

Retrofit Solutions

Guide to LED retrofit solutions
for DW Windsor luminaires



Our range

The DW Windsor range of light engines offer a simple, cost effective, retro-fit solution for the conversion of existing luminaires to the latest LED technology.

Our range has been designed to offer choice.

Whether you need to meet a particular lighting class and require a performance light engine to achieve maximum energy savings, or you are lighting for people, where the luminaire aesthetic and quality of light are of greater importance, we have a solution.

Key advantages:

- Quick to install
- Short payback period
- With Diamond+ technology for precise lighting control
- Four light engine options to suit your project requirements
- Wide range of optical solutions providing like-for-like replacement
- Energy savings in excess of 60%
- Low whole life cost
- Choice of CMS options for further energy savings
- Peace of mind: a solution specifically designed for purpose and tested by the original manufacturer

To find out more contact us on **01992 474600** for a lighting design or quote.

Download the latest photometry at dwwindsor.com



Option #1 Performance LED Light Engine

Description	Modular LED light engine with high power LEDs and performance optics. Providing optimal efficacy and optical flexibility for maximised energy savings.
Lumen range	980 - 25,000lm
Power range	6 - 198W
Number of optics	14
Distribution options	A / B / C / Z Diamond+ optics available
Colour temperature	4000K / 3000K / 2700K / 2200K
Colour rendering index	4000/3000K:>70Ra 2700K:>80Ra
Suitable product ranges	Functional Classic Contemporary Traditional


Option #2 Performance CoB Light Engine

Description	Chip on board (CoB) LED light engine, with a large silicone lens; providing performance lighting distributions from a single light source. Offers a highly efficient LED alternative where the aesthetic of a larger single light source, closer to the appearance of a lamp, is preferable to a multichip board.	
Lumen range	2,285 - 7,500lm	Power range 13 -54W
Number of optics	4	Distribution options A / B / C / D Diamond+ optics available
Colour temperature	4000K / 3000K / 2700K / 2200K	Colour rendering index 4000K: >70Ra 3000K / 2700K: >80Ra
Suitable product ranges	Traditional	

Option #3 Comfort CoB Light Engine

Description	Chip on Board (CoB) light engine providing low glare, symmetrical lighting distribution for pedestrian areas. Uses a special silicone optic that mimics a traditional lamp distribution and a glass dome refractor to minimise glare. For an authentic representation of a lamped lantern with all the benefits of LED.	
Lumen range	950 - 3,100lm	Power range 10 - 40W
Number of optics	1	Distribution options Symmetric
Colour temperature	3000K / 2700K	Colour rendering index >80Ra
Suitable product ranges	Traditional	

Option #4 Gas Effect Light Engine

Description	Braun® LED solutions, by DW Windsor, offer specifiers a traditional gas mantle aesthetic while harnessing the energy and maintenance saving benefits of LED. 	
Lumen range	350 - 3500lm	Power range 3-54W
Number of optics	1	Distribution options Symmetric only
Colour temperature	2700K / 3000K	Colour rendering index >85Ra
Suitable product ranges	Traditional	



Compatibility matrix

Use the following table to determine whether we have a standard retrofit solution for your existing lantern stock. Our LED solutions have been selected to provide as closely as possible the same photometric distribution and light on the ground as the lamped original, not a direct lumen output replacement. For maximum energy and maintenance savings, our Performance Light Engine uses the same LED and optical technology as our highly efficient Kirium Pro functional road lantern.

Existing light source	SON					Metal Halide					Cosmopolis						
	50w		70w	100w	150w	250w	50w		70w	100w	150w	250w	45w		60w	90w	140w
Retrofit solution	Performance	CoB Performance	CoB Comfort	Gas Effect	Performance	CoB Performance	Performance	CoB Performance	Performance	CoB Performance	Performance	Performance	Performance	CoB Performance	Performance	CoB Performance	Performance
Berkeley	✓	✓	✓	✓													
Braemar	✓	✓	✓	✓													
Cradle 450	✓				✓				✓								
Dover 450	✓				✓				✓								
Dover 500	✓				✓				✓								
DW400	✓				✓				✓								
Ely A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ely B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ely C	✓	✓	✓	✓													
Excel 450	✓				✓				✓								
Excel 500	✓				✓				✓								
Henley	✓	✓	✓	✓													
Iffley	✓	✓	✓	✓													
Knightsbridge Street	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lancaster Street	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Newport	✓	✓	✓	✓													
Polar 450	✓				✓				✓								
Polar 500	✓				✓				✓								
Portland	✓	✓															
Rio 450	✓				✓				✓								
Rio 500	✓				✓				✓								
Salisbury	✓	✓	✓	✓													
Strand A+	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strand A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strand B	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strand C	✓	✓	✓	✓													
Stratum 450	✓				✓				✓								
Stratum 500	✓				✓				✓								
Warwick	✓	✓	✓	✓													
Waterford	✓	✓	✓	✓													
Westminster Street	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windsor Avenue	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Windsor Street	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
York	✓	✓	✓	✓													

For support finding an appropriate light engine for your application please contact our lighting design team on **+44(0)1992 474600**.

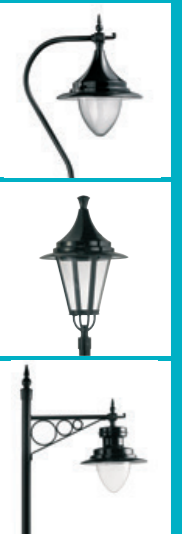
Case study

Project:
Hertfordshire Heritage

- Brief:**
- Replace existing heritage lighting stock
 - Work with customer to survey eligibility for retrofit
 - Target to retrofit light engines on-site into a minimum 60% of existing luminaires

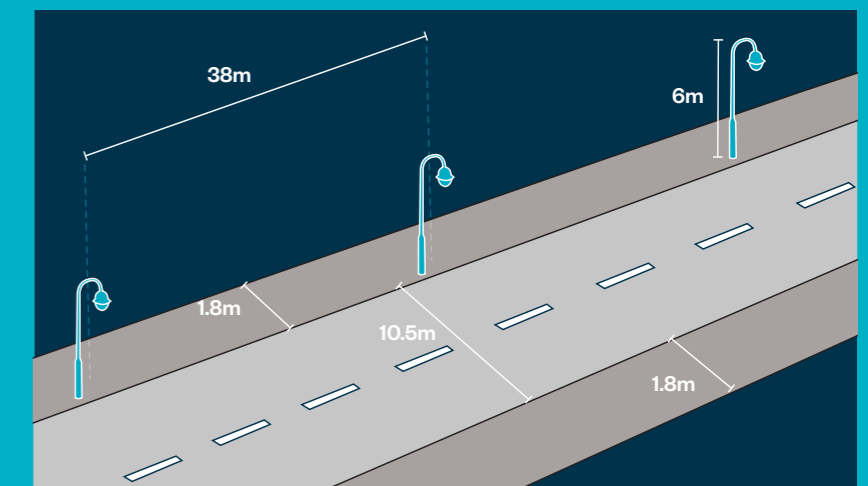
Products:
Strand A, Strand B, Hatfield, Ely and Windsor Street

For full case study, please visit: dwwindsor.com



Design specification (example scenario)

Lighting class P3, single sided configuration



	Requirements for P3 lighting class	Lamp solution	LED Retrofit	Improvements
Eav	7.5-11.25lux	8.23lux	8.69lux	
Emin	>1.5lux	1.65lux	2.98lux	
Uo	20%	0.2 (20% uniformity)	0.34 (34% uniformity)	70% increase in uniformity
Light source		70W SON-T+	24 LED, 450mA, 4000K	
Lumen output		6600lm	4350lm	34% less light required
Distribution		Diamond optic D(5/25)	Diamond+ D1	
Connected load		85W	35W	58% less energy required

Specifying our retrofit LED light engine

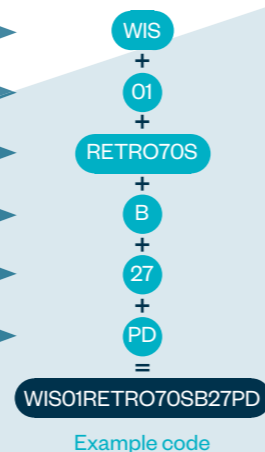
1.		2.		3.		4.		5.		6.					
Lantern	Code	Light engine	Code	Lamp being replaced	Code	Optic being replaced	Code	Colour temperature	Code	Existing control	Code				
Berkeley	BER	Performance LED	01	50W SON-T	RETRO50S	5/35	A	2700K	27	No Control	N				
Braemar	BRA			70W SON-T	RETRO70S										
Cradle 450	CR4			100W SON-T	RETRO100S										
Dover 450	DO4			Performance CoB	02	150W SON-T	RETRO150S			10/10	B	3000K	30	70lux PEC	C
Dover 500	DO5					250W SON-T	RETRO250S								
DW400	DW4					50W Metal Halide	RETRO50MH								
Ely A	ELA					70W Metal Halide	RETRO70MH			31/35	C			Part night switch	PS
Ely B	ELB					100W Metal Halide	RETRO100MH								
Ely C	ELV					150W Metal Halide	RETRO150MH								
Excel 450	EX4					Comfort CoB	03			250W Metal Halide	RETRO250MH			5/25	D
Excel 500	EX5	45W Cosmopolis	RETRO45W												
Henley	HEN	60W Cosmopolis	RETRO60W												
Iffley	IFF	90W Cosmopolis	RETRO90W					Zebra	Z	CMS Harvard	CH				
Knightsbridge Street	KNS	140W Cosmopolis	RETRO140W												
Lancaster Street	LAS	Gas Effect	04	CMS Mayflower	CM										
Newport	NEW	Gas Effect	04							CMS Telensa	CT				
Polar 450	PO4									CMS Zodion Vizion	CZ				
Polar 500	PO5														
Portland	POR														
Rio 450	R14														
Rio 500	R15														
Salisbury	SAL														
Strand A+	STP														
Strand A	STA														
Strand B	STB														
Strand C	STC														
Stratum 450	ST4														
Stratum 500	ST5														
Warwick	WAR														
Waterford	WAT														
Westminster Street	WES														
Windsor Avenue	WIA														
Windsor Street	WIS														
York	YOR														

Example: WIS 01 RETRO70S B 27 PD

To specify an LED light engine for an existing product, please select an option from each of the columns, numbered above:

To specify an LED light engine for an existing product, please state:

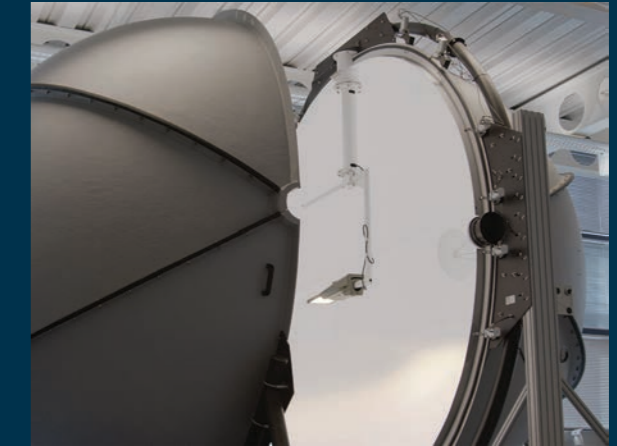
- The name of the Lantern i.e. for a Windsor Street **WIS**
- Light engine i.e. **01 (for our Performance engine)**
- Lamp type being replaced, prefixed by RETRO i.e. **RETRO70S**
- Diamond Optic® being replaced i.e. **B**
- Required colour temperature i.e. **27 (for 2700K)**
- Control i.e. part-night dim is **PD**



For help specifying our LED light engines please call our lighting design team on **01992 474600**

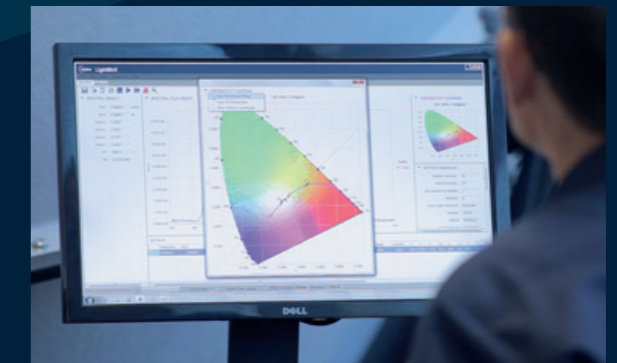
Why choose us?

- British manufacturer
- Over 45 years' experience
- Reliable, performance engineered solutions



Our LED solutions have been fully photometrically tested within our luminaires, using our in-house goniophotometer and state-of-the-art integrating sphere.

Our integrating sphere gives us accurate lumen output data as well as complete spectral analysis so we understand not only the amount, and distribution of light, but the quality of light that our products deliver. Data performance shown is therefore the actual luminaire performance delivered.



Our LED light engine options are fully thermally tested within our luminaires to guarantee the long life of the LEDs and drivers.

For up-to-date photometry, please visit **dwwindsor.com**

LED light engine

Features:

4 light engine options available, from high performance LED to our low glare, comfort option

Enables conversion of existing HID lanterns to LED

Upgrade DW Windsor lanterns (up to 20 years old)

With Diamond+ technology

Quick and simple to install on-site

Light engine options:

Performance LED

Performance CoB

Comfort CoB

Gas effect

Diamond+ Optical Control:

Our Diamond+ gives you the ability to replace your existing lighting distribution through a range of specially designed optics that mimic our original Diamond Optic® reflector system. Within the retrofit solutions, we will provide the Diamond+ optic which most closely matches your current distribution. For guidance selecting an appropriate solution please contact our lighting design team.

Diamond+ A Optic – Roads (A1, A2, A3, A5, A6)



Diamond+ B Optic – Pathways (B1, B2, B3)



Diamond+ C Optic – Areas (C1, C2, C6)



Diamond+ Z Optic – Crossings (ZL, ZR, ZF)



Light Source:

Performance LED: LUXEON TX

Performance CoB: Citizen

Comfort CoB: Citizen

Gas effect: LUXEON Rebel

Colour Rendering Index:

See pages 1 / 2

Colour Temperature:

2200K

2700K

3000K

4000K

Lifetime Prediction:

Performance LED: L80 >100,000 hours

Performance CoB: L80 >100,000 hours

Comfort CoB: L80 >100,000 hours

Gas Effect: L70 >60,000 hours

Light Engine Efficacy:

Performance LED: up to 175lm/W

Performance CoB: up to 180lm/W

Comfort CoB: up to 100lm/W

Gas Effect: up to 62lm/W

Drive Current:

From 200mA - 1050mA

S/P Ratio:

1.2 (2700/3000K)

1.5 (4000K)

Control:

CLO: Constant Light Output enabled - for energy savings and dependable light throughout the lifetime of the luminaire

Switch: On / off through conventional PEC, Miniature or Nema

Dim: Factory set dimmed / customer specified dimming

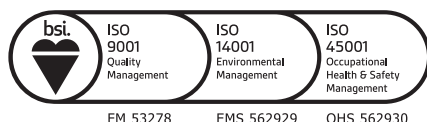
CMS: Compatible with all available CMS systems

Installation and Maintenance:

Can be installed into any DW Windsor lamped products (up to 20 years old)

No electrical wiring needed on installation; all connections are by plug and socket

Download UMS codes from dwwindsor.com



FM 53278 EMS 562929 OHS 562930

LUCECO plc

DW Windsor is part of the
Luceco Group

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