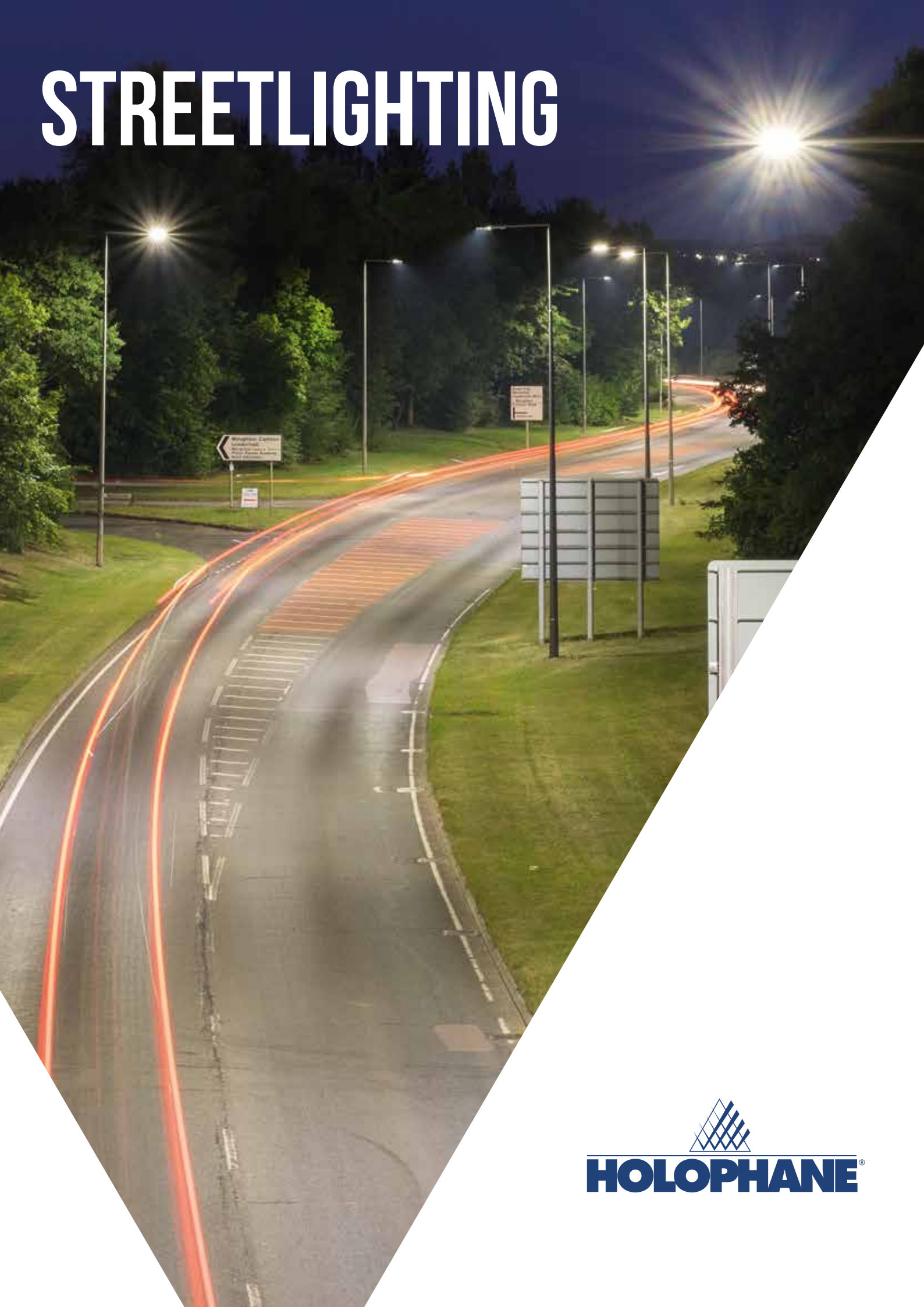
STREETLIGHTING



HOLOPHANE®

Nottinghamshire
V-MAX

MORE THAN 120 YEARS OF INNOVATION AND TECHNICAL EXCELLENCE

AN ENVIABLE REPUTATION THROUGHOUT THE WORLD

For over 120 years the name Holophane has enjoyed an enviable reputation throughout the world for expertise, quality and innovation in lighting. From the earliest days when the company pioneered its famous glass refractor, the Holophane name has been ever present as a leader in the field of luminaire and lighting design.

In today's environment, where landscape lighting, modern architecture and public space projects predominate, the Holophane name remains synonymous with quality design, high performance, low maintenance and cost-effective lighting.

Incorporating interior, exterior, amenity, road, rail and floodlighting luminaires alongside our control solutions, Holophane's product range is suitable for today's demanding, environmentally conscious world, offering lowest total cost of ownership, engineering quality, cutting-edge design and outstanding optical performance. Holophane, part of the Acuity Brands group, provides a comprehensive range of professional lighting services which offer advice and support on all types of professional lighting projects.

About Acuity Brands

At Acuity Brands, we're maximizing the potential of technology to create the best quality of lighting for every environment. With our industry-leading portfolio and proven expertise in indoor and outdoor luminaires, LED lighting technology and daylighting, lighting controls and components, we deliver integrated, intelligent solutions that expand the boundaries of lighting.

Acuity Brands, Inc. (NYSE: AYI) is the North American market leader and one of the world's leading providers of lighting and building management solutions. With fiscal year 2018 net sales of $3.7 billion, Acuity Brands currently employs approximately 13,000 associates and is headquartered in Atlanta, Georgia with operations throughout North America, and in Europe and Asia. The Company's products and solutions are sold under various brands, including Lithonia Lighting®, Holophane®, Aculux®, American Electric Lighting®, Antique Street Lamps™, Atrius™, DGLogik™, Distech Controls®, DTL®, eldoLED®, Gotham®, Healthcare Lighting®, Hydrel®, Indy™, IOTA®, Juno®, Lucid®, Mark Architectural Lighting™, nLight®, Peerless®, RELOC® Wiring, ROAM®, Sensor Switch®, Sunoptics® and Winona® Lighting.

AcuityBrands.
Expanding the boundaries of lighting™

WE ARE PROUD TO HAVE BEEN AWARDED THE QUEEN'S AWARD FOR ENTERPRISE - INNOVATION 2017

A Queen's Award for Enterprise is the most prestigious award a UK based company can be granted and are bestowed each year by Her Majesty The Queen.

The awards are a globally recognised mark of excellence and were established by a Royal warrant on the 30th November, 1965.

The entry process to win such an award is rigorous and detailed, requiring a compelling narrative of your achievement over a set period of time. The winners of a Queen's Award are invited to Buckingham Palace where the award will be recognised by Her Majesty The Queen.

Development of Innovative Products

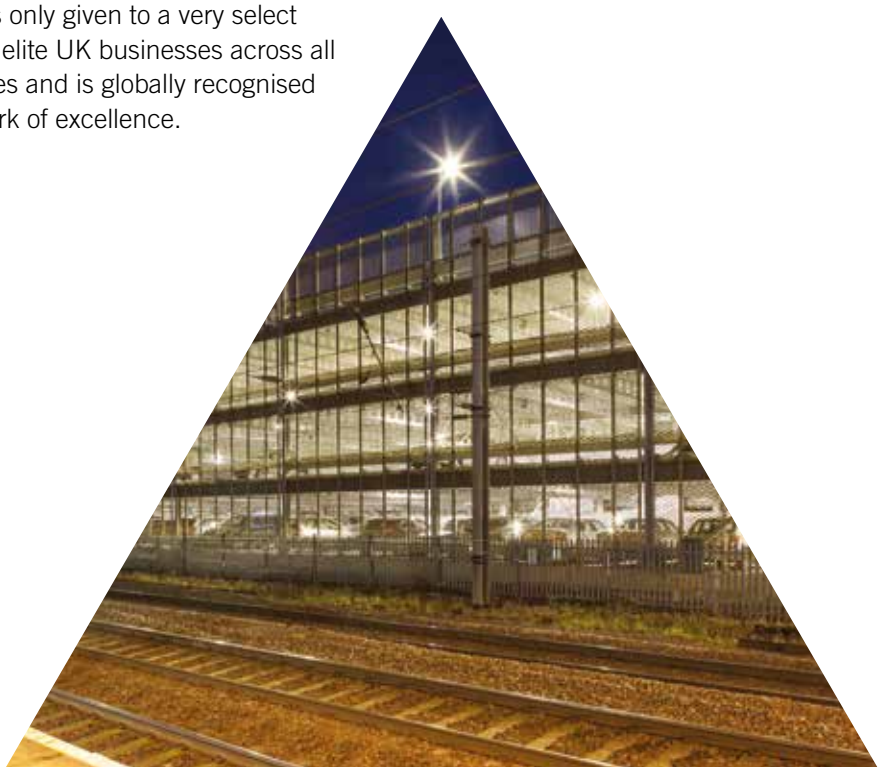
Holophane have received the Queen's Award for Enterprise in Innovation in recognition of our highly innovative lighting product development. This award is only given to a very select band of elite UK businesses across all industries and is globally recognised as a mark of excellence.

Trusted & Reliable UK Manufacturer

Winning such an award is testament to Holophane's dedication to providing our customers with market leading products and solutions. You can be assured of Holophane's expertise providing the best lighting solution available.

Products That Deliver Value

Our Royal award winning products and solutions are designed to provide you with value beyond their function. Through superior optical performance, enhanced energy efficiencies and smart connected lighting solutions, Holophane deliver you the best value.



STREETLIGHTING

This catalogue gives an overview of the available range of Holophane luminaires and connected solutions.

For more detailed product or technical information please visit www.holophane.co.uk or consult your local Holophane representative.

Note:
The specifications of the Holophane luminaires represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.

PRISMALED

Holophane's history lies in it being the first company to give practical application to the principles of the prism as the ultimate means of light control, harnessing and redirecting the output of light source by prismatic means to provide the best in cost effective, efficient lighting. Over 120 years ago Holophane sold the first patented light diffusing globe using borosilicate glass.

Today these principles remain core to Holophane's products and technologies, culminating in our PrismaLED technology. Holophane products featuring PrismaLED technology deliver the following benefits:

Volumetric Illumination

'Volumetric illumination' delivers an optimal mix of light to walls, partitions, vertical and horizontal work surfaces. Results in reduced shadow and increased perceived volume of space. Studies have indicated that increased lighting levels in horizontal and vertical illuminance increase the productivity up to 5.7%*.

Reduces Glare

Without a lens, LEDs can cause discomfort glare when viewed from certain angles. The PrismaLED prismatic lens prevents glare, providing a more attractive and comfortable lighting environment.

Maximises Colour Consistency

Over time, LEDs can discolour and fade, which leads to an inconsistent colour of light. The PrismaLED lens distributes the light from individual LEDs so that any colour change is consistent.

Minimises LED Failure effect

LED failures when using either a clear glass or plastic lens results in obvious black spots in the light distribution.

With a PrismaLED prismatic lens, the effect of a failed LED is greatly reduced, resulting in a general dimming.

Provides superior optical control

Standard lenses can create an uneven and poor distribution in lighting environments.

PrismaLED optics have more superior control over the light output, resulting in a more uniform distribution.

Open area

A sample industrial building using direct light high bay luminaires.

The same scene, using Haloprism, Vantage and Prismaspace luminaires.

Aisle area

A sample warehouse building with racking using direct light high bay luminaires.

The same scene, using Haloprism, Vantage and Prismaspace luminaires.

*Source: Mack trucks, Pa. USA, EC&M

ICON KEY

Lumen Range

Lumen range and packages that the product is available with.

Luminaire Efficacy

This is measured by dividing the delivered luminaire lumens by the total circuit wattage of the luminaire.

Colour Temperature

Known as Correlated Colour Temperature (CCT) defines the colour appearance of the LED and is measured in Kelvin.

Weight

Weight of the luminaire in Kilograms (Kg). Weights may vary with configuration and any accessories added to the luminaire.

Windage

The total exposed surface area of the luminaire measured in m^2.

TA

The ambient temperature that the luminaire can operate within.

ULOR

ULOR stands for Upward Light Output Ratio which shows the percentage of upward light emitted from the luminaire.

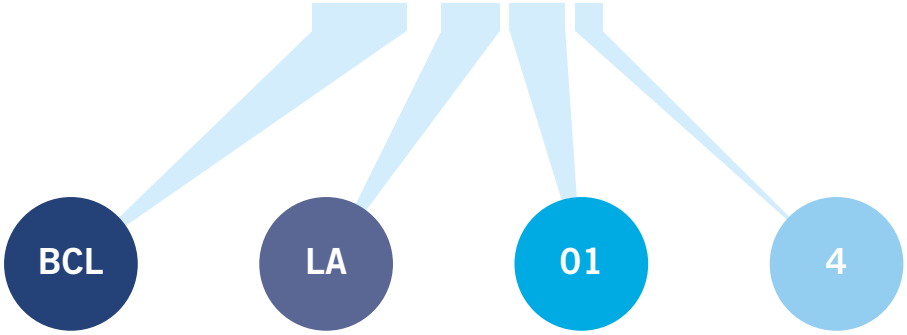
LED Life Expectancy

The estimated life of the LED in hours.

LUMINAIRE ORDER CODES

Sample Code

BCL.LA014



3 or 4 letter code denoting the product

Example:

BCL = CityMax Large

VMX = V-MAX

SCL = CityMax

DEW = Denver Elite Wall

1 or 2 letter code denoting LED type

LM = Mid-Power LED

LA = High-Power LED

LZ = LED zhaga module

L = Legacy letter for High-Power LED

1 or 2 number code denoting lumen packages

Example:

01 = c. 1,000 lumens

10 = c. 10,000 lumens

56 = c. 56,000 lumens

Single digit denoting CCT

3 = 3000K

4 = 4000K

In some products this is sometimes followed by another digit denoting CRI:

7 = 70CRI

8 = 80CRI

Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

STREETLIGHTING

AWARD WINNING PRODUCTS

For over 120 years Holophane has enjoyed an enviable reputation throughout the world for expertise, quality and innovation in Lighting

We are proud over the years to have been publicly recognised for delivering industry leading product developments and innovations by some of lighting's principal industry bodies, associations and awards platforms.

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2017

Queens Award for Enterprise in Innovation 2017

CityMAX™

Lux Awards 2017
Exterior Luminaire of the Year

LUX AWARDS 2017 WINNER

HOLOPHANE
An AcuityBrands Company

Lux Awards 2016
Manufacturer of the Year

LUX Awards 2016 WINNER

HMAO

Lux Awards 2015
Exterior Luminaire of the Year

Haloprism™

Lux Awards 2013
Interior Luminaire of the Year

Electrical Industry Awards 2018
Industrial Lighting Lamp / Luminaire of the Year

V-MAX™

Light Middle East Awards 2014
Outdoor Product of the Year

HEA-HEMSA Awards 2014
Product of the Year

BS5489 - 2013
LIGHTING CLASSES

BS 5489 - 2013 is the current British/European Standard for Street and Road lighting which replaced the previous BS5489 - 2006 standard in 2013.

BS 5489 - 2013 now defines three major classes of road and street lighting:

M Class

Traffic routes

P Class

Pedestrian, cycle and residential lighting

C Class

Conflict areas, junctions, roundabouts, car parks etc.

M-CLASS

A luminance based class for traffic routes which does not take account for another other user apart from vehicular traffic. Pedestrians, cyclists, animals, footpaths etc. are not considered in this class.

Measurements are taken from fixed observer positions with calculations represented as Cdm2 and glare is measured in TI% (Threshold Increment). Road surfaces are taken into consideration as these affect results

The tables to the right aid in classifying a road and the minimum level it should be lit to according to the standard:

Table A.2

Lighting classes for very high speed (v≥ 60mph) and high speed traffic routes (v > 40 mph)

	Lighting Class		
	Dual carriageway		Single carriageway
Traffic volume	Junction density: high	Junction density: low	
High to very high	M2	M3	M2
Low to moderate	M3	M4	M3
Very low	M4	M5	M4

Table A.3

Lighting classes for moderate speed traffic routes (v ≤ 40 mph)

	Lighting Class		
	Dual carriageway		Single carriageway
Traffic volume	Junction density: high	Junction density: low	
High to very high	M3	M4	M3
Low to moderate	M4	M5	M4
Very low	M5	M5	M5

M-Class values BS EN 13201-2

Class	Luminance of the road surface				Disability glare	Lighting of surround
	Dry condition			Wet	Dry condition	
	L cd/m2	Uo min	Ul a min	Uo b min	TI in % c max	EIR d min
M1	2,00	0,40	0,70	0,15	10	0,25
M2	1,50	0,40	0,70	0,15	10	0,25
M3	1,00	0,40	0,60	0,15	15	0,25
M4	0,75	0,75	0,60	0,15	15	0,25
M5	0,50	0,35	0,40	0,15	15	0,25
M6	0,30	0,35	0,35	0,15	20	0,25

Available luminaires

V-MAX™
30

R-LINE
28

FACTOR™
32

P-CLASS

P Class is mainly used for residential roads, areas with very low speed taffic or pedestrianised areas.

P Class roads are classified by considering the ambient luminance of the area, which includes 5 categories (E0-E5), against the traffic flow of the road. The road must then be lit to the specified Illuminance Values (E) outlined in the tables.

E0: Dark areas
UNESCO Starlight Reserves, IDA Dark Sky Parks

E1: Intrinsically dark areas
National Parks, Areas of Outstanding Natural Beauty, etc

E2: Low district brightness areas
Rural or small village locations

E3: Medium district brightness areas
Small town centres or urban locations

E4: High district brightness areas
Town/city centres with high levels of night-time activity

Table A.5

Lighting classes for subsidiary roads with low speed traffic (v ≤ 30 mph) - mixed traffic without parked cars present

	Ambient luminance			
Traffic flow	very low (E1)	Low (E2)	Moderate (E3)	High (E4)
Busy	P3	P3	P2	P2
Normal	P4	P3	P3	P2
Quiet	P4	P4	P3	P3

Table A.6

Lighting classes for subsidiary roads with very low (walking) speed traffic, non-motorised traffic.

	Ambient luminance			
Traffic flow	very low (E1)	Low (E2)	Moderate (E3)	High (E4)
Busy	P5	P5	P5	P4
Normal	P6	P5	P5	P4
Quiet	P6	P6	P5	P5

P-Class values BS EN 13201-2

	Illuminance Values (E)		
	Average	Max (150%)	Min (20%)
P1	15	22.5	3
P2	10	15	2
P3	7.5	11.25	1.5
P4	5	7.5	1
P5	3	4.5	0.6
P6	2	3	0.4

Available luminaires

S-LINE
18

FACTOR™ SMALL
20

C-CLASS

C Class refers to areas known as conflict zones where luminance cannot be calculated. This includes roundabouts, complex junctions and areas of increased risk such as school entrances/ exits and emergency services area.

Lighting at a conflict zone should highlight to users elements like positions of kerbs, road markings, presence of pedestrians, obstructions etc.

Table A.4

Lighting classes for conflict zones

Lighting Class	
Traffic route	Conflict area
M1	C0
M2	C1
M3	C2
M4	C3
M5	C4
M6	C5

Table A.8

Lighting classes for city and town centres

Type of traffic	Normal traffic flow		High traffic flow	
	E3	E4	E3	E4
Pedestrian thorough fair	P2	P1	P2	P1
Pedestrian only	C4	C3	C3	C2
Mixed vehicle and pedestrian with separate footways	C3	C2	C2	C1
Mixed vehicle and pedestrian on same surface	CE2 or C2	CE1 or C1	CE1 or C1	CE1 or C1

C-Class values BS EN 13201-2

Reference Class		CE Class	Eave	Uniformity
M Class	P Class roundabouts only			
M1		C0	50 Lux	40%
M2		C1	30 Lux	40%
M3	P1	C2	20 Lux	40%
M4	P2	C3	15 Lux	40%
M5	P3	C4	10 Lux	40%
M6	P4	C5	7.5 Lux	40%

Available luminaires

V-MAX™
30

HMAO
48

FACTOR™
32

RESIDENTIAL

S-LINE

S-LINE

S-Line is a part of a family of luminaires developed to deliver an innovative and modern lighting system for a range of street lighting applications.

IP66 IK10 CI CII

Applications

- Residential roads
- Residential streets
- Pathways and cul-de-sacs
- Rural roads

Controls system available

CONTROLUX air

axora

Features and benefits

- Sleek design
- Enhanced thermal management.
- High efficiency LED technology.
- Smart City Ready: fully controllable luminaire.

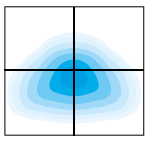
Up to 8,000lm	Up to 147 lm/W luminaire	**Colour Temperature** 4000K - 70CRI 3000K - 70CRI	4kg	**Windage** PT: 0.0297m² SE: 0.0350m²	**Ta** -40˚C ~ +50˚C	ULOR 0,00%	100,000 hour life L90B10

Typical luminaire performance

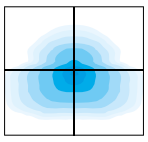
Configuration	Delivered Lumens	Power Consumption
SLI.2.LA014	c.1000	12W
SLI.2.LA024	c.2000	17W
SLI.2.LA034	c.3000	25W
SLI.2.LA044	c.4000	33W
SLI.2.LA054	c.5000	42W
SLI.2.LA064	c.6000	50W
SLI.2.LA074	c.7000	59W
SLI.2.LA084	c.8000	68W

Distributions

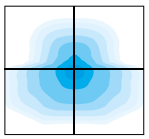
Q1 (Type III Short)



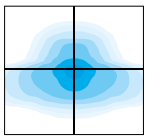
R3 (Type III Short)



A4 (Type IV Medium)



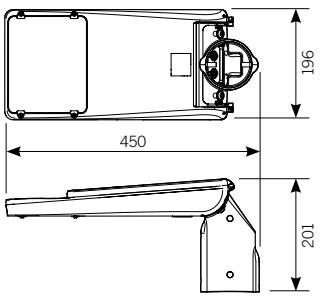
HA (Type IV Medium)



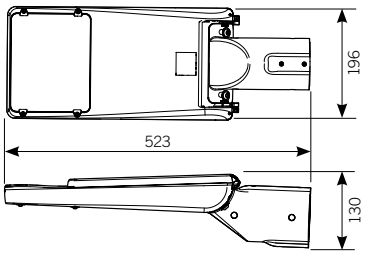
S-Line is available with a wide range on distributions to suit street lighting applications. For more information on available distributions please contact your Holophane Sales Representative.

Dimensions Millimetres

Post top



Side entry



Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

FACTOR™ SMALL

FACTOR™ SMALL

FACTOR™ Small is a dedicated LED luminaire that delivers a variety of efficient lumen per watt packages with excellent optical performance.

IP65 CI CII

Controls system available

CONTROLUX air

axora

Applications

- Main roads
- Urban roads
- Pedestrian areas
- Residential areas
- Car parks

Features and benefits

- Sleek design with tool-less access.
- Longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components.
- LED light engines with 0% ULOR ensuring night time friendly.

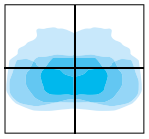
Up to 12,000lm	Up to 139 lm/W luminaire	**Colour Temperature** 4000K - 70CRI 3000K - 70CRI	7kg	**Windage** 0.071m²	**Ta** -40˚C ~ +40˚C	ULOR 0,00%	100,000 hour life

Typical luminaire performance

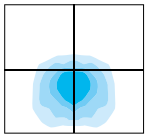
Configuration	Delivered Lumens	Power Consumption
FTS.LA024	c.2,300	17W
FTS.LA034	c.2,800	23W
FTS.LA054	c.4,600	35W
FTS.LA064	c.5,500	47W
FTS.LA074	c.7,000	52W
FTS.LA084	c.8,400	70W
FTS.LA124	c.11,700	100W

Distributions

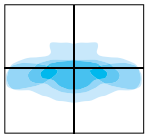
Asymmetric (AY)



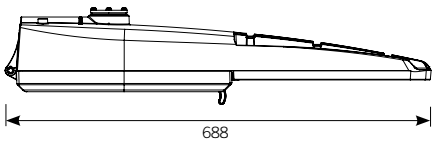
Forward throw (FW)

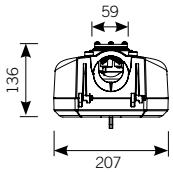


Long and narrow (NR)



Dimensions Millimetres





Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

OXFORDSHIRE UPGRADES RESIDENTIAL STREETLIGHTING TO S-LINE

- **63% reduction in energy costs**
- **Long-term reduction in maintenance costs**
- **Improved quality of light benefiting residents**

BACKGROUND

Oxfordshire County Council manages over 57,000 streetlights across the whole of Oxfordshire. In 2017 they identified several key areas within the county where the lighting needed to be upgraded.

Oxfordshire CC found that they had many 35W SOX lanterns which had come to the end of their useful life. Typically, these lanterns are used for P4 and P5 applications such as residential roads where the designed average illumination is 3 – 5 lux. The reasons to upgrade the streetlighting are the same for many Local Authorities: commercial pressures, the need to reduce energy consumption and power bills, saving maintenance and relamping costs, a need for more optically efficient and longer lasting lanterns.

CHALLENGE

The challenge was how to deliver both reduced energy and maintenance costs on small, low wattage SOX lanterns.

The SOX lamp is often thought to be the most efficient light source available. However, it suffers several major disadvantages. Whilst it is a very efficient source in terms of simple lm/W, due to its large physical size, the delivered optical efficiency in terms of illumination on the road and pavement is often less than a modern LED lantern.

Previous 35W SOX installation

S Line

OXFORDSHIRE UPGRADES RESIDENTIAL STREETLIGHTING TO S-LINE

THE SOLUTION

The S-Line from Holophane is specifically designed to replace older, low wattage lanterns. The range of delivered light output is 1,000 to 4,000 lumens (13W – 34W).

In Oxfordshire's case, the 35W SOX lanterns, with a total circuit consumption of 65W, are replaced by 24W S Line units to provide P4 illumination levels in the residential areas. This achieves a 63% reduction in energy costs alone.

To reduce energy costs even further, the lanterns are programmed to dim to reduce the light output by 50% from the hours of 20.00 in the evening to 06.00 in the morning.

Another major saving will come from the reduced maintenance costs. A typical SOX lamp has a life of 16,000 hours, four years or less. The S Line LED lantern will last 100,000 hours (L90 B10 at 25C).

The new lantern is IP66 and so there will be less dirt accumulated inside thus maintaining the efficiency of the optical system for a longer period of time. It is also fitted with a pressure equalisation filter valve which minimises the "breathing" flow of air during the daily on/off cycle.

Future proofing is achieved by fitting the S-Line lanterns with 7-pin NEMA sockets. This means they will be able to take advantage when Oxford CC installs a smart city control system.

There is a further advantage in that the streets look much brighter; the dull yellow, monochromatic light from SOX is replaced by a Warm 3,000K from the LEDs.

Holophane lanterns have been installed in towns across Oxfordshire such as Banbury, Bicester, Oxford and Witney. The installation was finished in May 2018.

In Oxfordshire's case, the 35W SOX lanterns, with a total circuit consumption of 65W, are replaced by 24W S Line units to provide P4 illumination levels in the residential areas. This achieves a 63% reduction in energy costs alone.

S Line


Bleak Hall
Winterhill
Leadenhall West
Woughton Campus West
Oldbrook
Leadenhall East
Woughton
Campus East

TRAFFIC ROUTES MAIN ROADS & MOTORWAYS

R-LINE

R-LINE

R-Line is a part of a family of luminaires developed to deliver an innovative and modern lighting system for a range of street lighting applications.

IP66 IK10 CI CII

Applications

- Residential roads
- Main roads
- Trunk roads
- Dual carriageways

Controls system available

CONTROLUX air

axora

Features and benefits

- Sleek design.
- Enhanced thermal management.
- High efficiency LED technology.
- Smart City Ready: fully controllable luminaire.

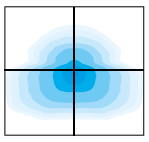
Up to 17,000lm	Up to 141 lm/W luminaire	**Colour Temperature** 4000K - 70CRI 3000K - 70CRI	5kg	**Windage** PT: 0.0354m² SE: 0.0407m²	**Ta** -40˚C ~ +50˚C	ULOR 0,00%	100,000 hour life L90B10

Typical luminaire performance

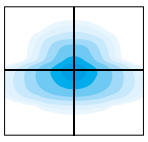
Configuration	Delivered Lumens	Power Consumption
RLI.2.LA094	c.9,000	69W
RLI.2.LA104	c.10,000	81W
RLI.2.LA114	c.11,000	88W
RLI.2.LA124	c.12,000	94W
RLI.2.LA134	c.13,000	101W
RLI.2.LA144	c.14,000	109W
RLI.2.LA154	c.15,000	114W
RLI.2.LA164	c.16,000	121W
RLI.2.LA174	c.17,000	134W

Distributions

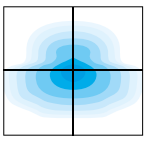
R3R3 (Type III Short)



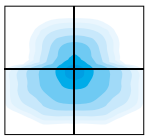
2SA2 (Type III Short)



2SA4 (Type III Short)



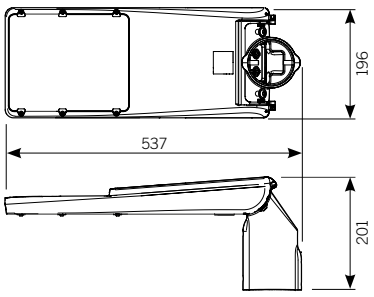
A4A4 (Type IV Medium)



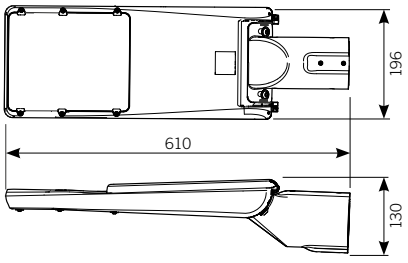
R-Line is available with a wide range on distributions to suit street lighting applications. For more information on available distributions please contact your Holophane Sales Representative.

Dimensions Millimetres

Post top



Side entry



Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

V-MAX™

Light Middle East Awards 2014
Outdoor Product of the Year

HEA-HEMSA Awards 2014
Product of the Year

V-MAX™ is a landmark LED luminaire with a pioneering modular design engineered to subdivide the luminaire system creating a fully scalable, maintainable and upgradeable luminaire ideal for a range of applications.

IP66 IK07 CII

Controls system available

CONTROLUX air

axora

Applications

- Residential roads
- Pedestrian areas
- Main roads
- Trunk roads
- Dual carriageways
- Car parks

Features and benefits

- Revolutionary modular design maximises heat dissipation from the critical electronic components.
- 6 Mounting options: Post top: PT1 60/76mm, PT2 60mm, PT3 34/42mm. Side Entry: SE1 60/76mm - 34/42mm with internal reducer, SE2 60mm, SE3 34/42mm.
- Plug and play LED chevrons that can be upgraded easily in situ, as LED efficiency improves.

Up to 37,000lm

Up to 156 lm/W luminaire

Colour Temperature
4000K - 70CRI
3000K - 70CRI

6kg - 17kg* including gear
*Dependant on lumen version

Windage
See table below

Ta
-40˚C ~ +50˚C

ULOR
0,00%

100 000
100,000 hour life
L90B10

Typical luminaire performance

Configuration	Lumen Range lm	Windage m²	Weight kg
VMX V1	1,000 - 6,000	0.034	6
VMX V2	3,000 - 12,000	0.037	8
VMX V3	4,000 - 19,000	0.039	9
VMX V4	6,000 - 20,000	0.042	11
VMX V5	7,000 - 30,000	0.044	12
VMX V6	9,000 - 28,000	0.046	14
VMX V7	11,000 - 32,000	0.049	15
VMX V8	13,000 - 37,000	0.051	17

Windage m²

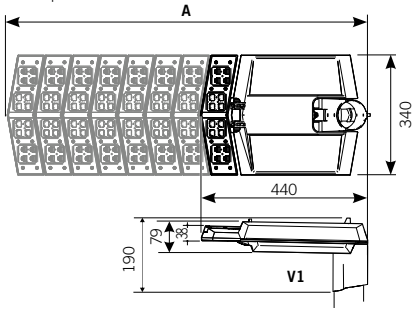
V1	0.034
V2	0.037
V3	0.039
V4	0.042
V5	0.044
V6	0.046
V7	0.049
V8	0.051

Distributions

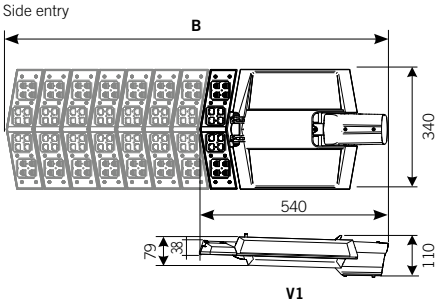
V-MAX is available with a wide range on distributions to suit street lighting applications. For more information on available distributions please contact your Holophane Sales Representative.

Dimensions Millimetres

Post top



Side entry



	A	B
V1	440	540
V2	540	640
V3	640	740
V4	740	840
V5	840	940
V6	940	1040
V7	1040	1140
V8	1140	1240

Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

FACTOR™

FACTOR™ is a dedicated LED luminaire that delivers a variety of efficient lumen per watt packages with excellent optical performance.

IP65 CI CII

Applications

- P-Class
- M-Class
- Pedestrian areas
- Residential areas
- Car parks

Controls system available

CONTROLUX air

axora

Features and benefits

- Sleek design with tool-less access.
- Longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components.
- LED light engines with 0% ULOR ensuring night time friendly.

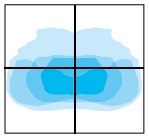
Up to 17,000lm	Up to 146 lm/W luminaire	**Colour Temperature** 4000K - 70CRI 3000K - 70CRI	12kg	**Windage** 0.084m²	**Ta** -40˚C ~ +40˚C	ULOR 0,00% - 0,03%	100,000 hour life

Typical luminaire performance

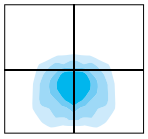
Configuration	Delivered Lumens	Power Consumption
FTR.LA124	c.14,000	97W
FTR.LA174	c.17,000	130W

Distributions

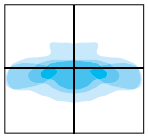
Asymmetric (AY)



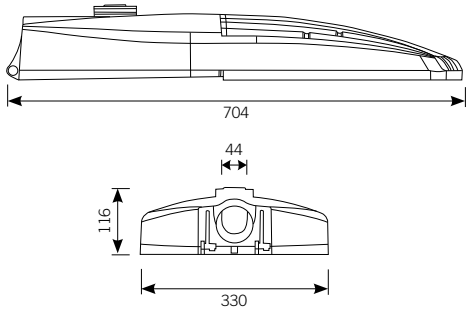
Forward throw (FW)



Long and narrow (NR)



Dimensions Millimetres



Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

NOTTINGHAMSHIRE SAVING £1.5M PER ANNUM IN ENERGY COSTS WITH V-MAX™

The change to LED has already lowered Nottinghamshire's energy consumption by 12,000,000Kwh.

BACKGROUND

Nottinghamshire County Council manage and maintain approx. 94,000 street lights in the County.

Since 2014 an LED luminaire replacement programme has been rolling out to replace all SOX lanterns in the County.

The aim of the project was to reduce energy use and street lighting outages through-out the County giving the residents of Nottinghamshire an efficient lighting stock with fewer outages and reduced budget pressures for energy and maintenance.

CHALLENGE

Nottinghamshire County Council's main challenge was to find a more energy efficient solution to the SOX lanterns that not only helped to save overall energy consumption but also lowered carbon emissions, reduced maintenance costs and achieved the target lighting levels. Any proposed lantern would need to deliver on all the requirements but also be flexible enough to be used across a range of road layouts.

V-MAX™

NOTTINGHAMSHIRE SAVING £1.5M PER ANNUM IN ENERGY COSTS WITH V-MAX™

THE SOLUTION

Holophane & Nottinghamshire County Council Street Lighting Engineers worked in partnership to identify a range of luminaires suitable for the replacement programme. The chosen luminaire - Holophane's award winning V-Max.

With its pioneering chevron modular design, the V-Max provides unrivalled flexibility, efficiency and optical performances, ideal for delivering the best performance for the range of roadway classifications across Nottinghamshire.

To date around 41,000 LED luminaires have been installed, with a mix mainly of V-Max V1s and V2s replacing the residential road lighting throughout the county. These luminaires have pre-programmed dimming schedules to Nottinghamshire's requirements to dim by 50% between the hours of 10pm-7am. Full power lighting has been maintained in some areas with crime issues or night time accident history.

The change to LED has already lowered Nottinghamshire annual energy consumption by 12,000,000kwh, reducing the County Council's energy bill by £1.5m per year, with total savings of £5.4m since the project began. It has also helped to achieve carbon reduction targets for the County Council with reduction of 11,000 tonnes per year. The latest phase in Nottinghamshire's project is to replace a further 13,500 lanterns in Mansfield with V-Max. This £3.2m investment will add further to the existing impressive savings made.

V-MAX™

AMENITY AREAS & ROUTES

CITYMAX®

SCL.VB
Cradle mount

LUX AWARDS 2017 WINNER

SCL.SE
Side-entry mount

SCL.CB
Curved mount

SCL.CP
Central post mount

SCL.PT
Post top mount

Innovation and efficiency for urban spaces, CityMAX® is a concept that delivers a versatile urban lighting system with a modern, innovative design.

IP66 IK10 CI CII

Controls system available

CONTROLUX air

Applications

- Residential roads
- Bike paths
- Pedestrian walkways
- Housing developments
- Main roads
- Secondary roads
- Parks
- Pedestrian areas
- Car parks
- Roundabouts
- Shopping areas
- Train or bus stations

Features and benefits

- LED modules protected by 5mm tempered glass.
- 5 Mounting options: side entry Ø 34/42/49/60mm (SE), post top Ø 60/76mm (PT), central mounting Ø 60/76mm (CP), v-bracket Ø 60/76mm (VB) and curved bracket Ø 60/76mm (CB).
- CityMAX luminaires tilt from -10° to 10° in increments of 2.5° in SE side-mounting and PT versions.

Up to 15,000lm

Up to 133 lm/W luminaire

Colour Temperature
4000K - 70CRI
3000K - 70CRI

10kg - 15kg* including gear
*Dependant on lumen version

Ta
-40°C ~ +50°C

ULOR
0,00%

100,000 hour life
L70B50

Typical luminaire performance

Configuration	Delivered Lumens	Power Consumption
SCL.L024	c.2,000	19W
SCL.L034	c.3,000	25W
SCL.L044	c.4,000	36W
SCL.L054	c.5,000	42W
SCL.L064	c.6,000	51W
SCL.L074	c.7,000	61W
SCL.L094	c.9,000	78W
SCL.L124	c.12,000	104W
SCL.L154	c.15,000	140W

Windage m^2

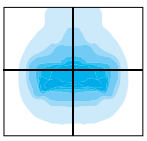
VB2	0.1027
VB1	0.1139
SE2	0.0545
SE1	0.0519
PT2	0.0545
PT1	0.0598
CP2	0.0524
CP1	0.0540
CB1	0.1203
CB2	0.1082

Weight kg

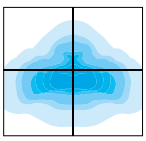
VB1 up to L094	13.50
VB1 L124 & L154	16.00
VB2 up to L094	12.50
VB2 L124 & L154	15.00
SE2/PT2 up to L094	10.00
SE2/PT2 L124 & L154	12.60
CP2 up to L094	10.16
CP2 L124 & L154	12.70
CB1 up to L094	13.90
CB1 L124 & L154	16.40
CB2 up to L094	12.90
CB2 L124 & L154	15.40

Distributions

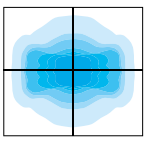
Long & Narrow (AS1)



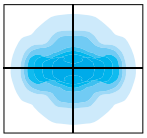
Asymmetric (AS2)



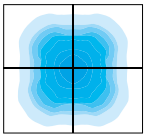
Symmetric long (ST1)



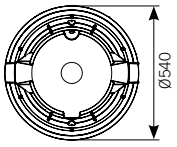
Symmetric wide (ST2)

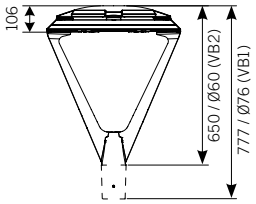


Symmetric (ST3)

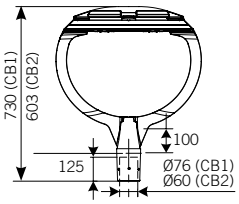


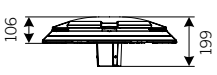
Dimensions Millimetres



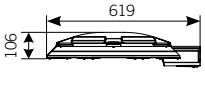


SCL.VB (Ø60 x 100mm)
(Ø76 x 125mm)

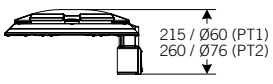




SCL.CP (Ø60/76 x 100mm)



SCL.SE (Ø34/42/49/60 x 100mm)



SCL.PT (Ø60/76 x 100mm)

For full dimensions of the CityMax range of mounting brackets, please visit holophane.co.uk or speak to your Holophane Sales representative.

Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

CITYMAX®LARGE

CITYMAX®LARGE

CityMAX®Large combines a sleek contemporary design with exceptional technical performance. Engineered as a retrofit solution for existing 250W, 400W & 600W SON & metal halide installations.

IP65 IK09 CI CII

Controls system available

CONTROLUX air

Applications

- Roundabouts
- Shopping areas
- Train or bus stations

Features and benefits

- Available with 6, 8 or 10 optical pods using PrismaLED technology
- Direct post top mounting of either 76mm, 101mm* or 127mm*
- Smart City Ready: multiple options for smart controls integration.

*Accessory required

20,000lm - 40,000lm

Up to 148 lm/W luminaire

Colour Temperature
4000K - 70CRI
3000K - 70CRI

18kg* including gear
*Dependant on lumen version

Windage
0.178m²

Ta
-20˚C ~ +50˚C

ULOR
0,00%

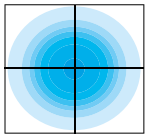
100 000
100,000 hour life
L70B50

Typical luminaire performance

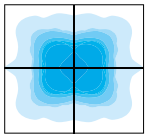
Configuration	Delivered Lumens	Power Consumption
BCL.LA204	c.20,000	148W
BCL.LA254	c.25,000	177W
BCL.LA304	c.29,000	197W
BCL.LA354	c.35,000	253W
BCL.LA404	c.42,000	295W

Distributions

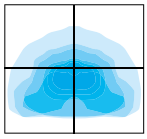
Symmetric (SY)



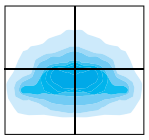
Square (SQ)



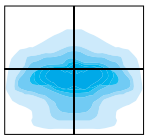
Forward throw (FW)



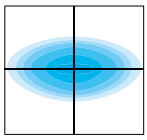
Asymmetric (AS)



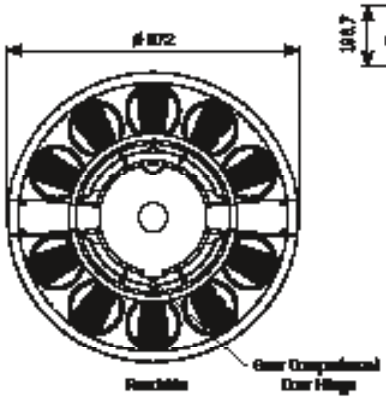
Long & Narrow (NR)

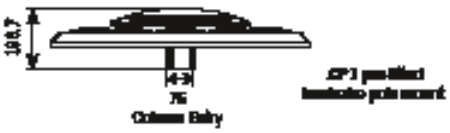


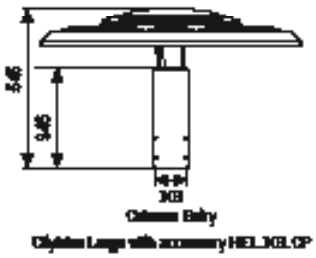
High beam symmetric (HS)

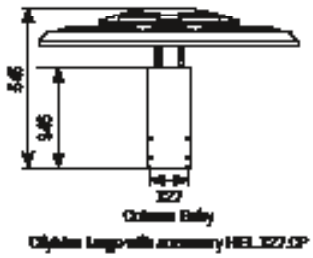


Dimensions Millimetres









Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

MILTON KEYNES REDWAYS
HOW DO YOU REPLACE A CLASSIC?

- **Up to 50% energy saving over existing installation**
- **Specially developed curved bracket design**
- **'Future-ready' luminaires for smart controls integration**

BACKGROUND

Milton Keynes was the last of the New Towns to be built and was formally designated in 1967. The layout of the main roads, kept separate from the residential housing, was revolutionary at the time. So too, was having a large shopping mall more than 1km long. This area in Central Milton Keynes, CMK, was surrounded by hectares of car parking spaces and administrative office blocks.

Most of the lighting for this area comprised 4.25m columns fitted with the now iconic spherical post-top globe lantern. Another idea ahead of its time was to use "white light" for the city centre pedestrian areas. However, at that time (1970s and 80s), white light sources only delivered about 50 lumens/watt and they were later replaced by more energy saving 70W and 100W high pressure sodium lamps, albeit the light was "gold" in colour.

CHALLENGE

In 2016, Milton Keynes Council and Ringway, the contractors for the project, identified that the older lanterns were coming to the end of their useful life and developed a plan for their replacement.

They then approached the designers at Holophane and their challenge was how to deliver a modern, ultra-efficient lantern which still retained the iconic style of the original units.

The new lantern should also be future-proof in terms of controls and programming. It also had to be easily retrofitted on to the existing columns. As such, the new lantern had to have a choice of optical distribution so that it could equal or improve the existing lighting.

THE SOLUTION

The CityMax is an award winning lantern (Lux Awards 2017) offering a range of light output, from 2,000 – 15,000 lumens and four different optical distributions. The lantern, itself, is shallow in depth and circular in plan.

In order to adapt the lantern to make it more similar to the original Milton Keynes concept, the Holophane engineers, in conjunction with MK Highways and Ringway, developed a specially curved mounting bracket so that in outline, it retains the shape of the original globes. The design of the new bracket is visually "lighter" than the globes and intrudes less on the view of the wide open skies over CMK. The bracket design also means it has reduced windage which is a useful feature when retrofitting on to older columns.

Although the globe lanterns are predominantly used in Central Milton Keynes, there are other areas such as the train station and some residential areas where they are also used. It is hoped that this new design can be extended to other parts of the city. As such, the bracket is now a standard option in the CityMax range.

In terms of energy, the new design saves over 30W per lantern which means up to a 50% saving over the existing scheme whilst delivering a quality white light. Furthermore, the current lanterns are programmed to dim to 70% between 10pm and 6am. Further energy savings will be made by fitting 7-pin NEMA sockets. This allows for smart control of the lanterns and light output by having an extra two or four control circuits such as CMS or DALI.

Maintenance costs are also greatly reduced. The high-pressure sodium lamps typically had to be replaced every three years. The new LEDs in the CityMax lanterns have a rated life of 100,000 hours (L70B50@25C).

CityMAX®

AREA FLOODLIGHTING & TUNNEL

HMAO

LUX Awards 2015 WINNER

prismaled™

The High Mast Advanced Optix (HMAO) luminaire has been engineered for new and retrofit high mast applications. With the latest in high-efficiency LED technology it provides a complete lighting solution for the simplest or the most complex area lighting applications.

IP66 IK08 CI CII

Controls system available

CONTROLUX air

axora

Applications

- Freight terminals
- Industrial facilities
- Car parks
- Truck stops
- Ports and docks
- Airports
- Motorways
- Toll plazas

Features and benefits

- Glass optics, using PrismaLED technology, reduces glare whilst providing exceptional distribution and uniformity.
- Glass optics have low electrostatic charge meaning less dirt accumulation.
- Smart City Ready: multiple options for smart controls integration.
- Side mounting (SE) suitable for Ø42/60mm via the integrated four bolt mounting system.

Up to 70,000lm

Up to 130 lm/W luminaire

CCT **Colour Temperature** 4000K - 70CRI 3000K - 70CRI

23kg including gear

Windage 0.12m²

Ta -40°C ~ +45°C

ULOR 0,3%

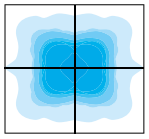
100 000 100,000 hour life L90B50

Typical luminaire performance

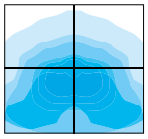
Configuration	Delivered Lumens	Power Consumption
HMAO.L304	c.30,000	208W
HMAO.L354	c.35,000	247W
HMAO.L454	c.45,000	312W
HMAO.L524	c.52,000	370W
HMAO.L604	c.60,000	417W
HMAO.L704	c.70,000	493W

Distributions

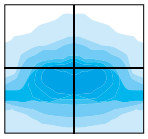
.SQ Square



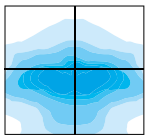
.FW Forward throw



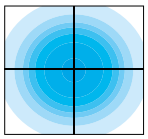
.AY Asymmetric



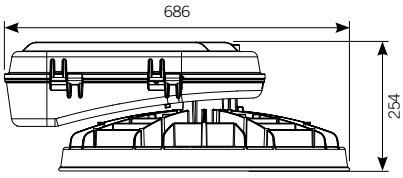
.NR Long & Narrow

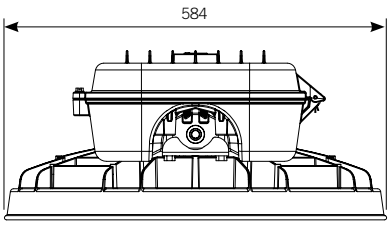


.SY Symmetric



Dimensions Millimetres





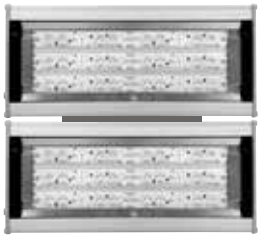
HMO (Ø42/60 x 150mm)

Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

T-MAX

Single

Single large



Double

T-MAX

T-MAX has been designed around the latest in Solid State Lighting technology, captured inside a housing that is guaranteed to last for decades within tunnel environments.

IP66 IK09 CI CII

Applications

- Road tunnels
- Rail tunnels

Features and benefits

- LED modules protected by 4mm tempered glass.
- 12 different mounting options/configurations for installation flexibility.
- With an IP66 rating T-MAX has been designed to be hosed down on site during maintenance.

Up to 52,000lm

Up to 134 lm/W luminaire

Colour Temperature
4000K - 70CRI

10kg - 15kg* including gear
*Dependant on lumen version

Ta
-40˚C ~ +50˚C

50,000 hour life
L90B50

Typical luminaire performance

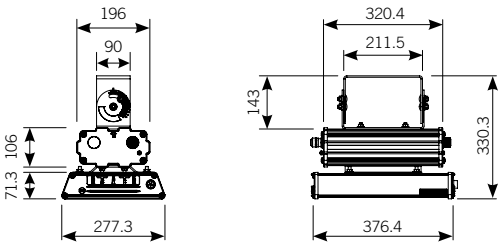
Configuration	Delivered Lumens	Power Consumption
Single module	4,000 - 15,000	27 - 121W
Single large module	23,000 - 30,000	193 - 254W
Double module	36,000 - 52,000	294 - 357W

Distributions

T-MAX is available with a wide range on distributions to suit street lighting applications. For more information on available distributions please contact your Holophane Sales Representative.

Dimensions Millimetres

TMX.GEN2.L044/.L054/.L064/.L084/.L104/.L154.**GBOX.1OL-ZG**



For full dimensions of the T-MAX range of mounting brackets, please visit holophane.co.uk or contact your Holophane Sales Representative.

Note: Data is correct at time of print. * For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.

HOLOPHANE PROVIDE HIGH MAST LIGHTING FOR THE PORT OF NIGG EXTENSION

CHALLENGE

With over 900 meters of deep water quayside, the Port of Nigg caters for some of the largest vessels in operation today and is a vital facility for the renewable energy sector and the North Sea oil and gas industry. The harbour comprises an industrial multi-user facility providing manufacturing and support services to a range of energy sectors.

THE SOLUTION

In early 2015, the Port of Nigg undertook an extensive £20 Million redevelopment project, which involved the resurfacing of the entire length of the Quayside front and the addition of the new West Finger Jetty. For the new West Finger Jetty, Holophane supplied 52 HMAO (High Mast Advanced Optic) LED luminaires with a combination of 6 head and 10 head frames assembled on 30 metre masts.

The Highmast 2 system provided the ideal solution for the lighting of the busy yard where space is at a premium and the number of masts needed to be kept to a minimum. PrismaLED glass refractor technology is utilised with HMAO luminaires to accurately control the light output, reduce glare and deliver exception vertical illumination whilst also maximising column spacing. The optical assembly is rotatable for on-site alignment making installation simple and ensuring the light output is directed to the right areas and the weight of the luminaires distributed evenly over the headframe.

The PrismaLED technology ensured that residents of a nearby town were not adversely affected but glare or light pollution from the site, an issue that existed with the previous lighting.

An advanced thermal management system ensures long product life and to achieve this the gear housing draws heat away from the critical components to keep the drivers and LEDs cool. The low static glass utilised in the optical assembly works in conjunction with the flow of heat around the refractor to achieve a self-cleaning effect further reducing the need to maintain the product and keeping running costs to a minimum throughout the life of the installation.

The combination of tight optical control, wide spacing and long luminaire life with very low maintenance costs makes the Holophane Highmast system the perfect choice for Nigg Quay.

HMAO

HERITAGE LIGHTING

HERITAGE

Woburn

Ashbourne

Sherington

HERITAGE

The period style pendant luminaires Woburn™ and Ashbourne™ along with Sherington, combine heritage aesthetics with the latest in Holophane's optical technology. High quality precision optics achieve the outstanding performance and uniformity that you would expect from a Holophane luminaire, providing two different light distributions for a variety of applications.

IP65 IK10 CI CII

Controls system available

CONTROLUX air

Applications

- Residential streets
- Amenity areas
- Entrance roads
- Pedestrian zones
- Shopping precincts
- Parks
- Town squares
- Heritage sites

Features and benefits

- Available with decorative brackets & column embellishments.
- Adaptable aesthetics to blend in with the environment.

Up to 20,000lm

Up to 121 lm/W luminaire

Colour Temperature
4000K - 70CRI

Ashbourne A1 11kg
Ashbourne A2 12kg
Ashbourne A3 13kg
Woburn A1 11kg
Woburn A2 12kg
Woburn A3 14kg
Sherington 14kg

Ta
-40°C ~ +50°C

100,000 hours
L90B50

Typical luminaire performance

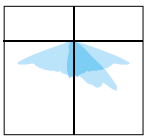
Configuration	Delivered Lumens	Power Consumption
ASN.A1	2,000-10,000	17-84W
ASN.A2	10,000-17,000	84-150W
ASN.A3	16,000-20,000	144-184W
WBN.A1	2,000-10,000	17-84W
WBN.A2	10,000-17,000	84-150W
WBN.A3	16,000-20,000	144-184W
SHN	2,000-14,000	17-125W

Windage m^2

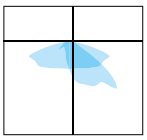
Ashbourne A1	0.18
Ashbourne A2	0.22
Ashbourne A3	0.24
Woburn A1	0.18
Woburn A2	0.22
Woburn A3	0.24
Sherington	0.23

Distributions

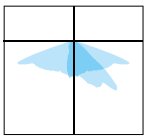
Ashbourne / Woburn
Asymmetric (AY)



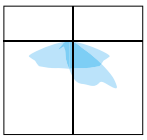
Long and narrow (NR)



Sherington
Asymmetric (AY)



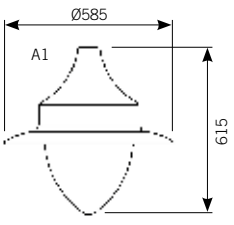
Long and narrow (NR)



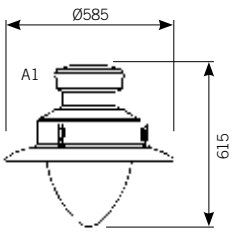
For more information on the Holophane Heritage range please visit www.holophane.co.uk

Dimensions Millimetres

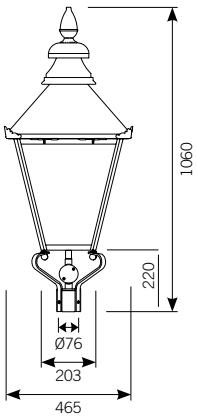
Ashbourne A1



Woburn A1



Sherington



For full dimensions of the Heritage range, please visit holophane.co.uk or speak to your Holophane Sales representative.

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AXORA

AXORA™

Enabling smart lighting, the smart town, the smart city.

axora™ is a CMS for your lighting needs and fully supports an eco-system of smart sensors and devices. axora enables a new world of insights, efficiencies and opportunities for your city.

A simple solution for small to large challenges

simple:

axora™ utilises your existing lighting-point infrastructure as the basis for your smart-city. The solution is simple and requires only 3 elements, enabling rapid deployment and minimal disruption.

From local to city-wide deployments

scalable:

axora™ is a highly scalable system that can adapt and expand to the needs and requirements of your smart-city as it grows. From local to city-wide deployments and beyond are all within the capability of the axora solution.

Platform you can trust. Proven reliability and security for your city

secure:

Our partnership with Itron delivers industry leadership witha reliable, secure and future-proof smart city network.

Building the ideal foundation for your city that can support multiple smart city applications, giving you maximum control and opportunities for your cities every growing ecosystem.

axora™ incorporates end-end security using industry standard AES-256 encryption and scalable X.509 public key infrastructure you can be sure that your city data and communications are always secure.

axora™

1

axora.Connect

axora.Connect: smart photocells are placed on existing lighting points in your city. Every smart photocell contributes to the creation of a wireless canopy, the foundation of your smart-city.

2

axora.Access

axora.Access is the gateway for your axora.Connect : Smart devices. It actively manages the communication between all devices on the axora network and sends information to the axora.Vision platform.

3

axora.Vision

axora.Vision is the platform that controls and monitors your smart-city. It provides data analytics and insights for every lighting asset, smart sensor and device on the axora network.

AXORA™

The only platform you'll ever need.

The **axora.Vision** Central Management platform controls, commands and monitors all of your axora.Connect: smart photocells and other smart sensors and devices in its powerful server engine. The platform collects data from each smart device, stores and aggregates the data in its database, provides real time control services, generates advanced alarms and reports.

The platform is based on a user-friendly web interface that can be on any modern HTML browser including tablets and smartphones to manage the whole network securely. The platform supports industry standard TALQ API to enable interoperability with established systems. axion.Vision is open and flexible to adapt and meet your future smart-city requirements.

fundamentals:

- Control and monitoring of all connected assets.
- Access to the platform on a range of devices.
- Platform is always available.

cms:

- Control and monitoring of your lighting assets.
- Apply energy saving dimming policies.
- Luminaire fault & maintanence reporting.
- Intergrated asset management.

analytics:

- View insightful data from the eco-system of smart sensors.
- Incorporate city-wide operational changes based on insights.
- Ability to export data for further processing.
- Long-term data storage for historical analysis.

axora™

Our partners.

axora's aim is to develop and maintain long term relationships with our customers. We do this by offering sustainable solutions, that provide our customers with a low cost of ownership, a high quality solution, together with superior customer service.

Alasdair McRury
Managing Director

STREETLIGHTING

HOLOPHANE®

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www.holophane.co.uk

AcuityBrands.
Expanding the boundaries of lighting™

THE QUEEN'S AWARDS FOR ENTERPRISE: INNOVATION 2017

ILP BUILDING MEMBER

LIGHTING INDUSTRY ASSOCIATION