

NA.P

Standards and a standards







The modern styling of the **D-Series** is striking yet unobtrusive - making a bold, progressive statement as it blends seamlessly with its environment. **D-Series** takes all the benefits of LED technology and moulds it into a high performance, high efficacy and long life area lighting luminaire.

management system, **D-Series** is capable of delivering over 100,000 hours LED module life. Offering a wide range of lumen packages and optical distributions, **D-Series** delivers optimised lighting application designs.

With the integrated ZD4i compatibility **D-Series** delivers a controllable luminaire that helps you realise energy its unique optics placed below each LED it ensures light is delivered where it needs to be, providing a uniform Nightime Friendly environment with minimal light pollution.

# **D-SERIES**

- Applications

- Retail Parks

#### Optics / Light Source

- Lumen packages ranging from 2,000 50,000 in 3 different luminaire variants
- Fully soak tested light engines eliminating early failures.

#### TM66 CEAM-Make Rating



#### Approvals

CE LR **IP** IP65 luminaire and LED optic **Ta** -40°C to +40°C



the Holophane website www.holophane.co.uk

Warehousing

# **AN ENVIABLE REPUTATION THROUGHOUT THE WORLD**



When Holophane was founded in 1896 in London, headed by Pelham Trotter, it marked the start of an incredible history that has now seen Holophane become a global business revered throughout the world for its expertise, quality, innovation and excellence in lighting.

Holophane's first product was the famous patented globe in 'white' or 'rose crystal' that sold for around 2 shilling (10p). Today, Holophane continues this proud tradition with our values deeply rooted in the dedication to creating luminaires, with exceptional lighting performance, innovative patented technologies, and delivering added customer value beyond illumination.

#### What does it mean for our customers?

#### A Trusted & Reliable UK Manufacturer

From Royalty all the way to small residential projects, Holophane has been a trusted manufacturer over the decades for all manner of projects. You can be sure you are in good hands and can rely on the collective knowledge and expertise we have gathered since our inception in 1896.

#### **Development of Innovative Products**

As part of our design philosophy, Holophane are always trying to push boundaries in the development of unique product innovations. As such many of our luminaires hold UK and International design patents.



#### Products That Deliver Added Value

In today's world, sustainability and added value are becoming increasingly important. As such our products and solutions go further than just lighting. Many of our innovations include integrated smart connected solutions to help customers achieve further energy savings and can also enable remote monitoring.

#### **Delivering excellent customer service**

Over our 125-year history we have always been committed to delivering the best service to our customers and supporting in a myriad of ways to ensure the best possible outcomes. This goes as far as offering a free lighting design service to one-off products/ solutions to meet customers unique needs.

# **THE D-SERIES RANGE 3 LUMINAIRES, ONE COMPLETE PROJECT SOLUTION**

The **D-Series** range has been designed not only for super optical quality and performance but also to have a cohesive family aesthetic.

Available in 3 luminaire sizes, the D-Series range offers a full outdoor lighting solution for any environment.

#### DSX0

2.000 to 22.000 lumens



and the state

30,000 - 50,000 lumens 8m mounting heights and above

# DSX1

22.000 - 36.000 lumens between 6m and 10m mounting heights

up to 6m mounting heights



# Enhanced Performance •

The **D-Series** range features the very latest LED technologies. In conjunction with silicone optics this delivers the best lighting performance coupled with low-energy consumption and high efficacy. This also means D-Series meets BREEAM compliance.



# 0% ULOR

### Class leading optics -

The **D-Series** range has the flexibility of 4 optimised optical distributions. Through using individual bubble optics per LED D-Series controls the light exactly where it's needed. This results in a luminaire that provides best in class spacings and uniformity.

### Easy maintenance •

The **D-Series** range has an easily accessible gear compartment ensuring fast and simple component changes if required.



# **D-SERIES**



DSX1



DSX2

0

### Connected

The **D-Series** range is ZD4i compatible when specified with the 4-pin Zhaga socket options (TZ01 or TZ02) enabling a future proof luminaire that can be used in conjunction with Controlux Air or a expanding ecosystem of third party devices and sensors.

**Note:** Post Top Bracket for The D-Series range is sold separately. Please enquire with your Holophane representative for the full range of mounting options.



TRA





Bar Marilling



# THERMAL MANAGEMENT

The reliability and performance of an LED luminaire is dependent on a combination of factors. Keeping the temperature of the drivers, LEDs and electronic components as low as possible is critical to maintaining the luminaire's efficiency.

One of Holophane's key luminaire design principles ensures that the **D-Series** family utilises all three heat transfer principles of conduction, convection and radiation.



# Conduction

Taking heat away from electronic components, LEDs and drivers.

The **D-Series** range has drivers and LEDs that are mounted directly to thermally efficient, LM6 Aluminium to promote efficient transfer of heat from these critical components.



# Convection

From luminaire heat sink chassis and LED module to ambient air.

The **D-Series** range is designed to have drivers and LEDs that are mounted separately to avoid compound heating of components. This ensures critical components are kept as cool as possible to ensure long system life.

AGUAR

LAND" "ROVER

# THERMAL MANAGEMENT



# Radiation

Surface finish and form designed to maximise heat radiation.

The **D-Series** range incorporates a large finned casting design which increases the total surface area of the luminaire and in turn helps to promote cooling through radiation.





# **SPECIFICATION**

# DIMENSIONS & PERFORMANCE

#### Specification

Single-piece die-cast aluminium housing, that conforms to EN1706 AC-46500, with integral heat sink fins to optimise thermal management through conductive cooling. LED modules are IP65 with individual lenses, and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the finned housing for cooling. The LED driver is mounted in direct contact with the finned housing for cooling to promote low operating temperature and long system life. Housing is completely sealed against moisture and environmental contaminants (IP65). Installation is via the integrated mounting block and integral arm that facilitate a quick and easy installation.

3000K or warmer must be selected for IDA dark sky certification.

#### **Light Distributions**

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	5 4 3 2 1

Forward Throw (.FW)



#### System Longevity

Features and benefits

- The D-Series's diecast aluminium housing acts as its primary heat sink. Its longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components and driver that extends the life of the luminaire.
- Light engine(s) consist of either 20 or 30 high efficacy LEDs (subject to chosen configuration) mounted to a metalcore circuit board to maximize heat dissipation and promote long life.

#### **Exceptional Performance**

• Offering six lumen packages ranging from 2000 lm to 50,000 lm with efficiencies of up to 143 lpw (Lumens Per Watts).

- Four optimised distributions (Symmetric, asymmetric, forward throw and long and narrow) delivered by quality LEDs and bespoke UV stabilised optics.
- LED light engines with 0% ULOR ensuring night time friendly.

#### Complete Light Package

- Available with ZD4i compatibility for use with range of 3rd-party sensors and devices.
- Fully integrated into Holophane standard column range.

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Square (.SQ)

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4 3 2 1 0 1 2 3 4 5	4 3 2 1 0 1 2 3 4 5
Long & Narrow (.NR)	Long & Narrow (.BLC)

Left Corner Cutoff

Optic (.LCCO)

with extreme backlight cut-off

# SPECIFICATION

DSX0 and DSX1

Forward Throw Extra

(.FWF)

#### Typical luminaire performance

Configuration	Delivered Lumens	Circuit Power (W)	Driver output current (mA)	Luminaire total number of LEDs	Luminaire efficacy (Lm/W)
DSX0.4.LA02X	2,000	14	203	20	143
DSX0.4.LA03X	3,000	20	309	20	150
DSX0.4.LA04X	4,000	27	419	20	148
DSX0.4.LA05X	5,000	34	534	20	147
DSX0.4.LA06X	6,000	40	653	20	150
DSX0.4.LA08X	8,000	56	906	20	143
DSX0.4.LA10X	10,000	68	1181**	20	147
DSX0.4.LA11X	11,000	75	609	40	147
DSX0.4.LA13X	13,000	90	733	40	144
DSX0.4.LA15X	15,000	106	864	40	142
DSX0.4.LA16X	16,000	114	932	40	140
DSX0.4.LA18X	18,000	130	1050	40	138
DSX0.4.LA22X	22,000	169	1385	40	130
DSX1.4.LA22X	22,000	145	799	60	152
DSX1.4.LA30X	30,000	213	1150	60	141
DSX1.4.LA36X	36,000	256	1400	60	128
DSX2.4.LA30X	30,000	202	838	80	149
DSX2.4.LA36X	36,000	239	781	100	151
DSX2.4.LA40X	40,000	268	883	100	149
DSX2.4.LA45X	45,000	310	1016	100	145
DSX2.4.LA50X	50,000	351	1157	100	142







Weight (with control gear)

DSX 0 8.0 kg DSX 1 12.2 kg DSX 2 15.0 kg

Windage (effective projected area)

DSX 0	0.09 m <sup>2</sup>
DSX 1	0.09 m <sup>2</sup>
DSX 2	0.10 m <sup>2</sup>

#### ΤА

-40°C to 40°C

**X** - Denotes colour temperature (replace X with 2 for 2700K, 3 for 3000K and 4 for 4000K)

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.







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# LIGHTING WHERE YOU NEED IT... Not where you don't

Addressing unwanted spill light along the perimeter of your outdoor lighting design is no easy task. Whether you are trying to limit the light trespass due to concern for neighbouring properties, or simply seeking to achieve the most optimised lighting design, you need the most stringent light control available.

The D-Series Extreme Cutoff Optics, with its industry-leading optics addresses light trespass using innovative backlight control, delivering outstanding performance, long life and energy efficiency. This is accomplished through the use of specialised point-source black light engines, integrated specular reflectors with optimised optics and dedicated light-absorbing backlight shields to provide maximum control for backlight while providing superior lighting levels and luminaire efficiency.







# INNOVATIVE OPTICS THAT SUPPORT YOUR DESIGN

#### Specialised, Black D-Series Light Engines

The stray-light absorbing light engines remove light scattered during refraction, ensuring light is directed exactly where it is needed - virtually eliminating spill light.



#### Integrated Shield

The integrated shield design virtually eliminates light trespass, reduces glare, and maximises forward-reflected light, while maintaining high luminaire efficiency.





# **INNOVATION IN ACTION**

#### **Dedicated Backlight Control**

The BLC optic enables significant backlight control, projecting light directly to the front and side of the task area while having as little as 0.5% of total backlight beyond the boundary line or column placement. This optic allows for optimal backlighting results when used on paths, curbs and parameter edging where backlight is not required. This is accomplished using a specialised

**Property Line** Virtually all light is cutoff right at that property line.

**Boundary Line** 

Curb Line



#### **Corner Cutoff Control**

The RCCO (right-corner cutoff optic) and LCCO (leftcorner cutoff optic) apply the same principles as the BLC optic. However, this optical distribution caters to aiding perimeter lighting control to the corners of parking lots and other outside areas. The image above illustrates this optic working in harmony with the BLC optic to provide unmatched perimeter lighting while point-source black light engine with integral reflectors, optimised optics and light-absorbing backlight shields, providing superior lighting levels and luminaire efficiency. LEDs also can't be seen from the rear, which helps reduce glare when looking at the fitting from behind.

maintaining light levels that offer high visibility to the target area. The image further illustrates how sharp the cutoff is of the light. Allowing for projects to have a column mounted in the corner without any light spill going to one side. This helps support compliance with intrusive light requirements along the perimeter area while the target area remains illuminated.



le	Luminaire	e (require	d)								
(0	D-Series (	0 Luminai	re								
	Code	Lamp Ty	<b>pe</b> (require	ed)							
	.LA02X	LED light	engine pro	ducing c.2,	000 lm						
	.LA03X	LED light engine producing c.3,000 lm									
	.LA04X	LED light	engine pro	ducing c.4,	000 lm	Repla	ce 'X' in lam	ip type code			
	.LA05X					with e					
	.LA06X	LED light	engine pro	ducing c.6,	,000 lm	2 for 2					
	.LA08X	LED light	engine pro	ducing c.8,	,000 lm		3 for 3000K 4 for 4000K <sup>1</sup> TZ01, TZ02 & TZ03 Not available with lumen codes				
	.LA10X <sup>1</sup>		engine pro			4 101 4					
	.LA11X		engine pro			<sup>1</sup> TZ01					
	.LA13X	-	engine pro	-							
	.LA15X	-	engine pro	-		LA10>	(and LA22)	(			
	.LA16X	-	engine pro	-							
	.LA18X	-	engine pro	-							
	.LA22X1		engine pro								
		Code		t <b>ion</b> (requir							
		.SY		ric light dis trie light di							
		.AY	-	tric light di							
		.FW .NR		Throw dist d Narrow di							
		.INR .BLC				with extrem	ne backlight	cut-off			
		.RCCO	-	rner Cutoff		MUI CAUEII					
		.LCCO	-	ner Cutoff							
		.FWE		Throw Extr	а						
		.SQ		ight distrib							
			Code		required)						
			.C1	Smooth	White (RAL	9016)					
			.C4	Graphite	(RAL 701)	1)					
			.C6		Grey (RAL7	035)					
			.C7	Black (R	AL9005)						
			.C9		Silver (RAL						
			.RAL****		our (Custon						
			1	Code		Electrical	Class (optio	n)			
				.CII	Class II	_					
					Code		ell (option)				
			1		.TSZ			ature 70 lux factory fitted photocell. (Zodion SS12)			
					.T1			IA socket. (To accept standard NEMA Photocell, available from Holophane).			
					.T7 .T7T			n dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) without locking top n dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top			
					.TZ01			a miniming NEWIA ANSI C150.41 socket (photocell/hode supplied by others) with weather proof locking top 1 Zhaga Socket - 'Top' (suitable photocell/node supplied by others) with weather proof locking cap			
					.TZ01 .TZ02 .TZ03			n Zhaga Socket - 'Bottom' (suitable photocell/node supplied by others) with weather proof locking cap			
								1 Zhaga Socket - 'Top & bottom' (suitable photocell/node supplied by others) with weather proof locking cap			
			1			Code	Controls				
			1			.PH1		Zhaga socket, suitable up to 12m. Dims to 30% after 10 minutes of inactivity - switches off after			
			1			_	further 1	0 minutes. Remotely re-programmable with accessory HEL.PRG (purchased separately).			
			1					s option TZ02 or TZ03.			
						.PH2		le PIR on a Zhaga socket, suitable up to 12m. Dims to 30% after 10 minutes of inactivity - switches			
								further 10 minutes. Remotely re-programmable with accessory HEL.PRG.G (purchased separately). s option TZ02 or TZ03.			
							.CA		lighting node (top socket) for use with Holophane Controlux Air System. Requires option TZ01 or TZ03.		
			1	[				s subscription package for two years)			
							.CAP		lighting node (top socket) & PIR (bottom socket) for use with Holophane Controlux Air System.		
			1				-	option TTZ03. (Includes subscription package for two years). Suitable up to 12m.			
			1	[			Code	Control Gear (option)			
							.CL7	Programmed to deliver 70% of the initial lumens over the life of the luminaire			
						1				.CL8	Programmed to deliver 80% of the initial lumens over the life of the luminaire
							.CL9 .CL****	Programmed to deliver 90% of the initial lumens over the life of the luminaire			
							.UL	Customer specified programming			
						1				Code Dimming outputs (option)	
										LRD DALI	
				1					.LRT56 pre-set to dim to 50% between 12am to 6am		
			1					.LRT66 pre-set to dim to 60% between 12am to 6am			
								.LRT76 pre-set to dim to 70% between 12am to 6am .LRT****** Customer specified pre-set dimming			
								.LRT***** Customer specified pre-set dimming Code Paint finish (option)			
			1	1	1	1	1				
								C Enhanced Paint Finish			
0	.LA02X	.AY	.C7	.CII	.TSZ	.CL7	.LRD	.C Enhanced Paint Finish .C			

Luminaire (required) DSX1 D-Series 1 Luminaire DSX2 D-Series 2 Luminaire Lamp Type (required) .LA22X\* LED light engine producing c 22,000 lumens .LA30X<sup>+</sup> LED light engine producing c 30,000 lumens With a nominal 3000K or 4000K colour temperature. .LA36X\*\* LED light engine producing c 36,000 lumens Replace X with 2 for 2700K, 3 for 3000K, 4 for 4000K .LA40X<sup>+</sup> LED light engine producing c 36,000 lumens TZ01, TZ02 & TZ03 Not available with lumen codes LA30X & LA36X when .LA45X\*\* LED light engine producing c 45,000 lumens configured with DSX1. Also not available with lumen codes LA45X and LA50X .LA50X\*\* LED light engine producing c 50,000 lumens Distribution (required) AY Asymmetric .SY Symmetric FW Forward throw .BLC Long and Narrow distribution with extreme backlight cut-off .NR Long and Narrow distribution .RCCO Right Corner Cutoff .LCCO Left Corner Cutoff .FWE Forward Throw Extra . SQ Square light distribution Code Colour (required) .C1 Smooth White (RAL9016) .C4 Graphite (RAL 7011) .C6 Smooth Grey (RAL7035) .C7 Black (RAI 9005) .C9 Metallic Silver (RAL9006) RAL\*\*\*\* RAL Colour (Customer choice) Photocell (option) T Mini Photocell Complete with NEMA socket (To accept standard NEMA Photocell, available from Holophane) .T1 .T7 Complete with 7-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others) without locking top .T7T Complete with 7-pin dimming NEMA ANSI C136.41 socket (photocell/node supplied by others) with weather proof locking top .TZ01 Complete with 4-Pin Zhaga Socket - Top (suitable photocell/node supplied by others) with weather proof locking top^+ .TZ02 Complete with 4-Pin Zhaga Socket - Bottom (suitable node/presence detector supplied by others) with weather proof locking top^+ .TZ03 Complete with 4-Pin Zhaga Socket - 'Top & bottom' (suitable photocell/node supplied by others) with weather proof locking cap. Code Control Gear (option) .CL7 Programmed to deliver 70% of the initial lumens over the life of the luminaire .CL8 Programmed to deliver 80% of the initial lumens over the life of the luminaire .CL9 Programmed to deliver 90% of the initial lumens over the life of the luminaire .CL\*\*\*\* Customer specified programming Code Controls (option) .PH1 PIR on a Zhaga socket, suitable up to 12m. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL.PRG (purchased separately). (Requires option TZ02 or TZ03). .PH2 Groupable PIR on a Zhaga socket, suitable up to 12m. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL PRG.G (purchased separately). (Requires option TZ02 or TZ03). Wireless lighting node (top socket) for use with Holophane Controlux Air System CA (Includes subscription package for two years). (Requires option TZ01 or TZ03). .CAP Wireless lighting node (top socket) & PIR (bottom socket) for use with Holophane Controlux Air System. (Includes subscription package for two years). Suitable up to 12m. (Requires option TZ03). Code Dimming outputs (option) .LRD DALI .LRT56 Pre-set to dim to 50% between 12am to 6am .LRT66 Pre-set to dim to 60% between 12am to 6am .LRT76 Pre-set to dim to 70% between 12am to 6am Code Paint finish (option) Enhanced Paint Finish DSX1 .LA30X .AY .C7 .T1 .CL7 .PH1 .LRT56 .C Example

#### \*DSX1 only +DSX1 & 2 \*\*DSX2 only

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%.

Note: The specifications of the Holophane luminaire, 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.

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# SUSTAINABILITY ENVIRONMENTAL



## AN ECO DESIGN THAT IS SUSTAINABLE WITHIN.

Our products are just one part of our sustainability efforts, with the 4 pillars of our eco-design which constantly push us to create the most sustainable products that reduce our own environmental impact.

#### Pillar One Sustainable we make more with less

#### How are we doing it?

- To make use of recycled materials where we can
- Reducing unnecessary materials, weight and component count
- Only using components that can be used in other luminaries
- Reduce labour time and energy usage during the manufacturing process

#### Pillar Three Serviceable we ensure product longevity

#### All of our products are:

- Upgradable
- Simple in design
- Ensure easy access to internal components
- Spares are easily available to enable customer servicing and repair

#### Pillar Two Scalable we tailor the product for application

#### We offer:

- Products that are scalable to accommodate new features
- Form-factor sizing for each application to help reduce material waste
- Flexible mounting options



CERTIFICATE OF PRODUCT CERTIFICATION

For information on our EarthLIGHT initiative please scan the QR code

#### Pillar Four Separable

we are committed to global sustainability

#### Our products are:

- Environmentally friendly
- ponents Recyclable
  - Easy to disassemble, making materials used easy to separate





# CIRCULAR ECONOMY TM66

Holophane's ambitious sustainability efforts have set us on the path to obtaining several accreditations with the LIA and CIBSE's TM66 which allows us to rate our products and follow a method that designs out waste.

The traditional resource sonsumption model is linear, where raw material is collected to make products, then often thrown away once they have served their purpose.

CIBSE's TM66 allows us to rate our products and follow a method to design out waste, maximise value and improve maintenance so that our luminaires can be repaired, recycled and re-used.





2.5 to 4.0 Excellent circularity
1.5 to 2.5 Definite/substantial progress to circularity
0.5 to 1.5 Some circular economy functionality
0 to 0.5 Very poor circular economy performance

# CONTROLS COMPATIBLE WITH CONTROLUX AIR

Controlux Air helps users transform their existing infrastructure into a wireless platform. With Controlux Air, you have full remote configuration or your site with an intuitive user interface which is map based and delivers accurate/update reporting.

**Integrated Wireless Controller** 

#### **Wireless Controller**

Wireless communication, lighting control and external sensor interface.

External antenna allowing communication with 'Motion Sensor' and 'Wireless Gateway'.

Creates a wireless mesh type network when used with the 'Wireless Gateway'. Available with option codes .CA or .CAP

#### Motion Sensor

Motion sensor and wireless communication triggering 1 to 10 luminaires (with Integral Wireless Controller) upon detection (user configurable).

Wireless communication with 'Gateway'.

Detects pedestrians, cyclists and cars range (range: 2.5 -75 mph) Range: up to 15m on each side,

9m front and 3m behind at a mounting height of 5m (max).







#### Gateway

Wireless network and server communication (via SIM Card).

Suitable for pole, wall or inside cabinet mounting.

One Gateway required for up to 200 devices (Motion Sensors or Integrated Light Controllers)

with a range of up to 1km open field range.

GATEWAY

Links all devices to web-based Customer Interface for remote management of luminaires and devices.



#### Intuitive user interface

Gain in-depth insights into every single aspect of your lighting system. Smart analytics and simple charts will help you make the right decision about your lighting infrastructure.

#### Automatic failure reports

Lighting-related system faults are identified, and automatic failure reports are sent in real-time. This results in optimized maintenance, better planning, reduced costs and extended luminaire life.

#### Power metering

Dedicated hardware provides precise energy metering, which is converted into detailed energy usage and savings reports.

#### Accurate real-time data

Generation of analytics per an individual light point or their groups. Available data includes: notifications about lighting-related faults, number of triggers per light point, generated energy savings, heatmaps, and more.

#### Map-based visualizations

Outdoor lighting points are represented in a graphic interface on Google Maps, coordinated with GPS technology, which enables you to locate, monitor and control individual light points with ease.

#### **Continuous support**

CityManager receives periodic security and feature upgrades. We do this to ensure optimum functionality and system performance.



### **Financial Benefits**

By installing Controlux Air controls systems, you benefit financially, thanks to energy savings and reduced energy costs.

#### Energy savings of up to 80%



- By using dynamic lighting, it is possible to generate energy savings of 40-80%, depending on the usage environment
- In dense urban environments, the Controlux Air solution has the potential to generate energy savings of 40-50% (in this case, actual savings depend on the traffic intensity)

# Maintenance costs savings up to 50%



- Automatic failure reporting
- No need for expensive visual inspections
- Extended luminaire lifetime
- Excellent preventive maintenance



For more information about ControluxAir scan the QR code or visit www.holophane.co.uk/controlux-air

# **D-Series**



# Speak to the Holophane experts today

Get in touch to discover how, together, we can ensure your lighting space works for you and the planet.

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- holophane.co.uk



HOL-BRO-DPL-UK-02/25