



P861 4x4



This luminaire complies with ETL guidelines for White Light Emitting Diode Lighting Units and is eligible for the Enhanced Capital Allowance (ECA) scheme.



INTRO



P861 4x4 LED luminaire excels in optical performance, thermal management, compatibility and serviceability, bringing an uncompromised outcome of efficiency and versatility that is future-proofed for an optimised investment.

P861 4x4 has been designed to meet most demanding lighting requirements, being easy to install and maintain. It combines latest LED light source with state-of-the-art design, achieving long life for both

LEDs and the drivers. The installation is simple and fast, and the luminaire is easily upgradable on-site if required.

P861 4x4 is the ultimate solution to replace traditional HID sources. Being lightweight and having a low profile wind area enables the P861 4x4 to be safely installed on existing lighting columns and brackets.

MAX. LUMINOUS FLUX	11000 - 58640 lm
MAX. LUMINAIRE EFFICACY	Up to 165 lm/W
LUMEN MAINTENANCE *	L90 > 100,000 hours (1050mA, Ta = 25°C)
PHOTOMETRIC OPTIONS	Wide choice of optics and lumen packages

*Lumen depreciation calculated up to 100,000 hours using IES TM-21 method.

KEY BENEFITS

- Slim and elegant aesthetics
- Future-proof and upgradable on site
- Superior luminaire efficacy up to 165lm/W
- Wide range of optics and lumen packages
- Advanced thermal management
- Maximised savings on energy and maintenance costs
- Contractor-friendly installation and maintenance
- Minimal total cost of ownership
- Suitable for all lighting classes
- Flexible and intelligent lighting control options
- Low windage and lightweight
- IP66 ingress protection
- 100% recyclable

IMPROVED SERVICEABILITY



- Tool-less access
- Easy, fast wiring and installation
- Contractor-friendly maintenance
- Quick replacement for LED and Driver compartment
- Automatic electrical isolation when opened
- Easy electrical testing without altering wiring

FLEXIBLE MOUNTING OPTIONS

Universal SE/PT spigot caps to suit 34-42mm, 42-60mm and 60-76mm nominal diameter spigots providing -10°, -5°, 0°, +5° and +10° tilt in both post top and side entry arrangements with permanent indication on the luminaire.**

Ø 60 - 76MM X 76MM POST-TOP



Ø 34 - 42MM X 100MM SIDE-ENTRY / POST-TOP



Ø 42 - 60MM X 100MM SIDE-ENTRY / POST-TOP



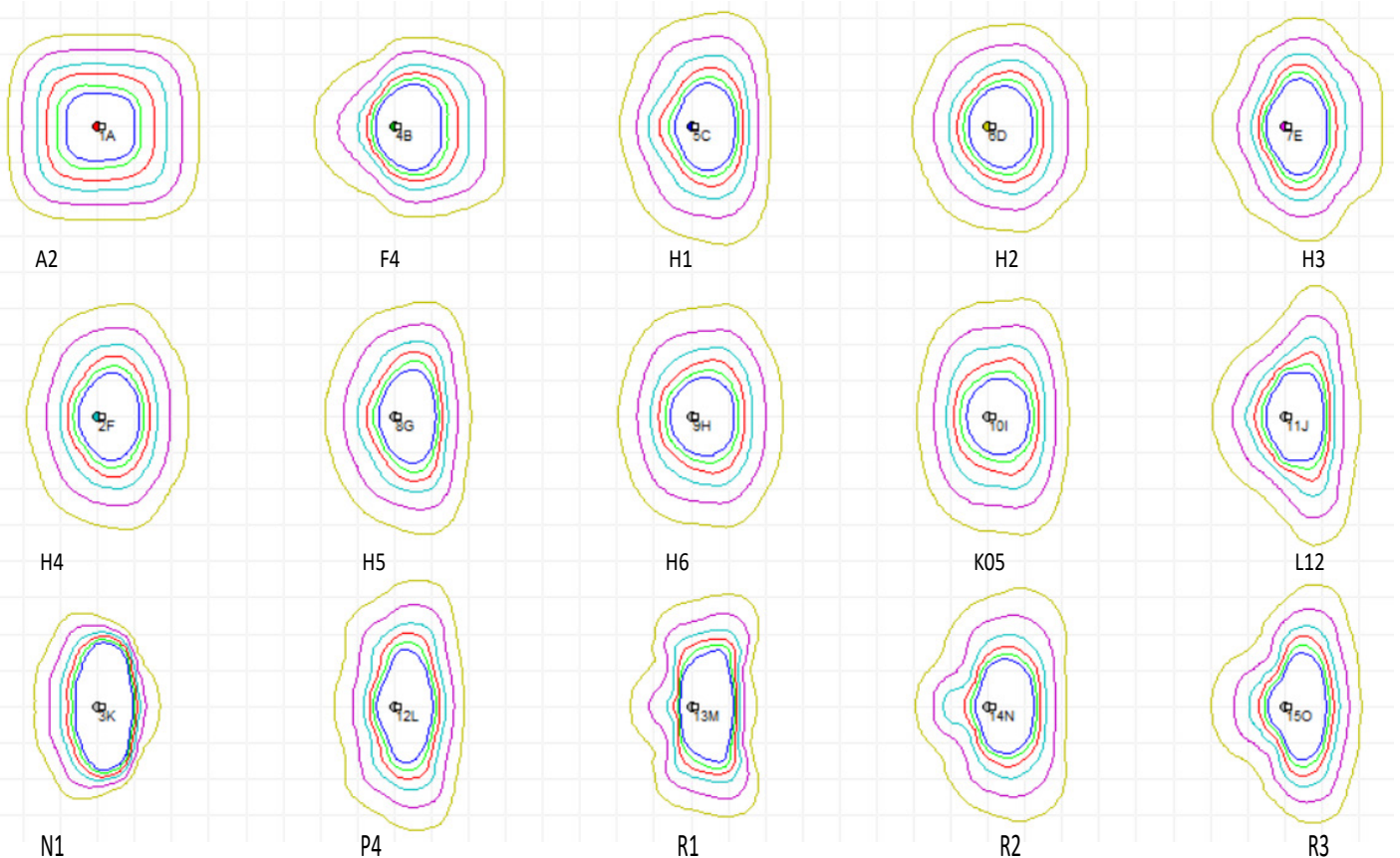
EXCEPTIONAL OPTICAL PERFORMANCE



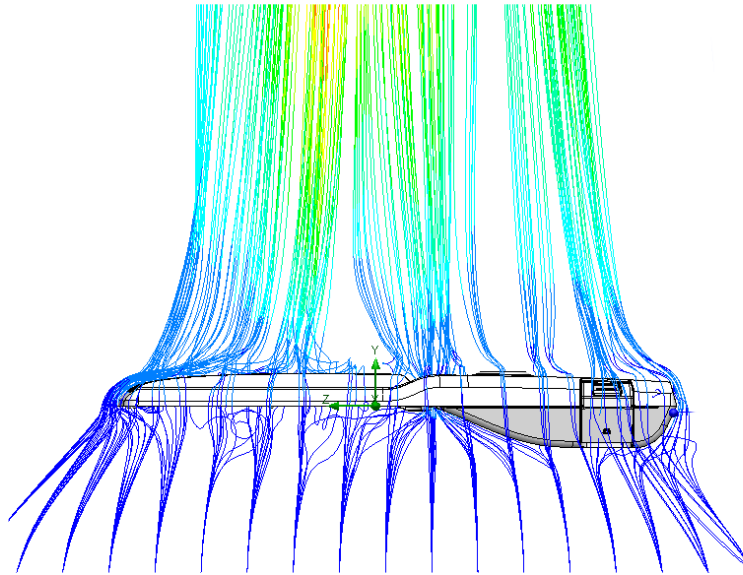
Standard Neutral White LEDs (CCT = 4000K)
Optional Warm White LEDs (CCT = 3000K)*
Colour Rendering Index > 70
Improved mesopic vision
High quality PMMA lenses
Exceptional uniformity
Minimal glare (up to G6)

OPTICAL DISTRIBUTIONS

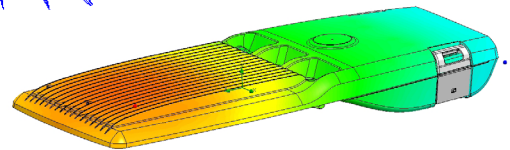
P861 4x4 offers a wide choice of optics and lumen packages. High efficiency optics allow the most challenging schemes to be effectively lit with maximum energy efficiency.



ADVANCED THERMAL MANAGEMENT



AIR FLOW VELOCITY & LUMINAIRE TEMPERATURE



LUMINAIRE TEMPERATURE RESULTS FROM CFD

P861 4x4 uses evenly spaced LED chips, combined with large surface cooling area as well as longitudinal fins to avoid any centralised heating problem which occurs in typical modular LED luminaire designs, thus maintaining all LEDs at an even low temperature.

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

AIR VOID

- Both gear and optical compartments are separated in order to optimise thermal management

PROGRAMMABLE DRIVER

- Module Temperature Protection (MTP)
- Single level or multi-level dimming
- Adjustable Output Current (AOC)
- Constant Light Output (CLO)
- DALI dimmable
- Integrated surge protection
- Driver thermal protection



FLAT GLASS

- Vandal resistant toughened glass
- Increased light transmission
- Suitable for harsh environment
- Easy cleaning externally

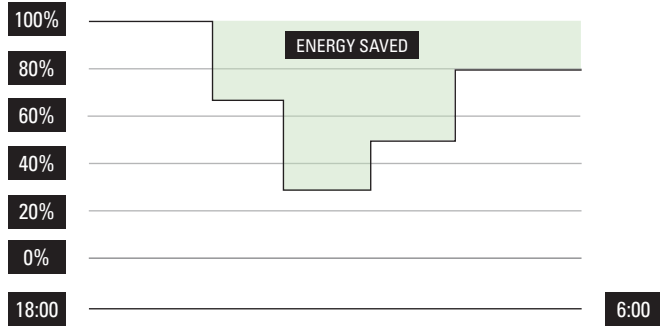
LEDs

- Superior light output
- High efficacy
- Proven reliability
- Tight CCT control

MULTI-STEP DIMMING

The programmable driver incorporates the multi-step dimming feature, a programmable 5-step dimming system which will generate substantial energy savings by providing the precise amount of light at the right time. The times and light levels are fully flexible to suit the required lighting profile.

The driver is able to calculate the virtual clock time by analysing the duration of operation of the driver from the previous 3 days and sets the times of 5 light level steps accordingly.

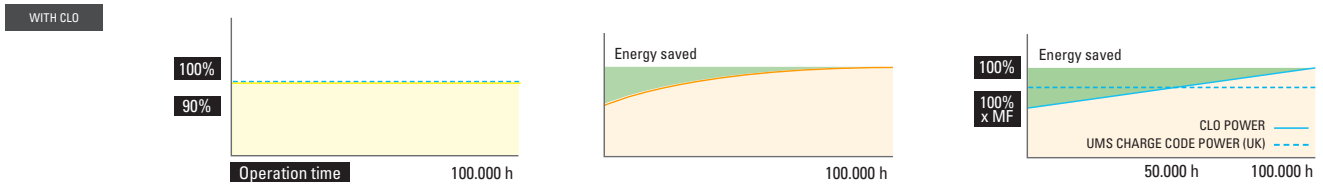
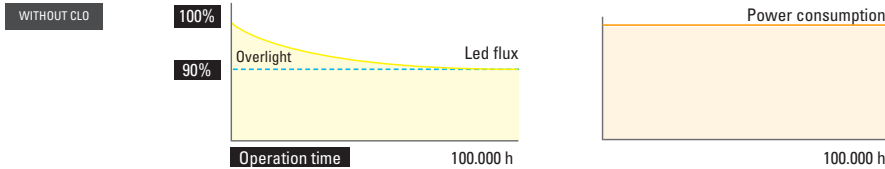


CONSTANT LIGHT OUTPUT (CLO)

All light sources experience lumen depreciation - a reduction in light output over time, which means the system would consume more power than necessary to meet the required light levels at the end of the lamp's useful life (e.g. L90).

The drivers of the P861 4x4 can be programmed to ensure that the LEDs will always deliver the necessary light level, by increasing the operating current over time to compensate for the LED lumen depreciation.

Over-lighting at the beginning is taken away and this feature can produce extra energy saving and extend the lifetime of the system.



PROGRAMMABLE LIGHTING CONTROLS

The programmable driver enables CU Phosco Lighting to adjust the light level to match a specific application with optimised energy savings. The various control options offer different levels of energy savings, from simple stand-alone controls to more advanced networked Central Management Systems (CMS).

P861 4x4 is currently compatible with the following CMS:

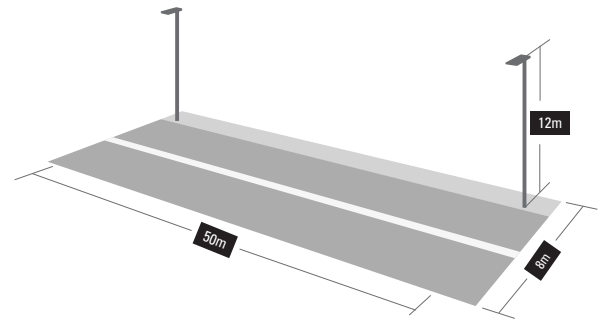
- Mayflower
- Philips Starsense
- Telensa PLANet
- Zodion Vizion
- Ask Controls RMS

CONTROL SYSTEM	BENEFITS	FUNCTIONALITY	RELATIVE SAVING	WITH CLO
Photocell	Standard control	Switch on/off with ambient light level	0%	up to 10%
Multi-step dimming	Substantial energy saving	Programmable dimming (up to 5 steps)	up to 20%	up to 30%
Wireless CMS	Full control and monitoring of each individual luminaire	DALI and 1-10V dimming inputs with full CMS functionality	up to 40%	up to 50%

C2 CLASS SCHEME EXAMPLE

Road refurbishment C2 lighting class (EN13201/2015)

Luminaire replacement with existing column at 50m spacing, 12m height and single sided arrangement.



	EAV	EMIN	EMIN/EAV	W (SYSTEM)	W / KM	ENERGY SAVINGS
Target (C2)	20	N/A	0.40			
250W HPS Luminaire	23.34	9.53	0.41	301	6020	-
P861 4x4 (with CLO)	20.45	8.15	0.40	128	2560	58%

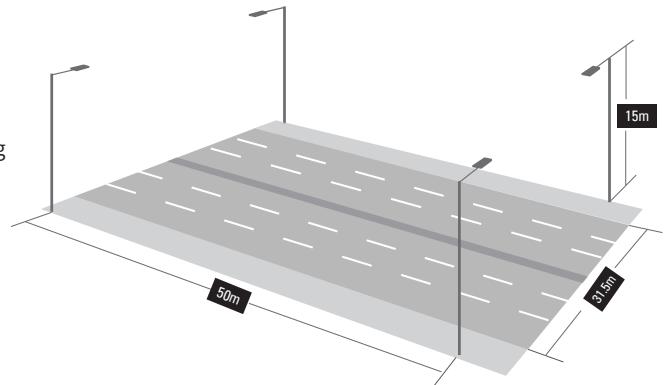
SCHEME EXAMPLE

Result:

P861 4x4 can replace a conventional 400W HPS luminaire with better performance. Minimum 50% energy savings are achievable depending on column spacing, road configuration and lighting class with the added comfort of white light. Further savings can be achieved using controls like LumiStep, Dynadimmer or a Central Management System.

Road refurbishment M2 lighting class (EN13201)

Luminaire replacement on dual carriage way with existing column at 50m spacing, 15m height and opposite arrangement.

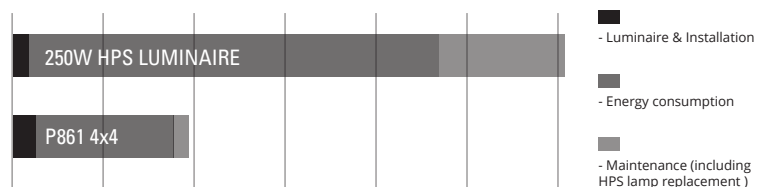


	LAVE (CD/M2)	U0	UI	TI (%)	SR	W (SYSTEM)	W/KM
Target (M2)	1.5	0.4	0.70	10	0.5	-	-
400W HPS Luminaire	1.89	0.56	0.72	8.20	0.67	449	8980
P861 4x4 (With CLO)	1.51	0.67	0.75	6.56	0.68	206	4120

TOTAL COST OF OWNERSHIP

While HID technology has a low initial cost, it requires frequent maintenance, resulting in a high total cost of ownership.

P861 4x4 with dimming and CLO options delivers an attractive total cost of ownership package making it extremely competitive for invest-to-save schemes.



* Based on S and P class example above, standard control, 20 years lifetime

PROUDLY MADE IN THE UK SINCE 1923

P861 4x4 SPECIFICATION

Light Source
Number of LEDs
Power Consumption
Correlated Colour Temperature

Glare Class
Colour Rendering Index
Optical Cover
Luminaire Luminous Flux
Luminaire Efficacy
Electrical Class
Control System Input
Lumen Maintenance Output

Driver Current
Surge Protection
Dimming Control
Lighting Regulation

Operating Temperature
Raised Ambient operation
Installation Height
Installation

Post Top / Side Entry Tilt

Material
Finish
Colours
Ingress Protection
Wind Area (SCx)
Weight
Shielding

High Power CSP LEDs
256

75 - 360W

Neutral white, 4000K (Warm 3000K option)

* DarkSky Approved with 3000K CCT or warmer only

Up to G6
>70

Flat Glass - Tested to IK09

11000 - 58640 lm

Up to 165 Lm/W

I or II

1-10V and DALI

L90 > 100,000 hours (1050mA, Ta = 25°C)

*** Lumen depreciation calculated up to 100,000 hours using IES TM-21 method.

200mA - 1050mA in 25mA steps

10kV Com. Mode 6KV Diff. Mode to IEC 61000-4-5

Dynadimmer

Mini Photocell • 7-pin ANSI Socket • Zhaga Book 18 socket •

Bluetooth Control Node • Central Management Systems

- 30°C to + 30°C

+50°C (limited driver current)

8 - 15m

SE Ø 34-42mm or Ø 42-60mm

PT Ø 42-60mm or Ø 60-76mm

-10°, -5°, 0°, 5°, 10°

** DarkSky Approved when installed at zero tilt angle.

High pressure die cast aluminium (Housing)

Polyester powder coat cured under heat

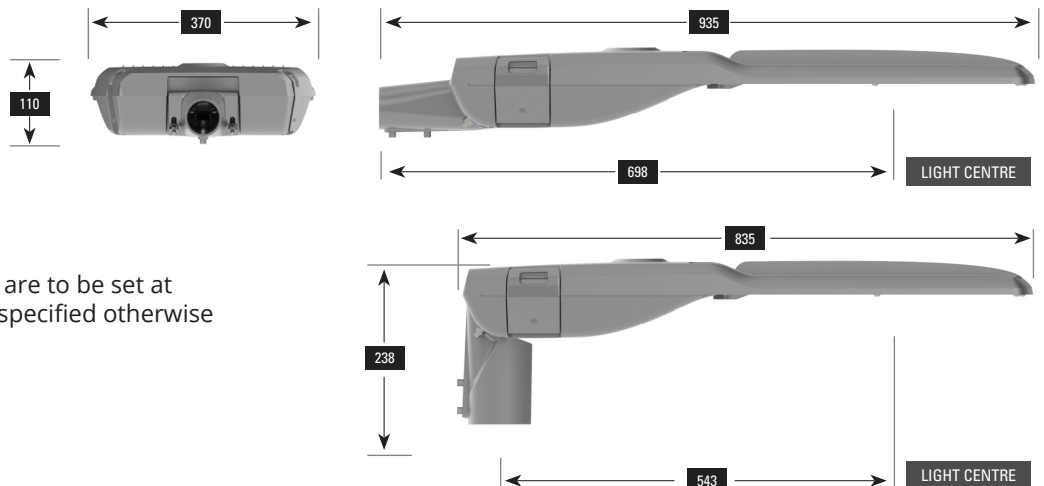
Light grey (RAL 7035), other RAL colours available on request

IP66

0.042m²

14.5Kg

Front, rear, left and right shielding options



Spigots if factory fitted are to be set at zero tilt setting unless specified otherwise



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