

DESIGNING & MANUFACTURING IN THE UK SINCE 1923



LIGHTING FOR AVIATION

DESIGN | MANUFACTURE | INSTALL | MAINTAIN



01920 860600
www.cuphosco.co.uk
enquiries@cuphosco.co.uk

INTRO

CU Phosco Lighting are the market leaders in the design, manufacture, installation and maintenance of High Mast lighting, specialising in Airport Lighting. CU Phosco Lighting undertakes contracts at AVIATION worldwide, working closely with numerous large facilities including Heathrow, Manchester, Dubai, Melbourne, Bristol, Abu Dhabi, Dublin, Beijing and Changi.

Our High Masts and luminaires are present in the most demanding climatic conditions from typhoon winds in the South China Sea to the high temperatures of the Middle Eastern summer.

As a company we look after our customer from initial consultation through to installation, final commissioning and follow up maintenance. Our dedicated Contract Services Division is able to manage your projects in the UK, Europe and Worldwide. To achieve this we recognise the need to build honest relationships with our customers, to offer products at fair prices and

importantly to support our customers on the use, maintenance and eventually replacement of our equipment. This all adds up to a level of support which is unparalleled in the lighting industry.

To be confident in providing the quality and support our customers require, we manufacture products which meet the customer's technical performance and which are also appropriate for the environment into which they will be placed. Sometimes these aims are contradictory and it is then where the knowledge and experience of our staff is called upon by customers to ensure the best compromise of performance and durability is achieved.

Our Contract Services Division are an experienced team who are able to supply, install and maintain high masts using their own ASLEC and NICEIC certified personnel.



DESIGN | MANUFACTURE | INSTALL | MAINTAIN

CU Phosco Lighting offers customers who require it, a turnkey package. We will design the lighting scheme, check that all equipment to be supplied conforms to the specifications, design and arrange the installation of the foundations, design and install the electricity supply, manufacture the High Masts and luminaires, deliver the equipment, install the equipment and commission the equipment to confirm that the specification has been achieved.

CU Phosco's award winning LED products offer an innovative and energy saving solution to HID lit areas and highway lighting projects. We design, supply and install LED upgrade packages for existing projects to reduce energy and cost.

Our High Masts offer ease of maintenance with a simple and effective winching system which allows the lighting ring to be lowered to ground level for lantern maintenance.

CU Phosco Lighting believe that Health, Safety and the Environment are paramount across the breadth of the operations undertaken by our teams. All activities are carefully assessed by fully qualified managers and supervisors using risk assessments and method statements.

CU Phosco Lighting operates an Environmental Management System which complies with the requirements of ISO 14001:2004 for the testing and manufacturing, management of installation work, inspection and maintenance of exterior lighting. The system aims to recognise and reduce the impact on

the environment.

High Masts, whether made by CU Phosco or other manufacturers, are substantial pieces of equipment and with proper maintenance they will last much longer than their design life. CU Phosco can check the structural soundness of any High Masts to confirm that they will be safe for extended use.

At the end of the design life of a High Mast the lanterns or floodlights, if original, will seem very out of date to a modern engineer. CU Phosco offer a retrofit service to bring old masts up to date by fitting new more energy efficient luminaires, checking and refurbishing or replacing the lantern ring, headframe, ropes, electrical cables and winches.

By implementing a structured maintenance programme in conjunction with CU Phosco Lighting you can ensure compliance with all current legislation and enhance the life of the equipment.

CU Phosco Lighting's own maintenance engineers are highly qualified and trained and are subject to a continual programme of training and development.

Outside of the UK we can train local engineers to maintain our High Masts so the products are safe and the lighting design delivers its full potential throughout its life.

SOME OF OUR UK CLIENTS



LED AIRPORT LIGHTING INSTALLATIONS:

LONDON HEATHROW
 LONDON STANSTED
 MANCHESTER AIRPORT
 TAG FARNBOROUGH AIRPORT
 BRISTOL AIRPORT
 GLASGOW PRESTWICK
 EDINBURGH AIRPORT
 LIVERPOOL JOHN LENNON
 SUMBURGH (SHETLAND ISLANDS)

AL MAKTOUM INTERNATIONAL, UAE
 DUBLIN AIRPORT, IRELAND
 ARUBA, DUTCH CARIBBEAN
 VANCOUVER AIRPORT, CANADA
 VICTORIA AIRPORT, CANADA
 KANGIRSUK AIRPORT, QUEBEC, CANADA
 MAURITIUS AIRPORT
 ARUBA AIRPORT
 JULIUS NYERERE, TANZANIA
 ABU DHABI INTERNATIONAL AIRPORT

HEATHROW AIRPORT



CLIENT	Mitie Facilities Management
LOCATION	Heathrow Airport T5
PRODUCTS	FL800R LED Floodlight

PROJECT OVERVIEW

With an average of 200,000 passengers arriving and departing per day, Heathrow Airport is one of the busiest airports in Europe. The focus of the project was to provide a high quality energy efficient LED scheme specific to the requirements of Heathrow Airport, with minimal disruption to the airport's meticulous schedule.

All the FL800R fittings were manufactured in Ware, Hertfordshire on a strict schedule. The advantage of producing the lanterns 'in house' meant CU Phosco could react quickly to operative feedback on site and alter production to improve the installation process. For example the use of a plug and socket system was included in the lantern design. As a result the majority of the wiring was completed in the controlled environment of the factory, minimising time on site.

FACTS & FIGURES

- Energy savings of over 55%
- Complies with CAP168

RESULTS AND BENEFITS

The difference in light quality from Sodium to LED is evident across Terminal 5. The FL800R provides exceptional control minimising obtrusive light (glare and upward light), without compromising the lighting performance. This means the conversion has not only created an improved environment on the stands, it has provided a substantial energy saving.

It became apparent from the start of the project that CU Phosco had to deliver a flexible and streamlined system to operate efficiently in the strict working window given each night when the day's flights are over. Therefore CU Phosco adapted the FL800R product to reduce the installation time. Each procedure was rigorously scrutinised so that all activities were completed on time.

The outcome of the project and a subsequent tender process has resulted in CU Phosco being appointed by Mitie Facilities Management on behalf of Heathrow Airport Ltd to carry out LED replacements on the remaining stands at Terminals 1, 2, 3 & 4.



HEATHROW AIRPORT



HEATHROW AIRPORT



STANSTED AIRPORT



CLIENT	Stansted Airport Ltd.
LOCATION	London Stansted Airport
PRODUCTS	FL800R LED Floodlight & P855 LED

PROJECT OVERVIEW

CU Phosco Lighting were requested to replace the existing 750+ SON-T floodlights across Stansted Airport with the FL800R LED floodlight P855 LED high mast lantern. This included all the airside masts and several landside masts.

The aims of the project were to provide a significant energy saving, improve the quality of the lighting and provide increased control of the lighting system.

A comprehensive High Mast Survey was carried out by a CU Phosco Lighting Supervisor on all 87 no High Masts. This identified that 8 no. masts on the Northside of the airport required replacing. CU Phosco Lighting delivered the project fully in-house including the design, supply and installation of LED lanterns and replacement high masts.

RESULTS AND BENEFITS

The FL800R & P855 LED solution offers a better quality of light for both the staff and public at the airport. The feedback from the ground crews and maintenance staff has been very positive.

The project produced an energy saving over 50% which will be further increased with the use of the Telensa CMS system which CU Phosco Lighting installed as part of the project. The increased control gives the airport the ability to dim or turn off stands/areas that are not in use.

CU Phosco Lighting's ability to deliver the full project in-house ensured that the project was completed on time and within budget.

TESTIMONIAL

Stansted Airport engaged CU Phosco Lighting to replace the existing High Mast Lighting across the airfield with LED technology. Following a successful trial with four masts at the airport, with positive feedback from airside users and third parties, the wider replacement scheme was completed across 2016 and 2017. Additionally, a new control system allowing LEDs to be grouped and controlled individually was embedded providing additional resilience and the ability to calibrate the lighting programme to maximise efficiencies. Together, this reduced energy consumption by ~1 million kWh per annum and significantly improved the quality of apron lighting.

Engaging a contractor capable of the design, manufacture and installation facilitated a single point of contact for the works and proved effective in promptly managing and absorbing changes to scope.

Conclusively, CU Phosco Lighting adopted a pragmatic and collaborative delivery approach with the airport, allowing the project to be completed ahead of schedule and within budget.

DANIEL VICKERS
PROJECT MANAGER AT STANSTED AIRPORT



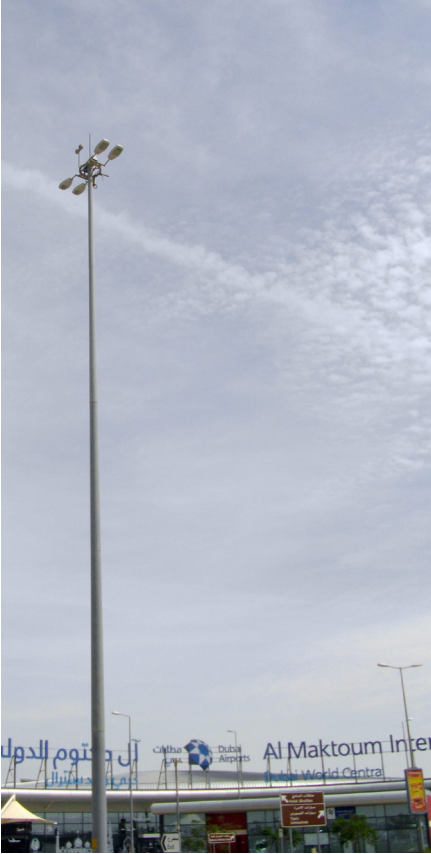
STANSTED AIRPORT



STANSTED AIRPORT



AL MAKTOUN INTERNATIONAL AIRPORT



CLIENT	Dubai Civil Aviation (DCA)
LOCATION	Al Maktoum International Airport, Dubai, United Arab Emirates
PRODUCTS	FL800R LED Floodlight
	High Masts

PROJECT OVERVIEW

To provide replacement LED floodlights on existing CU Phosco Lighting 30m High Masts, lighting the main apron of Al Maktoum International Airport. It was originally supplied in 2008 with Phosco 1000 watt FL500 and 2000 watt FL550 MHN/LA floodlights with instant restrike ignitors.

The Airport currently has some passenger flights but is mainly used for all air cargo for Dubai and surrounding areas therefore accommodating the world's largest aircraft.

RESULTS AND BENEFITS

CU Phosco Lighting and Haji Commercial Co. LLC (HCC represents CU Phosco Lighting in the UAE) worked closely with DCA to reduce energy and maintenance costs for this project.

CU Phosco Lighting initially supplied a small quantity of Phosco FL800R-4 610 watt LED floodlights to replace FL500 1000 watt MHN/LA floodlights as a trial.

After a successful trial for reliability and performance, running the floodlights through the extreme heat of the Middle East summer, DCA ordered 10 more FL800R-4 LED floodlights so 2 no. complete masts could be converted to LED.

FACTS & FIGURES

- Increase in the average lighting levels of 150% up from 30 lux to 45 lux
- Energy savings of 38%



HIGH MASTS



TAILOR MADE

High Mast lighting is the most efficient method of lighting large areas at airports with the minimum number of obstructions. CU Phosco Lighting the world leaders in High Mast lighting, have achieved that distinction by continuous development, investment and innovation, working with numerous airports worldwide. Our experience is unequalled in the number of High Masts we have made and the many different environments in which we have installed them over the past 50 years.

CU Phosco High Masts are manufactured at our dedicated High Mast production facility in the UK.

WHY CU PHOSCO HIGH MASTS?

- To illuminate large areas with minimum obstructions
- For a complete design, manufacture and installation package
- High Masts can be used in confined spaces and do not require a large area to be cleared
- Unique patented double drum winch with individual adjustment possible on each drum
- Any height mast shaft from 10m to 60m manufactured by us to your specification
- Mast and fittings can be maintained at ground level for greater safety
- Minimum maintenance required with sealed for life bearings on mast pulleys
- Quick raising and lowering system
- Light and portable power tool which can be carried to inaccessible sites with ease
- Remote operation

SIMPLICITY | RELIABILITY | SAFETY

CU Phosco Lighting's design philosophy for High Masts is to eliminate all items requiring servicing from the mast head. It is for this reason we recommend the in-tension system, using double or triple drum winches.

CU Phosco's patented system.

- Supplied factory made and terminated - so no site cutting or termination of ropes is required.
- Has no troublesome divider or compensating device - as CU Phosco's system allows individual operation of each winch drum for adjustment
- Has pulley bearings at the top of the mast which are sealed for life - so no maintenance is required
- Does not require latches - no latches mean no moving parts at the top of the mast. High Masts are lowered and raised very infrequently and latching systems often do not unlatch whether due to corrosion, airborne debris or birds. Once the lantern ring is stuck on the latches at the top it is expensive to rectify either by sky tower or by taking down the mast. Latch designs do not hold the lantern ring tight against the docking point and wind induced vibration can severely shorten lamp and lantern life.

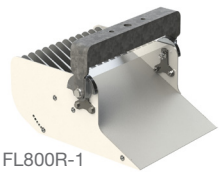
CU Phosco are confident that even after long periods without use, our raising and lowering system will function properly; a confidence founded on five decades of experience and tens of thousands of High Masts.



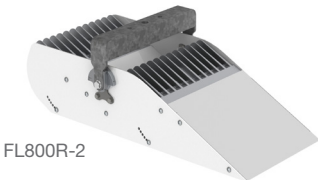
FL800R



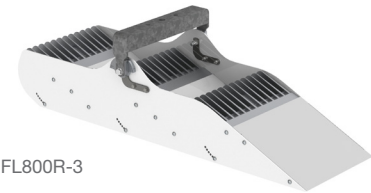
INTRO



FL800R-1



FL800R-2



FL800R-3



FL800R-4



WB830



WB855

FL800R LED FLOODLIGHTING SYSTEM provides an innovative new approach to floodlighting.

To build a system, FL800R modules can be grouped as a luminaire in single, double, triple or quad configurations and arranged on a mast with full azimuth rotation and tilt function. WB830 gear box provides remote mounting for LED drivers and controls whilst the WB855 gear box is used for side entry mounting.

Each module has a range of optical distribution options and a range of elevation angles to build a combined luminaire photometric output that meets even the most challenging of schemes.

FL800R module uses AeroFlow® Cooling System to provide exceptional thermal management. Maximised heat dissipation enables a compact luminaire design, which can be retrofitted onto existing masts.

Lumileds LUXEON® MX LEDs and AeroFlow® together deliver high lumen output with very low lumen depreciation over life, this minimises energy and operating cost by reducing overlighting.

FL800R offers an extremely competitive solution to replace traditional HID sources with performance, versatility and reliability from the latest technology.

LUMINAIRE LUMINOUS FLUX	up to 82600 lm
LUMINAIRE EFFICACY	up to 135 lm/W
LUMINAIRE EFFICACY (FULL POWER)	up to 119 lm/W

FEATURES

- Lumileds LUXEON® MX LED
- Superior luminaire efficacy up to 135 lm / W
- High Colour Rendering Index (CRI > 70)
- Constant Light Output (CLO)
- Instant hot restrike
- AeroFlow® Cooling System
- Demountable driver compartment
- Low wind profile area
- Low maintenance costs
- Full Cowl, distribution cut off 5° below horizontal
- Flexible and programmable lighting control options (CMS)
- IP66 ingress protection
- 100% recyclable

BENEFITS

- High flux density and efficacy LED
- Reduces energy costs and carbon emissions
- Improved safety and visual performance
- Minimises overlighting, saving energy
- Suitable for high security and safety critical lighting tasks
- L80 > 100,000 hrs, Ta = 50°C *
- Flexible mounting allowing cost savings
- Allows mounting on existing columns / masts
- Minimises Total Cost of Ownership
- Dark sky friendly, minimal glare
- Full control and monitoring of each luminaire
- Consistent high performance in aggressive environments
- Fully compliant with WEEE and RoHS regulations

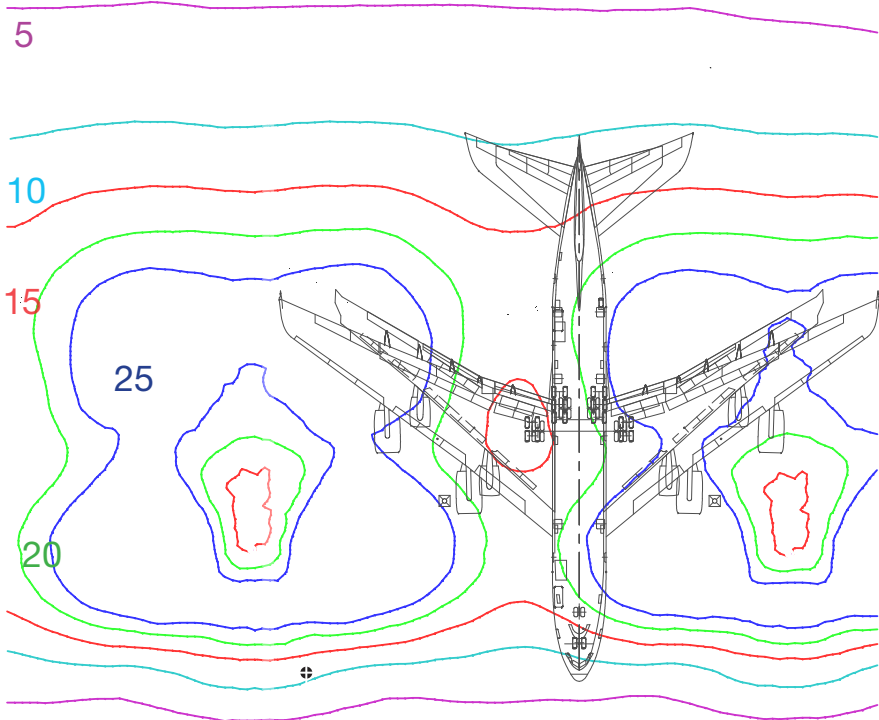
** Power limitation will apply

LIGHT CONTROL



FL800R meets the most demanding requirements for area lighting applications such as sports lighting, AVIATION, ports and traffic junctions. Combined, the cowl and precision optics provide exceptional control minimising obtrusive light, glare and upward light without compromising the lighting performance.

ENERGY EFFICIENCY



A380 Aircraft Stand 87 x 82m lit to CAP168
Overall MF = 0.80
Mounting height = 20m

The table below shows the energy saving for a typical Airbus A380 aircraft stand.

LIGHT SOURCE	NOMINAL POWER	SYSTEM POWER	NUMBER OF UNITS	TOTAL SYSTEM POWER	ENERGY SAVINGS
SON-T	400W	449W*	8	3592W	-
FL800R	150W	143W**	16	2288W	37%

FL810

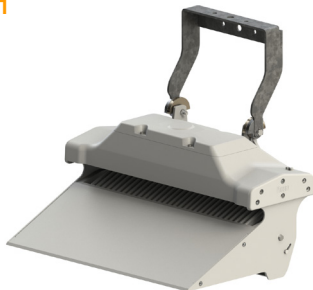


INTRO

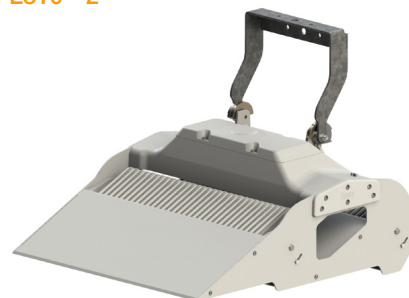
FL810 LED Floodlighting System provides an innovative solution for Area lighting.

The FL810 is a high output LED floodlight which is designed for all types of area lighting and may be used as a replacement for existing 1kW or 2kW floodlight systems. It is available as a single or twin module with CSP (Chip Scale Package) LEDs.

FL810 - 1



FL810 - 2



FEATURES & BENEFITS

- High output up to 2000W replacement
- Superior luminaire efficacy up to 141lm / W
- High Colour Rendering Index
- Low glare, Dark Sky friendly
- Single Module and twin module Options
- CSP LED array for long life
- Can be mounted on existing columns and masts
- Integral driver box
- IP66
- Fully recyclable

Max. Luminous Flux	162000 lm
Max.Luminaire Efficacy	141 lm/W
Luminaire Efficacy (Full Power)	125 lm/W
Lumen Maintenance	TBA
Photometric Options	3 optical distributions

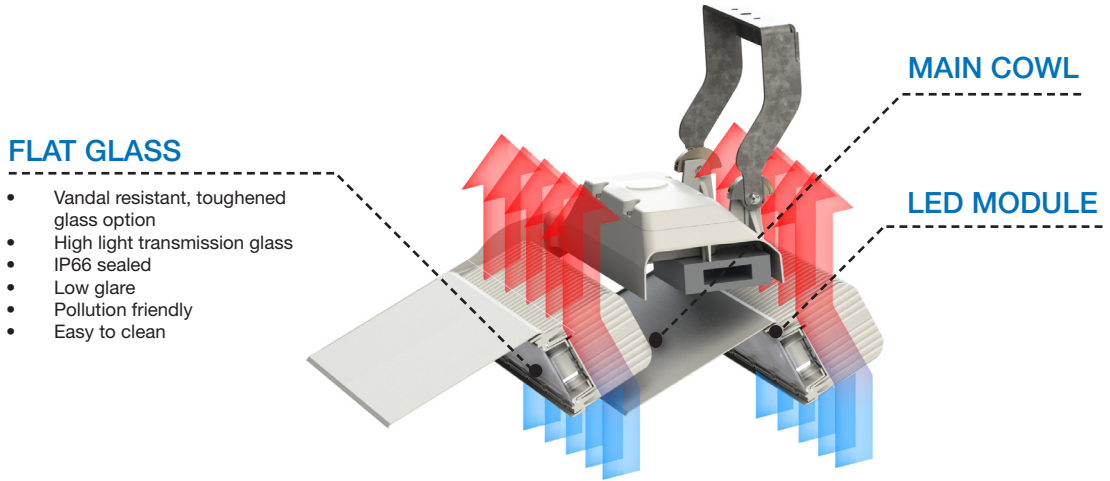
APPLICATIONS

- Aviation
- Ports
- Logistics
- Parking & Industrial Areas
- Roads and roundabouts
- Shopping areas

ADVANCED HEAT SINK

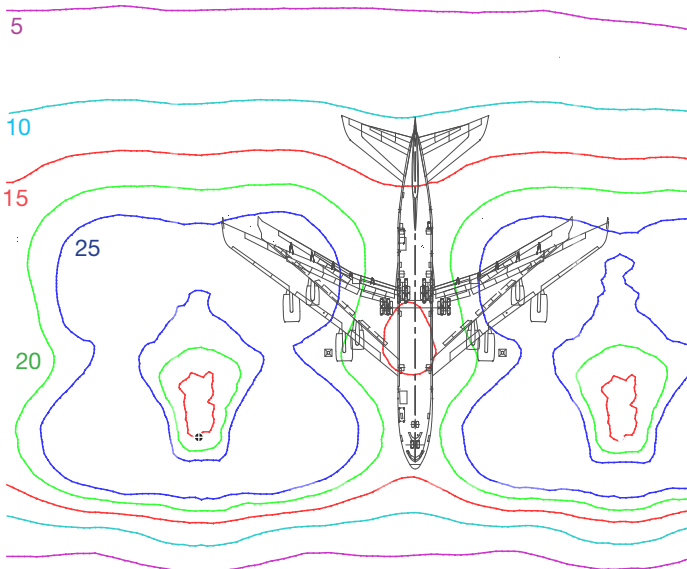
Cooling fins are optimised with a high surface area to quickly draw heat away from the LEDs. Vents created by the vertical cooling fins accelerate natural convection through the heatsink. The rising hot air draws cold air in from below, immediately cooling the LEDs and maximising their lifespan and light output.

This cooling effect allows the FL810 to function in ambient temperatures up to 50°C whilst ensuring it's high efficacy is maintained over life.



ENERGY EFFICIENCY

The table below shows the energy saving for a typical Airbus A380 aircraft stand.



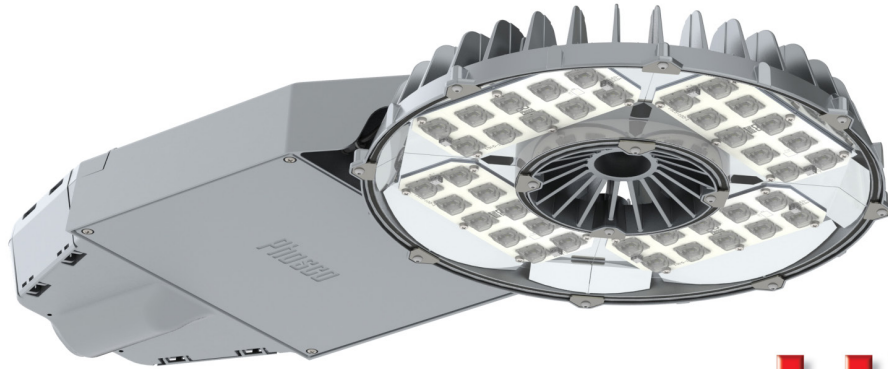
Light Source	SON-T	FL810
Nominal Power	400W	625W
System Power	449W*	550W**
Number of Units	8	4
Total System Power	3592W	2200W
Energy Savings	-	39%

A380 Aircraft Stand 87 x 82m lit to CAP168
Overall MF = 0.80
Mounting height = 20m

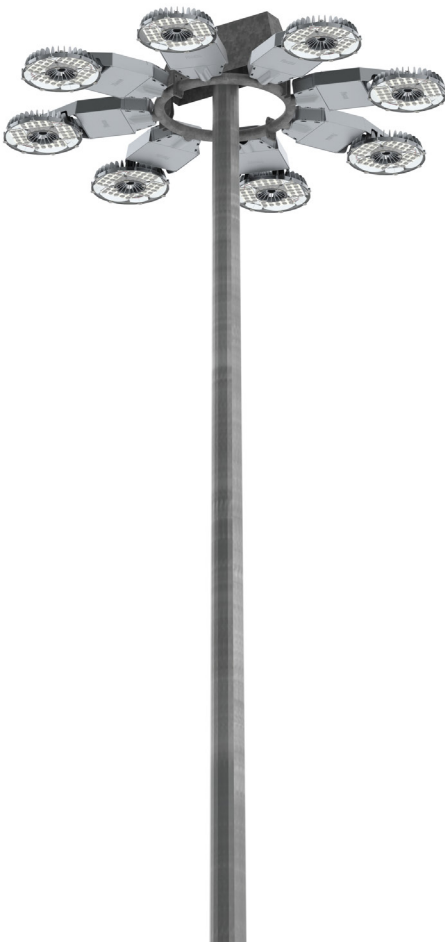
* With electromagnetic control gear

** Average power consumption over life with CLO for lumen depreciation MF = 0.90

P855



INTRO



P855 is a highly innovative, High Mast LED luminaire with 360° rotating STAR-optic®. The functional yet compact design delivers exceptionally powerful optical and thermal performance, whilst maintaining a low weight and wind area.

P855's wide range of optical distributions coupled with 360° rotation delivers unlimited freedom in lighting design regardless of luminaire orientation,

whilst optimising energy efficiency for even the most challenging scheme.

It is the ultimate solution to replace traditional High Mast HID sources with superior efficacy and reliability.

WEIGHT	16kg
SIZE (L X W X H)	925 x 485 x 124
WIND AREA	0.085m ²
LUMINAIRE LUMINOUS FLUX	36,000lm
LUMINAIRE EFFICACY	103 - 126 lm/W
PHOTOMETRIC OPTIONS	10+ Lenses

KEY BENEFITS

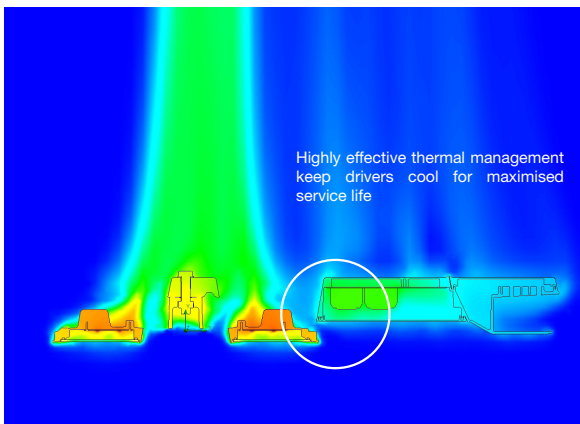
- STAR-optic® system delivers 360° variable photometry
- Hybrid reflector + lens optic minimises light at angles near the horizontal
- Slim, elegant and state-of-the-art design
- High flux density and efficacy LED
- Powerful output up to 36,000 lm
- Superior luminaire efficacy up to 122 lm / W
- Wide range of light distributions
- Low lumen depreciation (L95 @ 90,000 hours) at full power
- User friendly installation
- Maximised savings on energy and maintenance costs
- Minimal total cost of ownership
- Up to G6 glare rating. Dark sky friendly, no upward light
- Flexible and intelligent lighting control options
- Lightweight and low windage allowing retrofit onto most existing masts
- IP66 ingress protection for Optical & Driver Compartment
- 100% recyclable, low carbon footprint

THERMAL MANAGEMENT

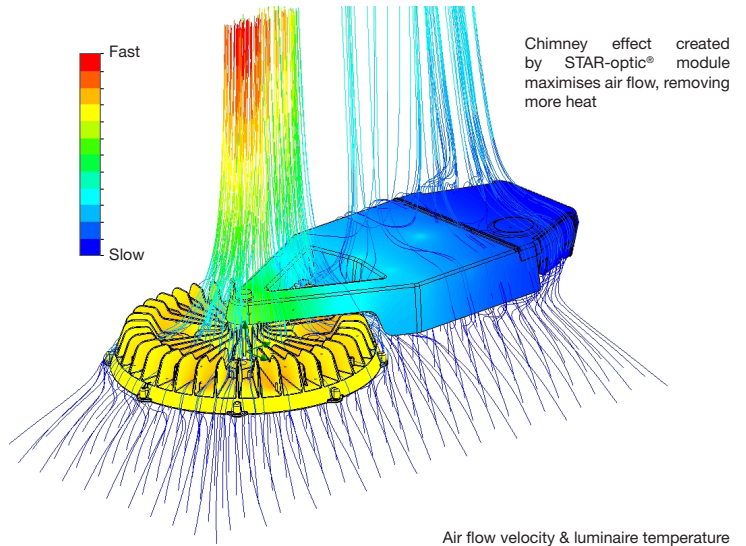
P855 is powerful while compact and efficient, thanks to its design and unique thermal management.

Aerodynamic vents created by the vertical fins at the center void are designed to accelerate natural convection. Hot air converges smoothly into a fast laminar flow, quickly removing heat from the luminaire, increasing the performance of LEDs and drivers.

Fin profiles are designed to minimise weight while allowing an even thermal dissipation for all LEDs.



Air and luminaire temperature results from CFD

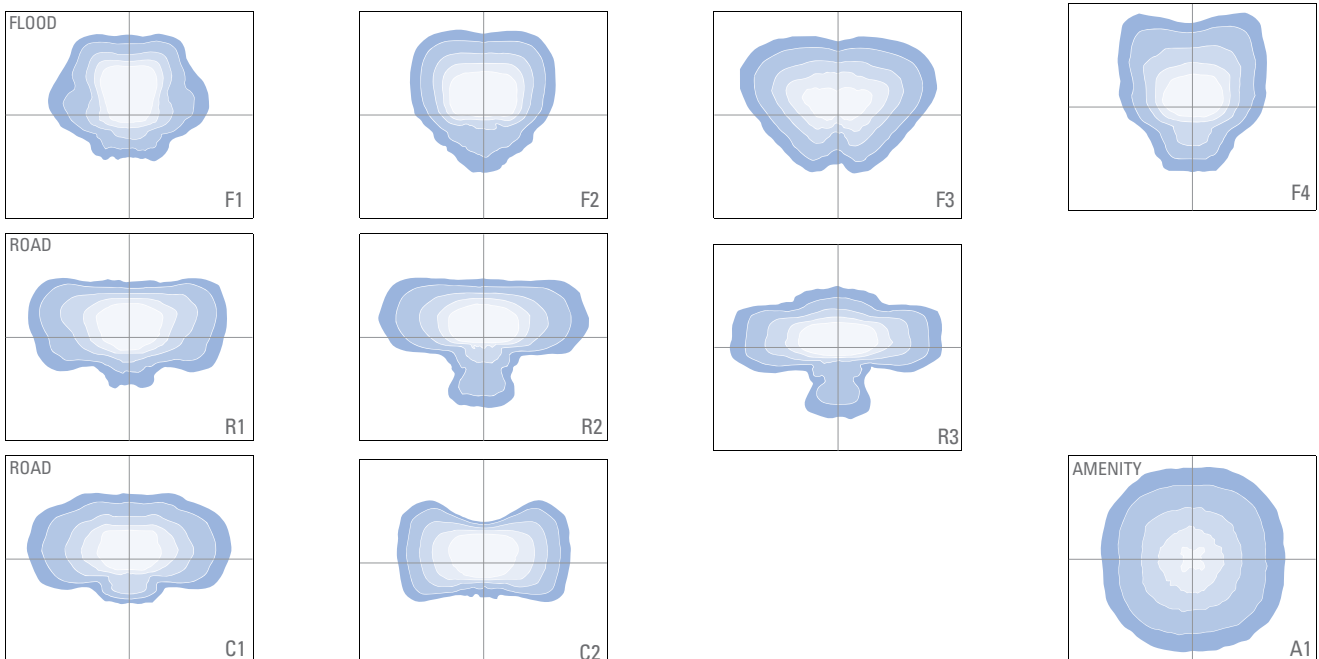


The complete separation of the driver compartment from LEDs keeps the driver very cool, significantly increasing the driver's service life in high ambient operating temperatures.

P855 can be used at maximum power in an environment of 45°C while still achieving low lumen depreciation and long life (L85 @ 100,000 hours)

LIGHT DISTRIBUTION

P855 offers a wide choice of optics and lumen packages. The optics include both road, flood and amenity distributions which, coupled with 360° rotation, allow even the most challenging schemes to be effectively lit with maximum energy efficiency.



STANSTED AIRPORT



HEATHROW AIRPORT



SOME OF OUR INTERNATIONAL CLIENTS



ACCREDITATIONS



CU Phosco Lighting
Charles House, Great
Amwell
Ware, Hertfordshire
SG12 9TA, UK

T. +44 (0) 1920 860600
F. +44 (0) 1920 860638
E. enquiries@cuphosco.co.uk
W. www.cuphosco.co.uk

DESIGNING &
MANUFACTURING
IN THE UK SINCE 1923

Copyright© 2020 CU Phosco
Lighting. Due to constant product
development, details in this
brochure are subject to change .