

Project:	Hammerstone Road Depot Refurbishment	Date:	28.09.21
A&B Contract No:	8834	Status:	S4
Engineers:	Matt Borlase	Revision:	P01
F.T.A.O.	Name: Dave Webb Organisation: Morgan Sindall Construction		
Copies To:	Name: Colin Burns Organisation: Hannan Associates		
Approval Required By: 18/10/2021			
Status:			
<u>Comments:</u>			
Date: Signed:			

Please refer to layouts for positions.



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External Lighting Schedule – Hammerstone

Ref	Description	Manufacturer	Image
EXT-A	Post Top LED Single Lantern Complete with 6m tubular steel column	DW Windsor Kirium Pro 1	 A photograph of a modern, dark grey street lamp. It has a rectangular, slightly curved top section with a white LED light panel. The lamp is mounted on a thick, cylindrical pole. The background is plain white.
EXT-B	Side Entry LED Double Lantern Complete with 6m tubular steel column	DW Windsor Kirium Pro 1	 A photograph of a modern, dark grey street lamp, similar to the one in the previous row. It has a rectangular, slightly curved top section with a white LED light panel. The lamp is mounted on a thick, cylindrical pole. The background is plain white.

EXT-C	Side Entry LED Double Lantern Complete with 10m tubular steel column	DW Windsor Kirium Pro 2	
EXT-D	Post Top LED Single Lantern Complete with 10m tubular steel column	DW Windsor Kirium Pro 2	
EXT-E	Post Top LED Single Lantern Complete with Wall Mount	DW Windsor Kirium Pro 1	



Kirium Pro

SEPTEMBER 2019



Think all street lights are made equal?

**think
again**

Our most comprehensive range of LED street lighting yet. Need performance? Minimal whole life cost? Precise lighting control? Think Kirium Pro. Available in five sizes and with 23 standard optical solutions, it's the most innovative, forward-thinking, and future-proof product we've ever developed.



Whatever your requirements, we have the solution

From 320lm – suitable for residential roads and car parks – to 46109lm, ideal for larger roads and motorways.

Key advantages:

- 5 sizes for true flexibility
- 23 optical solutions to suit any project requirement
- With Diamond+ optic technology for the ultimate in precise lighting control
- Exceptional thermal management for optimised performance and product life
- Impressive energy efficiency delivering a minimal whole life cost solution
- Flexible drive current for tailored performance and accurate lighting levels
- Choice of control options for even greater energy savings
- Tool-free access via quick-release latches mean easy installation and maintenance
- Safety first; with automatic electrical disconnect
- 2700K / 3000K / 3500K / 4000K
- ENEC approved
- Suitable for international markets with operating temperature range -45°C to +50°C

Applications:

-  Footpaths
-  Cycleways
-  Residential
-  Car parks
-  Road
-  Rail
-  Motorway

M1, Junctions 10-12

Full case study available on our website:
dwwindsor.com/m1





Design features

Surge protection device

Maximises the lifetime value and prevents down-time due to storms, lightning strikes etc.

Lift-off head*



Cooling fins

To dissipate heat and extend LED lifetime

Cool Zone™ exceptional thermal management

Air void and thermal barrier that assists in delivering a long lifetime

Hinged opening

High-pressure die-cast aluminium body (LM6)

For corrosion resistance and added strength & durability

Performance lighting

High power LEDs (from 4 to 128 LED options)

Automatic electrical disconnection*

Safety feature; cuts power to the luminaire when opened

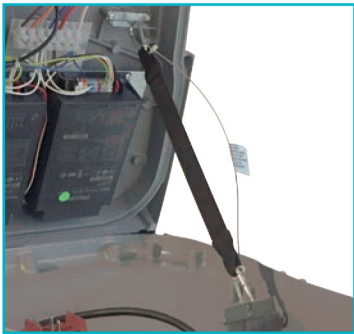
Tool-less entry

Quick-release latches for speedy installation and maintenance.

Kirium Pro Mini/Midi

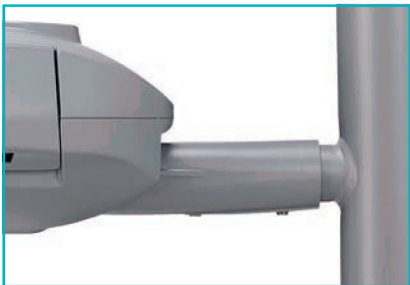
CLO: Constant Light Output

Fully programmable



Safety tether

Supplied with an integral dampening safety tether, and an external fail-safe device as standard (Kirium Pro 3 only)



Flexible mounting

Direct post [Ø60mm / Ø60-76mm]
Side entry [Ø34-42mm / Ø60mm]
Direct post/side entry inclination:
-15° -10° -5° 0° +5° +10° +15°



*available on Kirium Pro 1, 2 and 3 only

Optical control

Featuring Diamond+

23 standard optical distributions for ultimate flexibility and precise lighting control.

An evolution of our award-winning and patented Diamond Optic® reflector technology, Diamond+ gives you the ability to create widely different lighting distributions from a single luminaire.

Choose Diamond+ for refined lighting distribution

Diamond+ A Optic



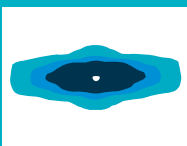
Options:

A1, A2, A3, A4, A5

Typical applications:

Wide roads and dual carriageways (M classes)

Diamond+ B Optic



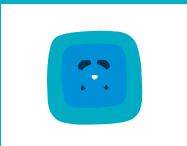
Options:

B1, B2, B3, B4, B5

Typical applications:

Narrow roads and footpaths

Diamond+ C Optic



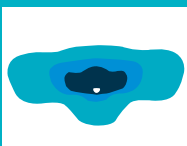
Options:

C1, C2, C3, C4, C5

Typical applications:

Area applications

Diamond+ D Optic



Options:

D1, D2, D3, D4, D5

Typical applications:

Standard roads and wide footpaths

Diamond+ Z Optic



Options:

ZL, ZR or ZF

Typical applications:

Zebra and pedestrian crossings

Please refer to dwwindsor.com/diamond for full optical configurations



Control options

From simple factory-set dimming to full CMS: enhance your luminaire through intelligent, connected sensors and control systems.

Benefits of smart control

- Reduced energy consumption
- Reduced carbon footprint
- Longer luminaire life
- Lower capital, maintenance and energy costs
- Ability to collect data

Bluetooth

For on/off switching, light control and dimming.



Smart control

Integral CMS: connected (or Smart) assets which use wireless communications networks, offering optimal flexibility. Control a single luminaire or group switch remotely.





Simple, stand-alone controls

Factory-set dimming, time switches, photocells and presence detectors. Control in its simplest form.



Installation and maintenance



Tool-less quick-release latches for speedy access



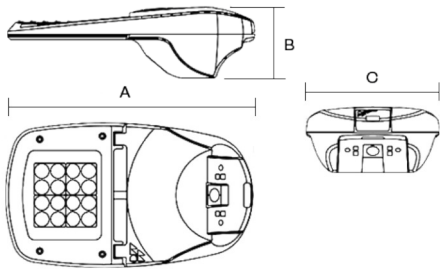
Hinged opening



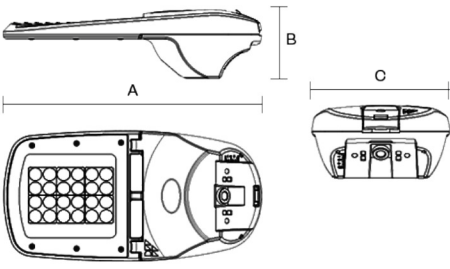
Lift-off head, with automatic electrical disconnect (available on Kirium Pro 1, 2 and 3 only)

Dimensions

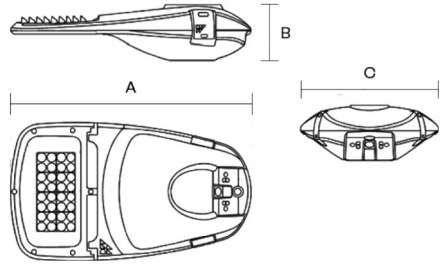
Kirium Pro Mini



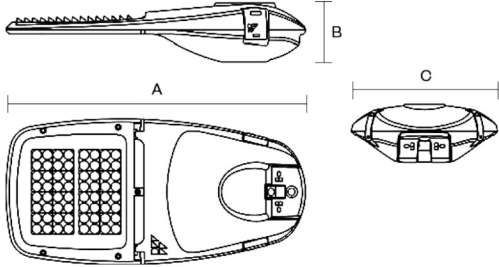
Kirium Pro Midi



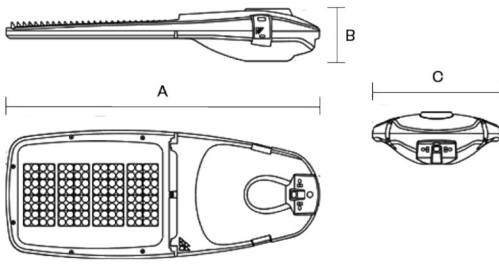
Kirium Pro 1



Kirium Pro 2



Kirium Pro 3



	Dimensions (mm)			Weight (kg)	Windage (m²)
	A	B	C		
Kirium Pro Mini	390	110	227	3.6	0.032 (CxS = 0.021)
Kirium Pro Midi	451	119	227	5.0	0.034 (CxS = 0.026)
Kirium Pro 1	610	140	350	7.1	0.054 (CxS = 0.029)
Kirium Pro 2	720	140	350	9.5	0.059 (CxS = 0.034)
Kirium Pro 3	1010	167	415	17.5	0.094 (CxS = 0.056)



Unequalled flexibility. Unequalled choice

Product

Kirium Pro Mini

(16 LED)

2,710lm @ 17W



Replaces

70W SON-T 

80% energy saving

Typical applications

Footpaths /
cycleways /
residential



Product

Kirium Pro Midi

(24 LED)

5,485lm @ 33W



Replaces

100W SON-T 

73% energy saving

Typical applications

Footpaths /
cycleways /
residential



Product

Kirium Pro 1
(32 LED)

5,185lm @ 31W



Replaces

100W SON-T 

75% energy saving

Typical applications

Road / car parks / rail



Product

Kirium Pro 2
(64 LED)

8,905lm @ 50W



Replaces

150W SON-T 

72% energy saving

Typical applications

Road / car parks / rail



For guidance on how-to light car parks visit:
dwwindsor.com/5-top-tips-for-great-car-park-lighting

Product

Kirium Pro 3
(128 LED)

19,462lm @ 148W



Replaces

250W SON-T 

61% energy saving

Typical applications

Road / motorways



Technical specification

Product lumen packages and wattages matrix

The table below provides base lumen packages for the new Kirium Pro range. Calculations based on 4000K with no LOR applied. Due to continuous development of LEDs the figures within this table are subject to change at any time.

Model		Number of LEDs	Drive current (mA)																
			200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Kirium Pro Mini	4	Im	385	484	578	669	759	844	930	1012	1095	1172	1249	1323	1399	1470	1540	1606	1674
		W	3	4	5	5	6	7	7	8	9	9	10	11	11	12	13	14	15
Kirium Pro Mini Kirium Pro 1	8	Im	770	967	1156	1337	1517	1687	1858	2024	2189	2343	2497	2648	2798	2939	3080	3214	3348
		W	6	7	8	9	10	11	12	14	15	16	18	19	20	22	23	25	26
Kirium Pro Mini Kirium Pro 1	16	Im	1516	1890	2263	2616	2969	3303	3637	3961	4285	4586	4887	5128	5477	5753	6028*	6291*	6554*
		W	10	12	14	17	19	21	23	26	28	30	33	35	37	40	42*	45*	47*
Kirium Pro Midi Kirium Pro 1	24	Im	2314	2885	3455	3993	4531	5024	5217	5985	6475	6896	7338	7750	8160	8757	8944	9294	9642
		W	14	17	20	23	27	30	33	36	39	42	46	49	53	56	60	63	67
Kirium Pro 1 Kirium Pro 2	32	Im	2901	3615	4330	5005	5680	6320	6958	7578	8198	8775	9351	9915	10480	11008	11535	12037	12540
		W	19	23	27	31	35	39	43	48	52	56	61	65	70	75	79	84	89
Kirium Pro 2	48	Im	4382	5462	6541	7561	8581	9546	10511	11447	12383	13254	14125	14978	15830	16628	17424	18183	18942
		W	27	33	39	45	51	57	64	70	76	82	89	95	102	109	116	123	131
Kirium Pro 2 Kirium Pro 3	64	Im	5793	7218	8645	9995	11343	12618	13893	15125	16369	17521	18671	19798	20925	21978	23031	24035	25038
		W	35	42	50	58	66	74	82	91	99	108	116	125	134	142	151	160	168
Kirium Pro 3	80	Im	6977	8696	10414	12040	13664	15200	16735	18227	19719	21106	22493	23850	25208	26476	27744	28953	30162
		W	45	55	65	75	86	96	106	117	127	138	149	160	171	182	193	205	216
	96	Im	8173	10186	12199	14102	16006	17806	19604	21351	23098	24724	26348	27938	29528	31015	32500	33916	35332
		W	53	65	77	89	101	113	126	139	151	164	177	190	203	216	229	242	255
	128	Im	17841	22235	26629	27766	28903	30138	31372	32712	34052	35506	36960	38539	40117	41181	42911	44554	46109
		W	70	85	101	116	132	148	164	181	197	214	231	248	265	282	300	317	335

*only applies to Kirium Pro 1 (16LED)

Colour temperature

OCT	Light output reduction factor	S/P ratio
2700K	0.76	1.2
3000K	0.84	1.3
3500K	0.9	1.4
4000K	1.0	1.5

Comparable products for HID replacement schemes

Lamp and comparison	Power	Energy saving (%)
35W SOX	65	78
16LED @ 300mA	14	
55W SOX	77	66
16LED @ 550mA	26	
90W SOX	130	62
24LED @ 750mA	49	
135W SOX	190	60
48LED @ 500mA	76	
180W SOX	246	56
64LED @ 650mA	108	
50W SON-T+	69	75
16LED @ 350mA	17	
70W SON-T+/CDO-TT	90	71
16LED @ 550mA	26	
100W SON-T+/CDO-TT	123	60
24LED @ 750mA	49	
150W SON-T+/CDO-TT	180	61
48LED @ 550mA	70	
250W SON-T+/CDO-TT	301	55
64LED @ 800mA	134	
45W CPO-TW	50	58
16LED @ 450mA	21	
60W CPO-TW	66	55
16LED @ 650mA	30	
90W CPO-TW	96	58
24LED @ 650mA	42	
140W CPO-TW	153	54
32LED @ 800mA	70	

Ordering details

You may find the following product codes helpful for ease of specification and ordering:

					Code	Example
Model						
Kirium Pro Mini					KPM	KP2
	Kirium Pro Midi				KPMD	
		Kirium Pro 1			KP1	
			Kirium Pro 2		KP2	
				Kirium Pro 3	KP3	
LED quantity						
4 LED					004	048
8 LED		8 LED			008	
16 LED		16 LED			016	
	24 LED	24 LED			024	
		32 LED	32 LED		032	
			48 LED		048	
			64 LED	64 LED	064	
				80 LED	080	
				96 LED	096	
				128 LED	128	
Mounting						
Ø34-42mm Side entry (not available on Kirium Pro 3)					S	D
Ø76mm Direct post					D	
Ø60mm Side entry / Direct post adapter					I	
Colour temperature						
2700K					27	30
3000K					30	
3500K					35	
4000K					40	
Distribution						
Wide road - Diamond+ A Optic (A1 / A2 / A3 / A4 / A5)					A1 / A2 / A3 / A4 / A5	D1
Footpath - Diamond+ B Optic (B1 / B2 / B3 / B4 / B5)					B1 / B2 / B3 / B4 / B5	
Area - Diamond+ C Optic (C1 / C2 / C3 / C4 / C5)					C1 / C2 / C3 / C4 / C5	
Standard road - Diamond+ D Optic (D1 / D2 / D3 / D4 / D5)					D1 / D2 / D3 / D4 / D5	
Pedestrian crossing - Diamond+ Z Optic (ZL / ZR / ZF)					ZL / ZR / ZF	
Drive current						
Drive currents from 200mA to 1000mA are available in 50mA increments. Insert drive current value in 4-digit format (eg 250mA = 0250).					0200 / 0250 / 0300 / 0350 / 0400 / 0450 0500 / 0550 / 0600 0650 / 0700 / 0750 / 0800 / 0850 / 0900 0950 / 1000	0550
Glazing						
Toughened glass					FG	FG
Polycarbonate (Kirium Pro Mini, Kirium Pro Midi & Kirium Pro 1 only)					RA	
Product colours						
RAL 7046 Mid grey					CF	29
RAL 7035 Light grey					29	
RAL 9005 Black					10	
Control						
No photocell					N	U
Photocell 35 lux (1:0.5)					U	
Part night switching Photocell 35 lux (1:0.5) (switch off midnight - 05:30) (Elaxon regime 762)					A4	
Photocell 35 lux (1:0.5) + pre-programmed dimming (dimmed to 50% midnight - 05:30) (Elaxon regime 531)					D8	
3 pin NEMA					E	
5 pin NEMA					C3	
7 pin NEMA					D2	
4 pin Zhaga socket					Z4	
Integral CMS - Urban Control					IUC	
Integral CMS - Telensa					ITE	
Integral CMS - Mayflower					IMA	
Pre-programmed dimming*						
Example code = KP2 048 D 30 D1 0550 FG 29 U						

*Available as standard subject to further information being provided at time of order.

Kirium Pro



IP66 | IK10 | CLASS I | CLASS II

Key features

- Our most comprehensive range of LED road lanterns, available in 5 sizes
- Extensive optical solutions; introducing Diamond+ the ultimate in flexible, precise lighting control. 23 standard optical solutions available
- Simple, speedy and safe installation and maintenance via tool-free, quick-release latches. Lift-off head and automatic electrical disconnect
- Emergency option available (Kirium Pro 1, 2 and 3 only)
- Environmentally tested to BS EN 60068-2-6 2008
- New: Complementary bollard and wall luminaire available, visit www.dwwindsor.com/kirium-pro

Options

- Kirium Pro Mini (4 / 8 / 16 LEDs) for mounting at 4-6 metres
- Kirium Pro Midi (24 LEDs) for mounting at 4-8 metres
- Kirium Pro 1 (8 / 16 / 24 / 32 LEDs) for mounting at 5-8 metres
- Kirium Pro 2 (32 / 48 / 64 LEDs) for mounting at 6-10 metres
- Kirium Pro 3 (64 / 80 / 96 / 128 LEDs) for mounting at 8-15 metres

Optical control

- Wide road - Diamond+ A Optic (A1, A2, A3, A4, A5)
- Footpath - Diamond+ B Optic (B1, B2, B3, B4, B5)
- Area - Diamond+ C Optic (C1, C2, C3, C4, C5)
- Standard road - Diamond+ D Optic (D1, D2, D3, D4, D5)
- Pedestrian crossing - Diamond+ Z Optic (ZL, ZR, ZF)
- Optional obtusive light shield(s) available and can be fitted post installation without opening the luminaire

L90 lifetime prediction

In excess of 100,000 hours

Total luminaire lumens

- Kirium Pro Mini: 320-5734lm
- Kirium Pro Midi: 2314-9642lm
- Kirium Pro 1: 639-12284lm
- Kirium Pro 2: 2372-24315lm
- Kirium Pro 3: 4762-46109lm

Colour temperature

- 2700K
- 3000K
- 3500K
- 4000K

Colour rendering index

- 70Ra (4000K / 3500K / 3000K)
- 80Ra (3000K / 2700K)

Total measured luminaire efficacy

Up to 174lm/W

Drive current

200mA - 1000mA (in 50mA increments)

Mounting

- Direct post [Ø60mm / Ø60-76mm]
- Side entry [Ø34-42mm / Ø60mm]
- Direct post/side entry inclination: -15° -10° -5° 0° +5° +10° +15°
- Adaptors available for various spigot diameters

Control

- CLO: Constant Light Output enabled - for energy savings and dependable light throughout the lifetime of the luminaire
- Smart City ready: Able to support Smart City equipment and Zhaga compliant connectors
- Switch: On/Off through conventional PEC, Miniature or NEMA
- Dim: Factory set dimmed / customer specified dimming
- CMS: Compatible with all available CMS systems

Product colours

- RAL 9005 Black
- RAL 7046 Mid grey
- RAL 7035 Light grey
- Other RAL colours on request

Materials

- Body: High-pressure die-cast aluminium (LM6)
- Glazing: Toughened glass / Polycarbonate for IK10
- Seals: Silicone
- Finish: Polyester powder coat

Installation and maintenance

- Available with various cable tail options prefitted
- Short form UMSUG codes available on the website
- Operational temperature range: -45°C to +50°C
- Surge protection: 10kV

Kirium® Pro is a registered design

Due to continuous product development the details within this brochure are subject to change at any time, please contact us for the most up-to-date information or visit: www.dwwindsor.com

DW Windsor

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