Advanced
LIGHTING TECHNOLOGIES

HOLOPHANE®

HMAO

High Mast
Advanced Optix

MADE IN BRITAIN®

Registered European design / Patented design

Advanced
LIGHTING TECHNOLOGIES

HIGH MAST
HMAO

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 through to the most complex area lighting applications.

The specially engineered optical modules come with a full range of distribution options to meet the highest performance standards and deliver outstanding visibility and uniformity.

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. HMAO is a continuation of this proud tradition.

Durability
Performance
Reliability

Applications

- Freight Terminals
- Industrial Facilities
- Car Parks
- Truck stops
- Ports and Docks
- Airports
- Motorways
- Toll Plazas

Overview

- 3000°K & 4000°K colour temperature.
- CRI > 70.
- Lumen packages ranging from 30,000 - 100,000 lumens.

TM66 CEAM-Make Rating

Preliminary Rating: 2.3 (Definite/substantial progress to circularity).

Approvals

CE UK CA

Complies with EN60598

IP65 and IK07

-20˚C to +45˚C
(L75X limited to +40˚C, LC100X limited to +35˚C)

LUX Awards 2015 WINNER

MADE IN BRITAIN

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HIGH MAST HMAO

PRODUCT FEATURES

In this very competitive environment, it is becoming increasingly important to reduce operating costs and improve efficiency. Holophane is your expert when it comes to delivering the most efficient lighting solutions to help you achieve that goal.

Taking advantage of the most advanced technologies available, you can achieve an energy saving of up to 66% over existing installations. Holophane's High Mast Advanced Optix (HMAO) helps you to reduce installation and long term maintenance costs.

HMAO is available in 6, 9 or 12 optical pod configurations dependent on lumen package.

Two piece electrical housing. Upper casting can be detached/hinged to aid installation.

Advanced optical control

By combining the latest in LED technology with our advanced glass refractor optic we are able to break up the image of the LEDs with a PrismGlow effect. This reduces the glare normally associated with individual LEDs and eliminates hot stops on the working environment thus creating a more uniformed vertical and horizontal lighting solution.

Glass Refractor

The major advantage of glass over aluminium or plastic is its low electrostatic charge, which makes it less attractive to dust and dirt accumulation over time. A glass refractor has a much lower light depreciation over time than either aluminium or plastic, fewer luminaires are required, significantly reducing installation, operating and maintenance costs.

Self-cleaning Effect

The glass optics and the vertical ventilation slots in the heat-sink chassis work together in creating a self-cleaning optic. The heat generated by the LEDs helps to channel cooler and denser air across the low static optical glass surface thus preventing the settling of dust particles and enhancing the lumen maintenance of the luminaire.

Ventilated optical housing which can be rotated to suit application.

ida
DARK SKY APPROVED

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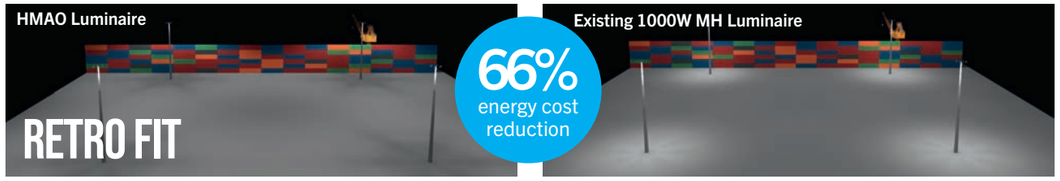
RETROFIT
NEW BUILD

Customer benefit expressed in numbers on a new build and retrofit installation.



Design Parameters

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

Product Used

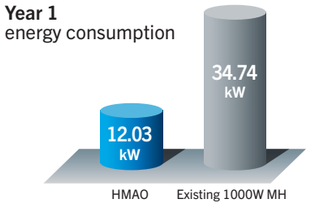
32 High Mast Advanced Optix
- Luminous flux: c45,000
- Luminous efficiency: 144 lpw

32 1000MH Luminaire
- Luminous flux: c67,000
- Luminous efficiency: 62 lp/W

Benefits

- 66% year 1 energy savings
- Improved light control
- Horizontal/vertical uniformity improved

Year 1
energy consumption



HMAO		1000W MH
32	No of Luminaires	32
32	Eav (lux)	31
0.597	Uniformity	0.552
12.03	Total Power Load kW	34.72
£4,831	Year 1 Energy	£13,940

Design Parameters

- Designed to EN 12464-2:2014
- Target of 30 lux
- 30m mounting height in a 1000m grid
- Designed to 8000 hours

Product Used

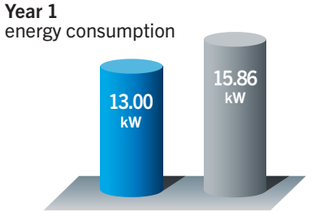
26 High Mast Advanced Optix (HMAO)
- Luminous flux: c60,000
- Luminous efficiency: 144 lpw

26 Equivalent LED High Mast Luminaire
- Luminous flux: c56,000
- Luminous efficiency: 93 lp/W

Benefits

- 19% year 1 energy savings
- 20% improvement in uniformity
- Improved vertical illumination
- Low glare

Year 1
energy consumption



HMAO		Equivalent LED high mast luminaire
26	No of Luminaires	26
30	Eav (lux)	30
0.779	Uniformity	0.651
13.00	Total Power Load kW	15.86
£5,220	Year 1 Energy	£6,368

* Designed to EN12464-2:2014 ref 5.4

SPECIFICATION

Specification

HMAO shall consist of six, nine or twelve prismatic glass refractors manufactured from borosilicate glass to ensure longevity and minimise dirt depreciation. Each glass lens houses an LED module and creates individual optical pods. Each optical pod is housed in a fully ventilated and finned housing manufactured from aluminium to maximise heat transfer. The electrical housing consists of two castings containing the drivers, 10kV surge protection and electrical termination. The luminaire chassis and electrical housing utilises all three heat transfer mechanisms of conduction, convection and radiation to ensure that the high density modules and electronic drivers are thermally managed. Mounting is via the four bolt side arm mounting with +/-5 degree tilt and suitable for 42mm and 60mm.

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

Features and benefits

Thermally Managed Solution

- Utilises convection and conduction to thermally manage the LEDs ensuring longer life and high delivered lumen outputs to replace 400-1000 watt metal halide systems.
- Gear housing designed to maximise heat dissipation, via conduction, from critical electronic components to ensure that they are run as cool as possible to deliver a long system life.

Exceptional Optical Performance

- Glass refractor technology which delivers a wholly luminous effect that accurately controls the output of the LEDs, reduces glare with its 'PrismGlow' and delivers excellent uniformity.
- Rotatable optical assembly providing on site alignment of distributions to specific lighting requirements and ensuring equal weight distribution on existing mast head frame.
- Seven dedicated distributions designed for all types of retrofit or new installations where high mounting is required.

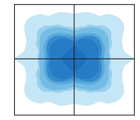
Enhanced Lumen Maintenance

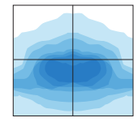
- Glass optics ensure a low electrostatic charge which make it less attractive to dust and dirt accumulation over time so improving dirt depreciation.
- Ventilated luminaire chassis works together with the glass optics to create self-cleaning system which enhances the lumen maintenance of the luminaire over time.

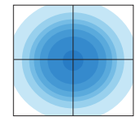
Installation Flexibility

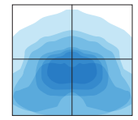
- Suitable for side entry mounting via the integrated four bolt mounting system which also offers 0 or 5 degree tilt.

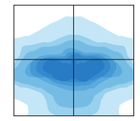
Light Distributions

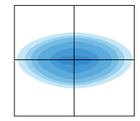

Square (.SQ)

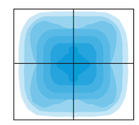

Asymmetric (.AY)


Symmetric (.SY)


Forward Throw (.FW)


Long & Narrow (.NR)


High Beam Symmetric (.HS)


Square Wide (.SQW)*

*Series 4 only

SPECIFICATION

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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.

CONTROLUX air

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 code .T1Z4. Node be to be ordered as separate item (IOT.TZ4.TSK).

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

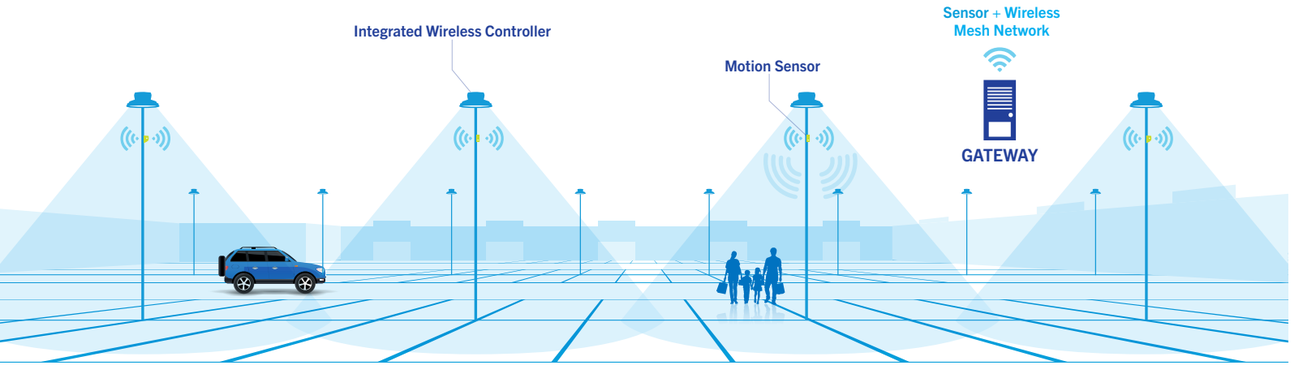
Wireless network and server communication (via SIM Card).

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.

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%

40% - 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%

20% - 50%

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

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HIGH MAST SYSTEM

HMAO is available as a replacement for existing high mast luminaires or as part of a complete highmast system.

Holophane High Mast System

The most sophisticated system on the market. This mast system consists of a headframe mounting ring for luminaire mounting, winch assembly and suitably rated switchfuse mounted in the mast base, complete with foundation set. The latched raise and lower system utilises heavy duty stainless steel cables in conjunction with three continuous contact iris action guide arms on the lowering ring. This allows all maintenance to be carried out at ground level using a portable power tool connected to the mast supply.

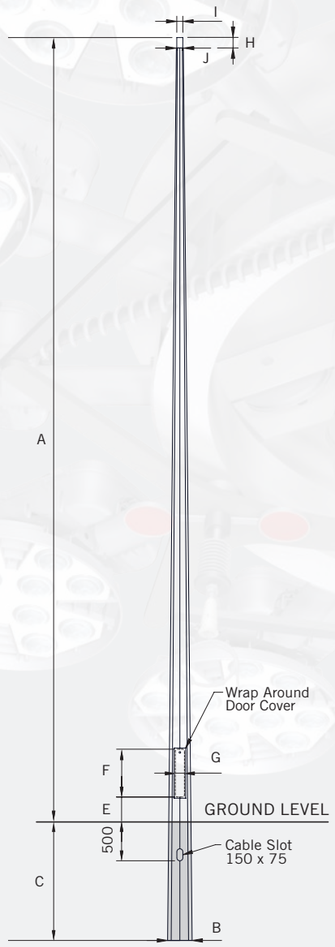
Available at heights of 15m, 20m, 25m or 30m.

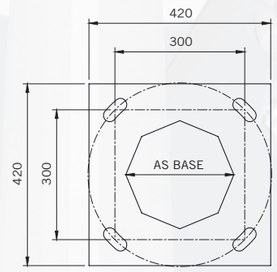
Positive fail-safe latching

Continuous contact guide arms

HIGH MAST

Holophane Octagonal Column





Flange plate

	Nominal Height	Root End Diameter*	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg* (Rooted/Flange Plate)	Bending Moment (ULS) Nm
description	**A**	**B**	**C**	**A+C**	**E**	**F**	**G**	**H**	**I**	**J**		
8m standard duty	7700	246.3	1200	8900	300	600	115	130	76.1	N/A	111/113	Please contact Holophane for Information
10m standard duty	9700	308	1500	11200	300	600	115	130	76.1	N/A	167/153	
12m standard duty	11700	308	1700	13400	300	600	115	130	60.3	N/A	197/179	
12m heavy duty	11700	290	1700	13400	300	600	115	130	76.1	N/A	203/192	
15m standard duty	14700	322	1700	16400	300	600	115	130	60.3	N/A	257/240	
15m heavy duty	14700	379	2000	16700	300	600	115	130	88.9	N/A	421/398	

* Exclusion TBC

8-12m std Poles	**Flange Plate FB2**	**Bolts**	M24 x 820
15m std Poles	**Flange Plate FB2**	**Bolts**	M30

Contact Holophane for more information

Flange Plate and J-Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and J-Bolts are supplied.

std = Standard **hd** = Heavy Duty Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

Advanced
LIGHTING TECHNOLOGIES

ORDERING DETAILS

Code	**Luminaire** (required)
HMAO	High Mast Advanced Optix

Code	**Series** (required)
.4	Series 4

Code	**Lamp Type** (required)
.LC30X	LED light engine producing c.30,000 lm with a nominal 3000K or 4000K colour temperature
.LC35X	LED light engine producing c.35,000 lm with a nominal 3000K or 4000K colour temperature
.LC45X	LED light engine producing c.45,000 lm with a nominal 3000K or 4000K colour temperature
.LC50X	LED light engine producing c.52,000 lm with a nominal 3000K or 4000K colour temperature
.LC60X	LED light engine producing c.60,000 lm with a nominal 3000K or 4000K colour temperature
.LC70X	LED light engine producing c.70,000 lm with a nominal 3000K or 4000K colour temperature
.LC75X	LED light engine producing c.75,000 lm with a nominal 3000K or 4000K colour temperature
.LC80X	LED light engine producing c.80,000 lm with a nominal 3000K or 4000K colour temperature
.LC90X	LED light engine producing c.90,000 lm with a nominal 3000K or 4000K colour temperature
.LC100X	LED light engine producing c.100,000 lm with a nominal 3000K or 4000K colour temperature

Replace 'X' in lamp type code with either:
3 for 3000K
4 for 4000K

Code	**Optics**
.NR	Long and Narrow light distribution
.HS	High beam symmetric distribution
.AY	Asymmetric light distribution
.FW	Forward throw light distribution
.SQ	Square light distribution
.SY	Symmetrical light distribution
.SQW	Square wide light distribution

Code	**Colour**
.C9	Metallic Silver RAL9006
.RAL****	RAL Colour (customer choice)

Code	**Control Gear** (options)
.LRD	DALI, number of addresses will vary on the lumen version configured
.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	**Photocell** (options)
.TSZ	Complete with miniature 70 lux factory fitted photocell (Zodion SS12)
.T1	Complete with NEMA socket (to accept standard NEMA Photocell, available from Holophane*)
.T7	Complete with 7-pin dimming NEMA ANSI C136.41 socket (suitable photocell/node supplied by others)
.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.†

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

Code	**Voltage** (options)
.C-PROTEC	With 20kV/10kA surge protection

HMAO	.4	.LC30X	.NR	.C9	.LRD	.TSZ	.C	

Example

Note: 42/60mm side entry, 10kV/10kA surge protection as standard.
*Luminaire is IP65 when options .T1 or .T are selected. † Not available with .LRD

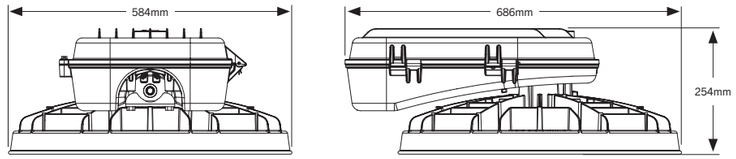
Lumen data is considered to be representative of the configuration shown, and may vary, with a tolerance on flux of +/- 7% (typical of LED manufacturers data) and luminaire power of +/- 5%.

accessories

Code	
HMAO.SD90	90º shield
HMAO.SD120	120º shield
HMAO.SD180	180º shield

DIMENSIONS & PERFORMANCE

dimensions in mm



Typical luminaire performance

Configuration	Delivered Lumens	Power Consumption (W)	Driver output current (mA)	Luminaire total no. of LED modules	Luminaire efficacy (llm/W)	Rated life of LED module (L70B50 @Tq 25ºC)
HMAO.4.LC30X	c.30,000	180	565	6	167	100,000
HMAO.4.LC35X	c.35,000	212	667	6	165	100,000
HMAO.4.LC45X	c.45,000	279	878	6	161	100,000
HMAO.4.LC52X	c.50,000	317	989	6	164	100,000
HMAO.4.LC60X	c.60,000	374	787	9	160	100,000
HMAO.4.LC70X	c.70,000	446	938	9	157	100,000
HMAO.4.LC75X	c.75,000	486	1017	9	154	100,000
HMAO.4.LC80X	c.80,000	502	792	12	159	100,000
HMAO.4.LC90X	c.90,000	583	919	12	154	100,000
HMAO.4.LC100X	c.100,000	658	1040	12	152	100,000

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

HMAO 23 kg

Windage

HMAO 0.120 m²

Rotatable optical assembly

Four bolt mounting suitable for 42mm and 60mm side entry

Hinged upper casting

ORDERING DETAILS COLUMN

Code	
HMAOE	HMAO Octagonal column

Code	**Luminaire mounting height**
.10	10 metre column
.12	12 metre column
.15	15 metre column

Code	**Brackets**
.1S	Single head short bracket
.1L	Single head long bracket
.2S	Twin head short bracket
.2L	Twin head long bracket

Code	**Bracket type**
.SA60	Side arm bracket suitable for 60mm entry
.SA605	5º tilt side arm bracket suitable for 60mm entry

Code	**Column category**
.LMZ	For light & medium area wind zones
.HVZ	For heavy area wind zones
.HEZ	For extra heavy area wind zones

Code	**Colour** (bracket finish only)
.GV	Galvanised only bracket
.GV9	Galvanised and painted metallic silver (RAL 9006)

Code	**Optional base type**
.FB4	Flange base mounting (suitable for ground level installation only). 420 x 420 plate with 300 x 300 centres.

HMAOE	.12	.1L	.SA60	.LMZ	.GV	.FB4

Example

Note: 15m twin head for HEZ wind zone not available as standard. Please contact Holophane for further information.

accessories

Code	
HELE.FS1	Anchor bolt kit M24 x 820mm. Suitable for Octagonal columns.

HMAO

HOLOPHANE®

Advanced LIGHTING TECHNOLOGIES

HOL-BRO-HMAO-UK-02/25

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