BEKA Schréder

Experts in lightability™

LEDlume®

LED solution for an optimised investment

owlet®

LENSO FLEX® 2

LEDlume

IP 66

Up to IK 10

Up to 20kV

LEDlume-mini

LEDlume-midi

LEDlume-maxi

SA Pat. 2012/07685

A profitable investment

The LEDlume range offers optimised photometrical performance with a minimum total cost of ownership. It provides customers with the ideal tool to generate energy savings, improve lighting levels and reduce maintenance costs. The great variety of high-performance optics optimises the photometric distribution for each specific application to achieve minimum energy consumption.

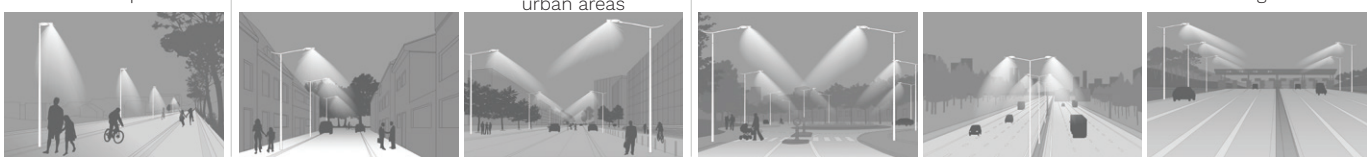
The LEDlume range offers flexible combinations of LED modules, a choice of currents and dimming options to further maximise energy savings and provide the most cost-effective solution.

Key advantages

- Designed and manufactured in South Africa
- Designed to operate LED light sources of up to 276W in an ambient temperature (Tq) environment of up to 25˚C, without reducing the useful lifetime of 100 000 hours, at a lumen depreciation of not more than 10% (L90)
- Possible energy savings of more than 70% (*)
- Designed for easy technology upgrade (FutureProof)
- Easy to install
- Unsurpassed light uniformity
- 5 year warranty (**)

(*) Combined with controls
(**) Terms and conditions apply

PEDESTRIAN AREAS	STREETS		ROADS		
Streets, paths and bike paths	Residential streets	Shared zones, commercial streets in urban areas	Rural roads	Urban roads	Motorways and ring roads



Conventional lighting substitute

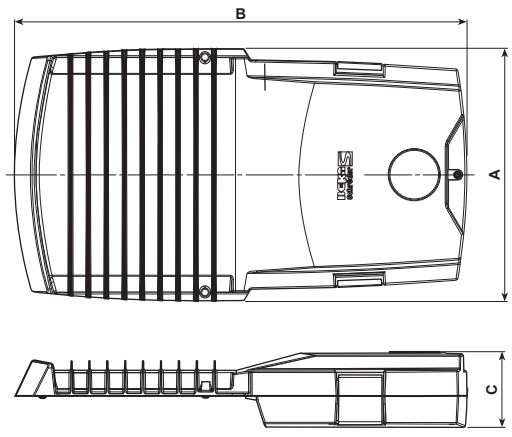
50W HPS	70W HPS	150W HPS	250W HPS	400W HPS

Characteristics

GENERAL INFORMATION	
Recommended installation height	4m to 15m
FutureProof	Easy replacement of the photometric engine and electronic assembly on-site
Driver included	Yes
ROHS compliant	Yes
Testing standard	SANS 60598, SANS 62262

HOUSING AND FINISH	
Housing	Marine grade aluminium (EN 1706 AC-44300)
Optic	Acrylic PMMA
Protector	High-impact clear glass
	High-impact polycarbonate (optional)
Housing finish	Unpainted aluminium
Tightness level	IP 66
Impact resistance	High-impact clear glass: IK 07
	High-impact polycarbonate: IK 10
Access for maintenance	Easy access to the gear compartment by means of a hinging mechanism

DIMENSIONS AND MOUNTING	
AxBxC (mm)	Mini: 235x450x88
	Midi: 345x618x104
	Maxi: 386x835x103
Weight (kg)	Mini: 4.55
	Midi: 10
	Maxi: 13
Aerodynamic resistance (CxS) (m^2)	Mini: 0.026
	Midi: 0.03
	Maxi: 0.045
Standard mounting (mm)	Slip-over side-entry Ø42
Spigot length (mm)	≥ 125



ELECTRICAL INFORMATION	
Electrical class	EU class I or II
Nominal voltage	198-264V – 50Hz
Power factor	> 95% at full load
Surge protection	10kV / 10kA
	20kV / 20kA (optional)
Electromagnetic compatibility (EMC)	SANS 55015:2013/A1:2015, SANS 61000-3-2:2014, SANS 61000-3-3:2013, SANS 61547:2009, SANS 62493:2015

OPTICAL INFORMATION	
LED colour temperature	4000K (Neutral white)
Colour rendering index (CRI)	≥ 70
Upward Light Output Ratio (ULOR)	0%
Standard optic	5102 (major road)

OPERATING CONDITIONS	
Operating temperature range (Ta)	-35°C up to +40°C (*)

(*) Depending on the luminaire inclination and driving current. For more details, please contact us.

LIFETIME OF THE LEDS @ TQ 25°C	
For all versions	100,000h - L90B10

LIFETIME OF THE DRIVER @ TQ 25°C	
For all versions	100,000h ≤10% failure rate

For options and accessories, please turn to page 11.

Performance

				Nominal flux (lm) (*)	Power consumption (W)	Nominal efficacy (lm/W)	Luminaire output flux (lm)	Luminaire efficacy (lm/W)	Photometry
Luminaire	Number of LEDs	Current (mA)	Line Current (A)	Typical	Typical	Typical	Typical	Typical	
LEDlume-mini	8	350	0.05	1416	10	142	1175	118	LENSO FLEX® 2
	8	500	0.06	1982	14	142	1645	118	
	8	700	0.09	2631	20	132	2184	109	
	8	1000	0.13	3498	29	121	2903	100	
	16	350	0.09	2832	19	149	2351	124	
	16	500	0.12	3877	26	150	3218	124	
	16	700	0.16	5157	37	140	4280	116	
	16	1000	0.24	6995	55	128	5806	106	
LEDlume-midi	24	350	0.12	4248	27	158	3526	131	LENSO FLEX® 2
	24	500	0.17	5820	38	154	4831	127	
	24	700	0.24	7676	54	143	6371	118	
	24	1000	0.36	10493	81	130	8709	108	
	32	350	0.16	5664	35	162	4701	134	
	32	500	0.22	7760	50	156	6441	129	
	32	700	0.31	10235	70	147	8495	121	
	32	1000	0.47	13990	108	130	11612	108	
	48	350	0.23	8496	52	164	7052	136	
	48	500	0.32	11538	73	158	9577	131	
	48	700	0.46	15157	104	146	12580	121	
	48	1000	0.71	20985	162	130	17418	108	
	64	350	0.3	11328	68	167	9402	138	
	64	500	0.43	15429	97	159	12806	132	
	64	700	0.6	20345	138	148	16886	122	
LEDlume-maxi	80	350	0.37	14160	84	169	11753	140	LENSO FLEX® 2
	80	500	0.53	19272	121	160	15996	132	
	80	700	0.76	25049	174	144	20791	119	
	96	350	0.45	16992	103	165	14103	137	
	96	500	0.65	23126	148	157	19195	130	
	96	700	0.91	30195	208	146	25062	120	
	128	350	0.59	22656	135	168	18804	139	
	128	500	0.85	30790	194	159	25556	132	
	128	700	1.2	40078	276	146	33265	121	

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

(*) The nominal flux is an indicative LED flux @ Tj 25°C based on LED manufacturer's data. The real flux output of the luminaire depends on environmental conditions (e.g. temperature and pollution) and the optical efficiency of luminaire. The type of LED used is subject to change due to the ongoing rapid progress taking place in LED technology.

Key Features

The luminaire consists of an LED engine, power supply and spigot compartment. This allows the easy installation of the LED engine by means of a hinging action onto a spigot base casting.

Surge protection:
10kV/10kA
Optional: 20kV/20kA

Optional:
A tamper-proof screw ensures controlled access by means of a special coded tool

The power supply is automatically disengaged when opening the luminaire.

The electronic power supply is suitable for operation with a 198-264V 50Hz single phase system. (DC versions are available). The power factor is rated at ≥0,95. The efficiency is rated 89%.

Theft prevention by internal spigot fixation

Side entry
ø42mm * 125mm

Levelling device

Secured by stainless steel latches and access screw

The LED engine, consisting of the LED light source and the power supply, can be easily replaced or upgraded.

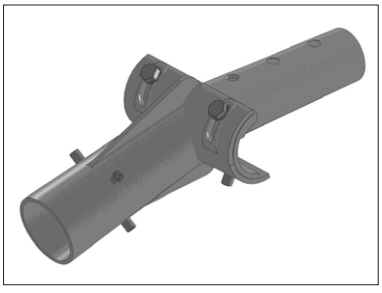
Electronic temperature monitoring prevents overheating of LEDs and power supply.

The luminaire housing is manufactured of marine-grade aluminium.

Each LED is equipped with a lens to provide the desired light distribution.

The protector is manufactured from high-impact clear flat glass or polycarbonate.

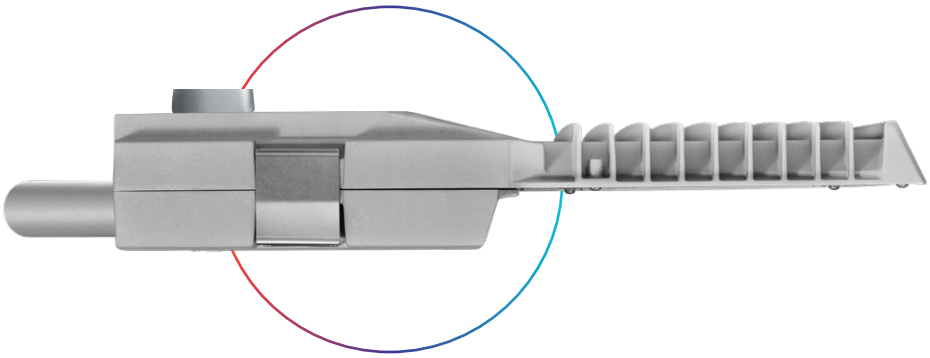
To maximize the reliability of the LEDs, the photometrical engine is completely sealed to IP 66. This ensures that the photometric performance is maintained over time.



Optional levelling spigot adaptor:
Ø42mm spigots

Integrated vent (breather) for rapid pressure equalisation and reduction of condensation

Case Study: 250W HPS Comparison



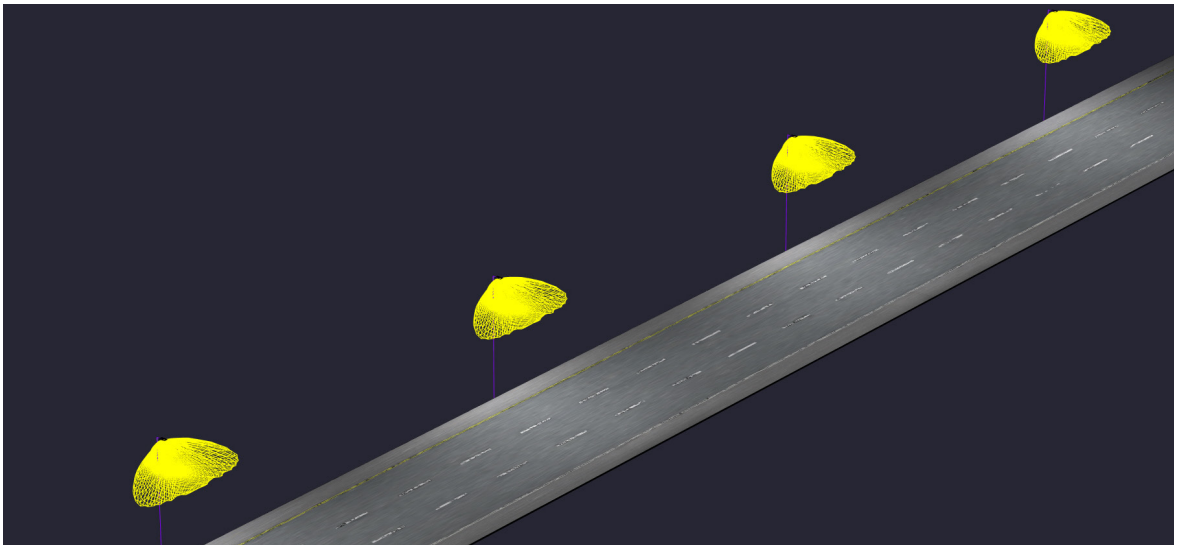
Specifications

Road: A3 classified road + 2m setback
Luminaire spacing: 36m
Road width: 10.5m
Height: 7m

Comparing a 250W HPS to a LEDlume-midi street light installation

The LEDlume-midi provides a 50% energy saving compared to a 250W high-pressure sodium luminaire, while fully meeting the road light level requirements.

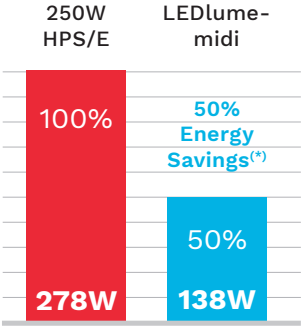
Furthermore, a much better colour rendering index is provided, thereby enhancing the safety and visibility of pedestrians and road users.



	A3 Requirements (No median 600 or with median 900)	Luminaire fitted with 250W High-Pressure Sodium Lamp	LEDlume-midi 64 LED
Luminaire power consumption (W)	-	278	138
Spacing between luminaires (m)	-	27	36
Average luminance (cd/m^2)	At least 1.0	1.12	1.12
Global uniformity - U_0 (%)	At least 1.0	42	52
Longitudinal uniformity - U_l (%)	At least 1.0	83	83
Glare - TI (%)	Less than 20	8.7	5.8
Power consumption per km (W)	-	7,722	3,833

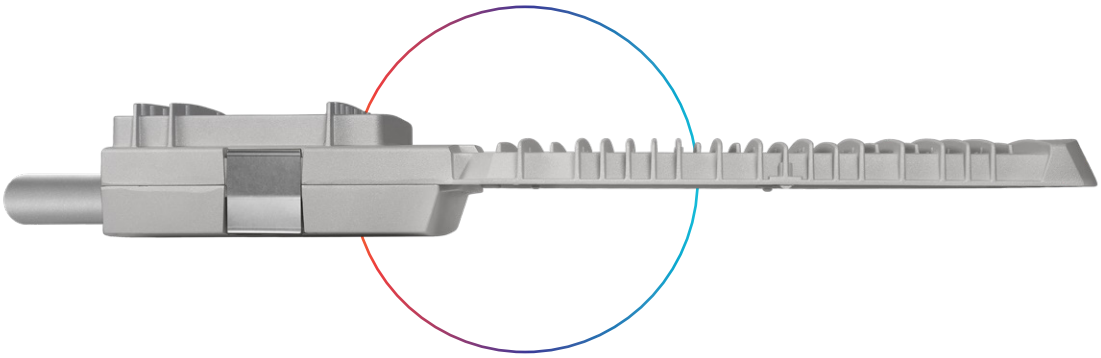
Detail on lighting design comparison available on request.

Energy Savings



(*)Optic 5139, optimised design based on specifications

Case Study: 400W HPS Comparison



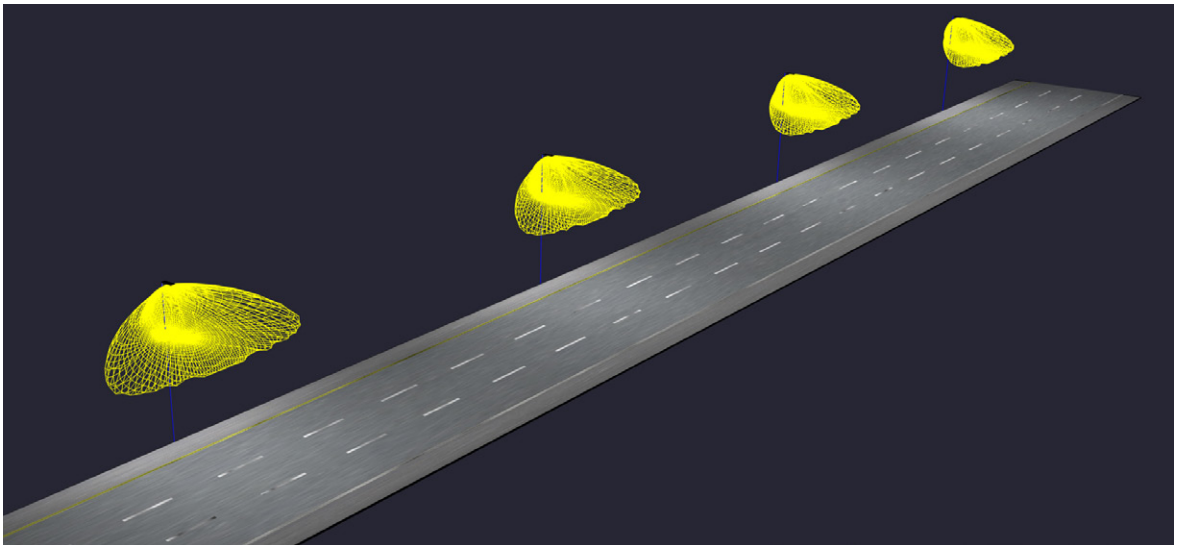
Specifications

Road: A1 classified road + 2m setback
Luminaire spacing: 36m
Road width: 10.5m
Height: 10m

Comparing a 400W HPS to a LEDlume-maxi street light installation

The LEDlume-maxi provides a 36% energy saving compared to a 276W high-pressure sodium luminaire, while fully meeting the road light level requirements.

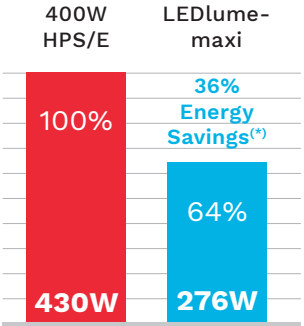
Furthermore, a much better colour rendering index is provided, thereby enhancing the safety and visibility of pedestrians and road users.



	A1 Requirements (No median 600 or with median 900)	Luminaire fitted with 400W High-Pressure Sodium Lamp	LEDlume-maxi 128 LED
Luminaire power consumption (W)	-	430	276
Spacing between luminaires (m)	-	27	36
Average luminance (cd/m²)	At least 1.0	2.3	2.2
Global uniformity - U_0 (%)	At least 1.0	42	52
Longitudinal uniformity - U_l (%)	At least 1.0	73	83
Glare - TI (%)	Less than 20	9.4	6.7
Power consumption per km (W)	-	11,944	7,667

Detail on lighting design comparison available on request.

Energy Savings



(*)Optic 5139, optimised design based on specifications. Additional savings can be generated by integrating Owlet smart control systems.

Owlet IoT

The ultimate city management system

Owlet IoT remotely controls luminaires in a lighting network, creating opportunities for improved efficiency, accurate real-time data and energy savings of more than 70%.

All-In-One

Integrated features

The LUCO P7 CM controller includes the most advanced features for an optimised asset management. It also provides an integrated photocell and operates with an astronomical clock for seasonal dimming profile adaptations.

Easy To Deploy

Quick installation

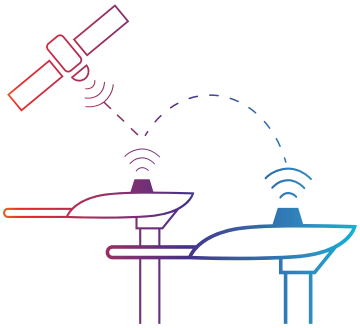
Thanks to wireless communication, no cabling is needed. The network is not subject to physical constraints or limitations.

FutureProof and scalable

From a single control unit to an unlimited network, you can expand your lighting scheme at any time.

Plug+Play

With real-time geolocation and an automatic detection of the luminaire features, the commissioning is quick and easy.



User-Friendly

Automatic asset location

Once a controller is installed on a luminaire, the luminaire automatically appears with its GPS coordinates on a web-based map.

Personalised dashboard

An easy-to-use dashboard enables each user to organise and customise screens, statistics and reports. Each user can gain relevant, real-time insights.

Responsive interface

The Owlet IoT web application can be accessed at all times from anywhere in the world with a device connected to the Internet. The application adapts to the device to offer an intuitive and user-friendly experience.

Notification system

Real-time notifications can be pre-programmed to monitor the most important elements of the lighting scheme.

Secure

Redundant communication

The Owlet IoT system uses a local wireless mesh communication between the luminaires for instant reactions on-site combined with a remote control system utilising the cloud to ensure smooth data transfer to and from the central management system.

Encrypted data

The system uses encrypted IP V6 communication to protect data transmission in both directions. Using a secure APN, Owlet IoT ensures a high level of protection.

Fall-back scenario

In the exceptional case of a communication failure, the built-in astronomical clock and photocell will take over to switch the luminaires on and off, thus avoiding a complete blackout at night.

Efficient

Adaptive dimming scenarios

Thanks to sensors and/or pre-programmed settings, the lighting scenarios can be easily adapted to cope with live events, thus providing the right lighting levels at the right time and in the right place.

Accurate data

The integrated utility grade meter offers the highest accuracy available on the market today enabling decisions based on real figures.

Valuable asset management

Accurate real-time feedback and clear reporting ensures that the network operates efficiently and that maintenance is optimised.

Protected electrical grid

When LED luminaires are switched on, the massive inrush current can create problems for the electricity grid. Owlet IoT incorporates an algorithm to preserve the grid at all times.

Open

Based on industry standards

The LUCO P7 CM controller can be plugged onto the standard 7 pin NEMA socket and operates through either a DALI or 1-10V interface to control the luminaire.

IoT ready

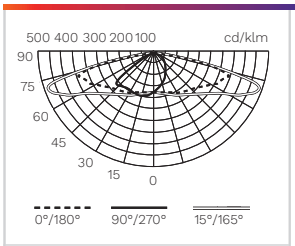
Owlet IoT is based on the IPv6 protocol. This method for addressing devices can generate an almost unlimited number of unique combinations to connect non-traditional components to the Internet or computer network.

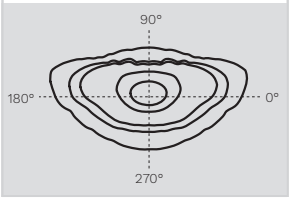
Third party

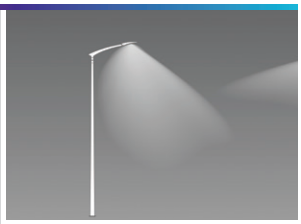
Through open APIs, Owlet IoT can be integrated into existing or future global management systems.

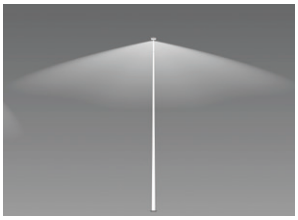
Light Distributions

5248 optic

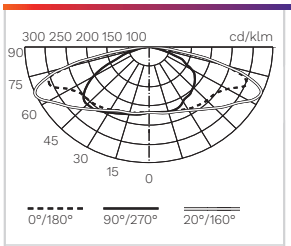


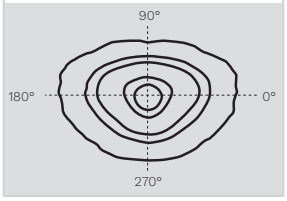


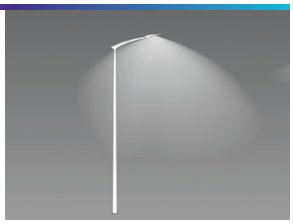


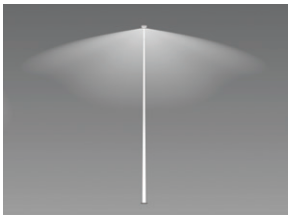


5068 optic

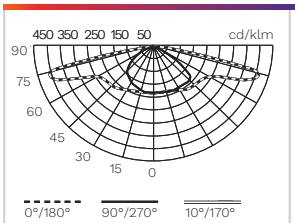


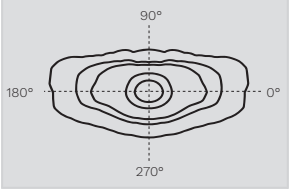


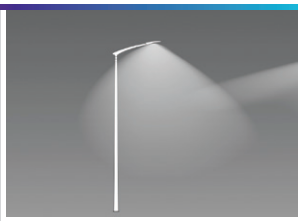


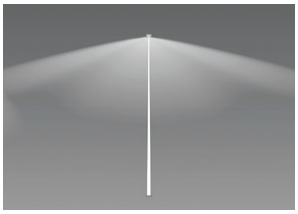


5112 optic

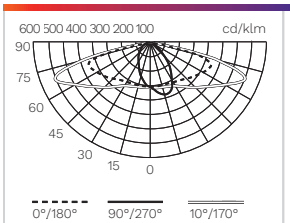


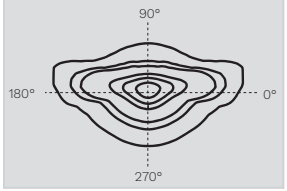


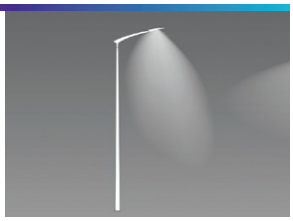


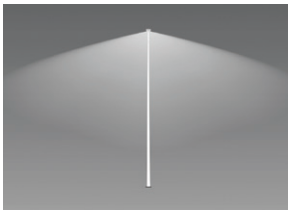


5140 optic









LensoFlex®2

LensoFlex®2 is based upon the addition principle of photometric distribution. Each LED is associated with a specific PMMA lens that generates the complete photometric distribution of the luminaire.

It is the number of LEDs in combination with the driving current that determines the intensity level of the light distribution.

The proven LensoFlex®2 concept includes a glass protector to seal the LEDs and lenses into the luminaire body.

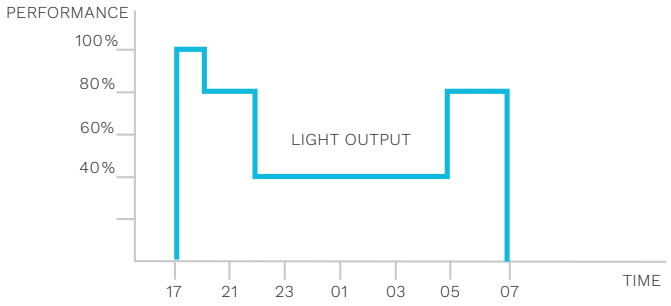
Key characteristics

- Protector: glass
- LED type: high-power 2mm²
- Lenses: PMMA
- Back light control: added to the lenses as an option

Switching/dimming control

Optidim

Intelligent luminaire drivers can be programmed in the factory with complex dimming profiles. Up to 5 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.



Daylight switch

Our solutions can be managed by photoelectric sensors that switch on the luminaires exactly when natural light becomes insufficient (cloudy day, night fall...) so as to provide safety and comfort in the public space.

Ordering Information

Example:

LEDlume-md 64138 N 5068 A1 G NRT4

ID	LED	Watt	LED Colour	Optic*	Colour options	Surge Protection	Protector	Switching/dimming control	Other options / accessories
LEDlume-mi	8	10	**N** Neutral White (4000K) **W** Warm white (3000K) **C** Cool white (5700K)	5068 5098 5112 5117 5119 5120 5121 5139 5140 5188 5244 (5136**) 5245 (5137**) 5247 (5138**) 5248 (5118**)	**A** Aluminium finish (unpainted) **S** Pearl Light Grey (RAL 9022), Textured finish **B** Black (RAL9017), Textured finish **W** White (RAL9003), Textured finish **O** Painted Other (RAL / Finish [Brilliant/Matt])	**1** 10kV **2** 20kV	**G** Glass (IK07) **P** Polycarbonate (IK10)	**DL** Downward facing daylight switch **N3** NEMA 3-Pin Socket Only **N7** NEMA 7-Pin Socket Only **NR** NEMA complete with Royce Thomson DLS **NS** NEMA complete with Spectrum DLS **3D** NEMA 3-Pin complete with dummy link **7D** NEMA 7-Pin complete with dummy link **CM** Owlet CM **P7** Owlet LuCo-P7 **T** DIM (Optidim) **1...5** DIM Profile (1-5)	**Nominal Voltage** 90-305V - 50Hz **Mounting** Ø42mm levelling spigot adaptor **Vandal-resistant** Vandal-resistant version, preventing unauthorised access to the luminaire by means of a special coded access screw **Theft-proof** Theft-proof version, preventing removal of the luminaire on a ø42mm spigot (this requires a pre-drilled spigot) **Jig theft-proof** Jig for drilling ø42mm pole spigot to make it suitable for theft-proof version **Tool theft-proof** Tool to open access screw for vandal-resistant and theft-proof version **Photometry** Back light control
	8	14							
	8	20							
	8	29							
	16	19							
	16	26							
	16	37							
	16	55							
LEDlume-md	24	27							
	24	38							
	24	54							
	24	81							
	32	35							
	32	50							
	32	70							
	32	108							
	48	52							
	48	73							
	48	104							
	48	162							
	64	68							
	64	97							
	64	138							
LEDlume-ma	80	84							
	80	121							
	80	174							
	96	103							
	96	148							
	96	208							
	128	135							
	128	194							
	128	276							

(*) For further assistance please contact our Applications Department

(**) Previous optic number. Due to better performance the optic was upgraded and was subsequently renumbered.

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2019-06