iDC-IOT

intelligent Data Concentrator

The data concentrator IOT forms the intelligent interface between the luminaire controllers in the field and the central control technology.

As a major connecting element of the light management system, the iDC-IOT enables direct access to every luminaire controller via powerline technology standardised to CENELEC 50061-1, ANSI/CTA (709.1, 709.2, 709.8, 709.10) and EN (14908-1, 14908-3, 14908-8, 14908-10).

In addition, the product decentralises important functions of the control technology to ensure autonomous and self-sufficient operation of the lighting system.

Typical Applications

- Street lighting and lighting in the vicinity of buildings with direct integration via OPC client-server architecture
- Tunnel lighting with the option of a self-monitoring redundant architecture based on the principle of a cold standby system

Product Benefits

- Transmission options: 4G router, IP/Ethernet cable or fibre optics
- Connection of the field level via widespread mobile networks of different providers
- For integration into a mobile network, an additional SIM data card is required (not included in the scope of delivery), depending on the application and network size with a data volume of 30 to approx. 300 MB
- In parallel or alternatively, the iDC-IOT can also be integrated into an IP network via a Ethernet cable
- With the separate commissioning software iCT-IOT, projects can be set up conveniently and in a time-saving manner
- 2 years warranty

Interoperable Communication Technology for Smart Cities and Buildings

intelligent.
efficient.
controls.

Technical Details

Electronic Edge Controller	iDC-IOT – intelligent Data Concentrator	
Type Narrowband/Digital	iDC-IOT-IP-NB-IO	iDC-IOT-R4G-NB-IO
Ref. No.	**200036**	**200037**
Mains voltage / frequency	110–230 V AC (± 10%) / 50/60 Hz	
Power consumption	7–15 W	
Communication	Protocol TCP/IP MQTT/REST (ANSI/CTA 709.10) to the main computer	
Protocol (USA/Europe)	USA: ANSI/CTA 709.1, 709.2, 709.8 - Europe: EN 14908-1, 14908-3, 14908-8	
Narrowband powerline (only NB)	Acc. to CENELEC 50065-1 (primary band C 125–140 kHz; secondary band B 95–125 kHz); single-, bi- or triphase	
Broadband powerline	External coupling with Ethernet HD-PLC converter, e.g. iPC-HD acc. to IEEE 1901 (2-28 MHz); HD-PLC driver licence is also required for broadband powerline communication (Ref. No. 200040)	
Data transfer	Manager/Subordinate for max. 200 luminaire controllers; repeating with dynamic monitoring of the communication path	
Ethernet port	10/100/1000 Base-T, auto-selecting, auto-polarity	
Internet protocol	TCP, UDP, http, https, SMTP, POP3, IAP	
Wireless communication	---	4G modem, VPN 4G router
SIM card	---	Holder; delivery without SIM card; SIM card must be provided by customer
Software interfaces	Interoperable in acc. with the LonMark® OLC profile, use of network variables and configuration parameters	
Digital interfaces	2 x 30 V DC (optionally extendable using a cut-off relay for 230 V AC) / 2 relays 230 V AC, 4 A	
Connections	Boreholes for metric screw connections each: M25 x 1.5 mm / M32 x 1.5 mm / M20 x 1.5 mm	
Aerial connection	FME male for external aerial	
Operating temperature range tc	–25 to +60 ˚C	
Storage temperature range	–25 to +85 ˚C	
Surge voltage protection	Externally extended 10 kV / 1.2 / 50; acc. to EN 61547	
Degree of protection	IP65	
Protection class	I	
Casing material	Aluminium, AlSi12 (Fe)	
Dimensions (WxHxD)	280 x 230 x 111 mm	
Weight	4600 g	5200 g
Country of origin	Made in Germany	
Custom tariff number	8543 7090	

iDC-IOT variants with single-mode or multi-mode fibre optic module on request

The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification. Please find further detailed information at **www.iciti.de**

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Dimensions (mm)
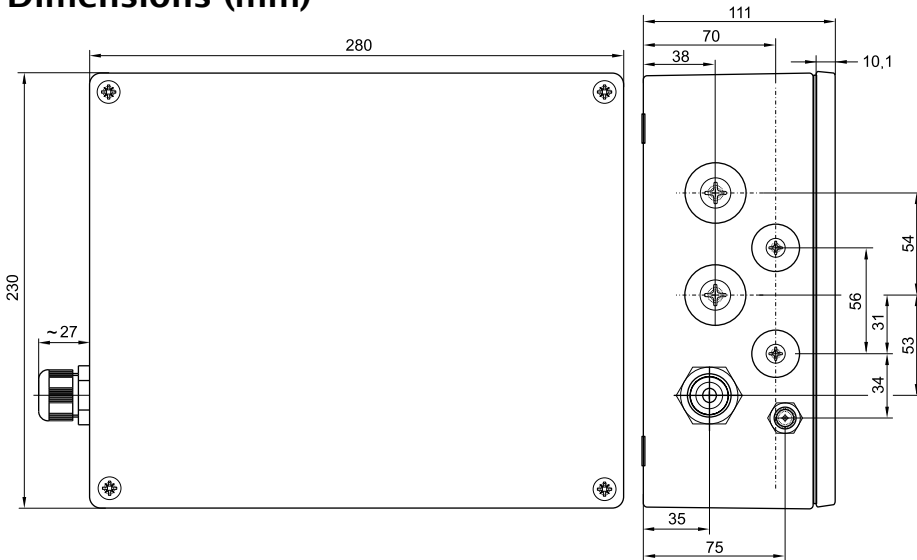
The iDC-IOT's Local Application Intelligence

Thanks to its integrated Smart-Server IoT, the iDC-IOT is equipped with the key applications that enable it to be integrated into a light management system.

Safe and reliable operation of the system as a whole is largely dependent on the architecture of the lighting control system.
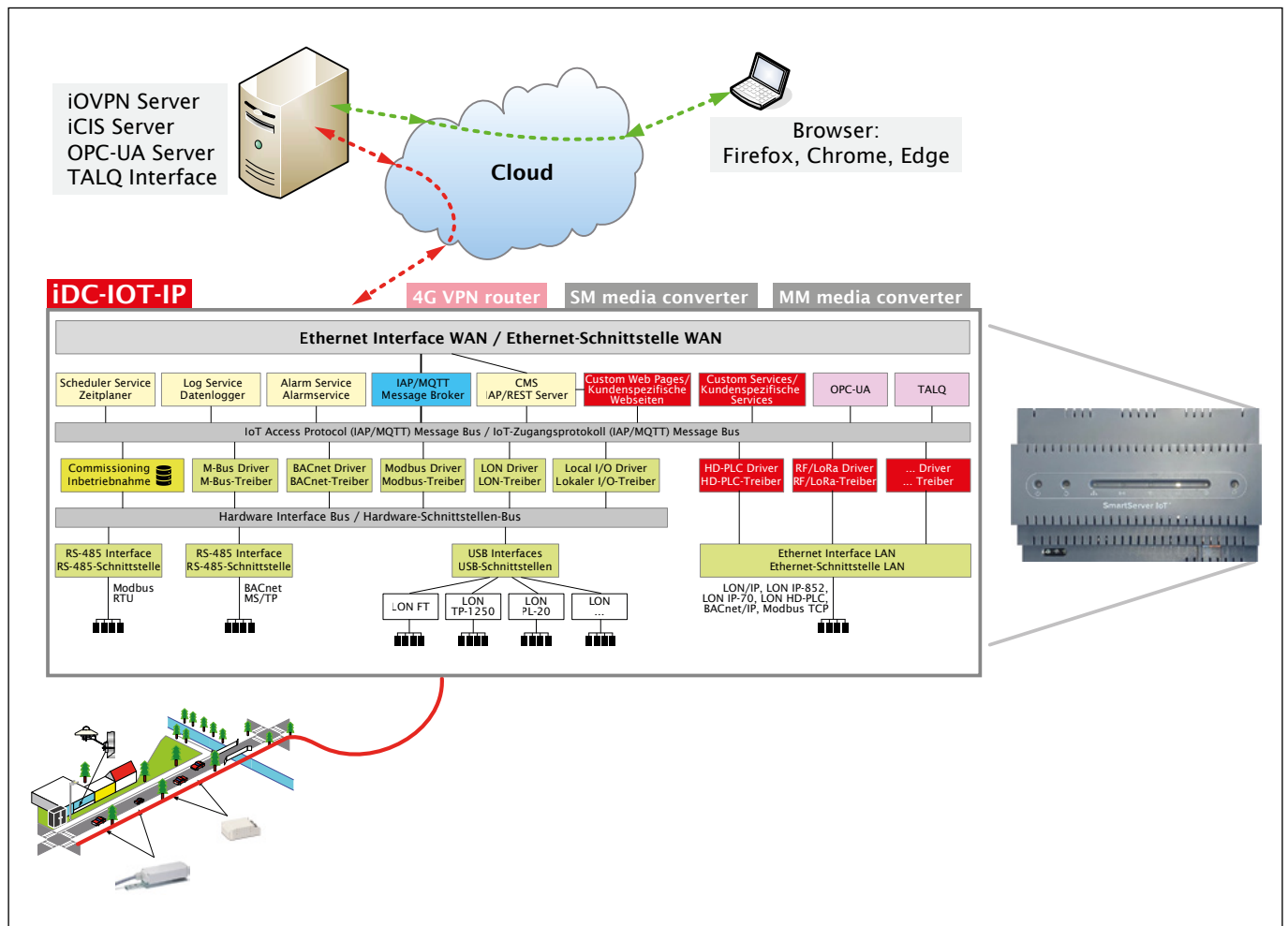
If the transmission channel between the control technology and the iDC-IOT fails, this usually results in the subsequent failure of all downstream components. To avoid this and ensure a certain degree of redundancy, astronomically controlled schedulers can be activated in the iDC-IOT that will, after a certain delay, then perform the respective function.

A similar safeguard is provided for recording data generated by luminaire controllers. The SmartServer IoT of the iDC-IOT contains locally integrated data loggers which are capable of recording generated data, even for days at a time, and can then transfer these data to the control technology, usually on a daily basis, but just as easily after a few days in the event of a communication breakdown. Most importantly, though, no data are lost. As the system is designed for universal use, it can be configured to suit highly disparate applications. The applications shown in the chart are integral parts of the iDC-IOT's local intelligence and can be remotely configured using the available communication channels. The open nature of the data interface is properly documented in accordance with ANSI/CTA 709.10, also IAP using the MQTT/REST with JSON standards.
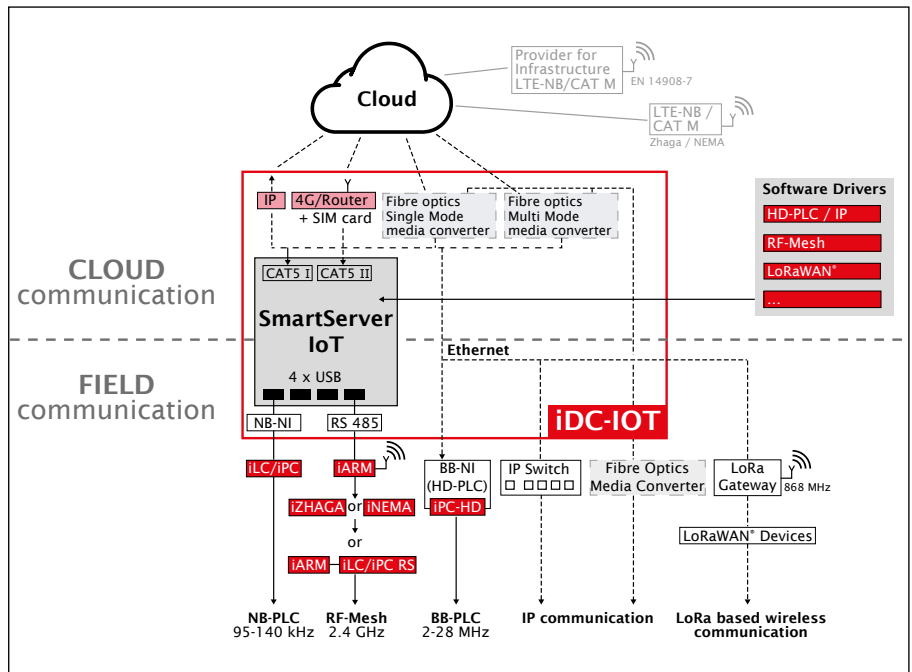
Functions

- **Real-time clock**
  Incl. astronomical calendar; with a power reserve, synchronisable
- **Time synchronisation**
  Optional via (SNTP) server; (provided technical conditions exist)
- **Timer-based control**
  Planning and activation of repetitive control tasks
- **Data logger**
  Monitoring of process data of the luminaire controllers
- **Alarm**
  Monitoring of processes and triggering of defined actions
- **Email client**
  To send predefined information
- **IO converter**
  Conversion of digital input signals into a process date and inverse
- **Operating system**
  Linux; updateable
- **Programmable**

iDC-IOT – intelligent Data Concentrator

System Overview

Central Control Technology SCADA Zentrale Leittechnik SCADA	Provider based communication Provider-basierende Kommunikation	Field communication Feld-Kommunikation

Browser: Edge, Firefox, Chrome

IP based communication / IP-basierende Kommunikation

4G / VPN router, IP, FO-MM, FO-SM

Powerline (NB, BB) or RF mesh / Powerline (NB, BB) oder RF-Mesh

1 Luminaire controller (built-in) / Leuchtencontroller (Einbau)

2 Luminaire controller (pole built-in) / Leuchtencontroller (Masteinbau)

3 Data concentrator / Datenkonzentrator

4 Server (iCIS, OPC, Firewall, VPN router, VM ware®)

5 PC/Notebook via browser

6 Light sensor / Lichtsensor