GesLuce

Intelligent Management Systems

Lighting Control Systems

ADVANTAGES

Monitorize and CONTROL to OPTIMIZE

Even the best tools are useless if we don't use it properly.

Building management systems are fundamental to boost building's energy efficiency. Lighting presents itself as an area where major efficiency improvements can be made with monitoring and control.

To you it's very important to recover your investments as quickly as possible. With control systems you can do it fast and effectively, deploying management policies that allows a rationalization of energy consumption.

Interior Lighting control systems

Independently of the building you own, we can help you.
The control systems contribute to the energetic sustainability of a building, giving you tools to spare energy without losing comfort or performance.

The control systems are based on a philosophy of automation to rely the least possible on the building occupants. Obviously this systems have embebed the concept of human demand, respecting the emotional and physical needs of the occupants through a control override of the automation systems.

We can help you define strategies and methodologies to minimize the energy impact of lighting in your building, using the best existing technologies, whether you already have a building or you are planning a new one.

We have several control systems of interior lighting, each one with specific characteristics to address your needs and ambitions.

Wireless
Control System

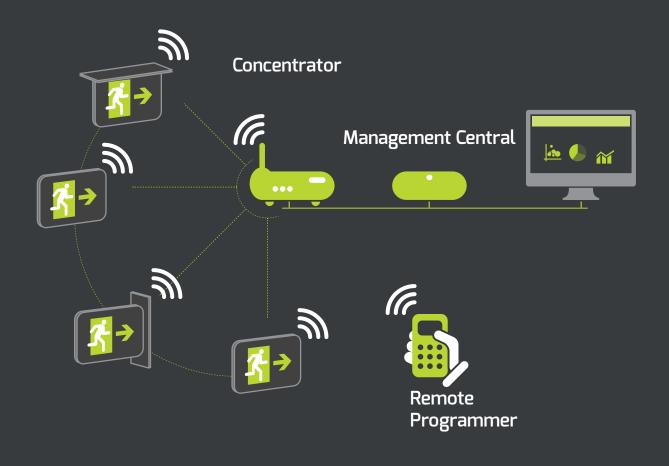| Controlers	Gateway	Internet

Easy to implement and control

The wireless control system is a very easy way to implement a control wireless network in your building. We can deploy the network without losing time with cables and other accessories, giving you an exceptional and fast service.

This system is specially suited for rehabilitation of building were we might have cable issues or restrictions.

Advantages

- Easy implementation
- Autonomous and decentralized system
- Wireless comunitacion
- Compliant with several communication
  protocols (DALI, 0-10, PWM)

Emergency Wireless System

Concentrator

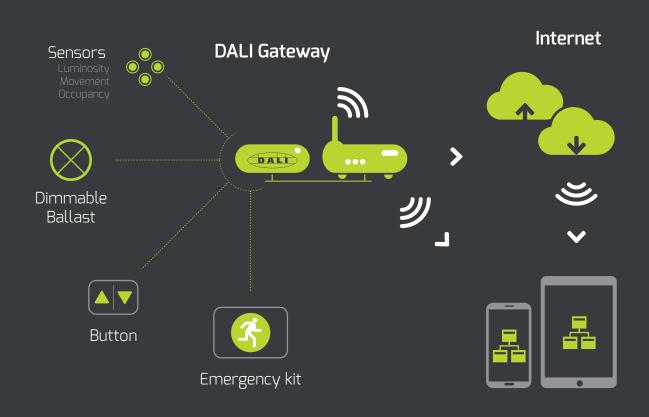Management Central

Remote Programmer

Smart and Reliable Safety

The Emergency wireless system works as a security supervisor for the emergency lighting in your building, making sure that the system is fully operational and in perfect conditions. This system has simple and intuitive tools to make it ease to manage.

Security is without a doubt a main feature in a building, so make sure you have one that guarantees a good performance and it's easy to use.

Advantages

- Fast and easy implementation and extension
- Wireless
- Reduction of Failures in the system
- Operational costs reduction
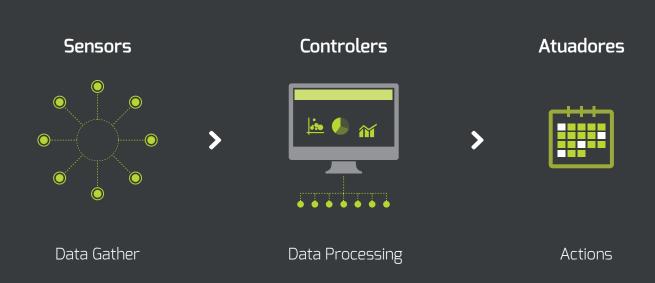- Programmable devices by remote control

DALI
control system

Sensors
Luminosity
Movement
Occupancy

DALI Gateway

Internet

DALI

**Dimmable
Ballast**

Button

Emergency kit

Proven **Reliability** and **Efficiency**

If you are looking for a robust lighting system, the DALI system is a good choice. This lighting system is very flexible and can adapt to any kind of building and settings. The DALI system allows you a total versatility in the way you set the different spaces of your building setting the right mood and lighting level you desire.

Advantages

- Allows maintenance and monitoring trough internet
- Compatible with motion and luminosity sensors
- Programmable according to a calendar or manually

KNX
control system

Sensors

Data Gather

>

Controlers

Data Processing

>

Atuadores

Actions

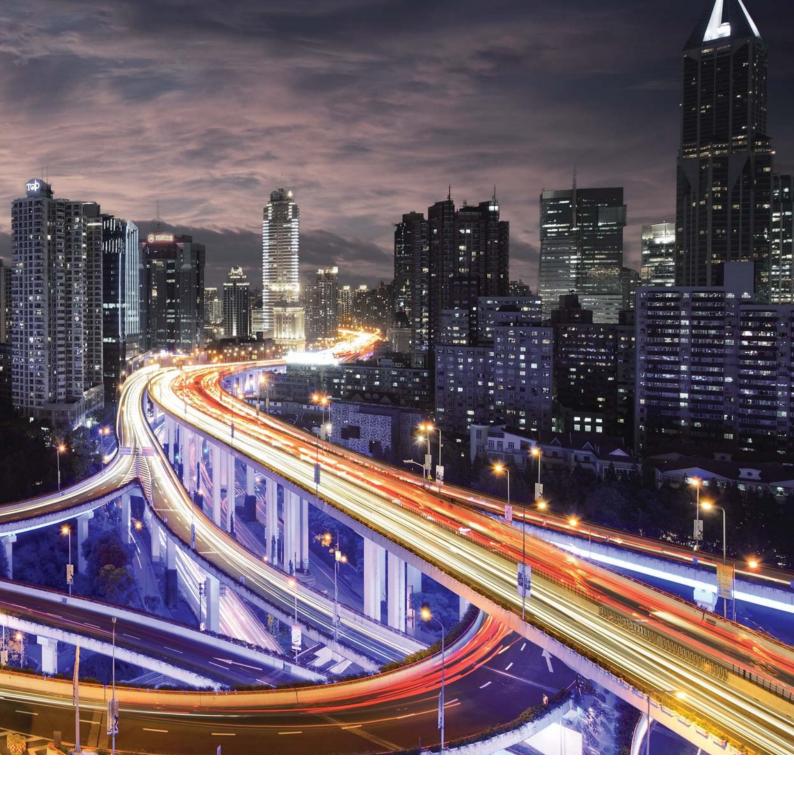## Universal and Robust, an efficient and complete system

Our KNX based systems are the most complete solution we can offer to improve the energy efficiency of a building. We can control the lighting but that is only one of his features. We can integrate this system with shading control, air conditioning, HVAC and other subsystems typically present in a domotic environment.

Advantages

- Can be used in every type of buildings
- Compliant with several communication protocols
- Allows integration with other domotic systems
- Meet the international standards

More than lighting,
a future technologies platform

We recognize the importance of an efficient management, and in that sense we developed a technology to help you manage and control the public lighting, giving you access to an intuive platform that guarantees you a high quality service.
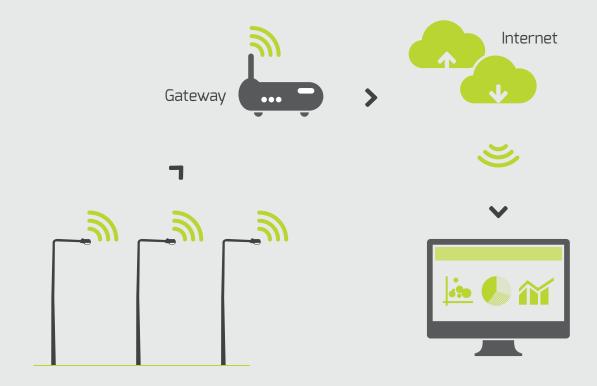
how it works?

Gesluce is built with a smart grid philosophy that gives you the possibility to create a data transport infrastructure, in a way that you can manage public lighting and simultaneously introduce new services in you city without additional costs.
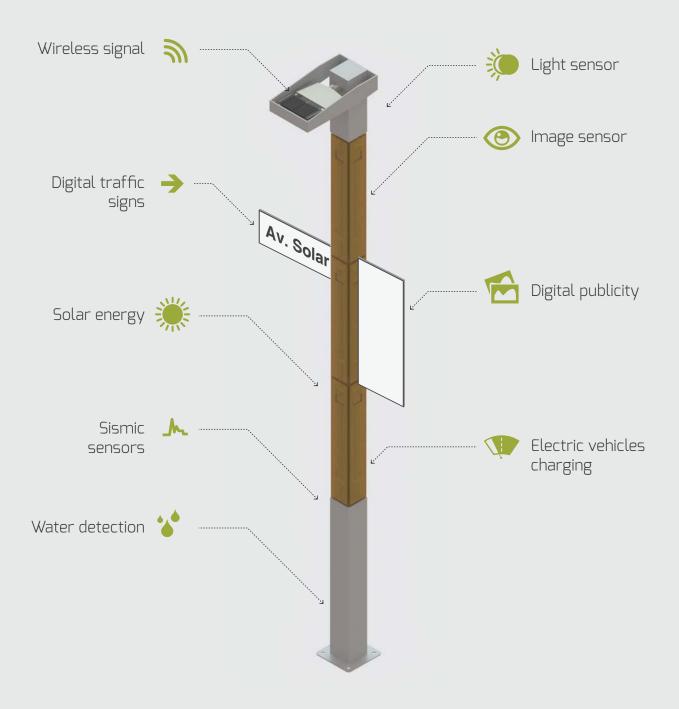
customized service!

Our system is modular and fully scalable, which means that you can invest at your own pace without compromise performance or the future.

Smart Cities and public lighting

Gateway

Internet

Gesluce system for public lighting is based in a mesh architecture, were the controllers are installed in each lighting fixture, becoming a node of the grid. Interconnected with this nodes are gateways that concentrate the data and information and send It over the internet.
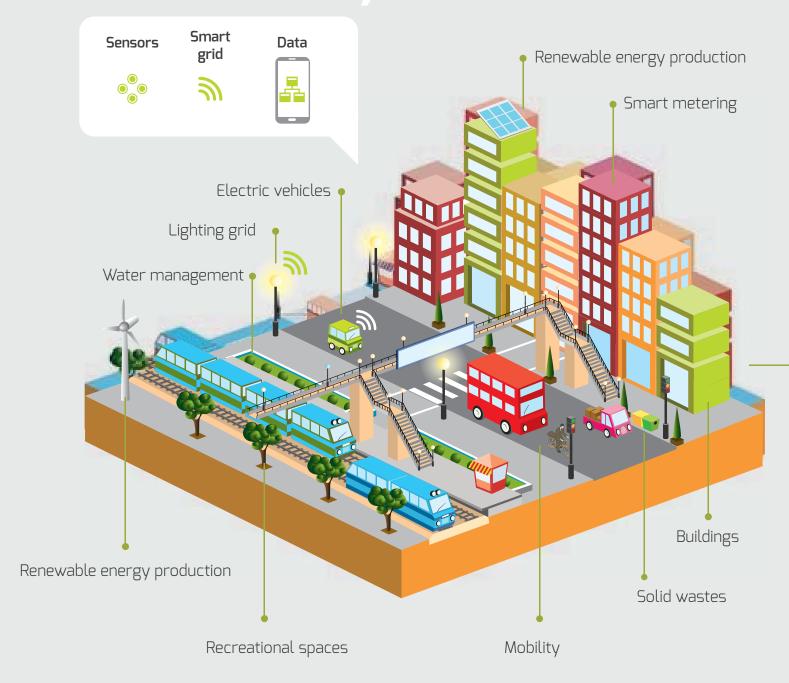
With this system an ordinary grid of public lighting transforms itself in a smart grid that is able to transport flows of data given by sensors, cars, vehicles and buildings all the way up to the internet, besides obviously the functions of managing the public lighting.

Wireless signal

Light sensor

Image sensor

Digital traffic signs

Av. Solar

Digital publicity

Solar energy

Sismic sensors

Electric vehicles charging

Water detection

Gesluce transforms a simple lighting pole into a sensing platform from the local where it is. Besides that the pole can offer services within his structure. Examples of that can be dynamic publicity, traffic signals or warnings for drivers or electric vehicles charging. The great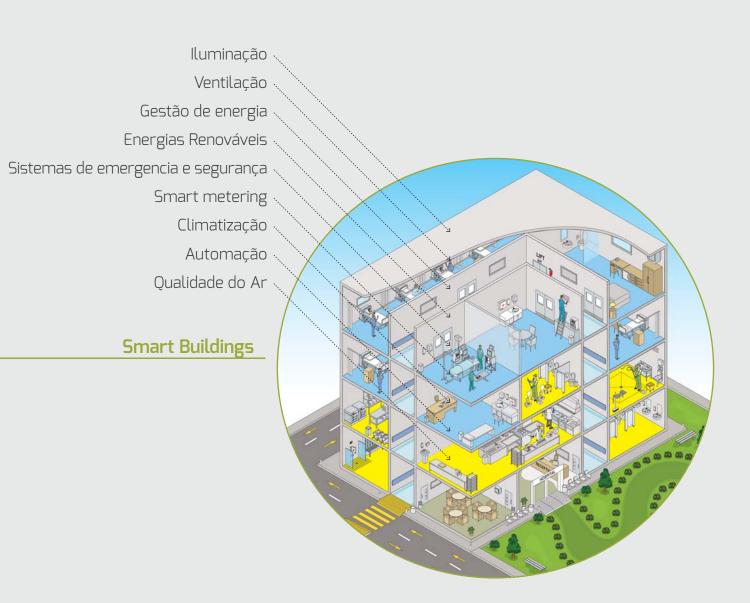 advantage of integrate this services in the pole relies in the fact that you can update it constantly trough the smart grid created. The lighting poles are the ideal structure for sensing because they are massively distributed over the cities and rural areas and is prepared to resist the external elements.

#isasmartcity

Sensors

Smart grid

Data

- Renewable energy production
- Smart metering
- Electric vehicles
- Lighting grid
- Water management
- Renewable energy production
- Buildings
- Solid wastes
- Recreational spaces
- Mobility

Smart Cities and Public Lighting

Smart cities are emerging as a response to a urgent need to turn city services more efficient as we face a more and more urbanized world and scarce resources. As cities begin to update their public lighting into more efficient technologies the most obvious and natural step is to create a smart grid simultaneously, because this

Iluminação

Ventilação

Gestão de energia

Energias Renováveis

Sistemas de emergencia e segurança

Smart metering

Climatização

Automação

Qualidade do Ar

Smart Buildings

systems last longer, use less energy and are cheaper to maintain. Besides that they increase the public safety.

This smart grid establish foundations to new services that will be paramount in the future cities, guarantying that the infra-structure can be fully optimized, turning the investments you make today key

assets for tomorrow.

With the synergies between public lighting and this new services the city guarantees a fast and easy path to the smart cities and is able to improve the quality of life of the communities.

Case Study
Renewal in Retail Lighting
2008

Main Goal :
- Decrease the energy consumption related to lighting (goal reached: savings higher than 50% trough the implementation of dynamic dimming systems)
- Decrease thermal load of the building
- Install low power light sources (T5 Lamps)
- Easy mounting and maintenance;

Specifications:
- Lighting levels >1000 lux
- Uniformity reached
- Taking advantage of high ceiling height of 4,15 mt (reduction of 4 lighting lines)

Savings:
- Implementation of daylight strategy control
- Reduced maintenance cost trough the reduction of lamps installed
- Reduced thermal load.

- **72%** | Sales area
- **13%** | Galleries
- **12%** | Eletronics store
- **3%** | Cash registers

	PREVIOUS SOLUTION	LIGHTENJIN SOLUTION
Instaled power	56,5 KW	55,25 KW
Nº lamps	930	730
Mounting time	Alto	Baixo
Thermal load	48,1 KW	44,25 KW
Cost	25.000€	50.000€
Dimming savings	-	54%
Monthly savings	-	1500€ / mês
Payback period	-	1,5 anos
Annual consumption reduction	-	201201 kWh
Annual emissions reduction	-	88,5 ton

Following a requalification of the city of Águeda in 2012, the public lighting in the city center suffered and update with the replacement of sodium vapor fixtures for more efficient **LED fixtures**. The project implementation consisted in the replacement of 150W and 70W fixtures for 90W and 60W LED fixtures respectively.

The control system allows to the municipality to use dimming trough the night and also management and monitoring features.

This project represented a major breakthrough in the public lighting sector in Portugal, with LED lighting and control systems combined.

Consumo Solução VSAP		Consumo Solução LED		Savings (kWh)
modelo	kWh	modelo	kWh	
Vapor Sódio 70W	14.083	LED 60W	6.461	7.622
Vapor Sódio 150W	19.929	LED 90W	6.234	13.695
Consumo Total	34.012	Consumo Total	12.695	**21.317**

Annual energy Savings	21.317 kWh	**63%**
Annual Emission savings CO²	1.091 kg CO²/kWh	
Global energy savings (15 years)	319.751 kWh	**63%**
Global emissions savings (15 years)	16.371 kg CO²/kWh	

The Company

lightenjin ⬛

Founded in 2006 Lightenjin focused its activity in Light Design Consulting, both for interior and exterior lighting projects.

Its proximity to the most reputable design and architecture offices allowed lightenjin to work on iconic and prestigious lighting projects.

With the technological evolution of lighting controls Lightenjin has expanded its area of operation to the control systems projects to continue at the forefront of lighting technology, using electronic equipment and software to increase energy efficiency in buildings and in the public lighting sector.

Recently we started our own lighting brand, *euluce* , that aims to reach high level design and energy efficiency and aggregates the all the experience gained over the years.

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