
ARRAIOLOS

Schréder Group GIE

In Arraiolos, and for the first time in Portugal, an led lighting scheme is combined with a modern remote management system.

# Arraiolos: a historical site with innovative, efficient and intelligent lighting

The Public Lighting Plan for the historic centre of Arraiolos is the first large scale urban and decorative lighting regeneration project in Portugal based exclusively on LED technology.

Dominated by a castle with a 700-year old history and renowned worldwide for its tapestries, the historic town of Arraiolos is taking a step forward at the beginning of this century by opting for **efficient, sustainable, innovative and intelligent lighting!**

Indeed, the collaboration between Schréder, the local authorities and the lighting designers produced a high performance lighting system with state-of-the-art technology. All of the new lighting installations have been equipped with LEDs as a light source.

A new luminaire, the Rivara, equipped with 36 high-power LEDs in warm white that provides a high colour rendering index and great visual comfort, was designed for the pedestrian areas and roads.

The Rivara luminaire is combined with a remote energy management system, using power line control, that enables the luminous flux of each luminaire to be adjusted individually. This system enables the local council of Arraiolos to significantly reduce energy costs.

High-power LEDs in neutral white were used for decorative and monument lighting, so as to contrast with the general road lighting.

SCHRÉDER THE RIGHT LIGHTING

Armando Oliveira, Arraiolos's councillor for public lighting, was one of the main drivers of the regeneration plan for the historic centre of this town, known worldwide for its tapestries.

### What motivated the local council to implement a plan to renovate the lighting in the historic centre of Arraiolos?

The renovation of the public lighting was part of a regeneration plan for the historic centre, which included removing and building infrastructure, so that the landscape could be re-arranged to link key public spaces. The public lighting was the last element to be implemented. It no longer met the minimum standards in terms of luminance and had deteriorated significantly. Equally, a large variety of luminaires had been put in place over the years and they did not complement the areas in which they were installed.

### Sustainability is currently an ever-present theme in all decisions. What is the council's feeling on this issue?

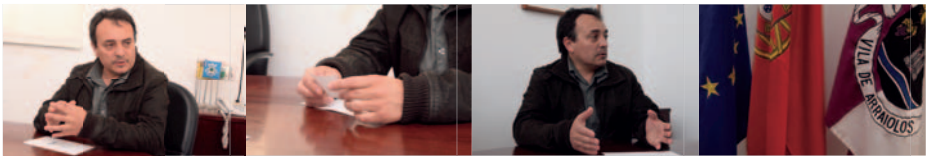
The Council always tries to take environmental issues into account when making decisions. In this particular case, when it had to decide between an LED system and a more traditional system, it opted for LEDs because they generate energy savings combined with an increase in energy efficiency.

### Arraiolos is the first large scale public and urban lighting installation in Portugal based on LED technology combined with a remote management system. What are the main benefits of this solution for the council?

The remote management system will generate energy savings, essentially during the night, when the public spaces are used the least and will even provide more detailed information on consumption and on the status of each of the luminaires. We are able to have a detailed on-the-spot report for each lighting point. This also contributes to making EDP's (Portugal's main energy supplier) work more cost-effective, as human resources can be managed more effectively, while at the same time the population is better served.

### After completing the first phase and confirming the public's satisfaction with the results, is the council already considering a second phase?

Yes, we are already preparing the project and the respective tender for a second phase. This second phase will include another group of streets and the illumination of some monuments, mainly the churches present in the historic centre, thereby creating a very pleasant nocturnal environment.



### What was the objective of this project in urban planning terms and what role did lighting play?

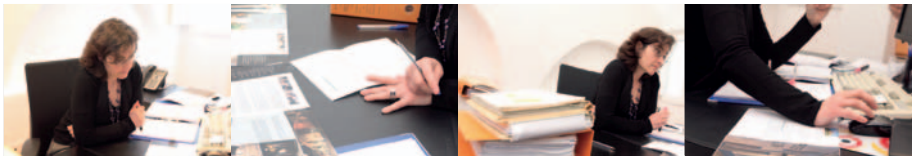
Arraiolos has, for some years, been the focus of a systematic plan to regenerate and enhance public spaces through integrated projects that renovate the public infrastructure, namely the water supplies, sewers and telecommunications, road works, urban furniture, green spaces, recreational areas and even public buildings. The renovation of the existing public lighting was a priority from the start. The process began with the elaboration of a lighting plan which outlines the lighting strategy for the whole urban environment, by prioritising the existing spaces and buildings, defining the types of lighting and the implementation.
This strategy for lighting the town's public spaces has created a collective and enhanced nocturnal backdrop for Arraiolos, rather than the fragmented one that had grown as a result of the successive interventions over the years with different lighting solutions.

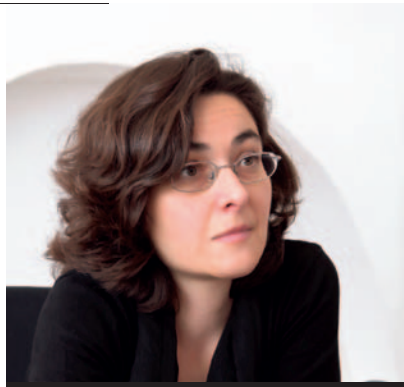
### Did the introduction of this innovative lighting system contribute to enhancing the urban space in Arraiolos?

Yes, without a doubt. It is now possible to enjoy the public spaces of Arraiolos 24 hours a day with comfort and safety. Its cultural and architectural heritage was enhanced, and will be even more so after the second phase of the project. LED technology is known for exceptional colour rendering and indeed it allows us to enjoy the colour and architectural richness of the buildings and green spaces, even at night.

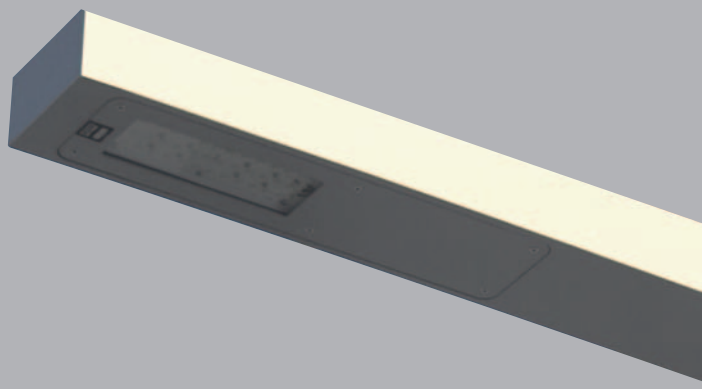
### In your opinion, are Portuguese politicians aware of the importance that good lighting design has for their cities?

I would say that Portuguese political leaders are particularly aware of the importance of good lighting for road safety reasons and as a factor in discouraging vandalism. Given that Portugal is a country in which the majority of the population lacks architectural culture, I do not think that special awareness will be given to the importance of good lighting as a factor in enhancing public spaces; indeed it is very much the contrary, as little importance is given to the nocturnal setting.
For these reasons, there are a lot of brightly lit cities in the country, but this does not necessarily mean that they are lit properly.





Florbela Vitorino, an architect, is in charge of the urban planning division of Arraiolos Council and was responsible for coordinatiing the regeneration plan of the historic centre.



On a wall bracket or on a pole, with a single or double bracket, the Rivara with its 36 high-power LEDs in warm white adapts perfectly to the specific features of the various areas where it has been installed.

Whether on narrow or wide pedestrian areas, or on roads, the Rivara combines a sober design with a high photometrical and mechanical performance that can be consistently found in Schréder luminaires.

Why did eclipz opt for the creation of a new luminaire rather than choose an existing model for arraiolos? what were the main difficulties that you encountered?

We initially opted for an existing model due to the usual tight time schedule. But due to difficulties with the brand in question's response to a dedicated configuration, we were "forced" to design. This happens frequently. It is rare to have a lighting design project that relies solely and exclusively on what is printed in catalogues.

Both in aesthetic and functional terms, what are the characteristics of this project that you would like to highlight?

This phase of the lighting plan is based on two aspects that are fundamental for lighting the town. Firstly, ensuring that the luminaires were chosen by the local council so that they could guarantee that the lighting levels were respected and that the luminaire perfectly integrated into the environment, visually improving the landscape for the inhabitants and visitors. Secondly, being able to control the light in accordance with natural daylight and the use of the public space, while learning more about the relationship between people and lighting. We believe that a lighting plan should not close an urban environment, it should instead meet the developments of the landscape.

In some cases, such as in the pedestrian streets of the historic centre, the lighting levels appear to be excessively high. how can you justify this?

A good living environment and visual comfort. Nearly all of the town's businesses are located in these pedestrian streets. They are the most highly frequented areas in the town and are strongly illuminated by window signs and neon lights. They constitute the town's main axes and it was important that they were brightly lit. The remote management system also means that the lighting levels can be adapted to specific situations such as festive periods.

In your opinion what is the importance of a good lighting plan for cities? are portuguese politicians aware of this?

Intangible factors such as comfort or new ways of experiencing nocturnal urban spaces must be considered. Promoting, for example, business and the prestige of the city through the careful design of its nocturnal image. Generally speaking, only purely technical factors such as luminance levels and consumption are considered. These are very important factors, but they are far from being the only ones. Political interest is gaining momentum, but there is still a lot of ignorance regarding the inherent benefits in thinking through a city's lighting.


Lighting designers Eduardo Gonçalves and Rogério Oliveira, from eclipz - lighting design studio, were responsible for the design of the Rivara luminaire and for the lighting plan.

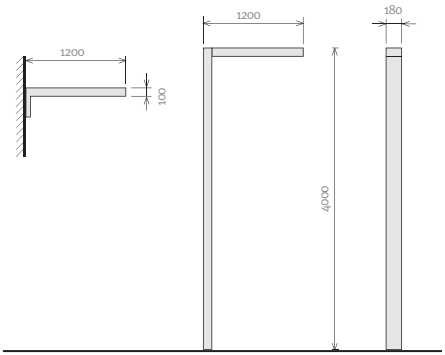
# Pedestrian areas

The way in which public spaces are used for cultural and commercial reasons influenced the whole lighting project, particularly in pedestrian areas.

In some cases, based on this perception, higher luminance levels were considered. This is the case for Rua Alexandre Herculano and the pedestrian area of Rua Cunha Rivara. The lighting levels were increased, as these streets have an important commercial activity and are close to the town centre.

Rivara luminaires on wall brackets and 4-metre high poles were installed for lighting the various pedestrian areas.

## Rua Alexandre Herculano





## Jardim da Praça da República

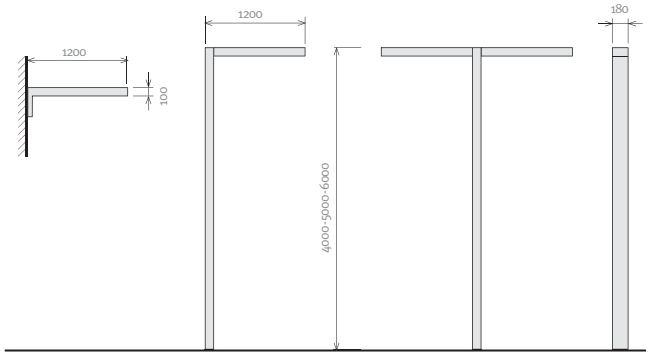
## Rua Cunha Rivara

In the photos below, it is possible to compare the previous installation (photo on the left) with the new one (photo on the right). Besides a better and more uniform lighting, the luminaires provide excellent visual comfort, which is important for identifying obstacles and colours.


# Roads

Travessa
da Balança

In addition to the wall bracket and single poles used in pedestrian lighting, a double bracket version of the Rivara luminaire has also been installed for street lighting.




Travessa do Rossio

Praça da República
(by day)

Praça da República
(by night)


Joaquim Heliodoro Rivara da Cunha is one of the most famous sons of Arraiolos. A doctor, journalist, statesman and writer, this long-standing member of the Lisbon Academy of Sciences is a central figure in the history of this Alentejo town.

The Rivara luminaire was thus named after him.

The bust erected in his memory is illuminated by Terra Midi LED floodlights, equipped with 16 high-power LEDs in neutral white.

These floodlights were also used to up-light the various trees in the Praça da República Gardens, creating a pleasant illuminated wood.

# Scenic lighting

Just as in the street and pedestrian lighting, all of the scenic lighting projects completed within this first phase were done using floodlights and luminaires equipped exclusively with LEDs.

Built in 1932, the Bandstand, a classic feature of gardens and public spaces in Portugal, was also relit.

A beautiful combination of stone, marble, tiles and steel, this architectural structure is enhanced by the gentle white light produced by the Terra Midi LED floodlights that also provide the general lighting for the gardens.

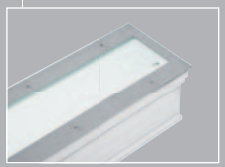
The dome is emphasised by Trasso floodlights, equipped with 11 white high-power LEDs.

Terra Midi LED floodlights were also installed to illuminate the modern monument erected in honour of Arraiolos' famous tapestries.

**Terra Midi LED**
Recessed floodlight
16 white high-power LEDs
Adjustable inclination

**Enyo**
Minimalist floodlight
3 high-power white or RGB LEDs
Adjustable inclination

**Trasso**
Linear floodlight
Illumination version
Ground lighting version



Júlio Vilela is an electrotechnical engineer. He supported the regeneration project for the historic centre of Arraiolos as an energy consultant and as the person in charge of the electrical implementation.

### What were the aims of this project from an energy point of view?

It was simply to sustainably increase luminance efficiency without contributing to an increase in energy consumption, but rather reducing it, while contributing to increased safety for the population, more specifically for traffic.

### This project combines LED technology with a remote management system. Why was this option chosen and what results were achieved?

When the local authorities decided to improve the public lighting system in Arraiolos, they wanted, from the very beginning, to combine a reduction of energy consumption in a normal way by using LED technology with the possibility of using a remote management system to further reduce consumption during periods when the roads are used less. They also wanted a system that would monitor the luminaires and provide information regarding the status of the luminaires and the behaviour of the public lighting system at any given time.

### The lighting levels and colour temperature in a lighting installation are fundamental for quality. What was the approach to these two parameters in the case of Arraiolos?

From my perspective, it essentially concerned visual comfort and enhancing architecture within the surroundings.

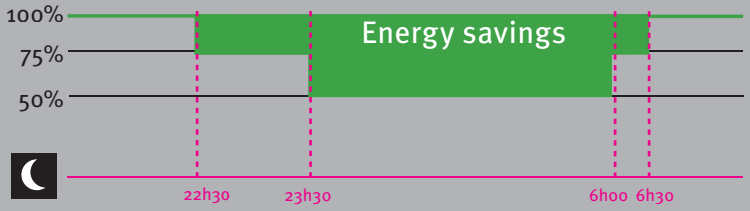
### In your opinion, can this lighting plan in Arraiolos be considered a benchmark project in lighting terms? If so, why?

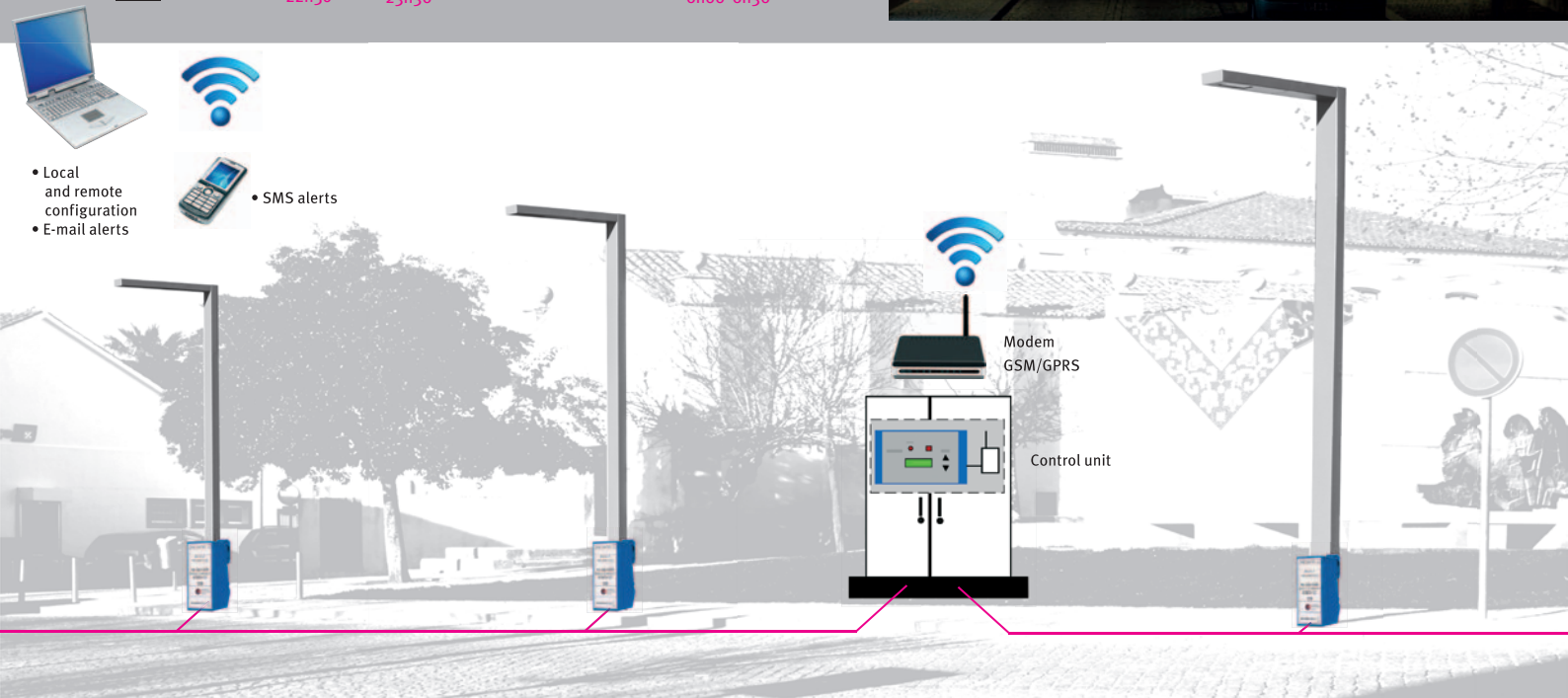
I consider it a benchmark project in two respects. Firstly, in that it places great importance in innovation and, secondly, in that it reveals the vision and courage of the local councillors in adopting this technology, which although now is very well-known, widespread and developed, was the subject of many doubts at the time when the decision was taken to proceed with the plan.

# SUSTAINABLE LIGHTING

## INNOVATIVE, EFFICIENT AND INTELLIGENT LIGHTING

All of the Rivara luminaires installed in the historic centre of Arraiolos are equipped with a system for varying the intensity levels of the luminous flux through a remote management system, using power line control. **This option represents a significant reduction, either in energy consumption or in emissions of $CO_2$, in the order of 30%.** The system's operating settings can be programmed at various levels of light intensity and the intervals can be adjusted on a daily basis according to the duration of the night.



LED GENERATION

Schréder



103525-BR-CahierArraiolos-2011-12-AN

www.schreder.com

Schréder Group GIE