
CLARO 1
THE GREEN LIGHT
LED
LED
Schréder Group GIE

LED GENERATION

The LED Generation.... For Schréder, it is innovative, intelligent and responsible.
We have developed a complete range of LED luminaires across all our business sectors: street lighting, urban lighting, tunnel lighting and illuminations.
These products reflect our desire to continue "Right Lighting", by offering technological solutions that make this new light source a valid alternative to traditional sources.
To do so, we have developed concepts that will make LEDs the new instrument of our ambition - to offer the lighting solutions of tomorrow.

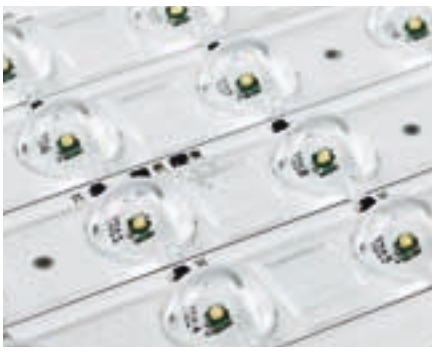
POWERFUL PHOTOMETRIC ENGINES

OrientoFlex®

Schréder has developed two photometric engine concepts to cover every type of street and urban lighting application.
Oriento® and OrientoFlex®. Photometric engines that maximise the luminous flux on the roadway by meticulously orienting LEDs. The OrientoFlex® also allows numerous types of light distribution by varying the orientation and number of LEDs to meet better the specific needs of each application.
LensoFlex®. A photometric engine that builds on the flexibility offered by a selection of lenses developed by Schréder, with the goal of creating ambiances and meeting the needs of urban lighting.

ENERGY AND ECOLOGICAL FOOTPRINT

LensoFlex®



Our luminaires are designed with an eye towards sustainable development. They can be characterised by a number of commitments:

- To use energy rationally, via highly effective photometric engines;
- To reach required levels while complying with international standards;
- To maximise energy savings through intensity variation (dimming) and remote management systems.

Our LED luminaires also offer the following advantages:

- Long LED service life and reduced maintenance costs;
- Recyclable and durable materials, such as glass and aluminium;
- Compliance with our "Green Light" label.

THE GREEN LIGHT

RELIABLE SOLUTIONS

To offer reliable, durable and effective solutions, Schréder has developed two concepts:

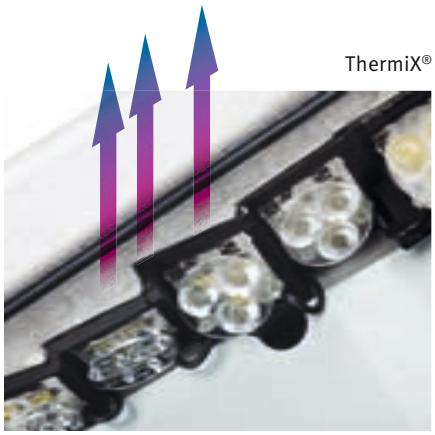
ThermiX®. Optimise heat extraction to maintain 80% of the nominal luminous flux(*) at 60,000 hours of use up to a maximum ambient temperature of 35°C.

This concept is based on several factors:

- Thermal compartmentalisation between the LEDs and the control gear;
- Direct conduction by minimising the path between the heat source and the outside;
- Optimised design of the external heat exchange surface;
- A temperature sensor to avoid accidental overheating.

(*) 70% for certain luminaires

ThermiX®



LEDSafe®. To ensure a long service life by preventing dust and water from getting into the optical compartment, Schréder has implemented the LEDSafe® system. This is based on the idea of a completely sealed photometric engine. Protected by glass, the LEDs and lenses do not come into direct contact with the outside environment. This helps to ensure that performance is preserved over time.

LEDSafe®

UPGRADABLE TECHNOLOGY

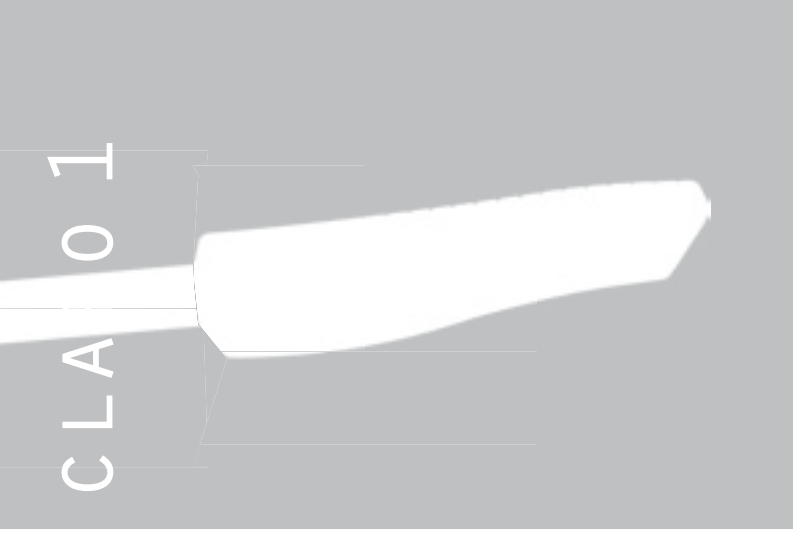
In our latest luminaires we have developed the FutureProof concept. This will allow on-site replacement of the photometric engine or electronic assembly at the end of an LED's service life, and thereby allow users to integrate future innovations.

FutureProof

UNIVERSAL DESIGN

We have been engaging renowned designers to help us better incorporate our products into their daytime and night time environments.

CLARO 1



Design: A. Baré

LED

CHARACTERISTICS - LUMINAIRES

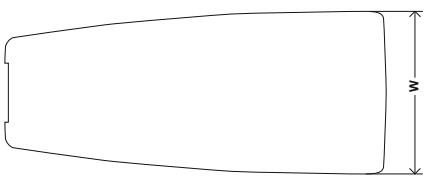
Optical compartment tightness level:		IP 66 LEDSafe®(*)
Electronic compartment tightness level:		IP 66 (*)
Impact resistance (glass):		IK 08 (**)
Nominal voltage:		230 V - 50 Hz
Electrical class:		I or II (*)
Weight (total):	Claro 1:	5.7 kg
Installation height:	Claro 1:	6 - 8 m

(*) according to IEC - EN 60598
(**) according to IEC - EN 62262

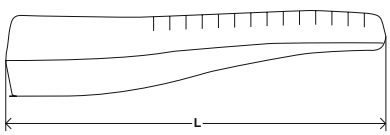
KEY ADVANTAGES

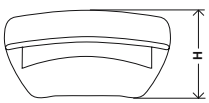
- Oriento®: highly effective photometry, complying with current standards for reduced energy consumption
- White light available in 4150K neutral white and in 3500K warm white (optional)
- ThermiX® and LEDSafe®: maintains performance over time
- Limited maintenance
- FutureProof: easy on-site replacement of the photometric engine and the electronic assembly
- Durable and recyclable materials
- “Green Light” label
- Stand alone dimming system (optional)

DIMENSIONS



L	537 mm
W	230 mm
H	112 mm





COMPACTNESS, DESIGN AND PERFORMANCE

The luminaire Claro 1 may be equipped with 28 or 42 LEDs.
This range has been specially designed for street and residential lighting.

Colour: AKZO grey 150 sanded

OPTIONS

- All RAL and AKZO colours
- 3500K warm white
- Stand alone intensity variation system
- Inclination systems for horizontal or vertical mounting
- Embellishment for horizontal mounting
- Compact photoelectric cell

VARIANTS

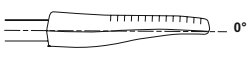
- Number of LEDs: Claro 1: 28 or 42 LEDs

MOUNTING

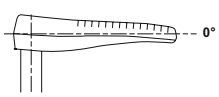
Claro luminaires are equipped with a mounting system including a tilting mechanism, enabling side-entry or vertical mounting.
An optional adjustable inclination system can be integrated to allow more precise photometrical adaptation on-site.

Standard
Vertical position

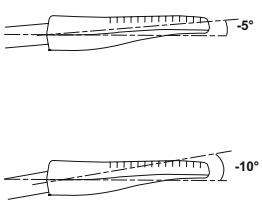
Standard
Side-entry position



Optional
Inclinations



Optional
Inclinations



ORIENTO®, A POWERFUL PHOTOMETRIC ENGINE

Claro luminaires are equipped with the Oriento® photometric system.
This system is based on precisely oriented LEDs that are equipped with meticulously selected lenses.
Each LED associated with a lens has a specific orientation. The combination of all the LEDs creates the overall light distribution of the luminaire.
LEDs are grouped into units of 3 and are directed according to the desired light distribution. Each LED group has a lens disc, depending on the number of LEDs.

PHOTOMETRY

High-power white LEDs	
Type	Lumiled Rebel
Maintained luminous flux t_a= 35°C	60,000 hours – at L70 (*)

(*) L70 means that after the number of hours indicated, the luminaire maintains 70% of the initial luminous flux.

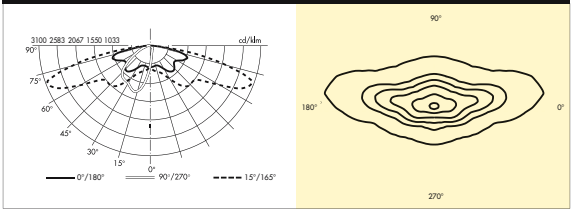
	Oriento®	
	Claro 1	
Number of LEDs / luminaire	28 LEDs	42 LEDs
Power supply 350mA		
Typical luminous flux in 4150K	100 lm/LED (**)	
Power consumption	34 W	51 W

Optic	Protector		
6121		✓	✓

(**) The type of LED used is likely to change in accordance with the continuous and rapid developments in LED technology. To follow the progress of the luminous efficacy of the LEDs used in the Claro luminaire, please visit our website.

PHOTOMETRIC DISTRIBUTION

Claro 1: 28 and 42 LEDs Optic LED 6121



CLARO 1

LED

SELV power supply 350 mA.

Intensity variation (dimming) (optional).

Die-cast aluminium cover enclosing the IP 66 electronics compartment. The power supply (as well as the dimming) is mounted on a removable and easily replaceable gear tray (FutureProof).

Die-cast aluminium cover enclosing the optical compartment - IP 66 LEDSafe® - completely sealing it.

ThermiX®: short, direct thermal path for better dispersion of heat.

The design of the photometric engine means that it is compatible with the FutureProof concept; it may be replaced on-site in order to take advantage of future technological developments.

LEDs in 4150K neutral white equipped with triple lenses.

Embellishment for side-entry mounting (optional).

Oriento®: optimised orientation of LEDs and a selection of lenses for highly effective light distribution.

Side-entry or vertical mounting.

Inclination adjustment system (optional).

Durable and recyclable materials: painted die-cast aluminium alloy body and curved glass protector
Claro 1: concave

ThermiX®: THERMAL MANAGEMENT

Each LED circuit is mounted on an aluminium transition part, the design of which simultaneously ensures the precise orientation for the LEDs and the thermal conduction that optimises rapid transfer of heat to the outside.
We have developed the ThermiX® concept around the optimisation of several factors involved in the thermal management of LEDs:

- Thermal compartmentalisation between the LEDs and the control gear;
- Direct conduction: the transmission of heat takes the shortest path between its source and the exterior;
- Optimised design of the external heat exchange surface;
- LED circuits (PCBs) are equipped with a temperature sensor to avoid accidental overheating.

The ThermiX® concept applied to the Claro luminaire can maintain a luminous flux of 70%, based on its initial value, for at least 60,000 hours of use up to a maximum ambient temperature of 35°C.

LEDSafe®

To maximise the reliability of our LED luminaires, we have introduced the LEDSafe® concept. Like Sealsafe®, which is recognised as a benchmark in traditional-source public lighting, LEDSafe® is based on the principle of a completely sealed photometric engine. Protected by glass, the LEDs do not come into contact with the outside environment. They are thereby protected from damage caused by dust and water. The glass protector ensures the protection of the LEDs' and the lenses' performance over time.

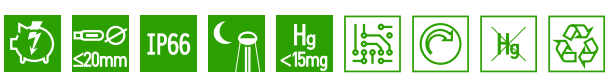
HIGHLY EFFICIENT POWER SUPPLY

Claro luminaires are equipped with power supplies. They ensure 90% efficiency and fulfil Safety Extra Low Voltage (SELV) requirements.
The 2 LED circuits are powered by a 350 mA current.
Each luminaire has a temperature sensor that protects the LEDs in the event the temperature exceeds the maximum authorised—for example, when the network administrator switches on the luminaire during the day (for maintenance, testing, etc.), with a particularly high ambient temperature.
Input of 1-10V allows a user to integrate a dimming system to optimise energy used.

FUTUREPROOF

Claro luminaires have been designed to fulfil the FutureProof concept. Both the photometric engine and the electronic assembly can be easily replaced on-site in order to take advantage of future technological developments.

CLARO THE GREEN LIGHT



For more details and to follow the progress of accredited configurations, please visit our website.

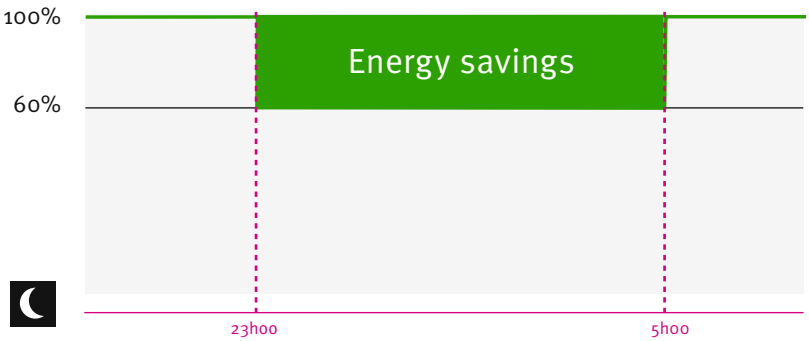
ENERGY CONSUMPTION

Claro luminaires exhibit outstanding photometric performance.
For example, for a Claro 1 (42 LEDs) used on a M5-classified road 6m wide, and complying with CIE 115 recommendations, the power that must be supplied to meet the required luminance level of 0.5 cd/m² is less than **0.8 W per m² of road per cd/m² required**. This also takes into account the depreciation factors for both the LEDs and the luminaire.
For 4,000 hours of use per year, **for 100m of roadway**, this corresponds to consumption of less than **2.5 kWh/day**, or emissions of less than **1.15 kg CO_2/ day**, according to the average European equivalence of 0.46 kg CO_2/kWh.
Project by project, our teams are ready to propose a variety of solutions. The optimal solution will emerge from the details of each project, always taking your particular constraints into account.

INTENSITY VARIATION (DIMMING) FOR GREATER SAVINGS (OPTIONAL)

Claro luminaires can be optionally equipped with a stand alone dimming system. This constitutes a significant reduction in energy consumption, exceeding **20%**. One to five intensity levels can be pre-programmed. Different levels are set automatically on a daily basis, depending on the length of the night.

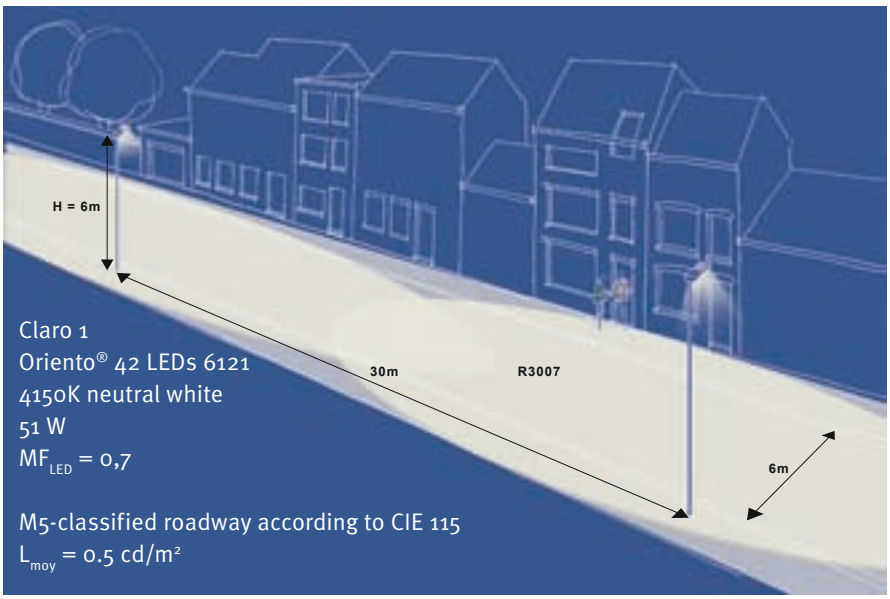
Unlike traditional sources, LEDs permit dimming to low levels while keeping the same colour temperature and same colour rendering index and without losing luminous efficacy.
Luminous flux is, in fact, reduced at practically the same ratio as the energy consumption.



Change in lighting class according to traffic	L_{moy} (cd/m²)
M5	0,50 (100%)
M6	0,30 (60%)

This table shows the CIE's recommendations (ongoing work by the TC4-44 technical committee), which varies the lighting class of a roadway depending on traffic density.
This demonstrates the advantages of luminaires equipped with a dimming system.

CASE STUDY



Energy efficiency coefficient
‹ **0.8 W/m² / cd/m²**.

Consumption
‹ **2.5 kWh** for 100m of roadway / day.

CO_2 emissions
‹ **1.15 kg CO_2** for 100m of roadway / day.

(average European equivalent: 0.46 kg CO_2/kWh)

LED GENERATION

Schréder

52865-Clario1-br-2010-12-AN

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