

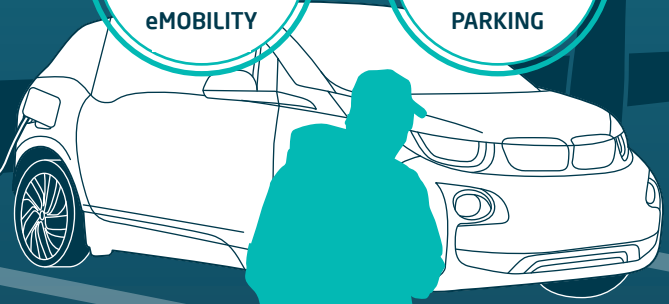
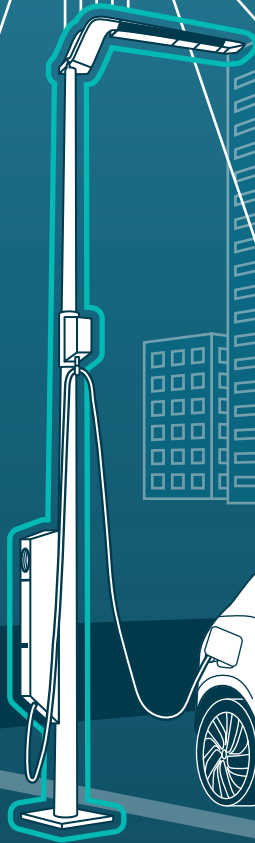
eluminocity

Driver for e-Mobility.



We develop leading assets to enable the future of smart and globally connected cities.

CAR PARK MANAGEMENT
TRAFFIC MANAGEMENT
WASTE MANAGEMENT
ENVIRONMENTAL FACTORS
PREDICTIVE MAINTENANCE LIGHTING OPTIMIZATION
SOFTWARE UPDATES



Heartbeat of the city



Teaming up for smart, globally connected cities

Today's cities have to become smart if we are to master global trends such as urbanization, the depletion of natural resources and fast-rising traffic and transportation volumes.

eluminocity, Infineon and Intel® have teamed up to enable tomorrow's smart, globally connected cities. The three companies are combining leading assets to deliver precise sensing capabilities, secure data transmission and ready-to-use systems for multiple street applications.

The jointly developed End-to-End solution includes street lights designed and developed by eluminocity, which act as a hub for smart applications. These street lights of the future are being equipped with radar sensors, power semiconductors, microcontrollers and security chips - all from Infineon. Thanks to Infineon chips, these street lights are extremely versatile, adapting their output to current needs. Furthermore, they will connect to the Internet via an Intel® modem to support new cloud-based business models. As a provider of advanced connectivity and cloud computing, Intel® enables smart end-to-end cellular technology for smart city applications supporting everything from real-time monitoring and control to over-the-air updates. These cloud solutions also feature security chips from Infineon to ensure trusted functionality in globally networked cities.

By integrating sensors and security components and connectivity modules with a unique software platform, eluminocity has created an end-to-end solution, where radar sensors in the lamps detect when an object is approaching - and the light gets brighter. This smart control functionality makes the lighting solution particularly energy efficient.

And that's not all. The smart street light can detect if a parking spot is free and transmit this information to the cloud to inform nearby drivers. These connected capabilities are paving the way for intelligent traffic management in cities.

In addition, street lights from eluminocity can be equipped with a charging station for electric vehicles, thus contributing to the future success of electric mobility - and making the smart lamp pole a vital part of every globally connected city.



eluminocity

Leading System Integration,
Data Analytics,
Application Solutions



Leading Radar,
Sensor, Power &
Embedded Security
Solutions



Leading Connectivity,
Processing &
Cloud Solutions

Together we turn street lights into intelligent systems for a smart and secure infrastructure.

eluminocity



Advanced Radar and Sensor components



Advanced, efficient power, security and sensor components to turn street lights into intelligent infrastructure building blocks

Infineon's industrial radar solutions are key components in many IoT motion sensing applications ranging from smart home security and automation through lighting control to touch-free switches. Small form factors ensure these devices can be discretely concealed behind casing for sleek, modern IoT designs. In fact, the BGT24LTR11N16 is the smallest 24 GHz industrial radar chip device on the market. A compact footprint, reliable operation in harsh environ-

ments and reduced power consumption make it ideal for emerging applications like drone collision avoidance or smart lighting motion detection. As such, it is making a valuable contribution to greater intelligence in today's cities. Thanks to motion detection, smart street lighting can save energy by turning lights off if they are not needed.

eluminocity's smart street light featuring Infineon's 24 GHz radar chip (www.infineon.com/24GHz) is a perfect example.

Highlights

- + Ideal for detecting distance, direction, speed and object type
- + Long range (up to 100 m), high resolution (~mm range)
- + Independent of weather and atmospheric conditions
- + No privacy issues (unlike cameras for instance)
- + Flexible mounting options
- + Ability to penetrate a variety of materials

How does radar detect movements?

1. Radar sensors detect when an object is approaching.
2. The light (or other application) gets brighter.
3. The light turns off when the timer expires.

Embedded Security

Complementing its radar portfolio, Infineon also offers security controllers to protect the confidentiality, integrity and authenticity of information and devices in IoT applications such as smart street lights. OPTIGA™ security solutions protect sensitive data and reduce the risk of sabotage by enabling lamps and servers to uniquely identify each other through a mutual authentication mechanism. They also prevent confidential information from being compromised by transmitting data over a secured channel. Designed for easy integration into embedded systems, the OPTIGA™ (www.infineon.com/optiga) family is helping to build trust in tomorrow's smart city.

Highlights

- + Reliable products with a proven track record
- + Based on the latest cryptography standards for strong security
- + Development and manufacturing in a certified environment for end-to-end trust



Cellular connectivity is the key enabler for smart end-to-end business models, e.g. real-time monitoring & control, over-the-air updates.

Advanced Connectivity and Cloud Computing

Cellular technology for smart city applications

Intel® drives Cellular Connectivity for IoT on the path to 5G by supporting low power, high coverage use cases with LTE Cat.1/ LTE Cat.M1/ Cat.NB1 / 5G-IoT modules.

Leveraging this power, the end-to-end solution will be independent of existing infrastructure, e.g. WLAN routers.

By offering standardized technology and an open - not proprietary - solution, we can ensure high scalability, global availability and a vibrant ecosystem.



LED
luminaire



Charging
Station



Sensors

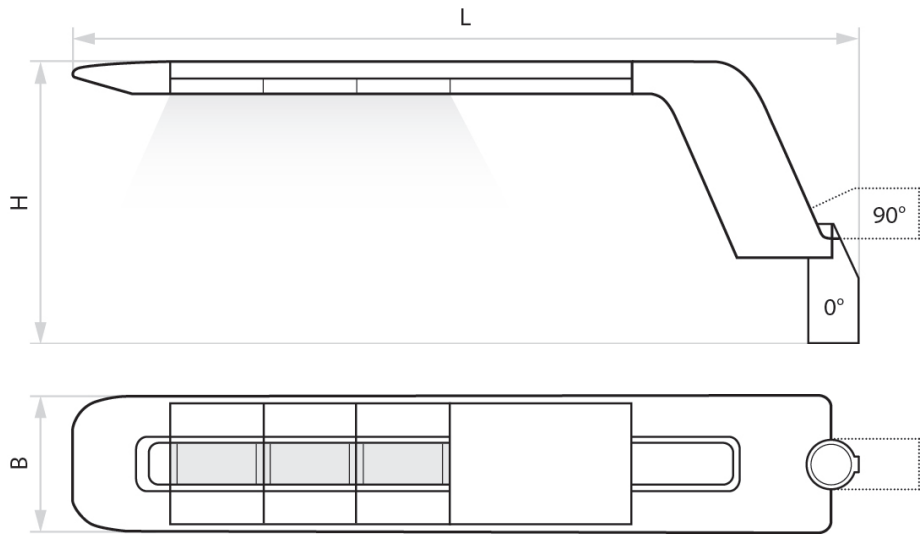


eluminocity brings together charging & smart street lighting

- > The Charge-Module by eluminocity is a modern, ecologically oriented service for urban infrastructure projects as well as customer and employee parking lots for industry, retail and hotel business.
- > The LED-Module helps to reduce energy consumption, while enhancing safety on the road and on large parking areas.
- > Applications of the jointly developed Integrated Sensor Module range from intelligent lighting control to parking management and analysis of environmental factors.



Integrated Smart Sensor Module



Provider of System integration & Application Services

- > As a provider for smart city infrastructure eluminocity brings in competency in creating end-to-end solutions to realize applications and to meet requirements for smart cities. By this, any city will be empowered to trace their own 'heartbeat of the city'.
- > We enable applications like demand-based street light control, improvement of security, traffic management, data analysis of environmental factors (air quality, noise) and the detection of trash can filling degrees or parking space.

eluminocity provides leading services for System Integration and Applications:

- > Electronic Integration: System integration of HW & SW on module level
- > Device Level Integration: Module integration, like power supply

The open platform is enabling other stakeholders to use our broad sensor networks. Therefore, eluminocity, Infineon and Intel® invite innovators to develop multiple applications on our systems - to support globally connected cities of the future together.

eluminocity

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