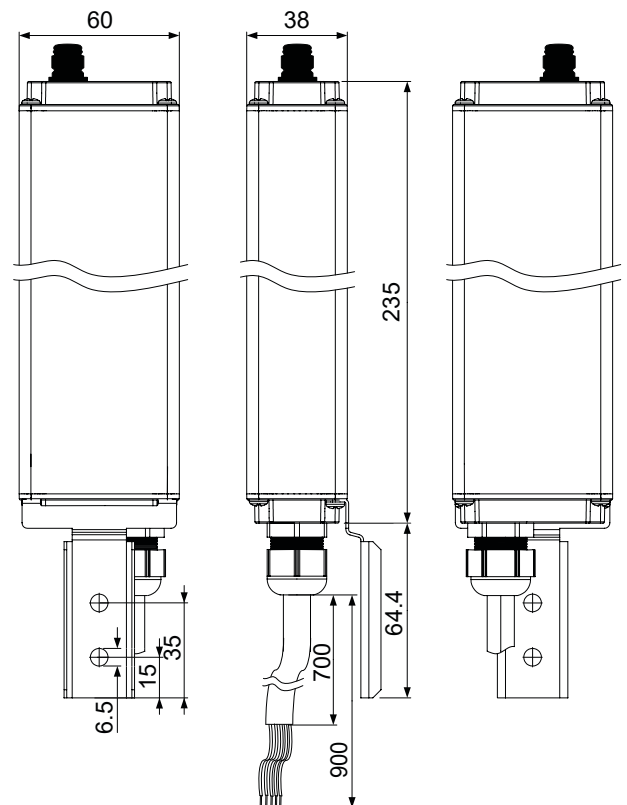
Main Cable for Supply

according to IEC 60757

Preassembled cable 10 x 1 mm², oilflex-sheathed cable classic 100, ferrule on bare end of core on connection side.

| Colour | Abbreviations | IEC 60757 | Configuration | Special features |
|---------|---------------|-----------|--------------------------------|---------------------|
| Black | SW sw | BK | L1Out | |
| Brown | BR br | BN | LIN | |
| Red | RT rt | RD | +CTRLout | + (1–10 V/DALI/PWM) |
| Orange | OR or | OR | L _{ST} 110...230 V | shrunken |
| Blue | BL bl | BU | NIN | |
| Violett | VI vi | VT | -- | |
| Grey | GR gr | GY | N'Out | |
| White | WS ws | WH | -CTRLout | - (1–10 V/DALI/PWM) |
| Pink | RS rs | PK | L2Out | shrunken |

IEC = International Electrotechnical Commission



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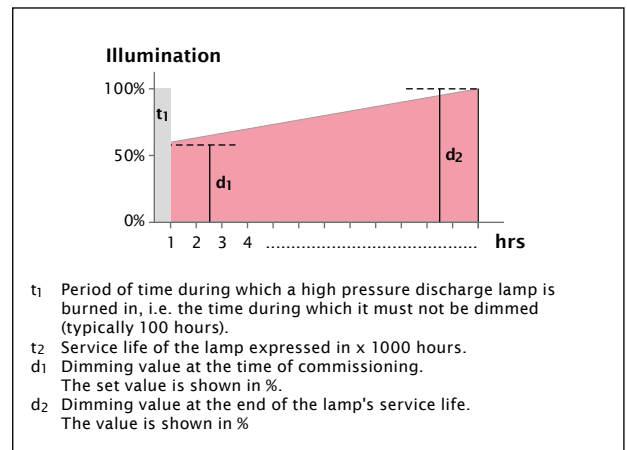
Functions of the Luminaire Controller

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

LST (Control Input)

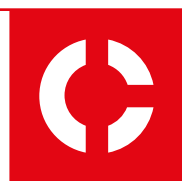
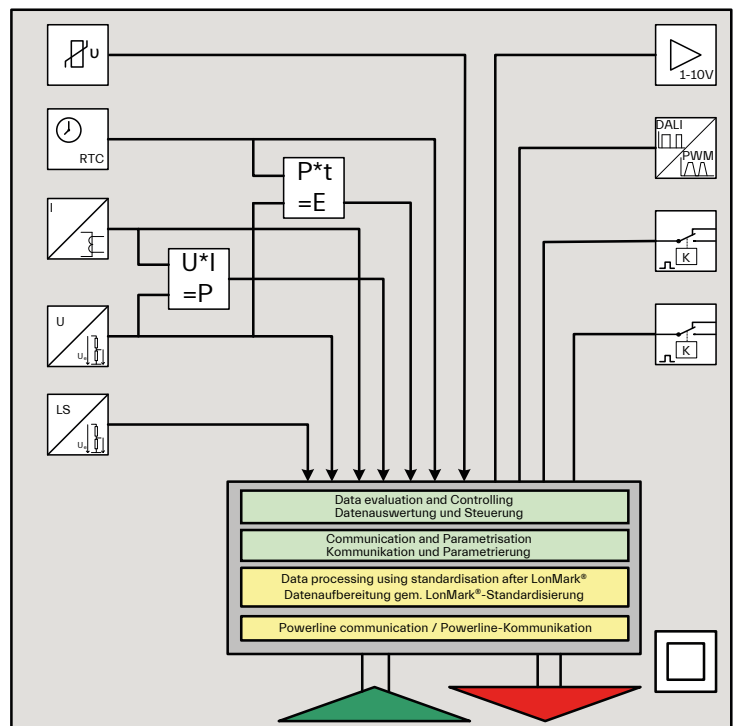
In addition, using a control input (e.g. with a push button or motions ensor) the system can be switched to a certain lighting level for a freely configurable period of time.



Configuration and Graphic User Interface

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.

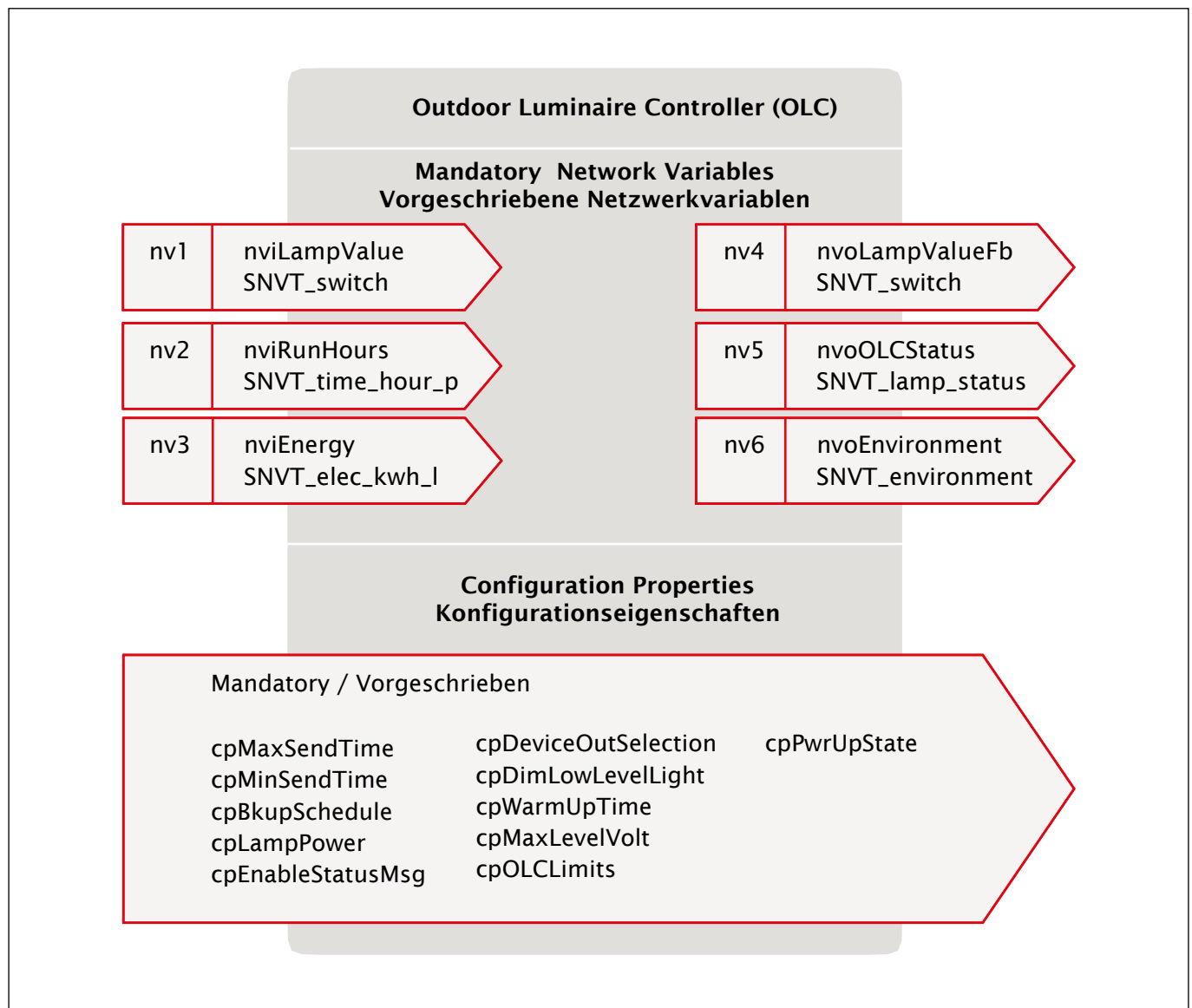
If the controller is integrated into a light management system the parameters are configured from a central control point and lighting control is web-based online.



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).

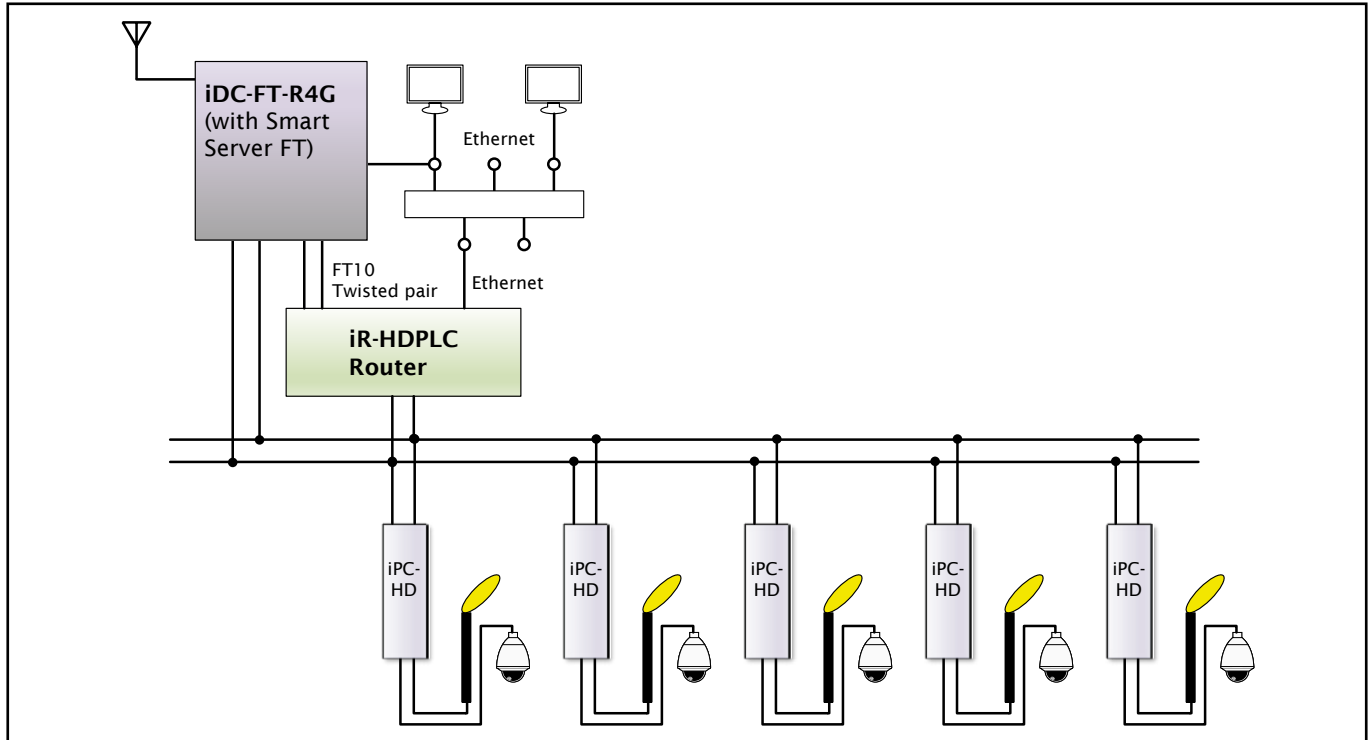
Controllers that are manufactured in line with this standard, even if produced by different manufacturers, can be integrated into a common network. All communication data are completely routable to other medias like FT (Free Topology) or wireless.



Typical Application

Configuration example for a typical application using an FT router. This configuration can be realized in street lighting as well as in buildings.

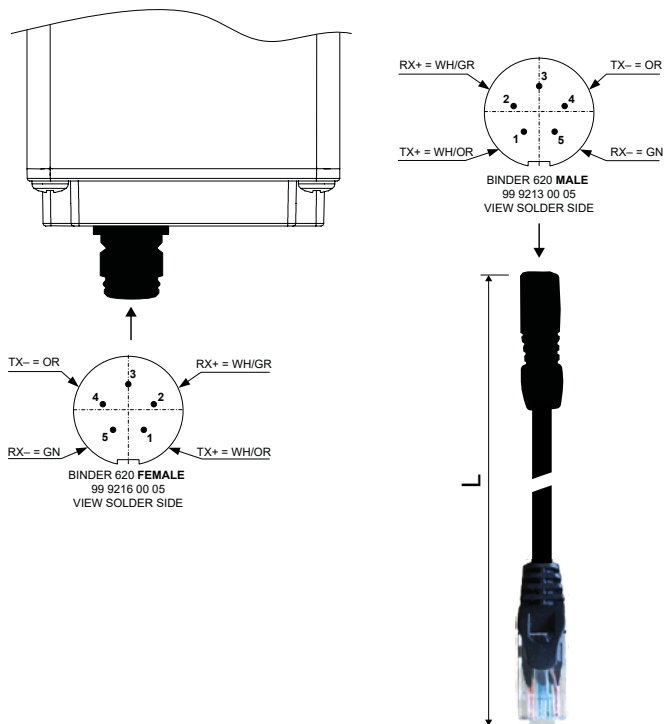
In addition to the transmission of standard control signals, multimedia/IP data with large data volume can also be transmitted by using the iPC-HD controller.



Accessories

IP/CAT5 Cable 100BASE-T
with IP65 Protection Class

| Ref. No. | Type | Cable length (L) |
|----------|------------|------------------|
| 200029 | iPC-HD-C2M | 2 m |
| 200030 | iPC-HD-C7M | 7 m |



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