DENVER™ iD BOLLARD

Advanced
LIGHTING TECHNOLOGIES

DENVER iD BOLLARD

HOLOPHANE®

REGISTERED EUROPEAN DESIGN
PATENTED DESIGN

Advanced
LIGHTING TECHNOLOGIES

BOLLARD
DENVER™ iD

The Denver iD: Bollard combines a cohesive family aesthetic with an unrivalled system performance - perfect for creating the ideal design-inspired landscape.

Featuring a patented Transition Zone the Denver iD: Bollard offers improved visual comfort; perfect for the unique requirements of pedestrian-friendly amenity spaces.

Coupled with the latest LED technologies, smart controls integration and class-leading optical performance the new Denver iD: Bollard truly brings together form and a feature rich luminaire system.

The Denver iD: Family consists of Pole, Wall and Bollard luminaires, offering the complete solution to your next outdoor environment.

Future-proofing is catered for with the integration of ZD4i, enabling use with an ever expanding eco-system of smart sensors and devices.

For over 125 years 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. **Denver iD: Bollard** is a continuation of this proud tradition and builds on our heritage of designing luminaires with exceptional optical performance and thermal management which fused together deliver a solution that is future-proof and fully serviceable.

Applications

- Amenity Areas
- Town Squares
- Campuses
- Retail Parks
- Car Parks
- Landscaped Areas

Overview

- Available in lumen packages of 1000 to 3000 (delivered lumens).
- 2 optimised optical distributions including Single or Double-sided optics.
- 2700K, 3000K & 4000K options available.
- CRI > 70.
- Integrated presence detector, controls and emergency options (c.300 lm in emergency mode).
- Enhanced vandal resistance.

TM66 CEAM-Make Rating

Preliminary Rating: 2.4 (Definite/substantial progress to circularity).

Approvals

CE UK CA

Complies with EN60598

IP65 and IK10

-20°C to +45°C

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AN ENVIABLE REPUTATION THROUGHOUT THE WORLD

125 years of Innovation & Excellence

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.

A COHESIVE FAMILY

The **Denver iD** range was designed to have a cohesive family aesthetic to give consistency across a project and achieve a luminaire identity.

From the commonality of the LED modules to the sleek and simple lines, Denver iD gives your outdoor space its own identity.

DENVER iD POLE

DENVER iD WALL

DENVER iD BOLLARD

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PRODUCT FEATURES

BOLLARD DENVER™ iD

Class Leading Performance

Denver iD: Bollard features the very latest LED technologies and bespoke individual PMMA optical lenses. These have been optimised to provide the best spacings possible on lighting schemes whilst ensuring low-energy consumption.

The optical aperture is available in both single-sided or double-sided versions.

Easily maintainable

Denver iD: Bollard has an easily removable and replaceable LED module. This enables at anytime for the module and emergency pack to be replaced in case of unlikely failures or upgraded.

This helps to extend the overall system life and sustainability of the luminaire.

Two Heights

Denver iD: Bollard is available in either 750mm or 1000mm heights.

NIGHTTIME FRIENDLY

Vandal Resistance

Unlike the majority of luminaires Bollards are more susceptible to damage and vandalism.

Denver iD: Bollard has been engineered using a construction of robust cast and extruded Aluminium parts as well as a polycarbonate lens. This culminates in a Bollard that is IK10 rated.

In addition to this, Denver iD: Bollard is available with 2 x vandal resistant nuts to prevent vandals from accessing the luminaire.

IK10

Connected

Denver iD: Bollard can be used in conjunction with Holophane's Controlux Air system to create a full connected lighting scheme. This is achieved using an internal ZD4i device.

For simple motion control Denver iD: Bollard is available with a discrete PIR mounted in the body.

CONTROLUX air

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TRANSITION ZONE

Patented Transition Zone

An intermediary zone between the ‘bright LEDs’ and dark night sky. Individual LEDs can often give a pixelation effect and be uncomfortable to the observer. The Transition Zone’s angled white surface helps give the effect of a large lit area/light source and thus creating a smoother lit effect.

This is important, especially in pedestrian-friendly amenity spaces, to stop LED dazzle and create a more visually comfortable environment.

Patented Transition Zone - Performance

The patented Transition Zone’s angled white surface helps to further reflect/ control high angle light in a more precise way that may otherwise have been wasted in a luminaire not using a transition zone.

Recessed LEDs

The LED boards in Denver iD: Bollard are recessed into the LED module. This helps to prevent unnecessary up light.

High Transparency Lens

The plastic extrusion used in Denver iD: Bollard is highly transparent ensuring that optical performance remains uncompromised.

TRANSITION ZONE

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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 electrical components as low as possible is critical to maintaining the luminaire's efficiency.

One of Holophane's key design luminaire design principles ensures that **Denver iD: Bollard** utilises all three heat transfer principles of conduction, convection and radiation.

Conduction

Taking heat away from electronic components, LEDs and drivers.

Denver iD: Bollard's driver and LEDs are mounted directly to the LM6 Aluminium to promote efficient transfer of heat.

Convection

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

Denver iD: Bollard's driver and LEDs are mounted separately to avoid compound heating of components. The luminaire gear is suspended within the extruded body to encourage air movement around the driver.

Radiation

Surface finish and form designed to maximise heat radiation.

Denver iD: Bollard's large flat surface area helps to promote cooling through radiation.

THERMAL MANAGEMENT

INSTALLATION AND MAINTENANCE

Installation

Denver iD: Bollard has been designed to facilitate easy installation. With only two nuts needed to remove the bollard LED module and combined gear, this makes it easy to quickly remove the bollard head to access the mounting base of the luminaire.

Installation is achieved either using the standard base or in conjunction with a root spike. The base has 4 x mounting holes to ensure stability.

Maintainability

In the unlikely situation when an LED module has become damaged or prematurely failed the LED module can be easily removed and replaced in situ.

Additionally, emergency packs are easily accessed via the gear compartment.

Upgradability

As LED technology ever improves and LEDs become more efficient the LED modules also have the ability to be upgraded in situ. This enables the luminaire to be future proof and can take advantage of any performance gains.

Sustainability

The ability to replace major components means that the **Denver iD: Bollard** can deliver a longer, more sustainable luminaire system life.

Using recyclable components such as Glass and Aluminium means that a large percentage of Denver iD: Bollard can be recycled at end-of-life through recycling schemes such as Lumicom.

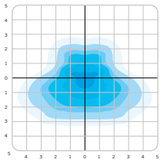
MAINTENANCE

SPECIFICATION

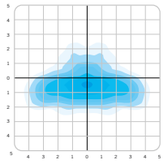
Specification

Holophane Denver iD: Bollard Denver consists of LM6- extruded Aluminium body and a removable LED module manufactured from LM6 marine grade die-cast aluminium with integrated thermal management properties. The LED module optical arrangement consists of LEDs with individual PMMA optical lenses surrounded by a patented white Transition Zone to reduce perceived glare and up light. This is sealed behind high-transparency clear Polycarbonate extrusion. Both luminaire body and LED module are sealed to IP65 and rated IK10. Drivers and LED are mounted separately from each other to promote low operating temperatures and long system life. Mounting of the luminaire is facilitated by using the mounting base of the bollard through specifically drilled points. Cable entry and termination to the luminaire is via an IP65 cable gland. Access to the luminaire is via 2 x nuts.

Light Distributions



Asymmetric (.AY)



Long & Narrow (.NR)

Features and benefits

Exceptional Performance

- Achieves spacings of up to 12m at 10lux average/2lux minimum
- Available with both a single or double sided optical distributions. Giving flexibility to put light where it's needed.
- Patented Transition Zone helps to reduce perceived glare of LEDs.

Easy Installation & Maintenance

- LED module uses a plug and play system and can be removed from the luminaire as one unit to aid in easy access to the base of the luminaire for installation.
- A removable/upgradeable LED module and easy access to gear compartment ensures that key components can be removed and replaced if required.

Fully Controllable

- Integrated discrete PIR sensor option for motion sensing capabilities either per luminaire or as a group of luminaires.
- Integrated 1hr & 3hr emergency options.
- Compatible with Controlux Air.

SPECIFICATION

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CONTROLS

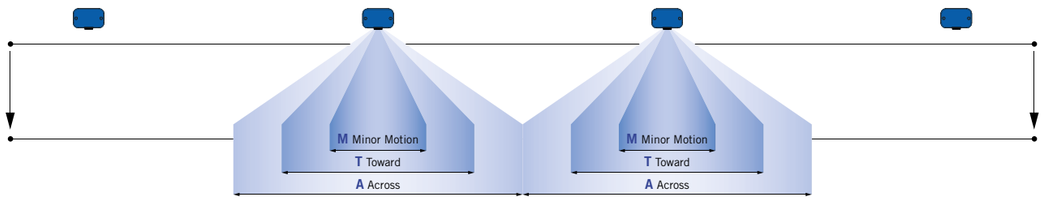
Integrated Presence Sensors

Denver iD: Bollard is available with a range of integrated controls and PIR options to suit project requirements. These range from simple on/off detection on one side of the bollard to double sided detection with pre-set dim levels.

PIR0 Option
Passive Infrared Sensor. Switches off luminaire when no occupancy detected after 10 minutes.

PIR1 Option
Passive Infrared Sensor. Dims luminaire to 30% when no occupancy detected after 10 minutes.

PIR2 Option
Passive Infrared Sensor both sides. Dims luminaire to 30% when no occupancy detected after 10 minutes.



Distance from Bollard	m	2.4	3.0	3.6	6.0
	M	1.0	2.0	3.0	-
	T	3.0	4.0	5.0	6.0
	A	5.0	6.0	7.0	9.0

CONTROLS

The **ZD4i architecture** provides a future-proof foundation that enables users to build on whenever their site/project is ready to opt into new advances in technology. It is designed to work with industry-recognised, futureproof drivers and sensors that have the potential to increase energy efficiency and collect different types of data. By having **Denver iD: Bollard** ZD4i ready customers can upgrade/adjust the controllability of their lighting and gather valuable data whenever they are ready.

Customer Benefits

Increased Energy Savings

Sensors and devices can be used to optimise luminaires to give greater energy savings and provide light only when it is required.

Flexibility

The ZD4i architecture enables the interchanging and upgrading of sensor and device options should and when the end-user pleases.

Future Proof

End-users have access to an ever expanding eco-system of devices and sensors through 3rd-party suppliers. The ZD4i architecture is an industry recognised platform.

CONTROLUX AIR is a wireless technology that offers intelligent lighting with reductions in energy consumption of up to 80%. It optimises energy savings thanks to the individual control of light sources. It controls, monitors and manages street lighting, reporting consumptions, operating hours or system faults.

Note: Please ensure that the selected IoT device is compatible and suitable for the respective luminaire. All installation should be completed in compliance with the respective devices installation instructions (and limitations). Holophane cannot be held responsible for the operation of its luminaires with third party devices.

Internal Controlux Air Node

Denver iD: Bollard is available with an internally mounted Controlux Air Node to enable full connectivity and luminaire control.

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ORDERING DETAILS

Code	**Luminaire** (required)
DBD	Denver iD Bollard

Code	**Series** (required)
.1	Series 1

Code	**Lamp Type** (required)
.LA012	LED light engine producing c.1,000 lm with a nominal 2700K colour temperature
.LA022	LED light engine producing c.2,000 lm with a nominal 2700K colour temperature
.LA013	LED light engine producing c.1,000 lm with a nominal 3000K colour temperature
.LA023	LED light engine producing c.2,000 lm with a nominal 3000K colour temperature
.LA014	LED light engine producing c.1,000 lm with a nominal 4000K colour temperature
.LA024	LED light engine producing c.2,000 lm with a nominal 4000K colour temperature

Code	**Optical Enclosure** (required)
.SU	Single Sided (5LEDs)
.DO	Double sided (10LEDs)

Code	**Distribution** (required)
.AY	Asymmetric
.NR	Long and Narrow light distribution

Code	**Head Height** (option)
.H75	750mm high
.H100	1000mm high

Code	**Colour** (required)
.C1	Smooth White (RAL9016)
.C4	Graphite (RAL 7011)
.C6	Smooth Grey (RAL7035)
.C7	Black (RAL9005)
.C9	Metallic Silver (RAL9006)
.RAL****	RAL Colour (Customer choice)

Code	**Shields** (option)
.LS	Internal light shield

Code	**Paint Finish** (option)
.C	Enhanced Paint Finish

Code	**Voltage Electrical Class** (option)
.CII	Class II

Code	**Photocell** (option)
.TSZ	Complete with miniature 70 lux factory fitted photocell

Code	**Controls** (option)
.PL0	Integrated PIR, suitable up to 4m. Switching only functionality - switches off after 20 minutes. Remotely re-programmable with accessory HEL.PRG (purchased separately).
.PL1	Integrated PIR, suitable up to 4m. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL.PRG (purchased separately).
.PL2	Groupable Integrated PIR. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL.PRG.G (purchased separately).
.2PL2	Dual Groupable Integrated PIR. Dims to 30% after 10 minutes of inactivity - switches off after further 10 minutes. Remotely re-programmable with accessory HEL.PRG.G (purchased separately).
.CA	Wireless lighting node (integrated) for use with Holophane Controlux Air System. (Includes subscription package for two years)

Code	**Emergency** (option)
.EM1	1hr maintained integrated emergency. Self-test
.EM3	3hr maintained integrated emergency. Self-test

Code	**Cut Out** (option)
.MCB	Mini Circuit Breaker

Code	**Dimming Outputs** (option)
.LRD	LED Regulable Dali
.LRT******	Customer specified pre-set dimming

Code	**Control Gear** - 4 (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

Code	**Auxiliary Circuits** - 14 (option)
.TW	Through Wiring

Code	**Screws** - 21 (option)
.V1	Vandal-resistant screws

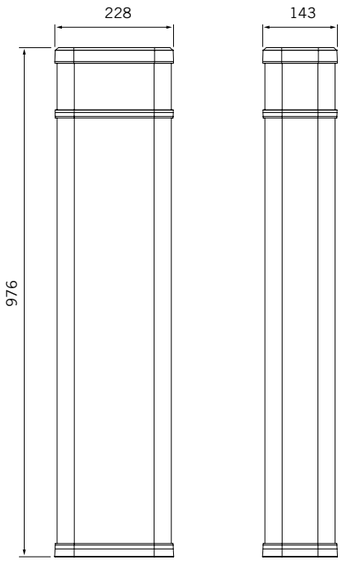
DBD	.LA012	.SU	.AY	.H75	.C1	.LS	.C	.CII	.TSZ	.CA
Example										

accessories

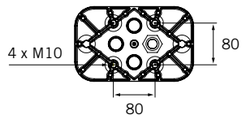
Code	
DBD.VK	Vandal Key
DBD.ROOT	Root Mounting Spike to fit Flange Base Denver iD Bollard. Includes set of 2 Bolts M10 x 100mm
DBD.FT	Set of 2 Bolts M10 x 100mm for Flange Base Fixing

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.

DIMENSIONS & PERFORMANCE



dimensions in mm



Denver iD: Bollard base plate

Typical luminaire performance

Configuration	Delivered Lumens	Circuit Power (W)	Driver output current (mA)	Luminaire total no. of LEDs	Luminaire Efficacy (lm/W)
DBD.LA01X.SU	c.500	6	270	5	85
DBD.LA01X.DO	c.1,000	9	265	10	110
DBD.LA01X.SU	c.1,000	11	585	5	90
DBD.LA02X.DO	c.1,500	14	425	10	106
DBD.LA02X.SU	c.1,500	18	1000	5	85
DBD.LA02X.DO	c.2,000	20	600	10	101

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%.

Weight

DBD	9.5 kg

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GIVING YOUR OUTDOOR SPACE ITS OWN IDENTITY

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