



# P852K

Next Generation  
LED Luminaire



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





**INTRO**



P852K is a high quality, low cost solution to replace existing sodium discharge and compact fluorescent luminaires on minor roads and residential areas.

P852K 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.

<b>MAX. LUMINOUS FLUX</b>	9380 lm
<b>MAX. LUMINAIRE EFFICACY</b>	139 lm/W
<b>LUMEN MAINTENANCE</b>	L90 @ 100,000 hrs (750mA, Ta = 15°C)
<b>PHOTOMETRIC OPTIONS</b>	10 distributions

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

**KEY BENEFITS**

- Elegant, state-of-the-art design
- Replace conventional LPS/HPS/CFL lanterns at low cost
- Future-proof and upgradable on site
- Superior luminaire efficacy up to 139 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
- Up to S3/P3 lighting class applications
- Flexible and intelligent lighting control options
- 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° (option for -15°) tilt in both post top and side entry arrangements with permanent indication on the luminaire.\*\*

**Ø 60 - 76MM X 76MM POST-TOP**



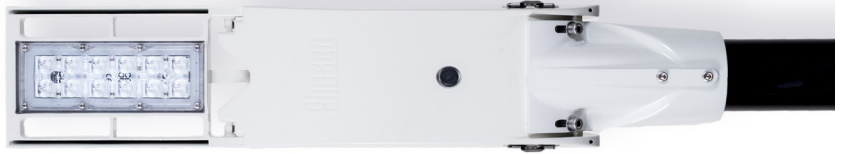
**Ø 34 - 42MM X 100MM SIDE-ENTRY / POST-TOP**



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



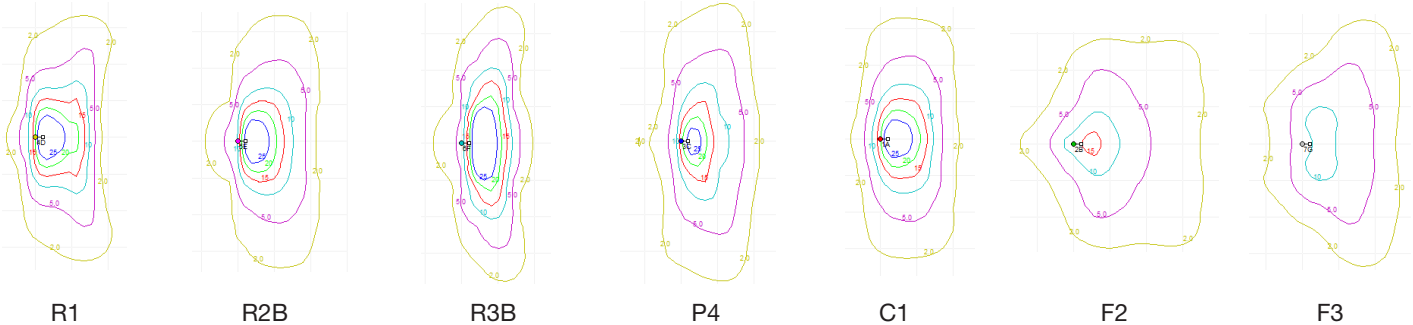
**EXCEPTIONAL OPTICAL PERFORMANCE**



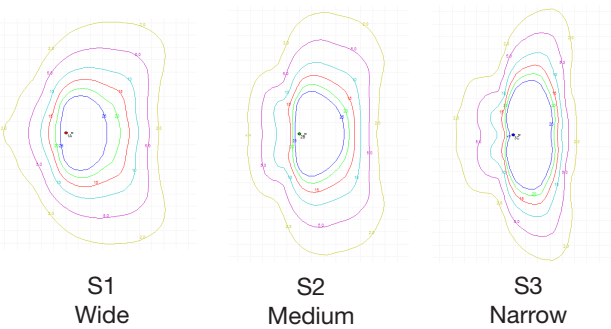
Standard Neutral White LEDs ( CCT = 4000K )  
 Optional Warm White LEDs ( CCT = 3000K )\*  
 Colour Rendering Index > 70  
 Improved mesopic vision  
 High quality PMMA Lenses  
 Exceptional Uniformity

**OPTICAL DISTRIBUTIONS**

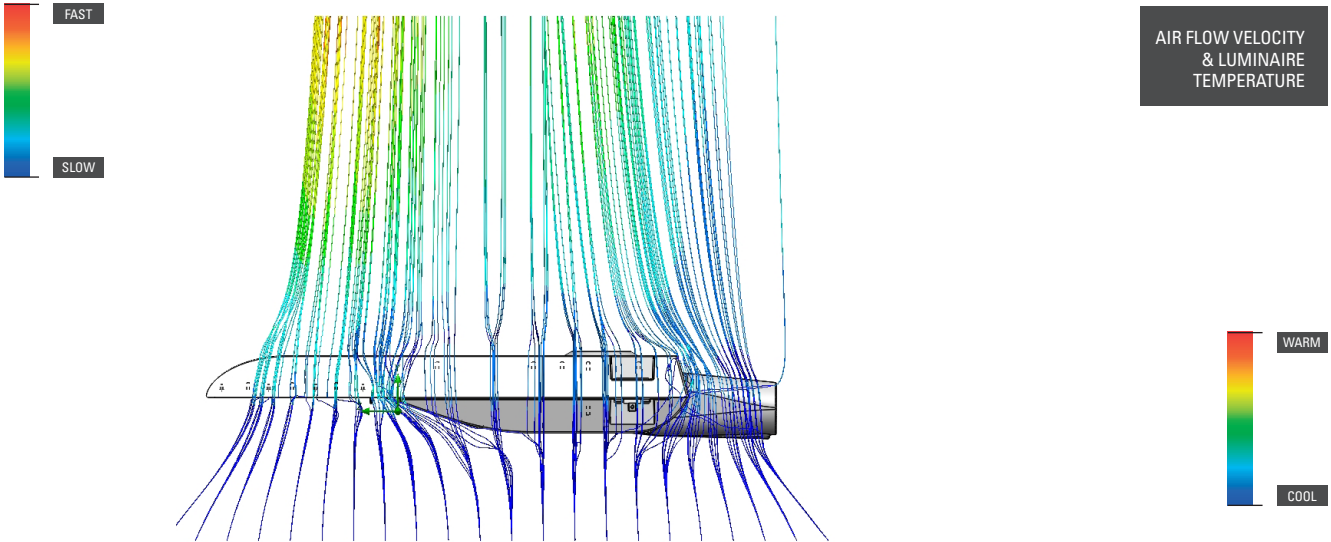
P852 (12 LED) Lens Options



P852 (24 LED) Lens Options

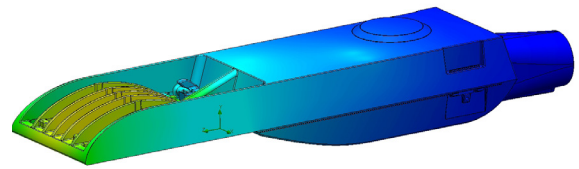


**ADVANCED THERMAL MANAGEMENT**



P852K's simple design quickly transfers heat from the LEDs to the walls of the vertical vents, which dissipates the heat into the air and away from the luminaire.

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



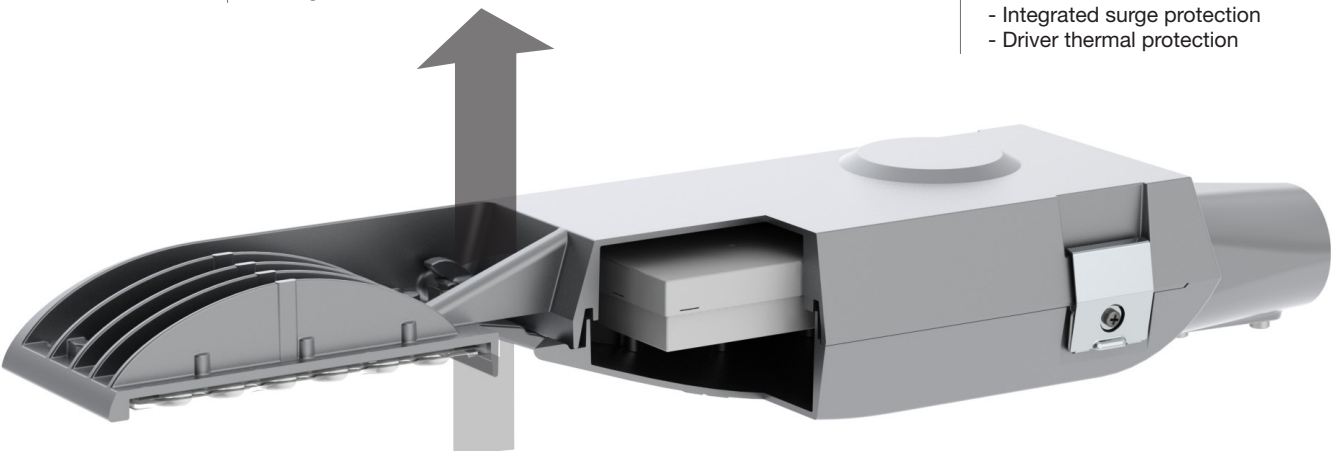
LUMINAIRE TEMPERATURE RESULTS FROM CFD

**AIR VOID**

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

**PROGRAMMABLE DRIVER**

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



**PMMA LENSES**

- Increased luminaire efficacy
- Easy cleaning externally

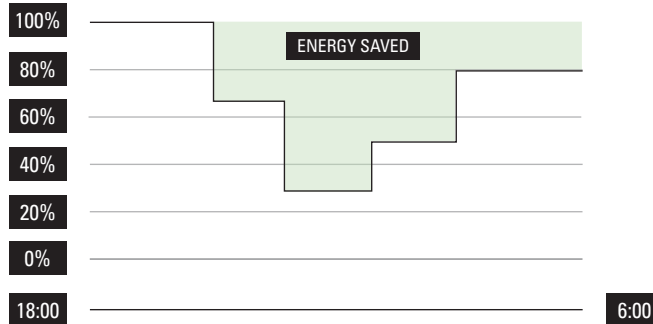
**HIGH POWER LEDs**

- 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.

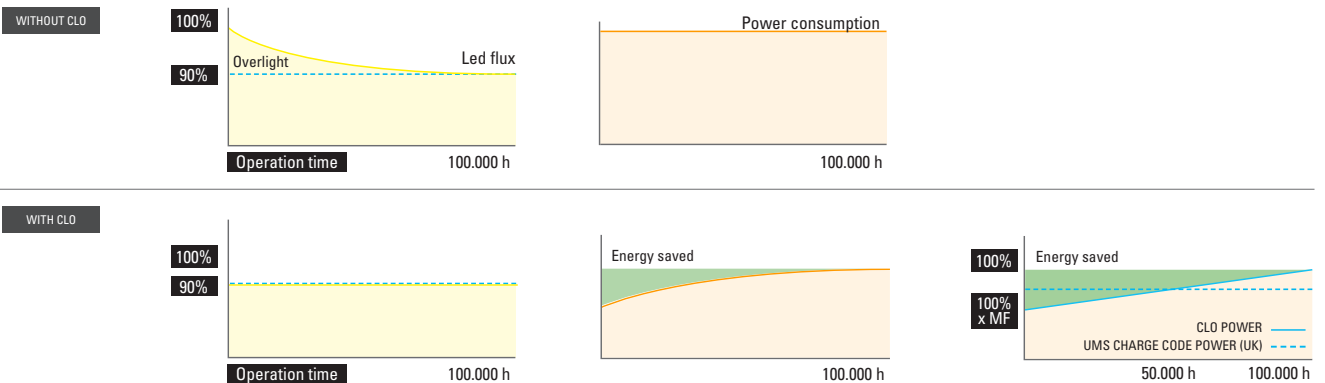


**CONSTANT LIGHT OUTPUT (CLO)**

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 P852K 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).

P852K is currently compatible with the following CMS:

- Harvard LeafNut
- Mayflower
- PhilipsStarsense/CityTouch
- Telensa PLANet
- Zodion Vizion
- Charles Endirect CELnet
- Telematics

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%

**SCOTOPIC / PHOTOPIC (S/P) RATIO TO BS 5489-1:2013**

Recent scientific research shows a correlation between the spectral power distribution of a light source and the visual performance under low lighting levels associated with mesopic vision.

For the levels associated with lighting residential and minor roads to the S classes from BS EN 13201-2:2003 and P classes from

CIE 115:2010, the target illuminance for a class can be adjusted according to the S/P ratio.

The S/P ratio of P852K neutral white LEDs is 1.64. The target illuminance for the P classes are shown here. For more information, refer to ILP Professional Lighting Guide 03: Lighting for subsidiary roads.

LIGHTING CLASS	BENCHMARK RA < 60		S/P RATIO = 1.64 AND RA ≥ 60	
	E	E <sub>min</sub>	E	E <sub>min</sub>
P1	15.0	3.0	12.76	2.55
P2	10.0	2.0	8.06	1.61
P3	7.5	1.5	5.86	1.17
P4	5.0	1.0	3.66	0.73
P5	3.0	0.6	1.98	0.40
P6	2.0	0.4	1.20	0.40

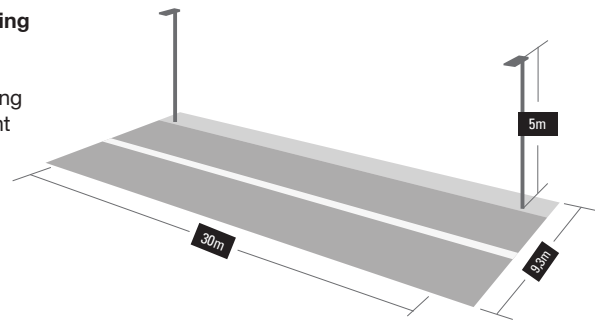
Modification of BS 5489-1:2013 Table A.7

**S AND P CLASS SCHEME EXAMPLE**

P852K can replace a conventional 35W LPS (SOX) or 55W CFL luminaire with better performance. 80% 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 Dynadimmer or a Central Management System.

**Road refurbishment S4/P4 lighting class (EN13201/BS5489-1:2013)**

Luminaire replacement with existing column at 30m spacing, 5m height and single sided arrangement.



	E (LX)	EMIN (LX)	W (SYSTEM)	LUMINAIRE EFFICACY	W / KM	ENERGY SAVINGS VS 35W LPS
Target (S4)	5.0 - 7.5	1.0				
Target (P4)	3.66 - 5.49	0.73				
35W LPS Luminaire	5.1	1.1	65*	49 lm/W	2167	-
35W LPS Luminaire	5.1	1.1	39**	82 lm/W	1300	40%
55W CFL Luminaire	5.2	1.1	62	54 lm/W	2067	5%
P852K***	3.74	0.74	13	121 lm/W	433	80%

\*Using electromagnetic ballast  
\*\*Using HF electronic ballast  
\*\*\*P852K running at 400mA with CLO, Wide distribution and S/P ratio 1.64

**TOTAL COST OF OWNERSHIP**

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

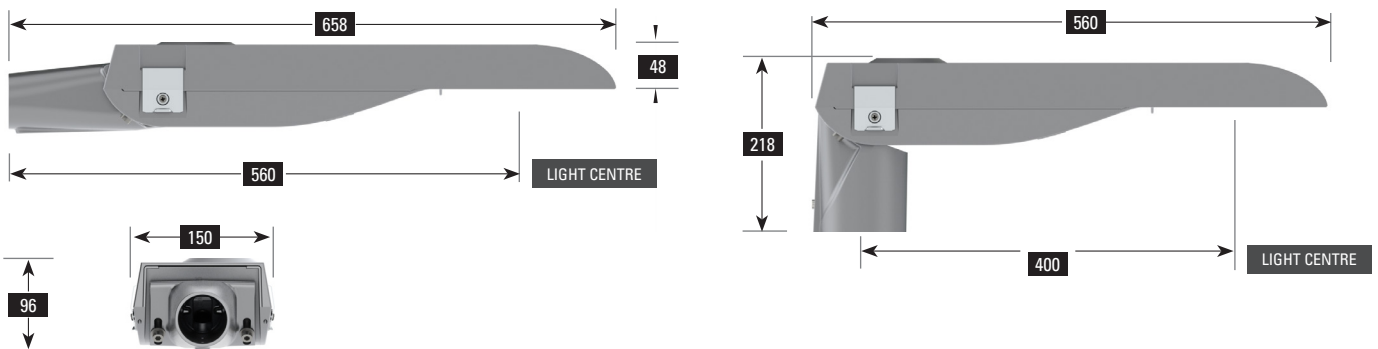
P852K with dimming and CLO options delivers an attractive total cost of ownership package making it extremely competitive for invest-to-save replacement schemes.



\* Based on the example above, TCO calculated over 20 years

**P852K SPECIFICATION**

Number of LEDs	24	12
Power Consumption	15 - 67W (CLO080)	9 ~ 54W
Correlated Colour Temperature	Neutral White, 4000K, Or Warm White 3000K* * DarkSky Approved with 3000K CCT or warmer only	Neutral White, 4000K, Or Warm White 3000K*
Glare Rating	G3 min. G4 max.	G3 max.
Colour Rendering Index	> 70	> 70
Optical Cover	PMMA Lenses	PMMA Lenses
Max. Luminous Flux	2150 ~ 9380 lm	1040 ~ 6360 lm
Max. Luminaire Efficacy	139 lm/W	115 lm/W
Weight (Total)	5.3kg	5kg
Operating Temperature	-40°C to +30°C	-40°C to +15°C (1500mA) -40°C to +25°C (1000mA) -40°C to +40°C (350mA)
Installation Height	5 ~ 12m	3 ~ 8m
Electrical Class	I & II	
Control System Input	DALI or Step-dimming	
Lumen Maintenance Output ***	L80 @ 100,000 hours (1000mA, Ta = 15°C) L90 @ 100,000 hours (750mA, Ta = 15°C) ***Lumen depreciation calculated up to 100,000 hours using IES TM-21 method.	
Driver Current	200mA ~ 1000mA in 50mA steps (1500mA for 12 LED)	
Surge Protection	10 kV Common Mode, 6 kV Differential Mode to IEC 61000-4-5	
Dimming Control	Multi step dimming	
Lighting Regulation	Mini Photocell • 7-pin ANSI Socket • Zhaga Book 18 socket • Bluetooth Control Node • Central Management Systems	
Installation	Ø 34-42mm x 100mm Long SE • Ø 42-60mm x 100mm Long SE/PT Ø 60-76mm x 76mm Long PT	
Post Top / Side Entry Tilt	-10°, -5°, 0°, 5°, 10° (option for -15°)** ** DarkSky Approved when installed at zero tilt angle	
Material	High pressure die cast aluminium ( Housing )	
Finish	Polyester powder coat cured under heat	
Colours	Light grey ( RAL 7035 ), other RAL colours available on request	
Ingress Protection	IP66	
Shielding	Front, rear, left and right shielding options	



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