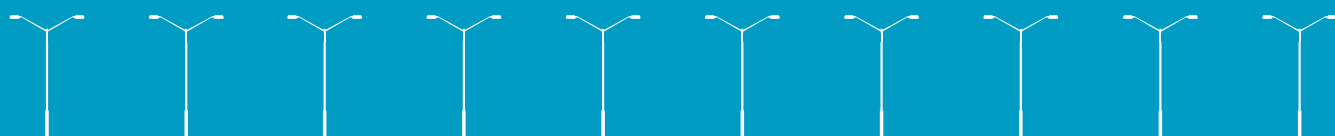# citylight.net

Lighting management solution

A complete
ecosystem
for intelligent
streetlight
management

Our products

Teliko offers a complete three-component lighting management solution: C-Node controllers for intelligent management at the individual luminaire level, C-Box for effective segment control, and Citylight.net for overseeing and administrating the whole structure. The system allows for a phased setup, resulting in a smarter city, lower expenses, and greener living.

Benefits for our clients

Municipalities get more information and control over their street lighting infrastructure, traffic flow and air pollution levels, save money on maintenance and repairs, decrease energy consumption, and improve public safety by reducing luminaire outages.

Integrators raise the quality of solutions they provide their customers by integrating automatic street lighting with traffic monitoring and air quality control services.

Luminaire manufacturers gain competitive market advantage by making their luminaires more intelligent.

Servicing companies reduce their response times by precisely detecting failure locations and specifics, and decrease spending by preventing failures before they happen.

How it works

HTTPS

TCP/IP

3G/LTE

Ethernet

LoRa RF

Power line communication

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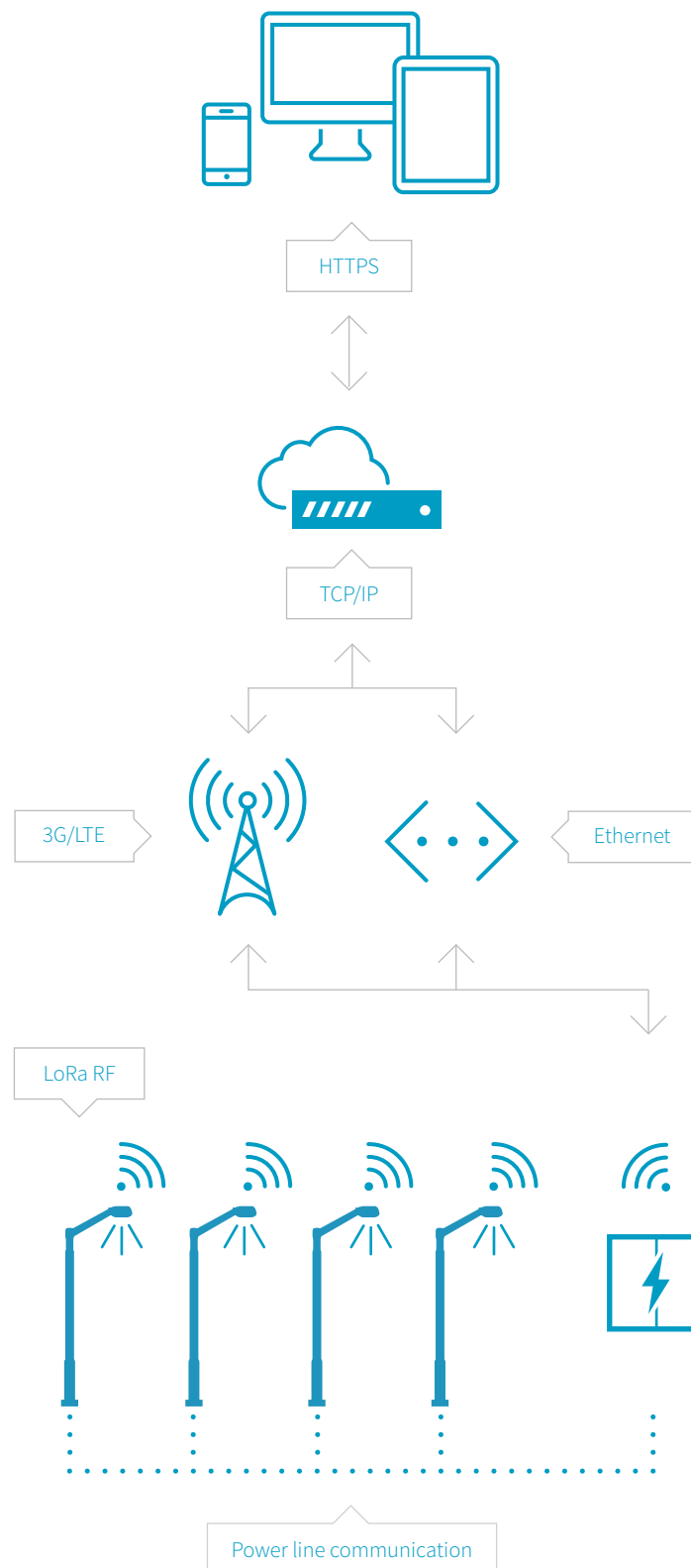
C–Box 8
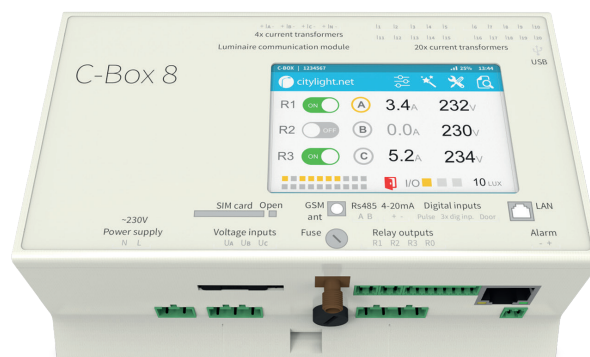
The smartest street lighting control device in town

All under control

External brightness sensors, twilight and sunrise calculators, programmable schedules for each individual line, and built-in memory to secure against communication loss.

Manifold communication

Assures great signal quality even in dense urban areas, enables high speed mobile data transfers using 3G/4G, as well as a stable wired Ethernet connection, and a dual SIM card.

Meticulous measurements

Individual current consumption indicators for up to 20 lines, 3 phase voltage and power factor measurements for the most precise management.

Technician-friendly

Easy to configure locally and to maintain remotely, features a handy touchscreen that can be used for secure access control.

Perfect fit and security

Compact, easy to install, and fits into existing light cabinet installations. Equipped with an alarm output, protected against theft or damage.

C-Box 8 features

DESIGN

Retrofit

The C-Box is designed to fit any existing street light cabinet installation.

Modular design (RF, PLC, DALI, DMX)

The modular design allows modules to be replaced in the C-Box, enabling a variety of communication technologies, including RF, PLC, DALI.

Simple setup

Thanks to the fast and easy installation, implementation costs are low.

Compact

The compact size allows for easy installation of the C-Box into small cabinets.

COMMUNICATION

3G/4G LTE

High data speeds ensured thanks to 3G or 4G (LTE) communication with server.

Ethernet

A wired ethernet connection with the server ensures constant communication.

2 SIM cards

Two independent SIM cards enable maximum communication uptime.

MODULAR COMMUNICATION MODULES

Long range LoRa radio communication

Long range radio frequency enables signal quality and stability even in dense urban areas, with a distance of up to 12 km. It is also used where luminaires on one street are powered by different sources.

Power line communication

No wires for data communication are required in the PLC (power line communication) solution as data is transmitted directly over electricity lines.

CONTROL

3 phase relay switching ON/OFF

Main power switch and energy saving are controlled by individual phase switching following preset schedule or manually from the server.

4 I/O inputs

Inputs detect external device states and send changes to the server, ensuring continuous monitoring of external devices.

Ambient light measurement

A brightness level sensor continuously monitors ambient light during early morning and late afternoon, and adjusts the preset schedule in cloudy weather conditions.

Astronomical clock

The built-in astronomical clock calculates twilight and sunrise times at the installation location and switches relays according to a preset schedule.

Built-in 16Mb memory

A built-in memory allows the C-Box to work in standalone mode using synchronized schedules from the server, and gathers data in case of communication loss.

ENERGY MEASUREMENT

Up to 23 line current measurement

In cases where phases are split to more outgoing lines, each line current (up to 23 lines) can be measured even more precisely with greater detection of localized faults.

3 phase voltage measurement

Each phase voltage measurement indicates the quality of electricity supplied and any overvoltage or voltage drops.

3 phase power factor measurement

The power factor shows the ratio between active and reactive power, providing data for electricity quality analysis.

Consumption measurement

The measurement of consumption shows how much energy is being used and evaluates the efficiency of the streetlight infrastructure.

SECURITY

Door switch

The door opening switch detects authorized and unauthorized access to the cabinet.

Alarm output

To protect the streetlight cabinet against theft or damage, an alert siren is triggered in the case of unauthorized access.

LOCATION

Auto location

The built-in GPS receiver automatically detects luminaire position, and allows the map to display all locations via the server.

FIRMWARE

Remote Firmware upload

Device firmware updates can be done remotely from the server, bypassing the need for local device access.

TOUCHSCREEN

Device configuration

Service technicians can configure the device during initial setup or change settings locally without help desk support.

Testing and maintenance

Device, communication or input states can all be tested through our remote support, no phone calls or connections to the server are needed.

Security

The touchscreen display allows for easy and secure access to log maintenance access or activate the alarm in case of unauthorized access.

Parameter readout

A technician can read or verify energy measurements or display input states locally.

POWER

Overvoltage electricity protection

Overvoltage peaks can cause damage to the device. Therefore we use overvoltage up to 4kW to protect the device even in unstable voltage environments.

Backup battery

In the case of central power line loss, the device sends notifications to the server and stays in standby mode for quick startup when the power supply is renewed.

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C-Nodes
C-Node 8RF & C-Node 7 PLC

A built-in brain for each and every luminaire

Extensive flexibility

A passive infrared sensor or Doppler radar adjusts light brightness to the movement of cars and pedestrians, and registers luminaire working hours and other parameters.

Small and durable

Can be installed in the pole or lamp (even compact sizes) in a couple of minutes, endures even the toughest weather conditions, protected against lightning strikes.

Handles every kind of lamp

Suitable for all types of luminaires, from DALI lamps to management of single lamps over 0-10V or even powering Christmas lights.

Scrupulous accountability

Allows measuring with height precision current transformer (CT) or reading data directly from luminaire driver, registers voltage drops, gathers data on energy consumption, detects lamp inclination, monitors air pollution levels.

Always in touch

Assures great signal quality even in dense urban areas, suitable for solar-powered luminaires with no connection to the power grid. Protects data by AES128 encryption.

Money saver

Sends and receives all data wirelessly (C-Node 8RF) or through existing electrical cables (C-Node 7 (PLC)), so does not require additional investments in the existing infrastructure, considerably lowering the costs of its implementation.

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C-Nodes
C-Node 8RF & C-Node 7 PLC features

DESIGN

Compact

Small in size, it does not alter the apprearance of the luminaire, fitting all sizes including those with no space for additional equipment.

Easy installation

A thread fixation and predefined wiring allow installation of the device in minutes.

Robust and rugged

The device construction and materials will withstand the most severe environmental conditions, such as high temperatures, collisions, wind, and heavy rain.

Standard fitting ANSI C 136.41

Using a standard fitting enables the luminaire to be upgraded as a smart luminaire without the need to replace existing photocells with a C-Node.

CONTROL

DALI multi address control

The DALI multi address control manages each C-Node connected to a luminaire. Therefore one C-Node 8 can be used to manage multiple luminaires.

0-10V

Luminaires with a 0-10V control interface can also be controlled via C-Node 8, allowing the luminaire's dimming level to be adjusted by changing the voltage output level from 0 to 10 volts.

MEASUREMENTS

Current

Either measured with the high-precision current transformer (CT) or read from the luminaire driver, the current is measured continuously to evaluate luminaire performance and detect dimming levels.

Voltage

Voltage measurements provide information on the electricity quality being supplied to the luminaire, recording any overvoltage or voltage drops that may influence luminaire condition.

Consumption

The most important data gathered from the luminaire is its energy consumption essential for evaluating its efficiency.

Working hours

Tracking of working hours is essential data for monitoring luminaire usage, lifetime, and warranty periods.

Temperature

Depending on the driver model, the data on LED module temperature or driver temperature can be monitored continuously to detect luminaire condition.

SENSORS

Inclination

Inclination detection can detect incorrect luminaire positions and these can be adjusted according to requirements for best luminaire performance.

Impact

Tilting or movement of the lighting pole caused by impact from a vehicle or other cause can be detected and the system alerted.

Movement

The built-in passive infrared sensor or doppler radar can detect pedestrians or cars, increasing light output when movement is recorded and reducing it when there is none.

Traffic intensity

The radar sensor counts traffic or pedestrian flow intensity and adjusts lighting levels accordingly, also providing statistical data.

CO2

The C-Nodes track CO2 levels and other basic air quality data, helping manage pollution control.

COMMUNICATION

Long range LoRa

Long range radio frequency enables best signal quality and stability even in dense urban areas. It also enables remote control for solar-powered luminaire with no connection to the power grid.

Multiple hops

To achieve even longer communication distance, signals are retransmitted. With up to 12 signal retransmissions, distances of over 12 km can be reached.

Encryption

AES128 bit data encryption is used to protect data transmitted wirelessly.

LOCATION

Built-in auto location

The built-in GPS receiver automatically detects luminaire position, and allows the map to display all locations via the server.

Android APP/NFC locating

Near field communication from the C-Node transmits registration data as well as luminaire parameters to a smartphone app (Android). This data, together with location data detected by the smartphone's built-in GPS, is sent automatically to the server.

POWER

Electricity protection

Built-in surge protection protects the C-Node from overvoltage of over 6 kV in the power grid in the event of a lightning strike.

Backup battery

The built-in super capacitor enables data transmission and notification should the power supply to the luminaire be cut off due to power line failure or fuse issues.

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A complete ecosystem for intelligent streetlight management

Vast parameter control

All streetlight supervision in one place. Alert management, maintenance and dimming control for each lighting line or (with C-Node) even for each luminaire.

New level of user-friendliness

Street lighting management has never been so easy. All primary parameters in one control panel, pre-made or custom lighting programs, intuitive interface.

Interactive maps

Suitable for a small town or a sprawling metropolis, works with various map vendors, offers a convenient and detailed view of the entire infrastructure and each object on the map.

Management on the go

Features a mobile app with complete streetlight servicing and management support for Android devices.

On-demand reports

Servicing history tracking, energy consumption, traffic and pedestrian count, and failure logs can be stored for an unlimited number of years.

Alerts

Alerts for power breakdowns, communication interruptions, lamp burnout, and on/off times delivered instantaneously via e-mail or SMS.

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About us

Commitment to technologies for a greener world – this is what has united the Teliko team since 2009. The company is based in Riga, Latvia, and is the region's leading developer and manufacturer of remote energy meter-reading devices, intelligent street lighting management, and smart grid solutions.

The expertise of Teliko's innovative engineers, as well as the company's approved component suppliers and manufacturers, allow for complete quality control of its products, at the same time keeping delivery times fast and prices competitively low. This is how Teliko helps its customers save money, time, and energy. Indeed, Teliko makes ecological living noticeably beneficial.

Currently Teliko is expanding rapidly into the global markets. The company is recognized as one of the most innovative exporters in Latvia.

Teliko

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tailored smart energy solution:

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