

DESIGNING & MANUFACTURING IN THE UK SINCE 1923

CU
Phosco
LIGHTING



P861

The KING
of the
ROAD



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



HEA Warranty Code
Compliant



INTRO



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

MAX. LUMINOUS FLUX	52,310 lm
MAX. LUMINAIRE EFFICACY	162 lm/W
LUMEN MAINTENANCE *	L86 > 100,000 hours (1050mA, Ta = 25°C)
PHOTOMETRIC OPTIONS	Optical distributions available to suit all applications

*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 162 lm/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
- Dark sky friendly and no upward light
- 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



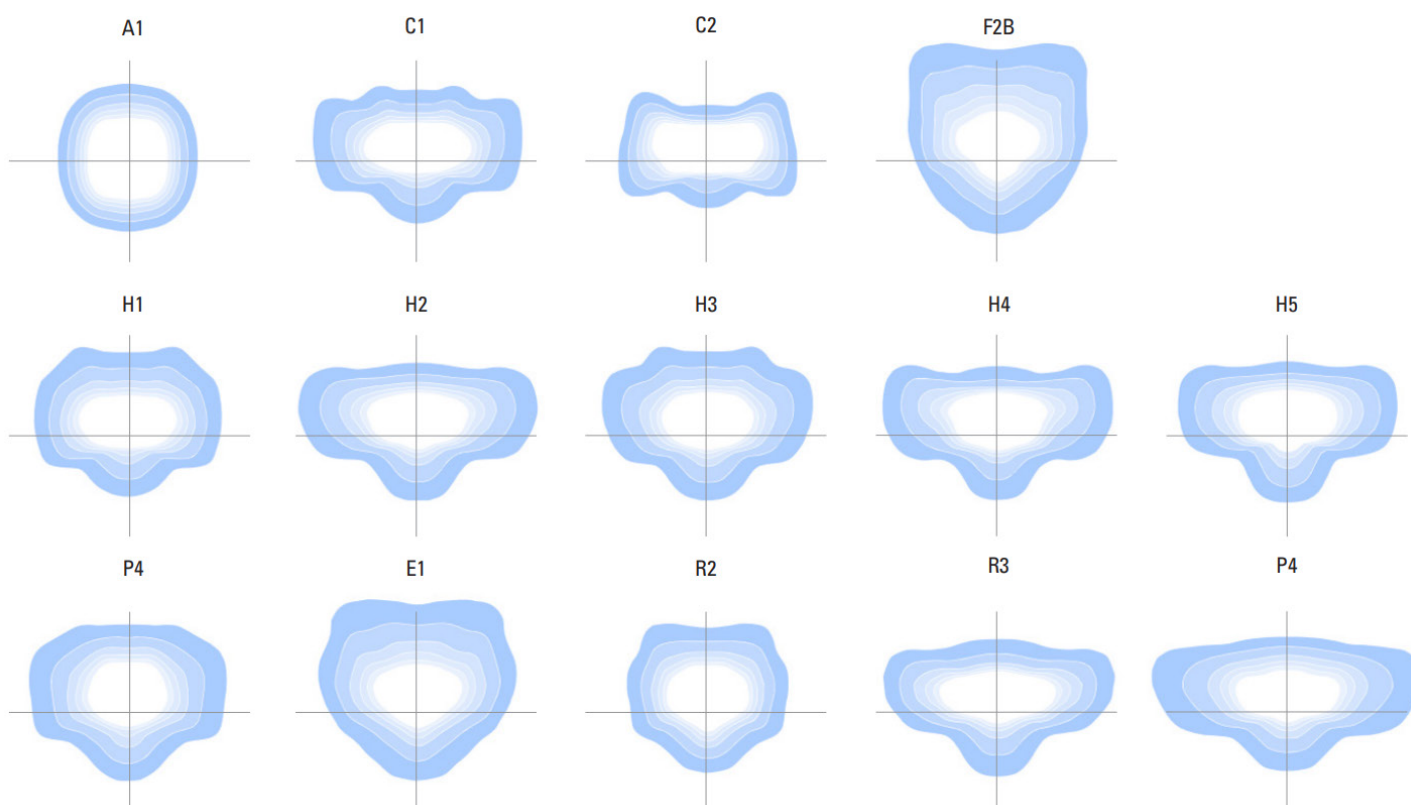
EXCEPTIONAL OPTICAL PERFORMANCE



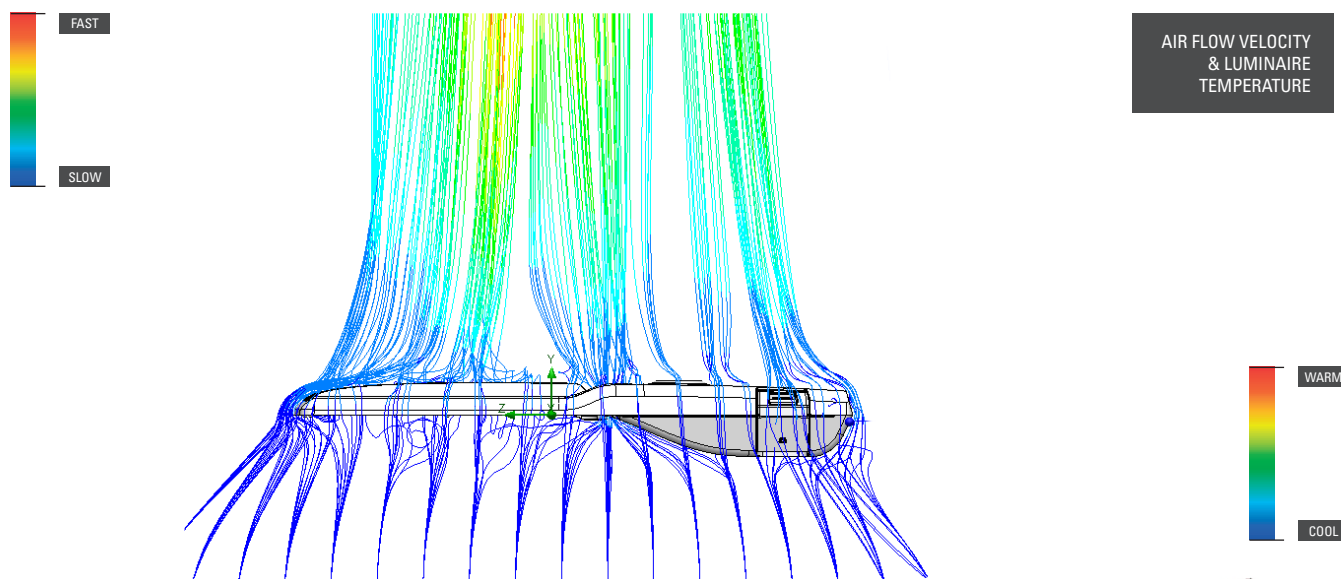
Standard Neutral White LEDs (CCT = 4000K)
Optional Warm White LEDs (CCT = 3000K)
Colour Rendering Index > 70
Improved mesopic vision
High quality PMMA lenses
Exceptional uniformity
Dark sky-friendly (zero upward light)
Minimal glare (up to G6)

OPTICAL DISTRIBUTIONS

P861 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.

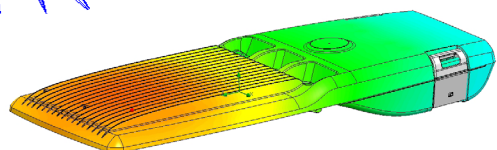


ADVANCED THERMAL MANAGEMENT



P861 uses widely 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.



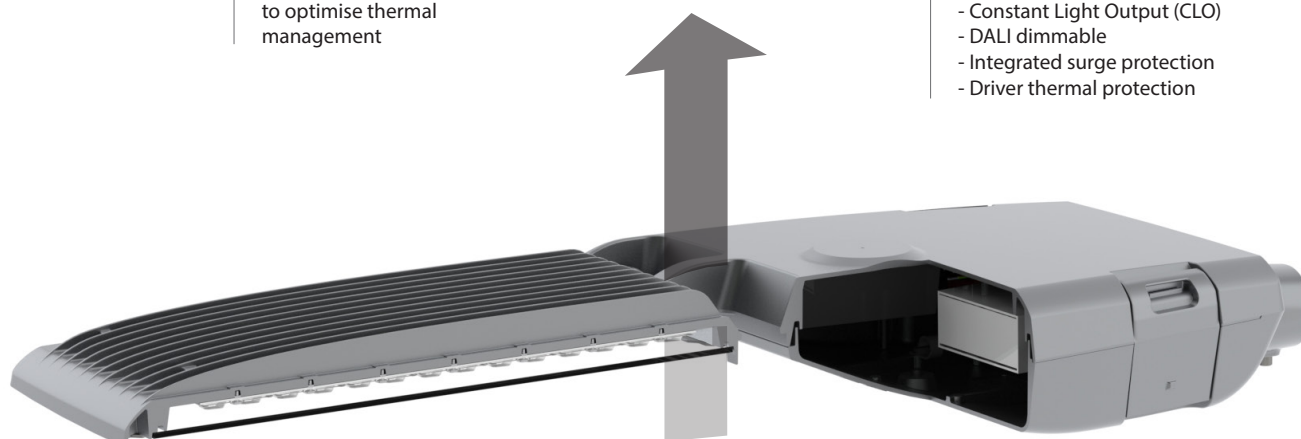
LUMINAIRE TEMPERATURE RESULTS FROM CFD

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
- Dark sky friendly
- Suitable for harsh environment
- Easy cleaning externally

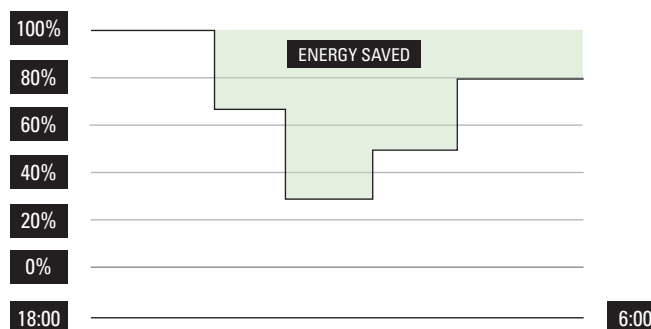
LEDs

- 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.

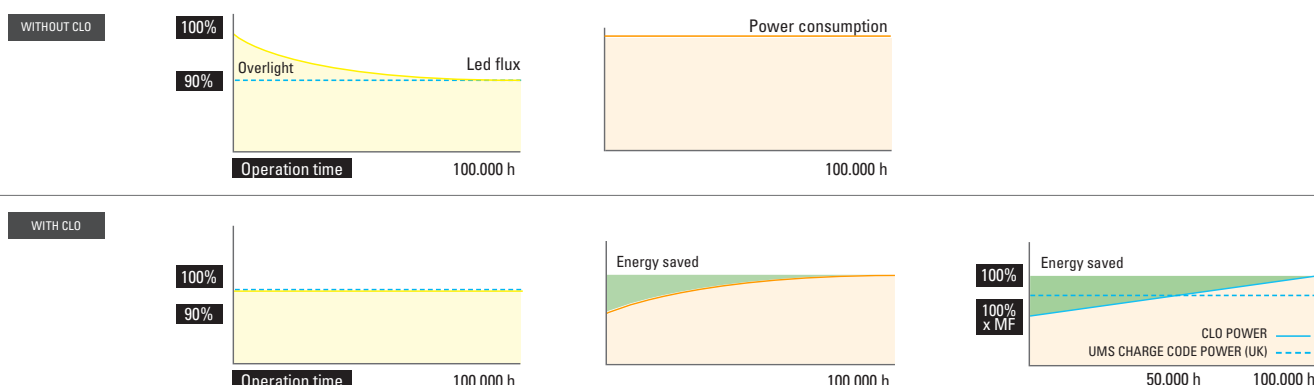


CONSTANT LIGHT OUTPUT (CLO)

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 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 is currently compatible with the following CMS:

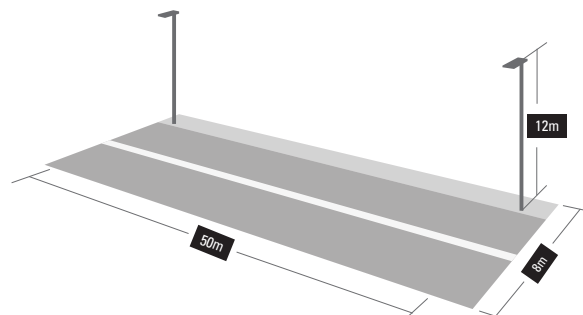
Mayflower
Philips Starsense
Telensa PLANet
Zodion Vizion
Ask Controls RMS

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)	LUMINAIRE EFFICACY	W / KM	ENERGY SAVINGS
Target (C2)	20	N/A	0.40				
250W HPS Luminaire	23.34	9.53	0.41	301	85 lm/W	6020	-
P861	20.03	8.19	0.41	146	161 lm/W	2920	51%
P861 (with CLO)	20.03	8.19	0.41	143	-	2860	53%

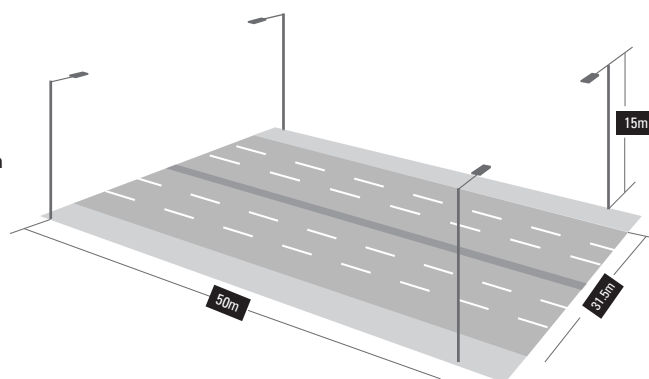
SCHEME EXAMPLE

Result:

P861 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.

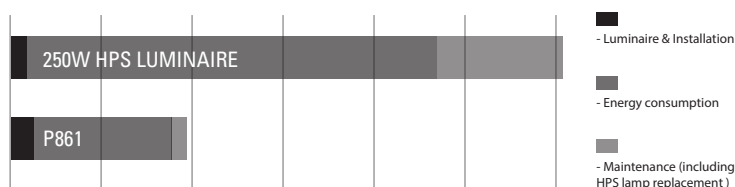


	LAVE (CD/M2)	U0	UI	Tl (%)	SR	W (SYSTEM)	W/KM
Target (M2)	1.5	0.4	0.70	10	0.5	-	-
400W HPS Luminaire	1.89	0.56	0.72	8.20	0.67	449	8980
P861 (With CLO)	1.52	0.64	0.70	7.06	0.74	223	4460

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 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

The KING of the ROAD

P861 SPECIFICATION

Number of LEDs
Number of Drivers
Power Consumption
Luminous Flux
Max.Luminaire Efficacy
Driver Current (in 25mA steps)
Lumen Maintenance Output (Ta = 25°C) *
Operating Temperature
Storage Temperature
Weight (Total)
Wind Area (EPA)

448
2
100 ~ 318W
15,900 ~52,310lm
162 lm/W
300mA - 1050mA
L86 > 100,000 hours (1050mA, Ta = 25°C)
-40°C to +50°C
-40°C to +80°C
14.5kg
0.042m²

Correlated Colour Temperature
Glare Rating
Colour Rendering Index
Optical Cover
Electrical Class
Control System Input

4000K (3000K option)
up to G6
> 70
Flat Glass
I & II
DALI or Step-dimming

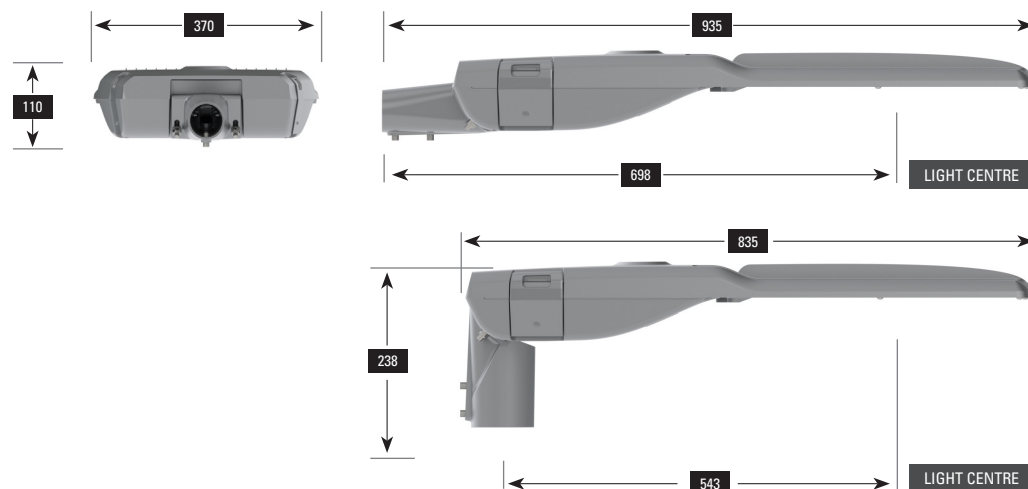
Surge Protection
Dimming Control
Lighting Regulation

10 kV Common Mode, 6 kV Differential Mode to IEC 61000-4-5
Multi-step dimming
Mini Photocell • 7-pin ANSI Socket • Zhaga Book 18 socket •
Bluetooth Control Node • Central Management Systems

Installation Height
Installation

8 ~ 15m
Ø 34-42mm x 100mm SE • Ø 42-60mm x 100mm SE/PT
Ø 60-76mm x 76mm PT
-10°, -5°, 0°, 5°, 10°
High pressure die cast aluminium (Housing)
Polyester powder coat cured under heat
Light grey (RAL 7035), other RAL colours available on request
IP66
IK09

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



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