

# KIO LED



Designer : Grandesign



## Elegance, comfort, creation of ambiance and performance

The clean and fluid lines of the KIO LED luminaire adapt to various urban landscapes such as parks, squares, gardens and residential areas.

The KIO LED combines the energy efficiency of LED technology with the photometric performance of the LensoFlex® and HiFlex concepts developed by Schröder. This luminaire offers photometric efficiency with visual comfort for the creation of ambiance. It is available with multiple light distributions that provide excellent photometric performance.

The design of the KIO LED luminaire guarantees an IP 66 tightness level.

IP 66	IK 09	
	CE	UK CA
	PLUS * EKL * * 02 *	
005 certification		



## Concept

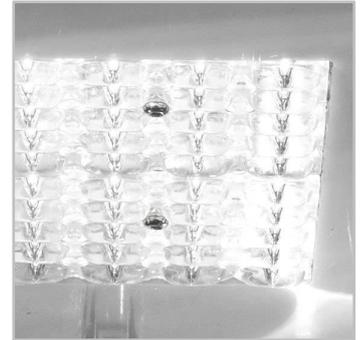
The materials used for KIO LED are of excellent quality: the base and cover are in high-pressure die-cast aluminum while the protector is composed of polycarbonate.

KIO LED is available in two versions: direct and comfort. In the direct version, the light from the LEDs is emitted directly through the transparent protector. In the Comfort version, an internal diffuser provides a softer light for high visual comfort with reduced glare.

The KIO LED luminaires have been designed to fulfil the FutureProof concept. Both the photometric engine and the electrical power supply can be replaced to take advantage of any future technological developments.

This connected-ready luminaire is compatible with a standard NEMA 7-pins or a Zhaga socket, providing easy access to advanced remote lighting management options.

KIO LED offers slip-over mounting onto a Ø60mm spigot.



KIO LED is available with a wide range of light distributions.



The KIO LED can be supplied with either a NEMA or Zhaga socket for easy integration into connected lighting management systems.

## TYPES OF APPLICATION

- URBAN & RESIDENTIAL STREETS
- BRIDGES
- BIKE & PEDESTRIAN PATHS
- RAILWAY STATIONS & METROS
- CAR PARKS
- SQUARES & PEDESTRIAN AREAS

## KEY ADVANTAGES

- Visual comfort
- Creation of ambiance
- FutureProof: easy replacement of the photometric engine and electronic assembly
- Connected-ready for your future Smart city requirements
- Based on open and interoperable standards
- Compatible with the Schröder EXEDRA control platform
- LensoFlex®4 versatile solutions for high-end photometries maximising comfort and safety
- HiFlex photometric engine designed for optimised energy efficiency
- Zhaga-D4i certified



This luminaire offers slip-over mounting onto a Ø60mm spigot.



KIO LED is available in two versions: direct and comfort (high visual comfort)



LensoFlex<sup>®</sup>4

LensoFlex<sup>®</sup>4 maximises the heritage of the LensoFlex<sup>®</sup> concept with a very compact yet powerful photometric engine based upon the addition principle of photometric distribution. The number of LEDs in combination with the driving current determines the intensity level of the light distribution. With optimised light distributions and very high efficiency, this fourth generation enables the products to be downsized to meet application requirements with an optimised solution in terms of investment.

LensoFlex<sup>®</sup>4 optics can feature backlight control to prevent intrusive lighting, or a glare limiter for high visual comfort.



HiFlex<sup>™</sup>

The HiFlex platform is expertly designed to optimise energy efficiency. Its photometric engines feature high-power LEDs that deliver exceptional performance while consuming minimal energy, resulting in unmatched efficacy (lm/W).

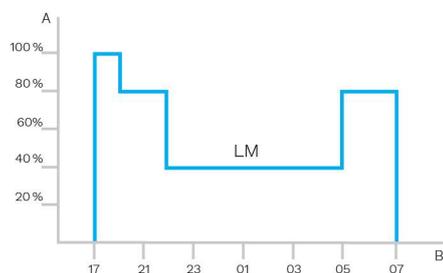
Ideal for projects that require a streamlined approach to maximising lighting efficacy and achieving swift ROI, HiFlex is available in two versions: HiFlex 1, boasting 24 LEDs and HiFlex 2, equipped with 36 LEDs. Both variants are designed with the priorities of compactness, cost-effectiveness and high performance in mind.



### Custom dimming profile

Intelligent luminaire drivers can be programmed with complex dimming profiles. Up to five combinations of time intervals and light levels are possible. This feature does not require any extra wiring.

The period between switching on and switching off is used to activate the preset dimming profile. The customised dimming system generates maximum energy savings while respecting the required lighting levels and uniformity throughout the night.

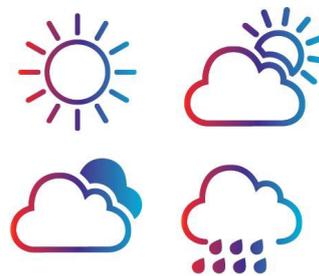


A. Dimming level | B. Time



### Daylight sensor / photocell

Photocell or daylight sensors switch the luminaire on as soon natural light falls to a certain level. It can be programmed to switch on during a storm, on a cloudy day (in critical areas) or only at nightfall so as to provide safety and comfort in public spaces.



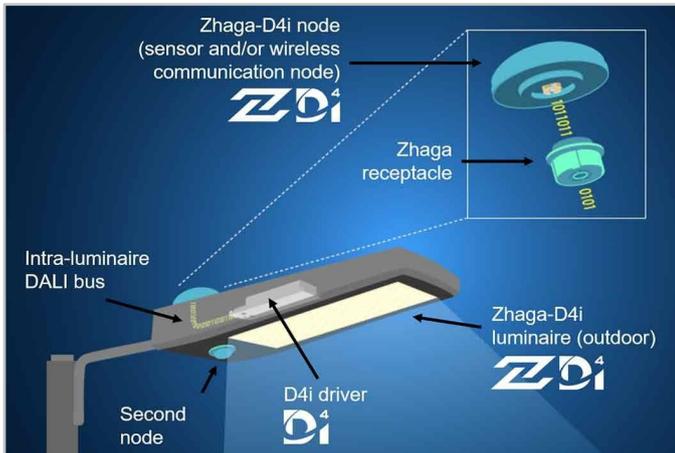
### PIR sensor: motion detection

In places with little nocturnal activity, lighting can be dimmed to a minimum most of the time. By using passive infrared (PIR) sensors, the level of light can be raised as soon as a pedestrian or a slow vehicle is detected in the area.

Each luminaire level can be configured individually with several parameters such as minimum and maximum light output, delay period and ON/OFF duration time. PIR sensors can be used in an autonomous or interoperable network.



The Zhaga consortium joined forces with the DiiA and produced a single Zhaga-D4i certification that combines the Zhaga Book 18 version 2 outdoor connectivity specifications with the DiiA's D4i specifications for intra-luminaire DALI.



## Standardisation for interoperable ecosystems



As a founding member of the Zhaga consortium, Schröder has participated in the creation of, and therefore supports, the Zhaga-D4i certification program and the initiative of this group to standardise an interoperable ecosystem. The D4i specifications take the best of the standard DALI2 protocol and adapt it to an intra-luminaire environment but it has certain limitations. Only luminaire mounted control devices can be combined with a Zhaga-D4i luminaire.

According to the specification, control devices are limited respectively to 2W and 1W average power consumption.

## Certification program

The Zhaga-D4i certification covers all the critical features including mechanical fit, digital communication, data reporting and power requirements within a single luminaire, ensuring plug-and-play interoperability of luminaires (drivers) and peripherals such as connectivity nodes.

## Cost-effective solution

A Zhaga-D4i certified luminaire includes drivers offering features that had previously been in the control node, like energy metering, which has in turn simplified the control device therefore reducing the price of the control system.

Schröder EXEDRA is the most advanced lighting management system on the market for controlling, monitoring and analysing streetlights in a user-friendly way.



## Standardisation for interoperable ecosystems

Schröder plays a key role in driving standardisation with alliances and partners such as uCIFI, TALQ or Zhaga. Our joint commitment is to provide solutions designed for vertical and horizontal IoT integration. From the body (hardware) to the language (data model) and the intelligence (algorithms), the complete Schröder EXEDRA system relies on shared and open technologies. Schröder EXEDRA also relies on Microsoft Azure for cloud services, provided with the highest levels of trust, transparency, standards conformance and regulatory compliance.

## Breaking the silos

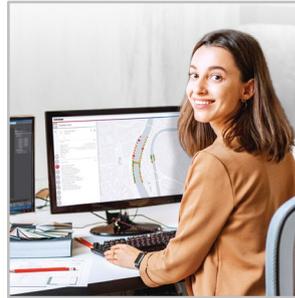
With EXEDRA, Schröder has taken a technology-agnostic approach: we rely on open standards and protocols to design an architecture able to interact seamlessly with third-party software and hardware solutions. Schröder EXEDRA is designed to unlock complete interoperability, as it offers the ability to:

- control devices (luminaires) from other brands
- manage controllers and to integrate sensors from other brands
- connect with third-party devices and platforms

## A plug-and-play solution

As a gateway-less system using the cellular network, an intelligent automated commissioning process recognises, verifies and retrieves luminaire data into the user interface. The self-healing mesh between luminaire controllers enables real-time adaptive lighting to be configured directly via the user interface. OWLET IV luminaire controllers, optimised for Schröder EXEDRA, operate Schröder's luminaires and luminaires from third parties. They use both cellular and mesh radio networks, optimising geographical coverage and redundancy for continuous operation.

## Tailored experience



Schröder EXEDRA includes all advanced features needed for smart device management, real-time and scheduled control, dynamic and automated lighting scenarios, maintenance and field operation planning, energy consumption management and third-party connected hardware integration. It is fully configurable and includes tools for user management and multi-tenant policy that enables contractors, utilities or big cities to segregate projects.

## A powerful tool for efficiency, rationalisation and decision making

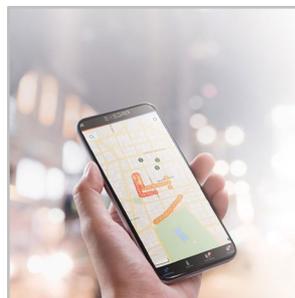
Data is gold. Schröder EXEDRA brings it with all the clarity managers need to drive decisions. The platform collects massive amounts of data from end devices and, aggregates, analyses and intuitively displays them to help end-users take the right actions.

## Protected on every side



Schröder EXEDRA provides state-of-the-art data security with encryption, hashing, tokenisation, and key management practices that protect data across the whole system and its associated services. The whole platform is ISO 27001 certified. It demonstrates that Schröder EXEDRA meets the requirements for establishing, implementing, maintaining and continually improving security management.

## Mobile App: any time, any place, connect to your street lighting

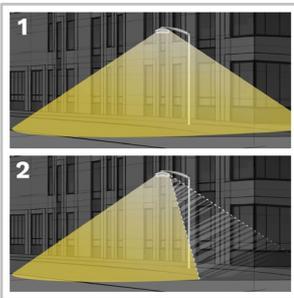


The Schröder EXEDRA mobile application offers the essential functionalities of the desktop platform, to accompany all types of operator on site in their daily effort to maximise the potential of connected lighting. It enables real-time control and settings, and contributes to effective maintenance.

With the PureNight concept, Schröder offers the ultimate solution for restoring the night sky without switching off cities, while maintaining safety and well-being for people and preserving wildlife. The PureNight concept guarantees that your Schröder lighting solution satisfies environmental laws and requirements. Well-designed LED lighting has the potential to improve the environment in all respects.



### Direct the light only where it is wanted and needed



1. Without backlight  
2. With backlight

Schröder is renowned for its expertise in photometry. Our optics direct light only where it is wanted and needed. However, light trespass behind the luminaire might be a key concern when it comes to protecting a sensitive wildlife habitat or avoiding intrusive lighting towards buildings. Our fully integrated backlight solutions easily address this potential risk.

### Offer maximum visual comfort to people



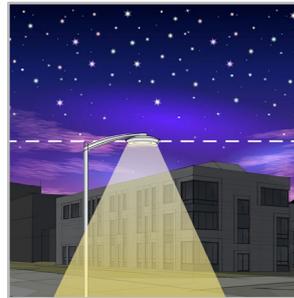
Because of the lower installation height compared to road lighting, visual comfort is an essential aspect of urban lighting. Schröder designs lenses and accessories to minimise any type of glare (distracting, discomforting, disabling glare and blinding glare). Our design offices harness a range of possibilities to find the best solutions for each project and ensure that we provide a gentle light that delivers the best night-time experience.

### Protect wildlife



If not well designed, artificial lighting can badly affect wildlife. Blue light and excessive intensity can have a damaging effect on all types of life. Blue light radiation has the ability to suppress the production of melatonin, the hormone that contributes to the regulation of the circadian rhythm. It can also alter the behavioural patterns of animals including bats and moths, as it can change their movements towards or away from light sources. Schröder favours warm white LEDs with minimal blue light, combined with advanced control systems including sensors. This enables permanent adaptation of the lighting to the real needs of the moment, minimising disturbance to the fauna and flora.

### Get the starry sky back



The Upward Light Ratio (ULR) and Upward Light Output Ratio (ULOR), the latter taking the flux from the luminaire into account, provide information on the percentage of light emitted towards the sky. This Schröder range of luminaires minimises or eliminates (depending on the options) upward-directed light flux. It complies with strict international and local requirements.

## GENERAL INFORMATION

Recommended installation height	3m to 5m   10' to 16'
FutureProof	Easy replacement of the photometric engine and electronic assembly on-site
Circle Light label	Score ≥90 - The product fully meets circular economy requirements
Driver included	Yes
CE mark	Yes
ENEC certified	Yes
ENEC+ certified	Yes
ROHS compliant	Yes
Zhaga-D4i certified	Yes
French law of December 27th 2018 - Compliant with application type(s)	b, c, d, f, g
BE 005 certified	Yes
UKCA marking	Yes
Testing standard	LM 79-08 (all measurements in ISO17025 accredited laboratory)

## HOUSING AND FINISH

Housing	Aluminium
Optic	PMMA
Protector	Polycarbonate
Housing finish	Polyester powder coating
Standard colour(s)	AKZO black 200 sanded
Tightness level	IP 66
Impact resistance	IK 09
Vibration test	Compliant with modified IEC 68-2-6 (0.5G)
Access for maintenance	By loosening screws on the top cover

## OPERATING CONDITIONS

Operating temperature range (Ta)	-30°C up to +45°C / -22°F up to 113°F
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· Depending on the luminaire configuration. For more details, please contact us.

## ELECTRICAL INFORMATION

Electrical class	Class I EU, Class II EU
Nominal voltage	220-240V – 50-60Hz
Surge protection options (kV)	10
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-3-3 / EN 61547
Control protocol(s)	1-10V, DALI
Control options	AmpDim, Bi-power, Custom dimming profile, Photocell, Remote management
Socket	Zhaga (optional) NEMA 7-pin (optional)
Associated control system(s)	Schröder EXEDRA
Sensor	PIR (optional)

## OPTICAL INFORMATION

LED colour temperature	2200K (Warm White WW 722) 2700K (Warm White WW 727) 3000K (Warm White WW 730) 3000K (Warm White WW 830) 4000K (Neutral White NW 740)
Colour rendering index (CRI)	>70 (Warm White WW 722) >70 (Warm White WW 727) >70 (Warm White WW 730) >80 (Warm White WW 830) >70 (Neutral White NW 740)
ULOR	<4%
ULR	<5%

· ULOR may be different according to the configuration. Please consult us.  
· ULR may be different according to the configuration. Please consult us.

## LIFETIME OF THE LEDS @ TQ 25°C

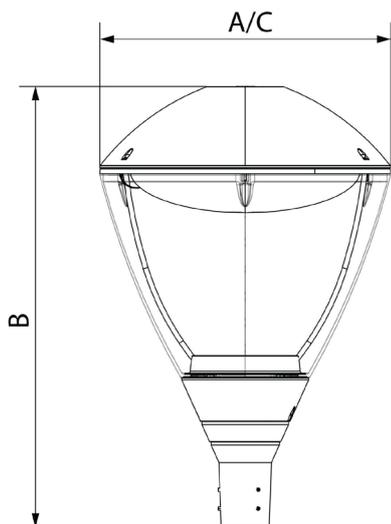
All configurations	100,000h - L92
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· Lifetime may be different according to the size/configurations. Please consult us.

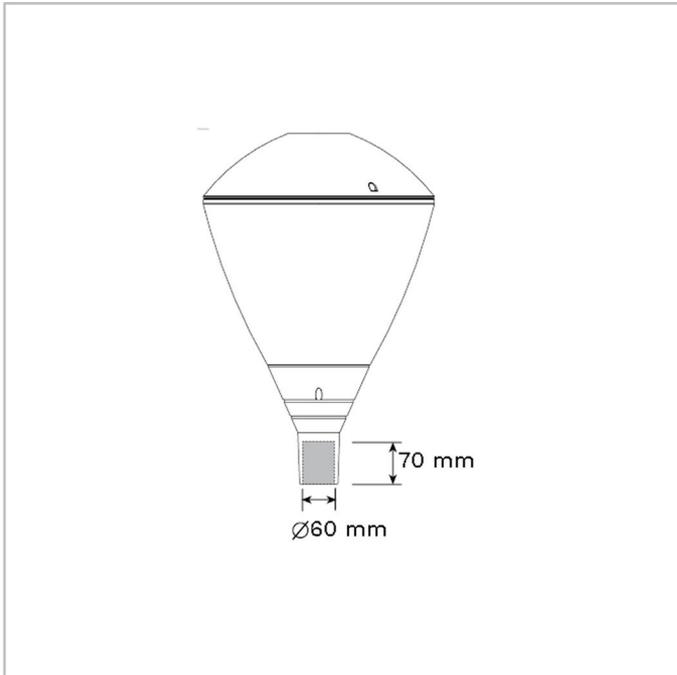
## DIMENSIONS AND MOUNTING

AxBxC (mm   inch)	460x703x460   18.1x27.7x18.1
Weight (kg   lbs)	8.3   18.3
Aerodynamic resistance (CxS)	0.08
Mounting possibilities	Post-top slip-over – Ø60mm

· For more information about mounting possibilities, please consult the installation sheet.



## KIO LED | Slip-over mounting $\varnothing 60$ mm - 6XM6 or 2XM8 screws





Number of LEDs	Luminaire output flux (lm)										Power consumption (W)		Luminaire efficacy (lm/W)
	Warm White WW 722		Warm White WW 727		Warm White WW 730		Warm White WW 830		Neutral White NW 740		Min	Max	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			
24	1000	4000	1200	4500	1200	4700	1100	4400	1300	5100	11	35	Up to 151
36	1500	6000	1800	6800	1800	7100	1700	6600	2000	7600	15	52	156
48	2100	7500	2400	8500	2500	8900	2300	8200	2700	9500	20	63	160

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %



Number of LEDs	Luminaire output flux (lm)										Power consumption (W)		Luminaire efficacy (lm/W)
	Warm White WW 722		Warm White WW 727		Warm White WW 730		Warm White WW 830		Neutral White NW 740		Min	Max	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max			
36	1500	6000	1800	6800	1800	7100	1700	6600	2000	7600	15	52	156

Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %



Number of LEDs	Luminaire output flux (lm)										Power consumption (W)		Luminaire efficacy (lm/W)
	Warm White WW 722		Warm White WW 727		Warm White WW 730		Warm White WW 830		Neutral White NW 740				
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
10	500	2200	600	2400	600	2600	600	2400	700	2800	10	25	138
20	100	4400	200	4900	200	5200	200	4900	200	5600	13	46	153
30	1200	5900	1300	6500	1400	7000	1300	6500	1500	7600	19	57	158
40	300	6900	400	7600	400	8100	400	7600	400	8800	25	62	161

Tolerance on LED flux is  $\pm 7\%$  and on total luminaire power  $\pm 5\%$

