

EXTERNAL LIGHTING DESIGN REPORT
SHD STAGE SUBMISSION
AT
BRIDGEGATE RESIDENTIAL DEVELOPMENT,
MULLADRILLAN, RATHGORY, ADREE, CO. LOUTH

Document No: ARDEE-MAE-XX-DR-E-6000
Issue: PL
Date: 4th March 2022
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Preamble:

Introduction

MANDE Consulting Ltd. (MandE) prepared this Public Lighting Report, on behalf of “The Ardee Partnership”, for a proposed SHD development on a site located at Bridgegate, Rathgory & Mulladrillen, Drogheda Road, Ardee, County Louth.

The purpose of the report is to outline the measures taken to provide a compliant public lighting design with both Louth County Council’s public lighting specifications, and also to mitigate the effects that the public lighting will cause to the local fauna which are active within the river valley during the hours of darkness.



Architectural Site Plan for Proposed Development

Outline of Mitigation Measures Taken to Reduce Effect of Public Lighting on Local Fauna

The following report details the public lighting proposal which reduces the impact on the local fauna.

The public lighting design, as laid out in the following report, has been carried-out to minimise light spillage and nuisance/glare by the following:

- Using shielded, downward directed lighting by utilising specially designed lanterns with zero-light spill above the horizontal plane of the optic. This effectively illuminates any waste illumination above the horizontal plane of the lantern.
- Using luminaire accessories to reduce the spill light. All lanterns have been fitted with front or back louvres to reduce the nuisance spill into dwellings. But specifically, the 4no. lanterns installed on the bridge are equipped with back and front louvers to focus the illuminance on the bridge only.
- Using luminaires with narrow spectrum lights and no UV outputs.
- Providing the facility for dimming to zero off all lighting during the hours of darkness.

In addition to the above,

- We have adjusted the SP ratio from 1.5 to 1.3.
- Changed the colour temperature from 4000K to 2700K.
- Columns have been moved away from areas where bats are likely to be active.

MandE Public Lighting Drawing



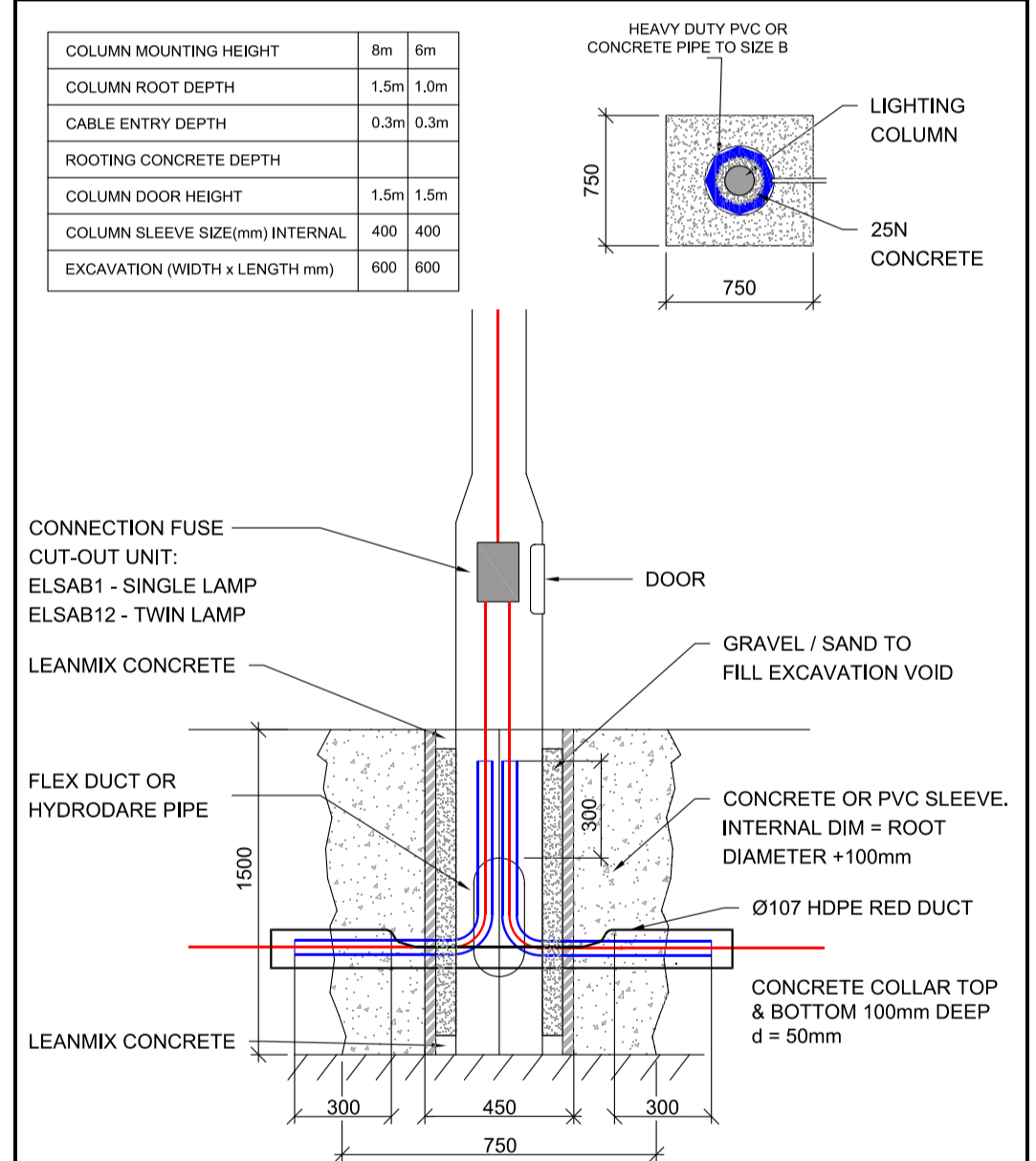
NOTES

- DO NOT SCALE. USE FIGURED DIMENSIONS ONLY.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DRAWINGS.
- FINAL LOCATION OF MIDPILLARS & DUCTS TO BE AGREED WITH COUNCIL & ESB SUPERVISOR PRIOR TO INSTALLATION.
- PROVIDE FOR CONTINUOUS 10mm PP DRAW ROPE SECURED AT BOTH ENDS IN THE DUCT.
- PROVIDE A COMPLETION CERTIFICATE FOR THE PUBLIC LIGHTING SYSTEM.
- PROVIDE 2m SEPARATION BETWEEN ESB MINIPILLAR & PL MIDPILLAR, etc.
- ALL LIGHTING COLUMNS TO BE POSITIONED AT REAR OF FOOTPATH OR SET BACK 800mm CLEAR OF ROAD EDGE KERB.
- PUBLIC LIGHTING INSTALLATION TO BE DESIGNED AND INSTALLED IN ACCORDANCE WITH LOUTH COUNTY COUNCIL'S PUBLIC LIGHTING GUIDANCE DOCUMENT.
- PROVIDE FOR 50mm FLEX DUCT OR HYDRODARE FROM PL COLUMNS TO 107mm HDPE DUCTING WITHIN 1 METRE OF PL FITTING.
- IN ORDER TO BENEFIT BATS, AS WELL AS OTHER FAUNA ACTIVE/RESTING AT NIGHT, THE DESIGN OF THE PUBLIC LIGHTING SCHEME HAS BEEN CARRIED-OUT TO MINIMISE LIGHT SPILLAGE AND NUISANCE/GLARE BY USING SHIELDED, DOWNWARD DIRECTED LIGHTING, USING NARROW SPECTRUM LIGHTING TYPES WITH ZERO ULTRA-VIOLET, SPECIALISED LUMINAIRE ACCESSORIES AND PROVIDING THE FACILITY FOR SWITCHING OFF ALL NON-ESSENTIAL LIGHTING DURING THE HOURS OF DARKNESS. IN ADDITION TO THE ABOVE, WE HAVE ADJUSTED THE SP RATIO FROM 1.5 TO 1.3, CHANGED THE COLOUR TEMPERATURE FROM 4000K TO 2700K, COLUMNS HAVE BEEN MOVED AWAY FROM AREAS WHERE BATS ARE LIKELY TO BE ACTIVE AND ALL LANTERNS HAVE BEEN FITTED WITH BACK SHIELDS. THE COLUMNS LOCATED ON THE BRIDGE CROSSING HAVE BEEN FITTED WITH BOTH FRONT AND REAR LOUVRES.

PUBLIC LIGHTING LEGEND

- 107mm HDPE RED DUCTING TO IS135 CLASS B STANDARD PUBLIC LIGHTING DUCT WITH WARNING TAPE OVER (600mm MIN COVER & 750mm COVER IN ROAD CROSSING).
- EXTERNAL LIGHTING/TRAFFIC LIGHT MIDPILLAR
- 775x625mm INSPECTION CHAMBER. 1/2" MANUFACTURED FJ6045 TO EN124
- URBIS SCHREDER AXIA 3.1 5266 - 16 OLSON SQUARE GIANT 400mA WW 727, 21.1W, 230V 01-37-041 WITH INTEGRATED LENSES c/w FRONT AND REAR LOUVRE, 2700K. MAIN CONTRACTOR TO PROVIDE FOR 6m HIGH FIXED COLUMN & BASE.
- URBIS SCHREDER AXIA 3.1 5266 - 16 OLSON SQUARE GIANT 400mA WW 727, 21.1W, 230V 01-37-041 WITH INTEGRATED LENSES c/w REAR LOUVRE, 2700K. MAIN CONTRACTOR TO PROVIDE FOR 6m HIGH FIXED COLUMN & BASE.

TYPICAL LIGHTING COLUMN INSTALLATION DETAIL



ISSUE	DESCRIPTION	DRN	ORIG	APP	DATE
D	ISSUE FOR PLANNING	KP	KP	DC	04/03/2022
C	ISSUE FOR PLANNING	KP	KP	DC	02/06/2021
B	ISSUE FOR COMMENTS	KP	KP	DC	27/04/2021
A	ISSUE FOR COMMENTS	KP	KP	DC	29/03/2021

CLIENT THE ARDEE PARTNERSHIP

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PROJECT BRIDGEGATE RESIDENTIAL DEVELOPMENT AT MULLADRILLEN, RATHGORY, ARDEE, Co. LOUTH

TITLE SITE PLAN PUBLIC LIGHTING LAYOUT

PROJECT No.	20017	DATE:	MARCH 2021
A1 SCALE	1:750	DRG No.	ARDE-MAE--XX-DR-E-6000

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Urbis Schröder Calculation Layout



Schröder
Experts in lightability™

PROJECT NAME:
Housing Development, Bridgegate

PROJECT No:
OP17862LD16346

SCALE: 1:500 DATE: 18 October 2021

CALCULATION:
Horizontal Illuminance (lux)

DESIGNER:
Jack Maslowski

Roads and footpaths // BS 5489-1:2020, P4
5.00 - 7.50 lux average, 1.0 lux minimum

Maintenance factor calculated as per GN11:
0.81

This design has been prepared in accordance with the IESNA/EN 12464-2:2015 (EN 12464-2:2015) Regulations, Annex 11 and the relevant standards. It is an advisory design. Information in this report does not constitute a guarantee, representation, or warranty of any kind. The user of this report is responsible for ensuring that the design is suitable for the intended use and for the responsibility of the user of the information. The user of this report is responsible for ensuring that the design is suitable for the intended use and for the responsibility of the user of the information. The user of this report is responsible for ensuring that the design is suitable for the intended use and for the responsibility of the user of the information.

PREPARED BY:
Ulrich Schröder Limited
Sapphire House
Lime Tree Way
Chesham
Bucks HP80 9JH
Tel: 01296 264466
www.ubs-schröder.com

Type	XXXX Y Y KOWE TIAN WANG AGUI TO THE LIGHTING PLANTERS DATE: 2021.10.18	XXXX Y Y KOWE TIAN WANG AGUI TO THE LIGHTING PLANTERS DATE: 2021.10.18	Results P4
Lamp	XXXX Y Y KOWE TIAN WANG AGUI TO THE LIGHTING PLANTERS DATE: 2021.10.18	XXXX Y Y KOWE TIAN WANG AGUI TO THE LIGHTING PLANTERS DATE: 2021.10.18	Eav 5.19
Lamp Flux (lm)	1.62	1.84	Emin 1.00
Maintenance Factor	0.81	0.81	Emax 19.95
No. in Project	4	66	Emin/Emax 0.05
			Emin/Eav 0.19

Urbis Schröder Calculation Report

DATE: 18 October 2021
DESIGNER: Jacek Maslowski
PROJECT No: OP175623LD16346
PROJECT NAME: Housing Development, Bridgeway

Schröder
Experts in lightability™

Roads and footpaths // BS 5489-1:2020, P4
5.00 - 7.50 lux average, 1.0 lux minimum

Maintenance factor calculated as per GN11:
0.81

Outdoor Lighting Report

This design has been prepared in accordance with the HEA/HEMSA Guidance Note - CDM2015 Regulations, Issue 1.1 dated 09/04/15 - Procedure 2 for an outline design. The information in this report does not account for installation considerations, site conditions or provide any form of risk assessment. Urbis' design service is advisory only and it is the responsibility of the recipient of this information to verify that the design is suitable for the intended application. No account is taken for the blocking effect caused by buildings, trees etc. The calculation shown assumes that the whole area considered is in the same plane.

PREPARED BY: Urbis Schreder Limited
Sapphire House
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Chineham
Basingstoke
RG23 8GG
Tel. 01256 354446
www.urbis-schreder.com

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	P4	696429.49	789479.87	373.60	345.38	1.49	1.50

Luminaires

Luminaire B Data



Supplier	Schröder
Type	AXIA 3.1 5266 [[see details], Aluminium, Black], [Integrated]
Lamp(s)	16 OSOLON SQUARE GIANT@350mA WW 727 230V 01-37-041
LampFlux(klm)/Colour	1.62 2700K/70
File Name	AXIA 3.1 5266 16 OSOLON SQUARE GIANT 350mA WW 727 18.6W 432032 [[see detail...
Maintenance Factor	0.81
Imax70,80,90(cd/klm)	1493.9, 159.9, 0.0
No. in Project	4

Luminaire C Data



Supplier	Schröder
Type	AXIA 3.1 5266 Integrated lenses Rear louvers 16 OSOLON SQUARE
Lamp(s)	16 OSOLON SQUARE GIANT@350mA WW 727 230V 01-37-041
LampFlux(klm)/Colour	1.84 2700K/70
File Name	AXIA 3.1 5266 16 OSOLON SQUARE GIANT 350mA WW 727 18.6W 457662 Integrated ...
Maintenance Factor	0.81
Imax70,80,90(cd/klm)	1216.3, 169.4, 0.0
No. in Project	66

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	C	696509.01	789512.29	6.00	286.00	0.00	0.00	0.50			
2	C	696541.51	789522.06	6.00	287.00	0.00	0.00	0.50			
3	C	696503.23	789531.26	6.00	196.00	5.00	0.00	0.50			
4	C	696555.30	789495.65	6.00	3.00	0.00	0.00	0.50			
5	C	696554.78	789529.36	6.00	3.00	0.00	0.00	0.50			
6	C	696563.04	789559.32	6.00	181.00	0.00	0.00	0.50			
7	C	696553.04	789577.22	6.00	0.00	0.00	0.00	0.50			
8	C	696601.84	789572.75	6.00	271.00	0.00	0.00	0.50			
9	C	696552.84	789600.81	6.00	0.00	0.00	0.00	0.50			
10	C	696551.34	789621.87	6.00	90.00	0.00	0.00	0.50			
11	C	696493.16	789620.98	6.00	94.00	0.00	0.00	0.50			
12	C	696492.19	789600.21	6.00	186.00	0.00	0.00	0.50			
13	C	696495.95	789565.14	6.00	189.00	0.00	0.00	0.50			
14	C	696485.14	789632.59	6.00	194.00	0.00	0.00	0.50			
15	C	696471.36	789647.63	6.00	29.00	0.00	0.00	0.50			
16	C	696449.41	789654.71	6.00	282.00	5.00	0.00	0.50			
17	C	696468.38	789683.47	6.00	194.00	0.00	0.00	0.50			
18	C	696589.97	789632.62	6.00	271.00	0.00	0.00	0.50			
19	C	696601.05	789647.43	6.00	182.00	0.00	0.00	0.50			
20	C	696599.63	789683.69	6.00	182.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
21	C	696582.23	789703.12	6.00	269.00	0.00	0.00	0.50			
22	C	696544.89	789702.00	6.00	272.00	0.00	0.00	0.50			
23	C	696507.30	789701.74	6.00	272.00	0.00	0.00	0.50			
24	C	696470.13	789701.01	6.00	272.00	0.00	0.00	0.50			
25	B	696452.11	789712.06	6.00	17.00	0.00	0.00	0.50			
26	B	696452.51	789733.53	6.00	355.00	0.00	0.00	0.50			
27	C	696444.92	789741.13	6.00	78.00	0.00	0.00	0.50			
28	C	696484.80	789736.71	6.00	84.00	0.00	0.00	0.50			
29	C	696526.02	789735.55	6.00	90.00	0.00	0.00	0.50			
30	C	696564.53	789737.45	6.00	95.00	0.00	0.00	0.50			
31	C	696602.04	789740.35	6.00	95.00	0.00	0.00	0.50			
32	B	696599.74	789731.35	6.00	181.00	0.00	0.00	0.50			
33	B	696600.22	789705.62	6.00	182.00	0.00	0.00	0.50			
34	C	696618.65	789702.77	6.00	270.00	0.00	0.00	0.50			
35	C	696653.58	789704.06	6.00	271.00	0.00	0.00	0.50			
36	C	696694.99	789703.90	6.00	271.00	0.00	0.00	0.50			
37	C	696681.64	789685.21	6.00	358.00	0.00	0.00	0.50			
38	C	696682.29	789648.31	6.00	1.00	0.00	0.00	0.50			
39	C	696653.62	789623.67	6.00	90.00	0.00	0.00	0.50			
40	C	696622.36	789623.92	6.00	90.00	0.00	0.00	0.50			
41	C	696692.91	789623.75	6.00	89.00	0.00	0.00	0.50			
42	C	696692.66	789607.51	6.00	184.00	0.00	0.00	0.50			
43	C	696692.49	789576.86	6.00	181.00	5.00	0.00	0.50			
44	C	696613.33	789560.73	6.00	359.00	0.00	0.00	0.50			
45	C	696613.97	789530.93	6.00	359.00	0.00	0.00	0.50			
46	C	696614.22	789503.79	6.00	359.00	0.00	0.00	0.50			
47	C	696625.96	789525.48	6.00	101.00	0.00	0.00	0.50			
48	C	696657.19	789532.17	6.00	101.00	0.00	0.00	0.50			
49	C	696687.74	789537.65	6.00	100.00	0.00	0.00	0.50			
50	C	696724.45	789544.55	6.00	101.00	0.00	0.00	0.50			
51	C	696753.87	789552.94	6.00	139.00	0.00	0.00	0.50			
52	C	696748.62	789581.11	6.00	4.00	0.00	0.00	0.50			
53	C	696747.63	789604.85	6.00	1.00	0.00	0.00	0.50			
54	C	696746.26	789625.64	6.00	86.00	0.00	0.00	0.50			
55	C	696720.62	789625.43	6.00	90.00	0.00	0.00	0.50			
56	C	696737.95	789701.22	6.00	257.00	0.00	0.00	0.50			

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
57	C	696779.24	789689.56	6.00	254.00	0.00	0.00	0.50			
58	C	696775.37	789673.21	6.00	74.00	0.00	0.00	0.50			
59	C	696642.40	789743.71	6.00	95.00	0.00	0.00	0.50			
60	C	696681.89	789748.40	6.00	99.00	0.00	0.00	0.50			
61	C	696720.40	789758.44	6.00	106.00	5.00	0.00	0.50			
62	C	696759.61	789771.42	6.00	112.00	5.00	0.00	0.50			
63	C	696622.50	789612.35	6.00	179.00	0.00	0.00	0.50			
64	C	696622.79	789582.40	6.00	179.00	0.00	0.00	0.50			
65	C	696680.19	789548.42	6.00	3.00	0.00	0.00	0.50			
66	C	696572.92	789571.58	6.00	271.00	0.00	0.00	0.50			
67	C	696472.97	789500.96	6.00	289.00	0.00	0.00	0.50			
68	C	696804.66	789789.99	6.00	179.00	0.00	0.00	0.50			
69	C	696791.05	789785.32	6.00	113.00	0.00	0.00	0.50			
70	C	696526.24	789621.49	6.00	90.00	0.00	0.00	0.50			

Horizontal Illuminance (lux)

P4



Results

Eav	5.19
Emin	1.00
Emax	19.95
Emin/Emax	0.05
Emin/Eav	0.19

Horizontal Illuminance (lux)

P4



AXIA 3 Brochure

AXIA 3



Engineered for performance, designed for the customer experience

With customer feedback playing a critical part in our innovative design process, we developed AXIA 3. More than a luminaire, it is a platform delivering sustainability, cost-effectiveness and customer experience all while supporting smart city frameworks. Based on experience from the hundreds of thousands AXIA luminaires installed worldwide, this third generation luminaire pushes the boundaries with photometric innovation, ease and speed of installation and FutureProof connectivity.

Available in three sizes, AXIA 3 enables towns and cities to maximise efficiency when lighting numerous environments, from bike paths, squares and car parks to residential streets, carriageways, urban roads and large boulevards. This lightweight and compact luminaire combines quality of light with a minimal carbon footprint. It excels in easy installation and carefree maintenance, reducing operating costs.



Concept

AXIA 3 is a robust yet compact luminaire, designed with a focus on miniaturisation and superior efficiency. Composed of high-pressure die-cast aluminium, as well as composite materials, AXIA 3 is available in three sizes. Thanks to its reduced weight, this road luminaire is easy to handle during installation. The AXIA 3.1, which can be fitted with up to 16 LEDs, is perfectly suited to low-height applications, whereas AXIA 3.2 and 3.3, with up to 32 or 64 LEDs, are ideal for lighting urban and large roads, carriageways and avenues. The AXIA 3 range is equipped with ProFlex™ photometric engines, providing the highest efficiency thanks to their ability to maximise the lumen output and to provide very extensive light distributions.

AXIA 3 comes pre-cabled, hence there is no need to open the luminaire. The complete range is available with an integrated universal fixation part adapted for post-top and side-entry mounting on various spigots (Ø32mm with adapter, Ø42-48mm, Ø60mm and Ø76mm). The inclination angle can be adjusted on-site for both post-top (-5°/+15°) and side-entry (-10°/+10°) configurations to optimise lighting, reduce power consumption and control light pollution.

This highly efficient, cost-effective and connected-ready luminaire, offers towns and cities the ideal solution to improve lighting levels, increase safety, generate energy savings and reduce their ecological footprint. AXIA 3 is the ideal tool to provide another 25 years of efficiency, sustainability and safety.



The ProFlex™ photometric engine provides the highest efficiency.



The AXIA 3 range has a universal fixation part for spigots ranging from Ø32 to Ø76mm.

TYPES OF APPLICATION

- URBAN & RESIDENTIAL STREETS
- BIKE & PEDESTRIAN PATHS
- RAILWAY STATIONS & METROS
- CAR PARKS
- LARGE AREAS
- SQUARES & PEDESTRIAN AREAS
- ROADS & MOTORWAYS

KEY ADVANTAGES

- Maximised savings in energy and maintenance costs
- ProFlex™ photometric engines offering high efficiency lighting, comfort and safety
- 3 sizes to provide the most accurate solutions for numerous road and urban applications
- Easy installation: pre-cabled and equipped with universal fixation part adapted for side-entry and post-top mounting
- Adjustable inclination for optimised photometry and uniformity
- Connected-ready



The inclination is adjustable on-site for optimised photometry and further energy savings.



AXIA 3 is connected-ready and can operate with various sensors and control systems.



The ProFlex™ photometric engine integrates the lenses into a polycarbonate protector. This integration increases the output and reduces the reflection inside the optical unit. The polycarbonate used for the ProFlex™ photometric engine offers essential characteristics such as high optical clarity for a superior light transmission, better impact resistance compared to glass and a long life span with UV-stabilisation treatment. The ProFlex™ concept enables a compact design with a thin optical compartment. It provides extensive light distributions so that the spacing between the luminaires can be increased.

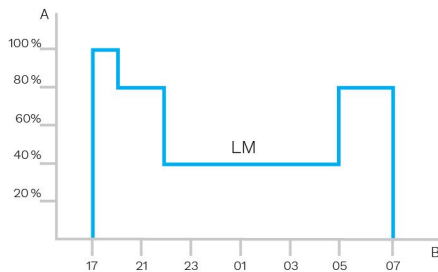




Custom dimming profile

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.

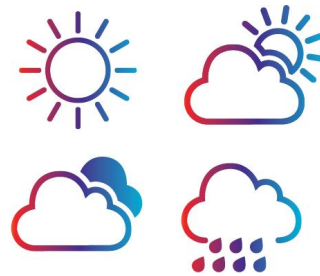


A. Dimming level | B. Time



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 Schröder Bluetooth solution consists of 3 main components:

- A Bluetooth dongle plugged into the modular driver of the luminaire (BLE transceiver)
- A Bluetooth antenna fitted on the luminaire
- A smartphone application called Sirius BLE



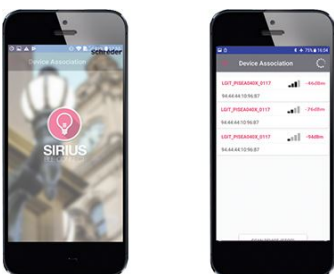
Easy to use

The Schröder Bluetooth solution is ideal for the on-site configuration of individual outdoor luminaires using Bluetooth. From the ground, the user is able to switch the luminaire on or off, adapt the dimming curve, read diagnostic data and much more. A user-friendly application called Sirius BLE provides an easy and secure access to the control and configuration functions.

Whether you are managing a lighting network in an urban or a residential area, this solution will make it easy to control your outdoor luminaires while simply standing by the pole.

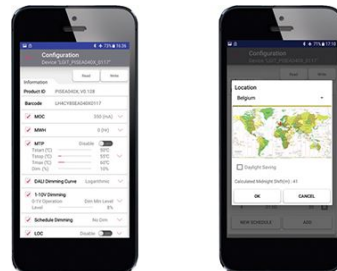
Quick and easy pairing

Get the Sirius App from Schröder. Go to the menu. Press the "SCAN DEVICE (START)" button, to search for the surrounding BLE modules. They will be displayed with a bar graphic (signal intensity) to indicate the closest and the most distant one you can reach. Click on the device you want to connect to and enter your personal access key to control the luminaire.



Defining the settings

Once you are connected to a luminaire, you can set various parameters such as the maximum output current, minimum dimming level and custom dimming profile.



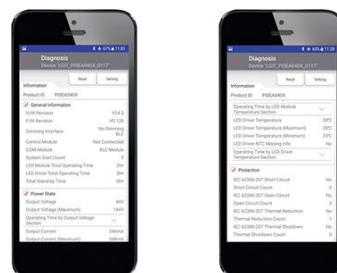
Manual dimming control

The App enables you to do a manual override to adapt the dimming levels instantly. Simply tap on the "Dimming" button in the main menu and adjust the dimming using the wheel and button. Predefined dimming levels can be applied immediately. The corresponding value is displayed on the wheel. This enables you to test the ON / OFF and dimming features of the luminaire paired to the smartphone.



On-site diagnostic

When a luminaire is paired, you can access various diagnostic information: total number of power up events, operation time of LED module and driver, total energy consumption of LED driver... etc. You can also track operating events (short circuits, thermal shutdowns...). The diagnostic values may be the current state or values accumulated to date.





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.

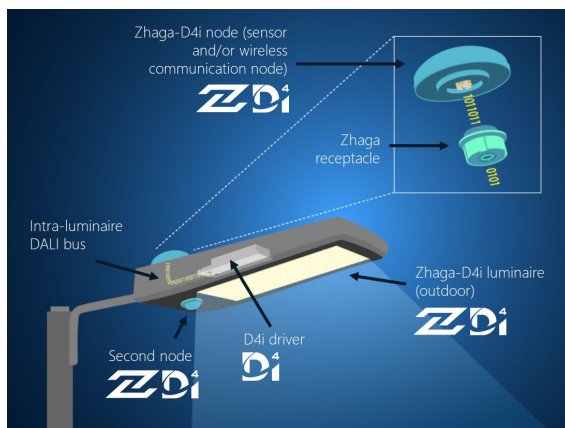
The Zhaga consortium joined forces with the DiiA and produced a single Zhaga-D4i certification that combines the Zhaga Book 18 version 2 outdoor connectivity specifications with the DiiA's D4i specifications for intra-luminaire DALI.

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.





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



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.

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.

GENERAL INFORMATION

Recommended installation height	4m to 12m 13' to 39'
Driver included	Yes
CE mark	Yes
ENEC certified	Yes
ENEC+ certified	Yes
ROHS compliant	Yes
Zhaga-D4i certified	Yes
Testing standard	LM 79-08 (all measurements in ISO17025 accredited laboratory)

HOUSING AND FINISH

Housing	Aluminium Composite materials
Optic	Polycarbonate
Protector	Polycarbonate (with integrated lenses)
Housing finish	Polyester powder coating
Standard colour(s)	RAL 7040 window grey RAL 9005 Jet black
Tightness level	IP 66
Impact resistance	IK 10
Vibration test	Compliant with modified IEC 68-2-6 (0.5G)

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
Power factor (at full load)	0.9
Surge protection options (kV)	10
Electromagnetic compatibility (EMC)	EN 55015 / EN 61000-3-2 / EN 61000-4-5 / EN 61547
Control protocol(s)	Bluetooth, DALI
Control options	Bi-power, Custom dimming profile, Photocell, Remote management
Socket	Zhaga (optional) NEMA 3-pin (optional) NEMA 6-pin (optional) NEMA 7-pin (optional)
Associated control system(s)	Sirius BLE Schröder EXEDRA
Sensor	PIR (optional)

OPTICAL INFORMATION

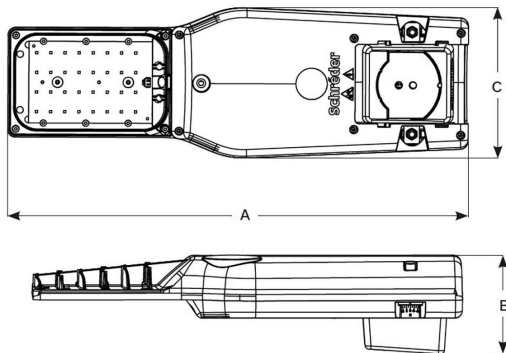
LED colour temperature	2700K (Warm White 727) 3000K (Warm White 730) 4000K (Neutral White 740)
Colour rendering index (CRI)	>70 (Warm White 727) >70 (Warm White 730) >70 (Neutral White 740)
Upward Light Output Ratio (ULOR)	0%

LIFETIME OF THE LEDS @ TQ 25°C

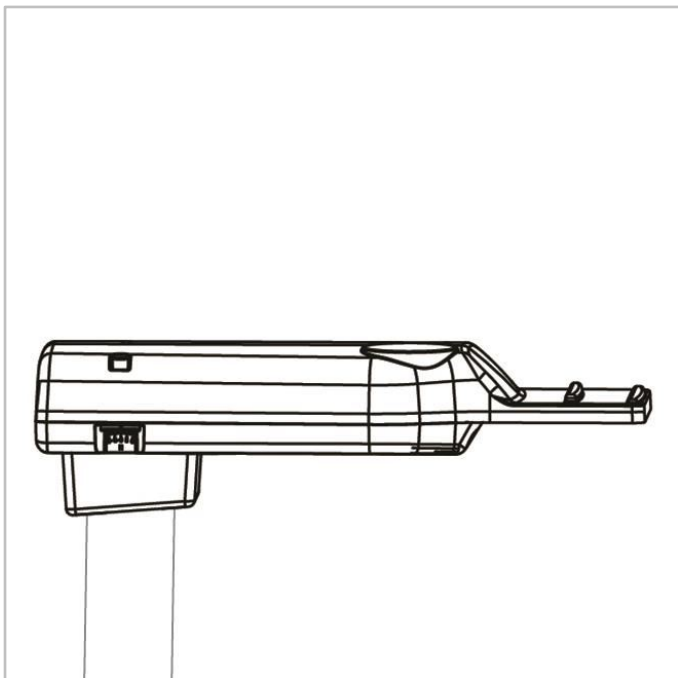
All configurations	100,000h - L90
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DIMENSIONS AND MOUNTING

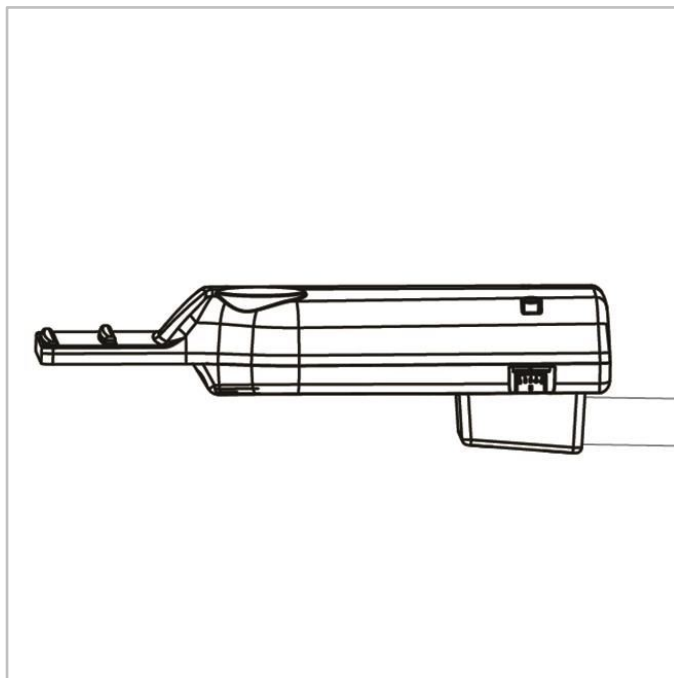
AxBxC (mm inch)	AXIA 3.1 - 513x130x191 20.2x5.1x7.5 AXIA 3.2 - 585x130x191 23.0x5.1x7.5 AXIA 3.3 - 550x130x277 21.7x5.1x10.9
Weight (kg lbs)	AXIA 3.1 - 3.6 7.9 AXIA 3.2 - 4.8 10.6 AXIA 3.3 - 6 13.2
Aerodynamic resistance (CxS)	AXIA 3.1 - 0.03 AXIA 3.2 - 0.03 AXIA 3.3 - 0.04
Mounting possibilities	Side-entry slip-over - Ø32mm Side-entry slip-over - Ø42mm Side-entry slip-over - Ø48mm Side-entry slip-over - Ø60mm Post-top slip-over - Ø60mm Post-top slip-over - Ø76mm



AXIA 3 | Post-top - Slip-over mounting for
Ø60 or Ø76mm spigot - 2xM10 screws



AXIA 3 | Side-entry - Slip-over mounting for
Ø32 (with accessory) or Ø42-60mm spigot -
2xM10 screws





Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Neutral White 740		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max		
AXIA 3.1	8	300	600	1000	700	1000	700	1100	8.4	8.4	131	
	8	400	800	1300	900	1400	900	1500	11	11	136	
	8	600	1200	1900	1300	1900	1300	2100	16.6	16.6	127	
	8	700	1400	2100	1400	2200	1500	2400	19.4	19.4	124	
	8	850	1600	2500	1700	2600	1800	2800	22.8	22.8	123	
	16	200	900	1400	900	1400	1000	1500	11.2	11.2	134	
	16	300	1300	2000	1400	2100	1500	2300	16.1	16.1	143	
	16	480	2000	3100	2100	3200	2300	3500	25.5	25.5	137	
	16	500	2100	3200	2200	3400	2300	3600	25.5	25.5	141	
	16	600	2400	3800	2600	3900	2700	4200	30.8	30.8	136	
	16	700	2800	4300	2900	4500	3100	4800	35.6	35.6	135	
	16	870	3300	5100	3500	5300	3700	5700	44	44	130	

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



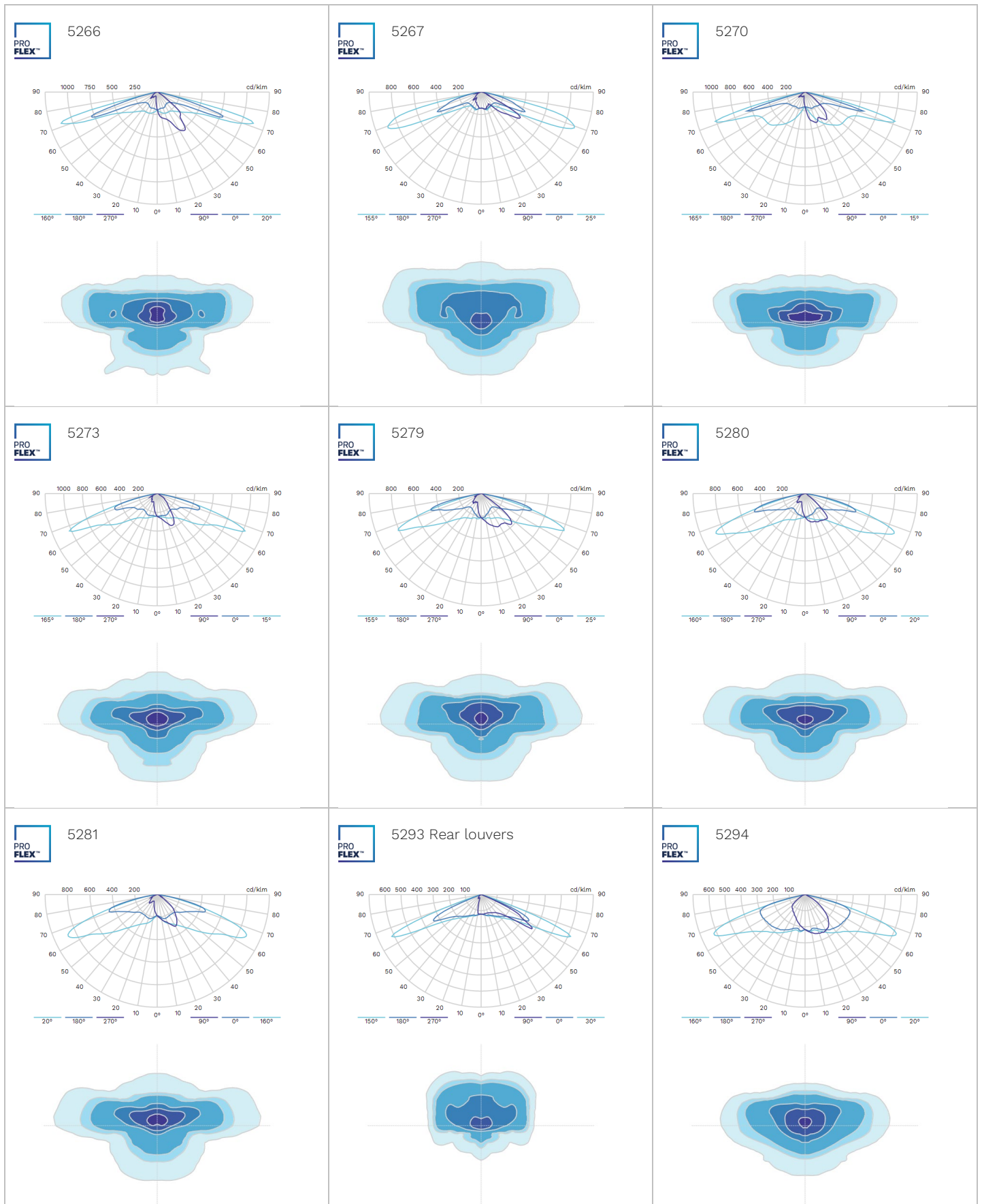
Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Neutral White 740		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max		
AXIA 3.2	24	200	2000	2100	2100	2200	2200	2300	15.3	15.3	150	
	24	300	2900	3000	3100	3200	3300	3400	22.4	22.4	152	
	24	400	3800	3900	4000	4100	4300	4400	29.7	29.7	148	
	24	500	4600	4800	4800	5000	5200	5400	37.2	37.2	145	
	24	590	5400	5500	5600	5800	6000	6200	44	44	141	
	24	700	6200	6400	6400	6700	6900	7100	52.5	52.5	135	
	24	800	6800	7100	7100	7400	7600	7900	60	60	132	
	24	900	7500	7700	7800	8100	8400	8700	67.5	67.5	129	
	24	1000	8100	8400	8400	8700	9000	9300	75	75	124	
	32	200	2700	2800	2800	2900	3000	3100	19.8	19.8	157	
	32	300	3900	4100	4100	4200	4400	4500	29.5	29.5	153	
	32	450	5700	5900	5900	6100	6300	6600	44.5	44.5	148	
	32	500	6200	6400	6500	6700	6900	7200	49	49	147	
	32	600	7300	7500	7600	7800	8100	8400	59	59	142	
	32	700	8200	8500	8600	8900	9200	9500	69	69	138	
	32	800	9100	9500	9500	9900	10200	10600	78	78	136	

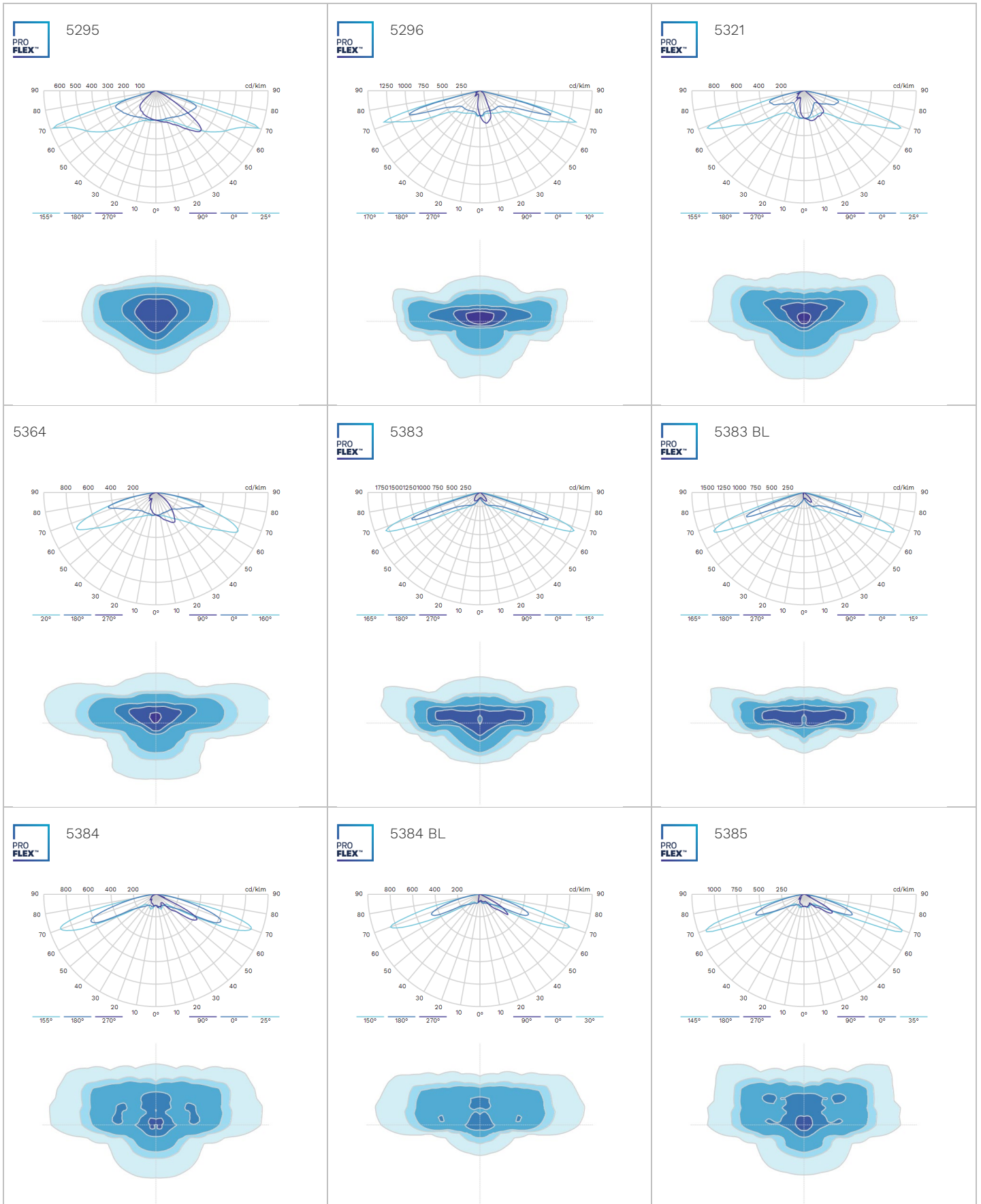
Tolerance on LED flux is ± 7% and on total luminaire power ± 5 %

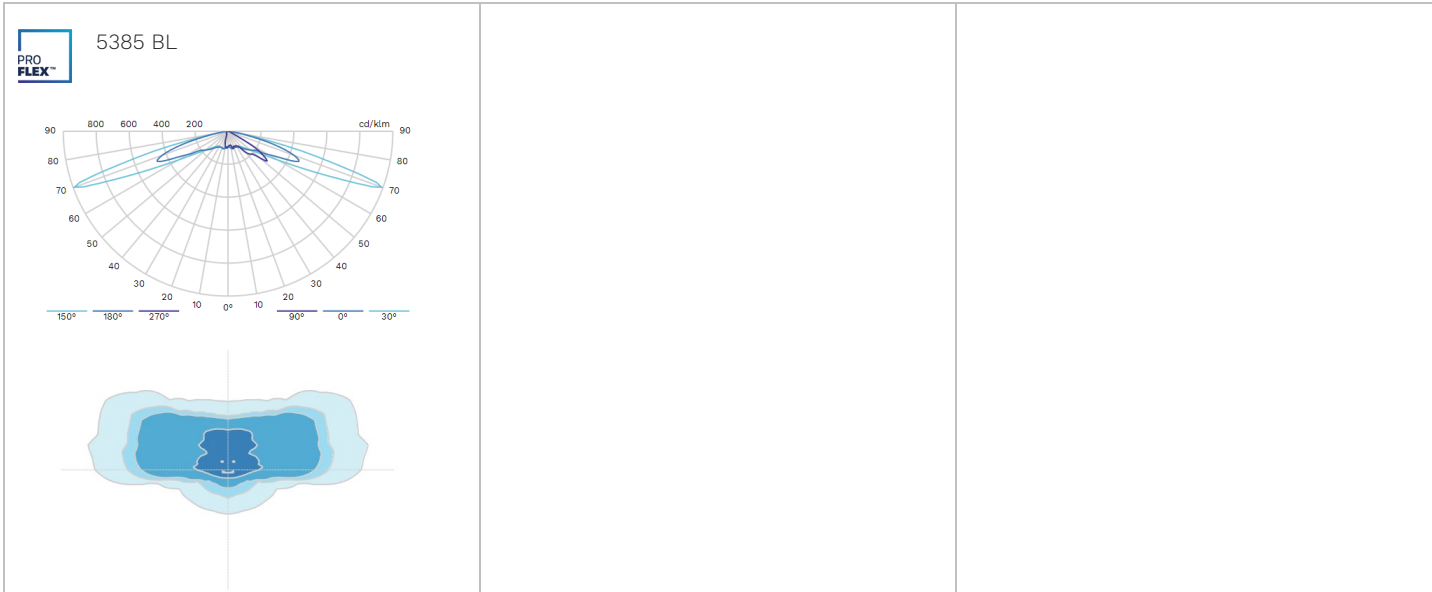


Luminaire	Number of LEDs	Current (mA)	Luminaire output flux (lm) Warm White 727		Luminaire output flux (lm) Warm White 730		Luminaire output flux (lm) Neutral White 740		Power consumption (W)		Luminaire efficacy (lm/W)	Photometry
			Min	Max	Min	Max	Min	Max	Min	Max	Up to	
AXIA 3.3	48	200	4000	4200	4200	4300	4500	4600	28.6	28.6	161	
	48	300	5900	6100	6100	6400	6600	6800	42.5	42.5	160	
	48	400	7600	7900	8000	8300	8500	8900	57	57	156	
	48	550	10000	10400	10400	10900	11200	11600	79	79	147	
	48	600	10700	11200	11200	11700	12000	12500	86	86	145	
	48	700	12100	12600	12600	13200	13500	14100	100	100	141	
	48	800	13300	13900	13900	14500	14900	15500	115	115	135	
	48	880	14200	14800	14900	15500	15900	16600	129	129	129	
	64	200	5300	5600	5600	5800	6000	6200	37.7	37.7	164	
	64	300	7800	8200	8200	8500	8800	9100	56.5	56.5	161	
	64	420	10600	11100	11100	11500	11900	12400	79	79	157	
	64	500	12300	12900	12900	13400	13800	14400	94	94	153	
	64	600	14300	14900	15000	15600	16000	16700	113	113	148	
	64	700	16200	16800	16900	17600	18100	18800	137	137	137	
	64	880	19000	19800	19800	20600	21200	22100	172	172	128	

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







IZYLUM Lumen Maintenance Report

Lumen maintenance report

LED information

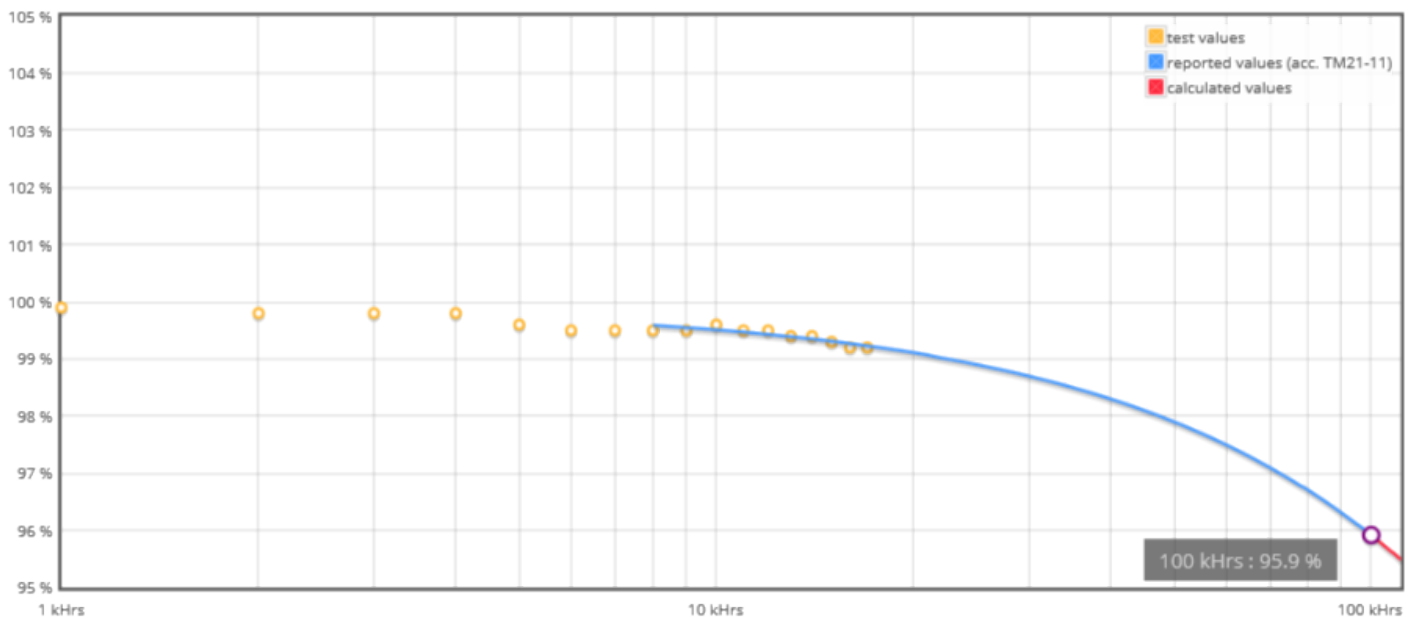
LED type	OSLON Square
LED current	1050 mA
Ts	105°C
Description	190146W6 OSRM27-2-E3-220 14/02/2020

Projection data

Test duration	17000 hrs	α	4.086E-007
Time used for projection	8000 to 17000hrs	β	0.999

L (%)	Time (kHrs)
95.9	100

Projection graphic



LxB50 results according to LM-80 and TM-21-11 procedures and norms.

LxBy results derived from LxB50 according to IEC 62717 Annex C.

Urbis Schreder LED Warranty

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Warranty – ROAD, URBAN & STREET LIGHTING Schröder Group LED Luminaires

1. GENERAL TERMS

A. Scope

The warranty set forth below is provided by SCHREDER with respect to SCHREDER® branded LED luminaires designed for Road and Street Lighting purposes and sold by SCHREDER worldwide (hereinafter referred to as "Products") to its direct customers (hereinafter referred to as: "Customers").

This warranty is effective for purchases of Products on or after the effective date set forth below. SCHREDER reserves the right to change this warranty without prior notice. Any such change shall be effective for all orders placed with SCHREDER on or after the effective date of such change.

B. Warranty Coverage

SCHREDER warrants that each Product will be free from defects in materials and workmanship subject to all conditions and limitations contained in this warranty for a period of ten (10) years for the luminaires listed in the Appendix and for a period of five (5) years for all other Products (hereinafter referred to as: "Warranty Period"), from the date of invoice.

SCHREDER also warrants the luminous performances of its Products during the Warranty Period. During the Warranty Period and subject to all conditions and limitations contained in this warranty the luminous flux will be maintained at a level of at least 80% of the initial nominal flux¹ mentioned in the datasheet or SCHREDER application study with a supply at nominal current, provided that the average nighttime ambient temperature does not exceed the rated Tq performance temperature and taking into account a tolerance of 5% on the drivers' nominal current.

This warranty is granted only for Products switched on/off on a daily basis with an average annual utilization of 4.200hours and used in accordance with their technical specifications and installation instructions.

Official photometrical measurements can only be carried out by SCHREDER or by a mutually agreed accredited laboratory with a protocol defined by SCHREDER.

In case of defective Products determined as such by SCHREDER and determined by SCHREDER to be

covered by this warranty, SCHREDER shall at its sole

discretion repair or replace such Products. If a Product has been discontinued or is not available for any other reason, SCHREDER may propose an alternative product.

2. LIMITATIONS AND CONDITIONS

This warranty is strictly limited to the Products delivered by SCHREDER. All other costs (e.g. dismounting, freight for defective parts or Products, removal and reinstallation, transport time, tools for lifting and scaffolding or other costs coming from an installation breakdown, as well as all costs or damages that are consequential, special, incidental or pure financial damages such as loss of revenue/profits, damage to property, work stoppage, idle assets, loss of production, costs incurred by closed roads, road signs, traffic deviations etc.) are explicitly excluded and SCHREDER shall not be liable for injury to any person or damage to property.

The Customer must demonstrate that any default, defect or damage to a Product or part thereof does not result from or is not directly or indirectly caused by any error, default, neglect, abuse, misuse or abnormal use by the Customer including without limitation the Customer's failure to comply with any of the following conditions or requirements:

- In every case, the Customer has properly transported the Product using the original packaging;
- The Customer has consistently stored, installed, used and maintained the Product in compliance with SCHREDER specifications, guidelines, and instructions and, where applicable, IEC standards;
- The Customer has only used the Product for a purpose that was intended by SCHREDER;
- The Product has consistently been wired, installed and operated within the electrical values, operating range and environmental conditions in compliance with SCHREDER specifications, application guidelines, IEC standards or any other document accompanying the Product;
- The Product has not been subjected to mechanical loads which are inconsistent with its intended use;
- The Product has not been exposed to ambient temperatures in excess of the lower of $T_a = 45^{\circ}\text{C}$ (integrity, safety temperature) or the maximum value specifically rated by SCHREDER;
- Neither the Customer nor anyone other than SCHREDER has repaired, replaced, adjusted or altered any Product and/or any part thereof, without

¹ L80 B10 means that a minimum of 80% of the initial luminaire luminous flux will be maintained for a period that corresponds at least to the Warranty Period for the maximum ambient nighttime temperature.

The probability ratio B10 indicates that minimum 90 % of the luminaires in a given installation will meet the specified lumen maintenance level.

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- SCHREDER's prior and written consent and authorization;
- The not accessible/sealed parts, e.g. optical compartments, of the Product have not been opened by the Customer without SCHREDER's prior and written authorization;
- The Product has not been improperly manipulated and/or put into contact with chemical products.

This warranty does not apply to:

- damage or failure to perform arising as a result of a force majeure or from any violation of any applicable standard or regulation, including without limitation those contained in the latest safety, industry and/or electrical standards and regulations applicable to the Customer;
- failure in performance, structural defect or functional deficient when SCHREDER has complied in full with the Customer's written briefs, drawings or specifications which subsequently are found to be inadequate, incomplete or defective;
- damage or failure to perform arising as a result of electrical supply conditions, including spikes, over-voltage/under-voltage and ripple current control systems that are beyond the specified limits of the Product and those defined by relevant suppliers or contrary to industry standards relating to acceptable input power;
- any acts of nature such as lightning damage or corrosion should the corrosion be the result of external causes or factors (e.g. chemical products);
- additional control gears e.g. telemanagement;
- parts, elements and/or accessories added to the Product after its delivery;
- normal wear and tear of the Product.

Should the Product be installed in a corrosive environment, notably seaside or chemical site, the Customer must inform SCHREDER, which shall prescribe necessary precautions like additional, specific treatment and painting that the Customer should comply with, including the regular respect of the prescribed maintenance actions during the course of operation.

3. NO IMPLIED OR OTHER WARRANTIES

The warranties explicitly granted in this warranty are the only warranties given by SCHREDER in connection with the Products supplied to its Customers and are given in lieu of all other warranties, whether express or implied, including without limitation warranties of merchantability, fitness for a particular purpose, or non-infringement of intellectual property rights, all of which are hereby disclaimed.

In no event shall the liability of SCHREDER for all claims made under this warranty with respect to a Product item exceed the total payments made by the Customer for that Product item. Moreover the Customer shall not be entitled

to request and/or claim any payment extensions, price reductions or the termination of the supply contract if any.

No agent, distributor or dealer is authorized to change, modify or extend the terms of this warranty on behalf of SCHREDER.

4. WARRANTY CLAIMS

The Customer must immediately notify SCHREDER of a possible claim in writing within thirty (30) calendar days from discovery of the defect or damage and, in any event within the Warranty Period, and give in such notification details of the defect or damage, including without limitation:

- Installation characteristics (location, street, number of Products affected, relevant installation details, etc.)
- Manner in which and environment circumstances under which the Products have been used
- Name, variant, model and serial numbers (if available) of the defective Products
- Copy of the invoice and delivery note
- Installation date
- Detailed problem description.

A Customer may only ship a defective Product back to SCHREDER if SCHREDER has issued an RMA (Return Material Authorization) for that Product.

SCHREDER representatives shall be granted the right to access the defective Product prior to its disassembly and/or power grid to which the Product was connected for verification. Any restriction to this right will release SCHREDER from its warranty obligations hereunder with respect to the affected Product. Damaged parts, debris etc. should not be disposed of until written authority is given by SCHREDER.

Non-conforming or defective Products or parts shall become SCHREDER's property as soon as they have been replaced.

If after issuance of an RMA, SCHREDER determines that the Customer has no warranty protection for the Product(s) shipped under the RMA, SCHREDER is entitled to charge the Customer the costs that it incurs in inspecting the Product(s) and determining whether it is eligible for warranty coverage.

The Warranty Period for replaced or repaired part or Product shall be the remainder, if any, of the initial Warranty Period for the repaired or replaced part or Product.

Effective Date: January 2021

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**APPENDIX of the Warranty
ROAD & STREET LIGHTING
Schröder Group LED Luminaires
List of luminaires to which applies
a ten (10) year warranty period**

AXIA
TECEO
PIANO
AMPERA
DEXO
YOA
OMNISTAR (Imax = 700mA)
PILZEO
STYLAGE
FRIZA
VALENTINO
RIVARA
HAPILED