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Dark Sky Compliant Luminaires for use within the North York Moors National Park

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1 Introduction

This document has been produced by Stainton Lighting Design Services working in partnership and on behalf of the North York Moors National Park in relation to its Dark Sky Status intention.

The Luminaires detailed all give zero upward light output when installed at zero degree's mounting angle. (Horizontal with the ground).

The Luminaires that are detailed here are not the only ones that are dark sky compliant but are an example of units that can be used.

The prices quoted within the document may vary over time with regard to delivery mileage and numbers required but provide a basic guide to the purchase price. These costs have been acquired from a few different sources including Exterior Lighting Solutions (ELS) of Killingworth, Newcastle-Upon-Tyne who can be contacted on 0191 256 6123.

2 Dark Skies Friendly Lighting

Below are some things to consider when looking to change any lighting for dark sky friendly units:

Is the light needed?

Before installing or replacing a light, consider the purpose of the light and what the impact will be on the surrounding area including wildlife and neighbours.

Reflective paints or luminous markers can be used as alternatives for marking curbs, steps and paths.

Light only where needed?

Direct light only to where it is needed. Consider pointing any flood lights downwards or change to asymmetric downlights to reduce wasted stray or upward light that can be intrusive to others. If coach-style lights must be used, then see advice on light levels and colour temperature.

Light only when needed?

It is rare that lighting needs to be permanently on. Use controls such as timers or motion detectors to ensure light is dimmed when possible and off when not needed. Light using well positioned sensors is often better for detecting intruders than lights which permanently show what is on offer from a distance and create shadows for criminals to lurk in.

Keep light to a suitable level?

Light should be no brighter than necessary for the task. For unshielded coach-style lights, the level should be a maximum of 500 lumens. For other lights with an operational or safety purpose, two lower power, shielded down lights are better than poorly angled high-power lights which simply create glare.

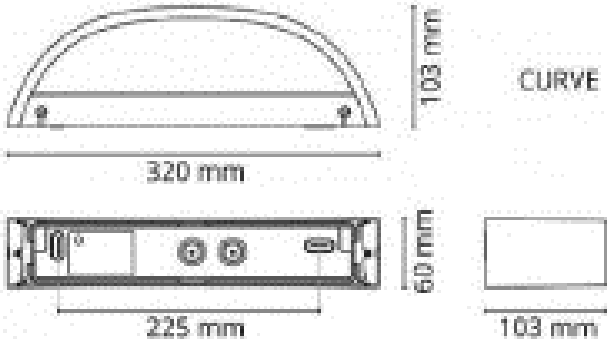
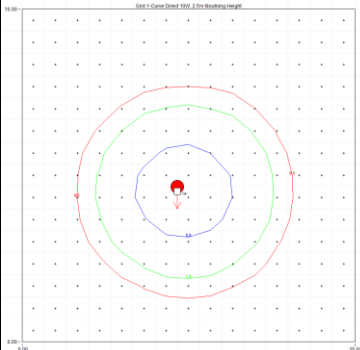
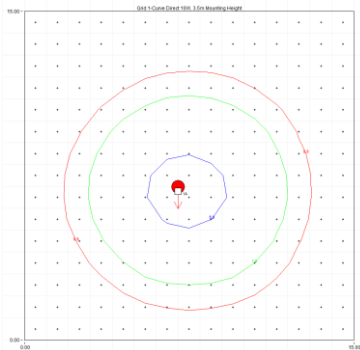
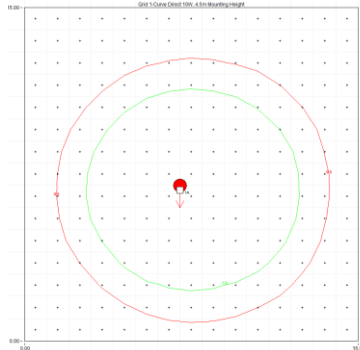
Choose the correct colour?

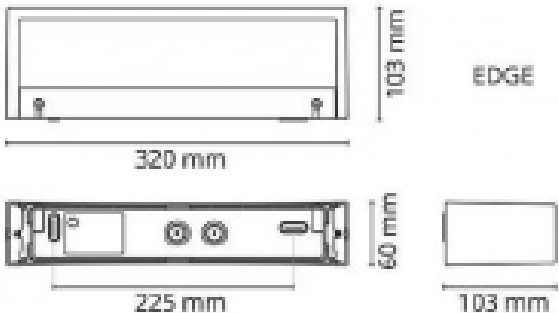
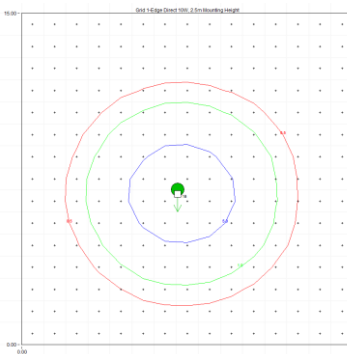
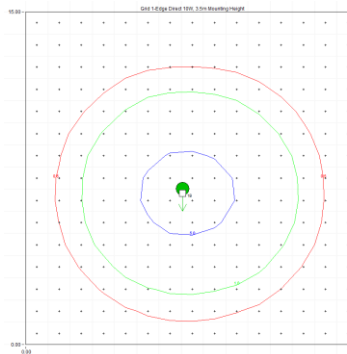
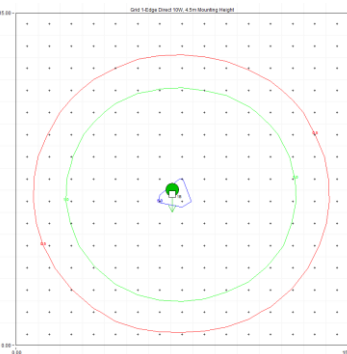
Short wavelength (cool blue) light produces more sky glow and is most harmful to wildlife and human health. Select lights or bulbs that are a maximum of 3000 kelvin and preferably 2700 kelvin.

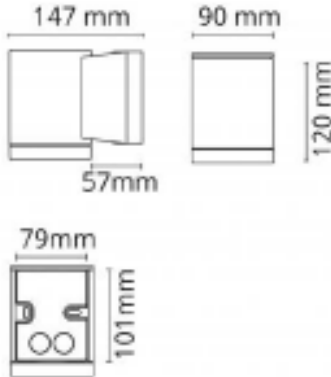
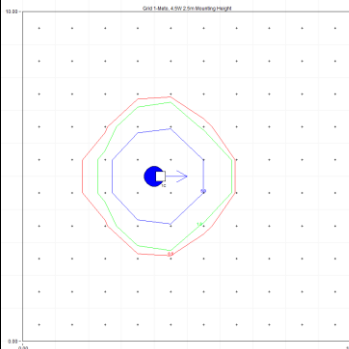
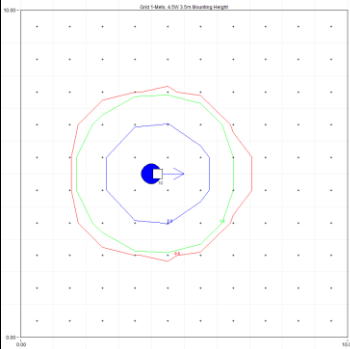
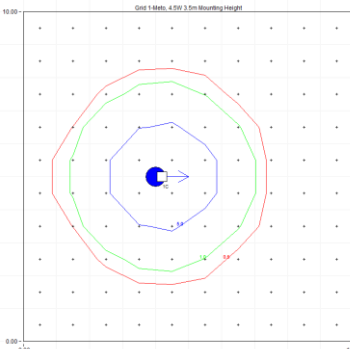
General Wall Mounted Units

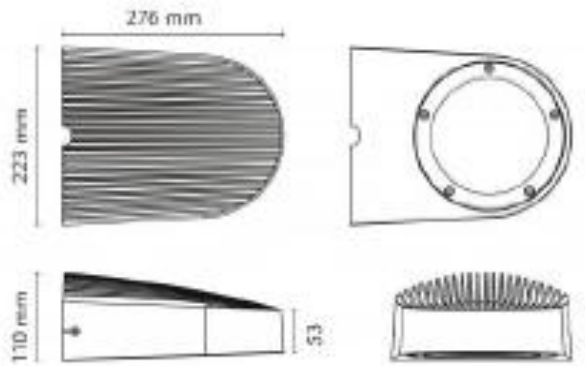
Examples of existing fittings you may find on site

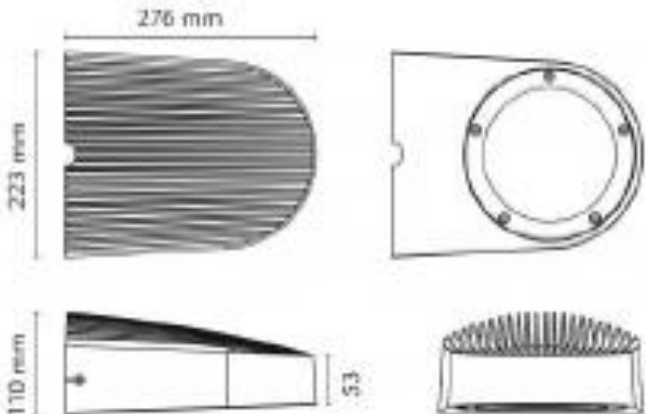
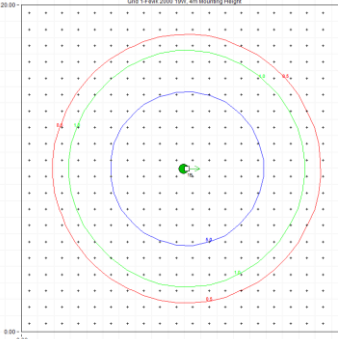
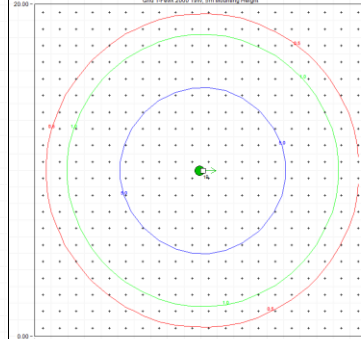
Examples of available fittings that could be used as a Dark Skies compliant replacement

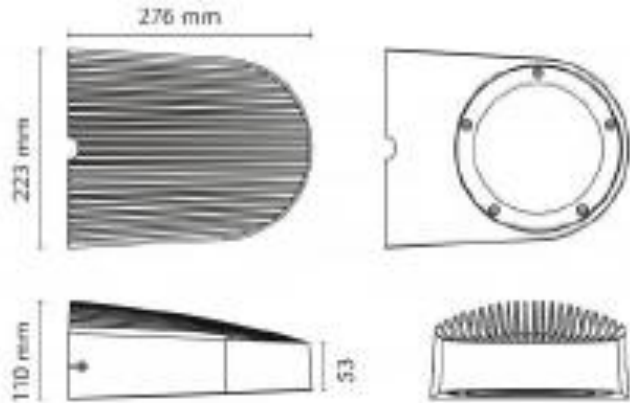
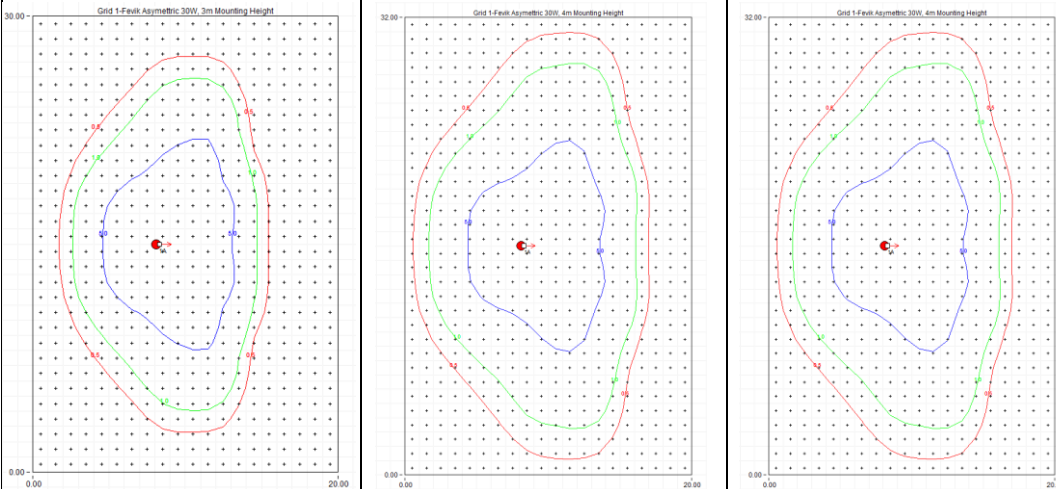
Type	Image	Quote	Description	Photometric Image		
1S		Curve Direct £99.21	Curve Direct 2700K 10W 345 Lumen Output CRI of >80. IP65 0% ULOR	10 Watt with 345 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	10 Watt with 345 lumen output. Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	10 Watt with 345 lumen output. Mounting height 4.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

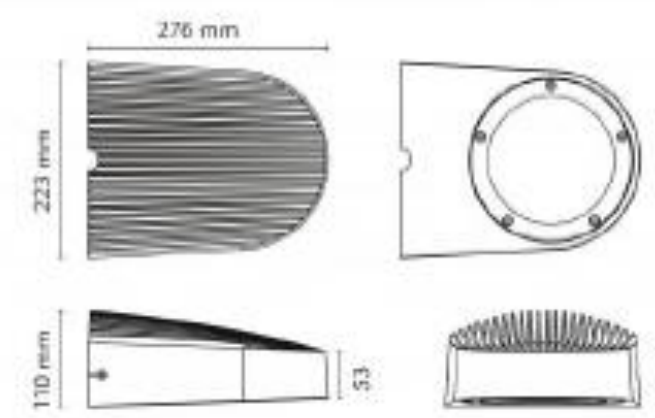
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2S		Edge Direct £99.21	Edge Direct 2700K 10W 410 Lumen Output CRI of >80. IP 65 0% ULOR	10 Watt with 410 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	10 Watt with 410 lumen output. Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	10 Watt with 410 lumen output. Mounting height 4.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						
Type	Image	Quote	Description	Photometric Image		

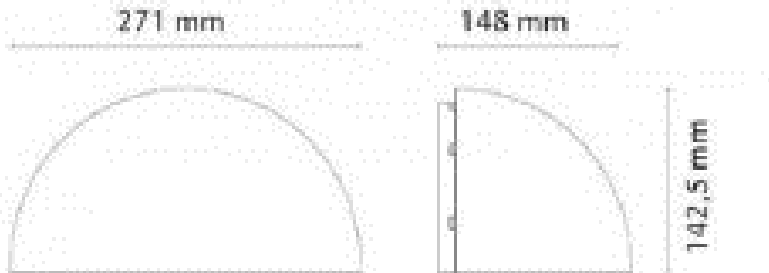
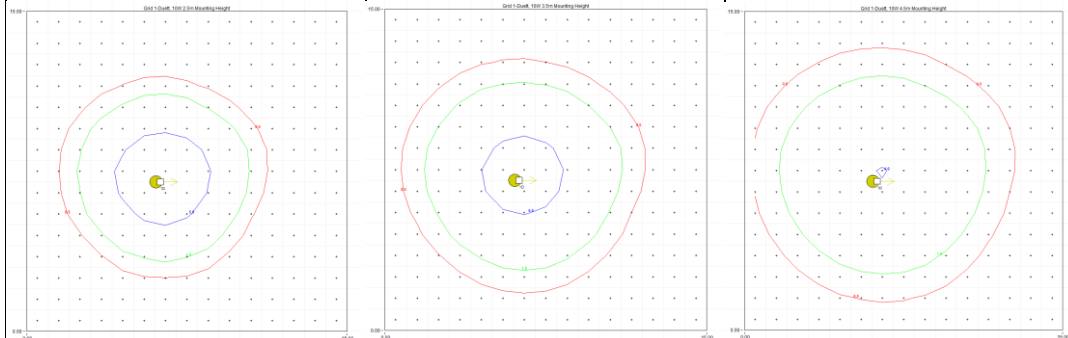
3S			Metro £55.41	Metro 2700K 4.5W 180 Lumen Output CRI of >80. IP 65	4.5 Watt with 180 lumen output.	4.5 Watt with 180 lumen output.	4.5 Watt with 400 lumen output.							
	Available in White, Black & Graphite		Corner Bracket £6.74	0% ULOR	Mounting height 2.5m.	Mounting height 3.5m.	Mounting height 4.5m.							
			Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux		Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux		Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux							
Dimensions								Points shown are 0.5m from edges and then at 1m spacing.						
														
Type	Image	Quote	Description	Photometric Image										

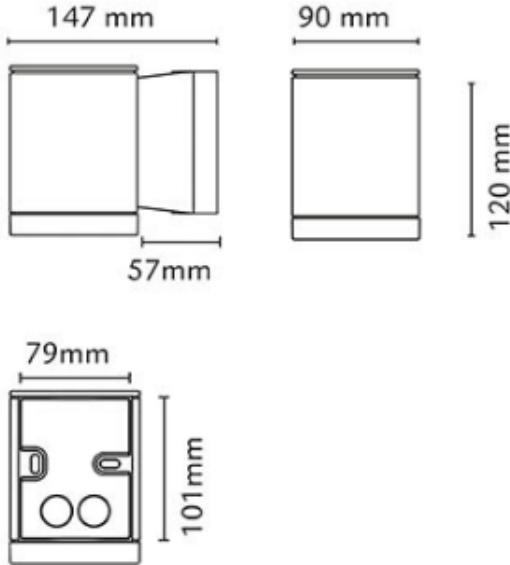
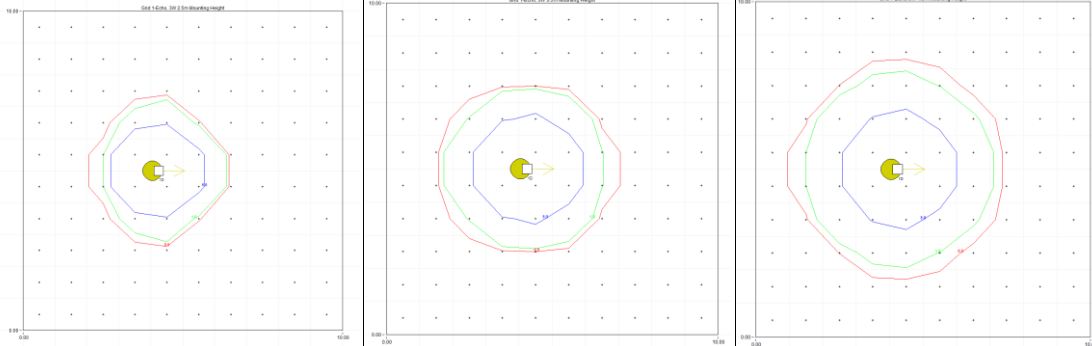
4S	 	Fevik 1100 £115.75 Corner Bracket £35.61	Fevik 1100 3000K 11.5W 14 COB LED 810 Lumen Output CRI of >80 IP65 0% ULOR	11.5 Watt with 810 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	11.5 Watt with 810 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	11.5 Watt with 810 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
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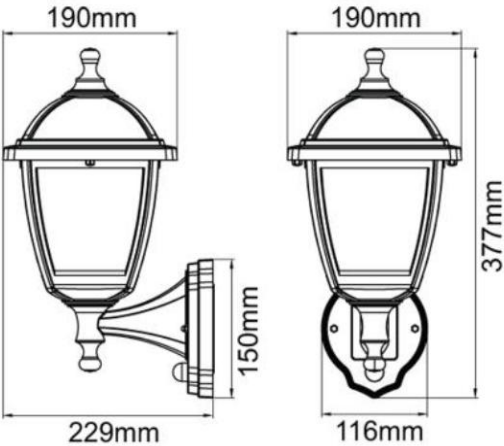
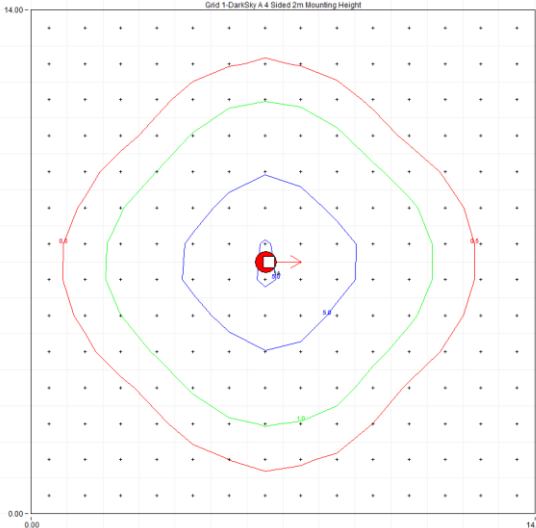
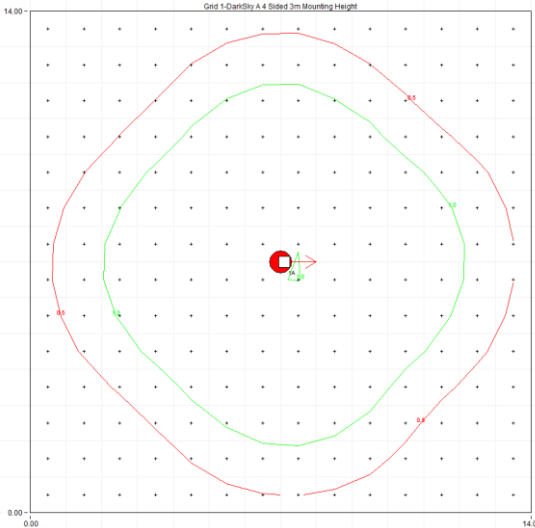
5S	 	Fevik 2000 £145.80 Corner Bracket £35.61	Fevik 2000 3000K 19W 16 COB LED 1715 Lumen Output CRI of >80 IP65 0% ULOR	19 Watt with 1715 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	19 Watt with 1715 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	19 Watt with 1715 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						
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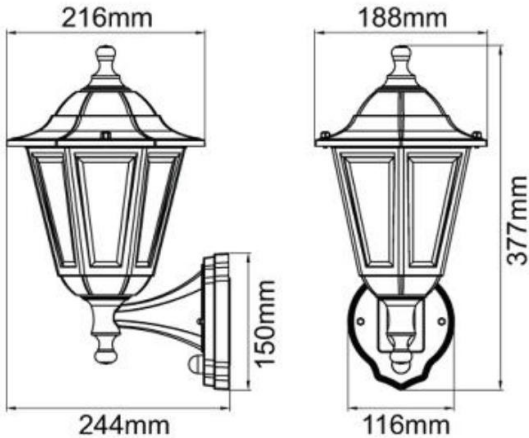
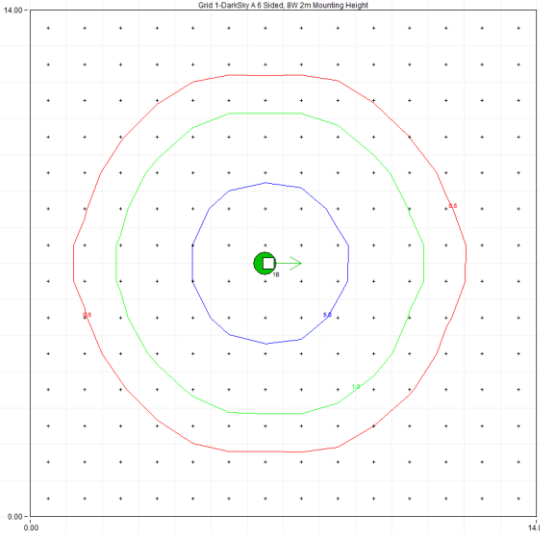
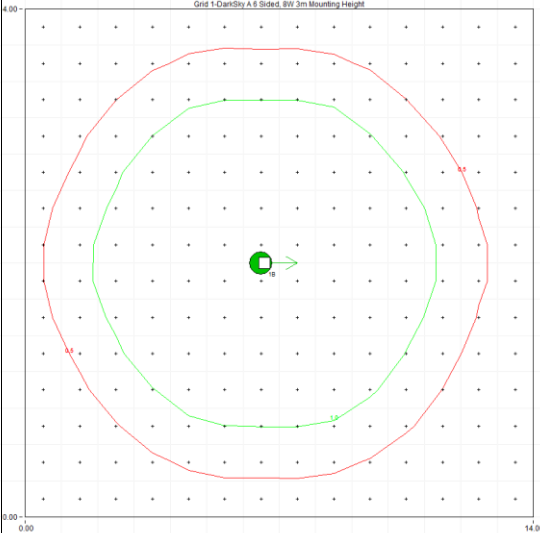
6S	 	Fevik Asymmetric £169.64 Corner Bracket £35.61	Fevik Asymmetric 3000K 25W 2320 Lumen Output CRI of >70 IP65 0% ULOR	25 Watt with 2320 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	25 Watt with 2320 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	25 Watt with 2320 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						
Type	Image	Quote	Description	Photometric Image		

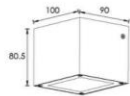
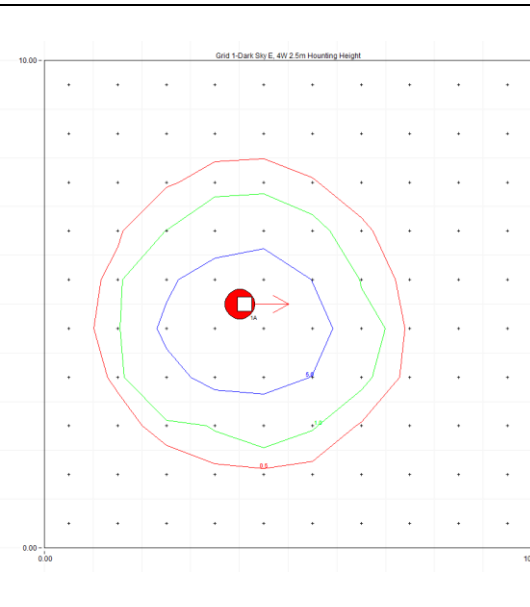
7S	 	Fevik 1500/2500 £148.98 Corner Bracket £35.61	Fevik 1000/2000 3000K 13/25W 1300-2220 Lumen Output CRI of >80 IP65 0% ULOR	13 Watt with 2535 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	13 Watt with 2535 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	13 Watt with 2535 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						
Type	Image	Quote	Description	Photometric Image		

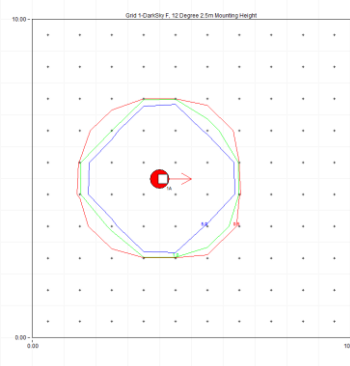
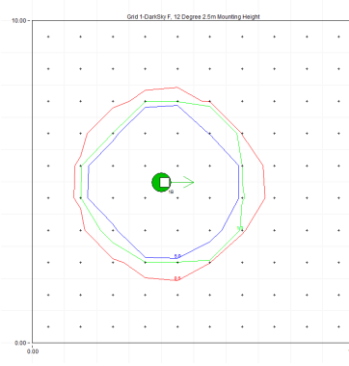
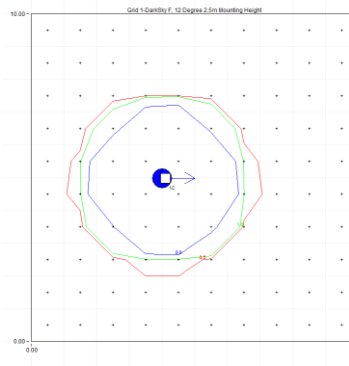
8S		Duett £48.99	Duett 2700K 10W 18W TC-D 350 Lumen Output CRI >80 IP65 (IP44 when mounted as upright) 0% ULOR	10 Watt with 350 lumen output.	10 Watt with 350 lumen output.	10 Watt with 350 lumen output.
	Mounting height 2.5m.			Mounting height 3.5m.	Mounting height 4.5m.	
	Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux			Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	
Dimensions				Points shown are 0.5m from edges and then at 1m spacing.		
						
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9S		Echo £55.42 Corner Bracket £5.78	Echo 2700 or 3000K 4.5W, 6.2W, 35W, 180 Lumen Output CRI of >80 IP54 0% ULOR	3 Watt with 110 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	3 Watt with 110 lumen output. Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	3 Watt with 110 lumen output. Mounting height 4.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						
Type	Image	Quote	Description	Photometric Image		

1A		Dark Sky A £33.94 £46.59 PIR Available with PIR or Photocell	DARKSKY A 4-Sided 3000K 8W 419 Lumen Output CRI of 85. IP44	8 Watt with 419 lumen output. Mounting height 2m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	8 Watt with 419 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
					
Type	Image	Quote	Description	Photometric Image	

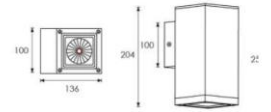
2A			Dark Sky B £32.24 £44.24 PIR Available with PIR or Photocell	DARKSKY B 6-Sided 3000K 8W 400 Lumen Output CRI of 85. IP44	8 Watt with 419 lumen output. Mounting height 2m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	8 Watt with 419 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions				Points shown are 0.5m from edges and then at 1m spacing.	
						
Type	Image	Quote	Description	Photometric Image		

3A			DARKSKY E SQ 2000K or 3000K 4W (a), 7W (b), 160-510 Lumen Output CRI of >80. 0% ULOR	4-Watt 3000k with 160 lumen output. Mounting height 2.5m. Points shown are 0.5m from edges and then at 1m spacing. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	8-Watt 3000k with 510 lumen output. Mounting height 2.5m. Points shown are 0.5m from edges and then at 1m spacing. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux																																				
	Dimensions				Points shown are 0.5m from edges and then at 1m spacing.																																				
	Outer Dimensions  Material specifications <table><tr><td>Housing</td><td>12# Die-cast dark grey powder coated aluminum, T=60-80µm Adhesion of ISO class 1/ASTM class 4B</td></tr><tr><td>Cover</td><td>PC T=6mm</td></tr><tr><td>Gasket</td><td>Tooling shaped seal</td></tr><tr><td>Driver</td><td>Main voltage 100V-240V driver inside</td></tr><tr><td>Operating temperature</td><td>-20°C~40°C</td></tr><tr><td>Power Cable</td><td>H05RN-F 2x1.0mm2 L=0.3m(low voltage) H05RN-F 3x1.0mm2 L=0.3m(high voltage)</td></tr></table> Housing color option <table><tr><td>Sanded Brown RAL 8019</td><td>Sanded Black RAL 9005</td><td>Silver Resistant Paint RAL 9006</td></tr><tr><td></td><td></td><td></td></tr></table> <table><tr><th>Item</th><th>Light source</th><th>Lens</th><th>The manufacturer selected lens degree(°)θ1/2</th><th>Input voltage(V)</th><th>Typical operating current(mA)</th><th>Typical consumption(W)</th><th>Typical luminance(lm)</th><th>IK rate</th></tr><tr><td>SQWR7AF0126</td><td>1 x 6W COB</td><td>R5</td><td>25°</td><td>24V DC 120V ~ 65 240V ~ 37</td><td>24V ~ 270 120V ~ 65 240V ~ 37</td><td>24V ~ 4.5 120V ~ 7.7 240V ~ 7.8</td><td>Cool white ~745 Warm white ~651</td><td>06</td></tr></table>				Housing	12# Die-cast dark grey powder coated aluminum, T=60-80µm Adhesion of ISO class 1/ASTM class 4B	Cover	PC T=6mm	Gasket	Tooling shaped seal	Driver	Main voltage 100V-240V driver inside	Operating temperature	-20°C~40°C	Power Cable	H05RN-F 2x1.0mm2 L=0.3m(low voltage) H05RN-F 3x1.0mm2 L=0.3m(high voltage)	Sanded Brown RAL 8019	Sanded Black RAL 9005	Silver Resistant Paint RAL 9006				Item	Light source	Lens	The manufacturer selected lens degree(°)θ1/2	Input voltage(V)	Typical operating current(mA)	Typical consumption(W)	Typical luminance(lm)	IK rate	SQWR7AF0126	1 x 6W COB	R5	25°	24V DC 120V ~ 65 240V ~ 37	24V ~ 270 120V ~ 65 240V ~ 37	24V ~ 4.5 120V ~ 7.7 240V ~ 7.8	Cool white ~745 Warm white ~651	06	
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4A		Dark Sky F £216.18	DARKSKY F SQDown 3000K 21W 1,690 Lumen Output CRI of >80. 0% ULOR	21Watt 3000k with 1510lumen output. 12 deg Mounting height 2.5m. Points shown are 0.5m from edges and then at 1m spacing. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	21Watt 3000k with 1690lumen output. 18 deg Mounting height 2.5m. Points shown are 0.5m from edges and then at 1m spacing. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	21Watt 3000k with 1390lumen output. 32deg Mounting height 2.5m. Points shown are 0.5m from edges and then at 1m spacing. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
						

Dimensions

Outer Dimensions — Unit:mm



SQWR7VB0170

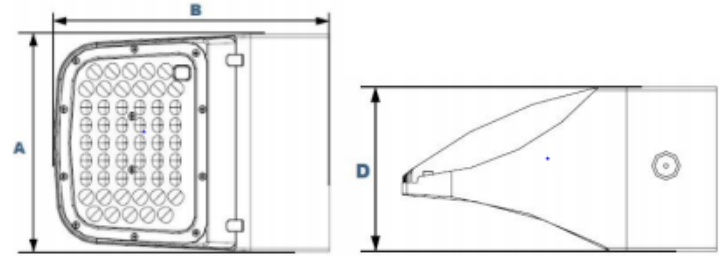
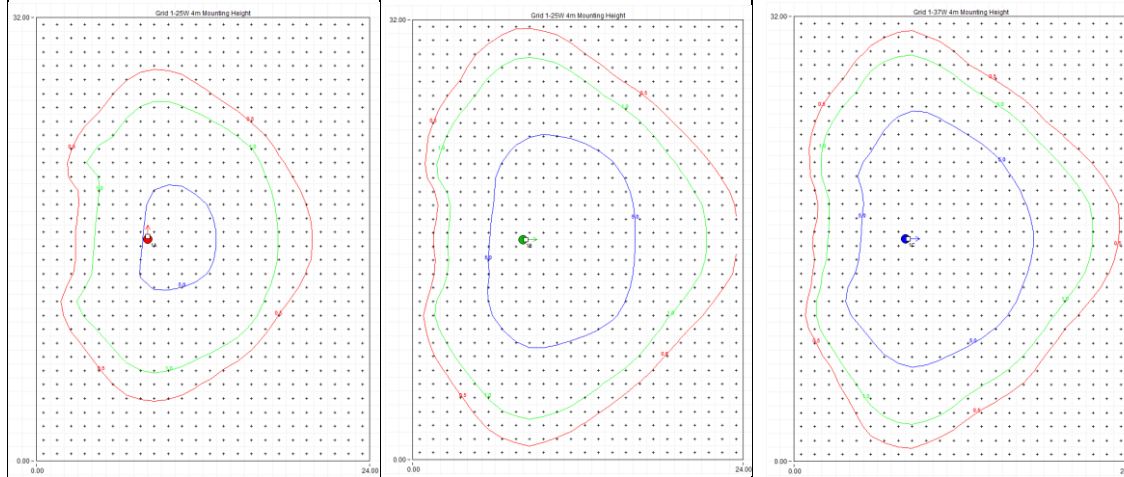
Material specifications

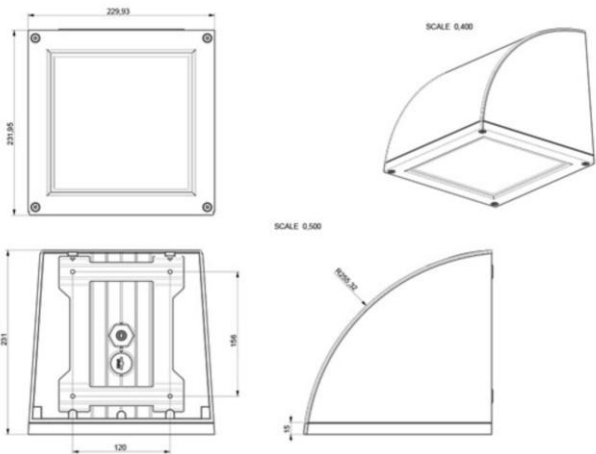
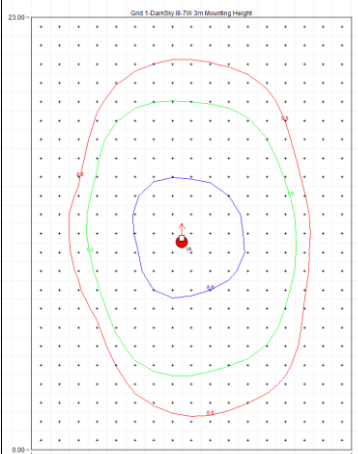
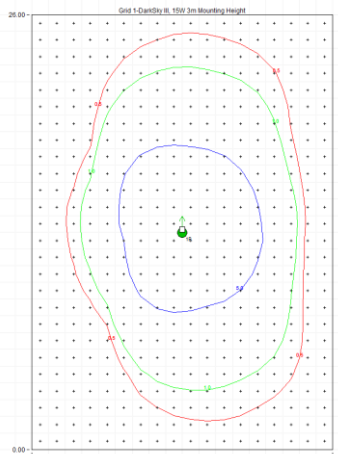
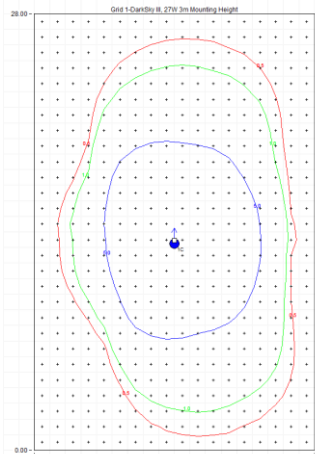
Housing	12" Die-cast dark grey powder coated aluminium. T=60-80µm. Adhesion of ISO class 1/ASTM class 4B
Cover	PC T=6mm
Gasket	Tooling shaped seal
LED Driver	Main voltage 100V-240V driver inside
LED	NICHIA
Operating temperature	-20°C~40°C
Power Cable	H05RN-F 2x1.0mm² L=0.3m(low voltage) H05RN-F 3x1.0mm² L=0.3m(high voltage)

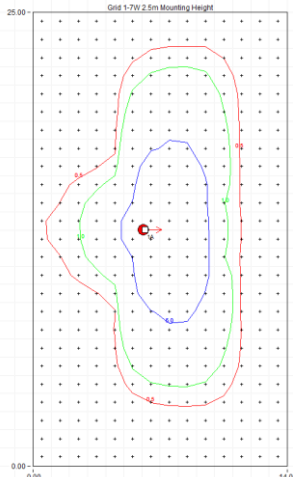
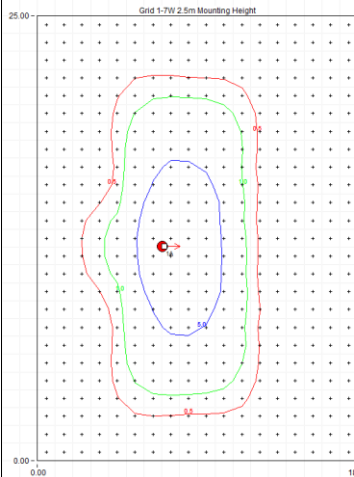
Housing color option:

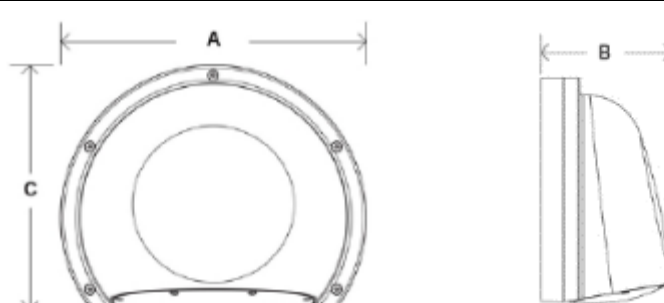
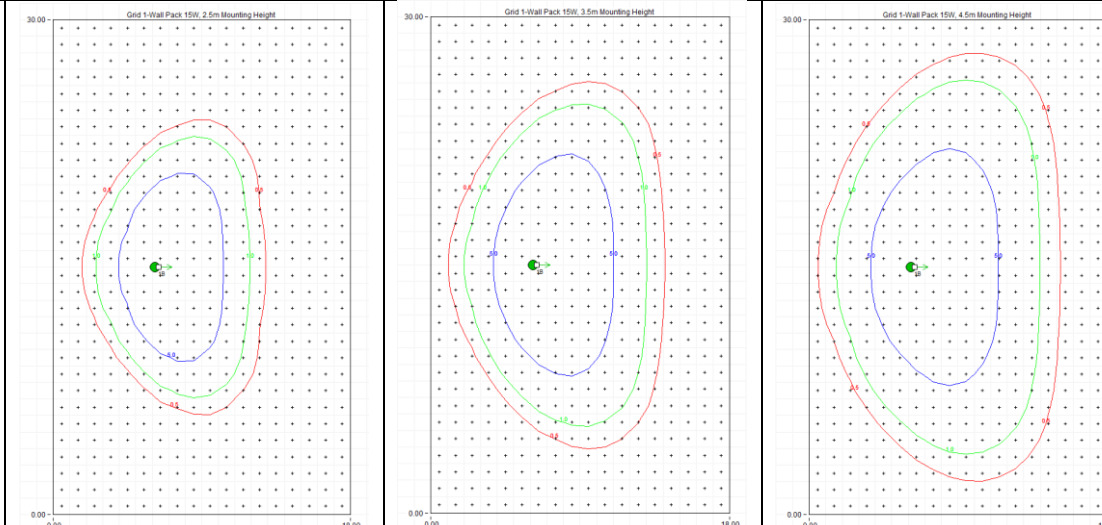
Basic	Secondary
Dark Grey RAL 7037	Silver Resistant Paint RAL 9006
	Sanded Black RAL 9005

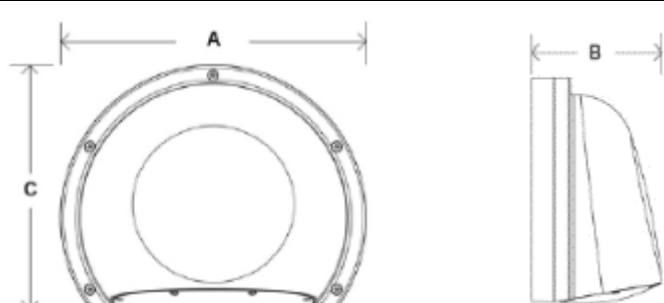
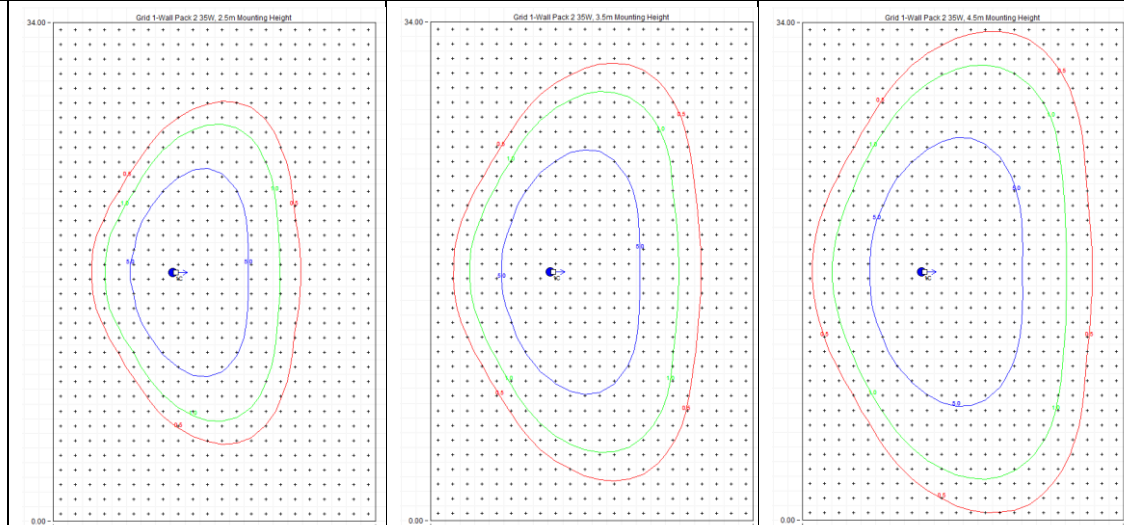
Item	Light source	Reflector	The manufacturer selected lens degree(°)Ø1/2	Input voltage(V)	Typical operating current(mA)	Typical Consumption(W)	Typical luminance(lm)	IK rate
SQWR7VB0170	1x18W COB	R17	18°	24V DC 120/240	24V = 833 120V = 178 240V = 96	24V = 20 120V = 20 240V = 21	Cool white =1766 Warm white =1705	06

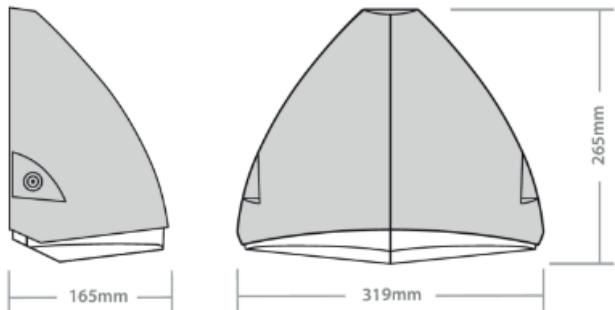
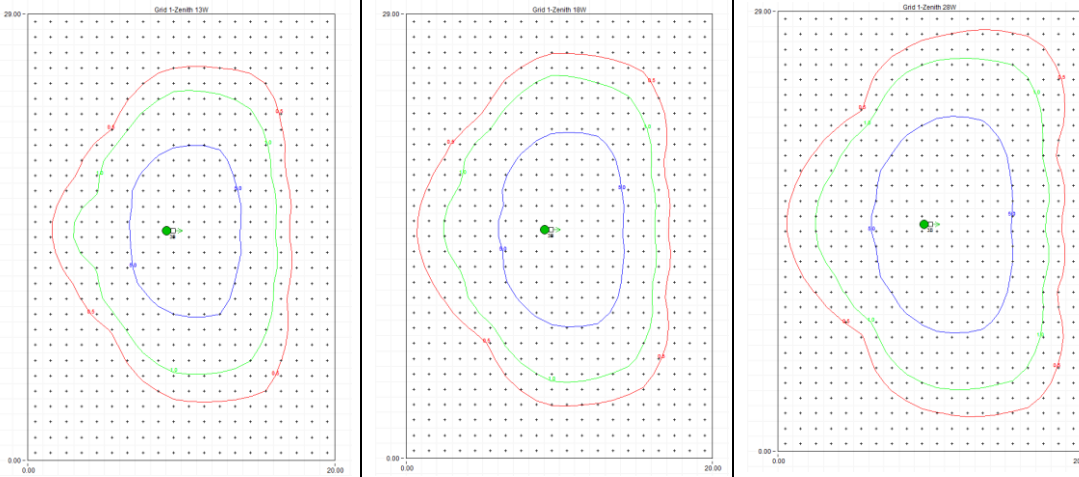
Type	Image	Quote	Description	Photometric Image		
5A		Peak £421.18 (a) £519.21 (a) as emergency £284.31 (b) £516.85 (b) as emergency Available with PIR or Photocell	Peak Bulkhead. 3000K 525mA 13W (a), 28W (b), 42W (c), 1,407 -4,454 Lumen Output CRI of >70. IP66 0% ULOR	13 Watt, 350mA with 1407 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	28 Watt, 525mA with 3147 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	42 Watt, 525mA with 4454 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
	 Width(D) 220mm Length (B) 280mm Heights (A) 146mm					

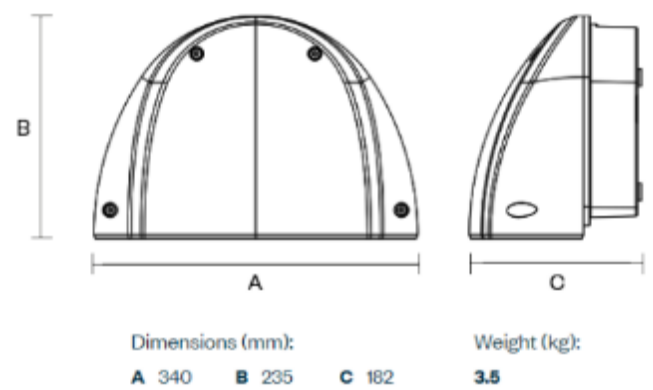
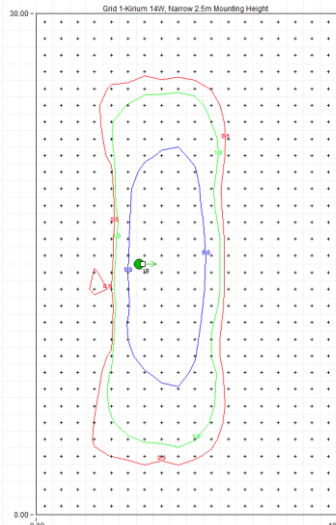
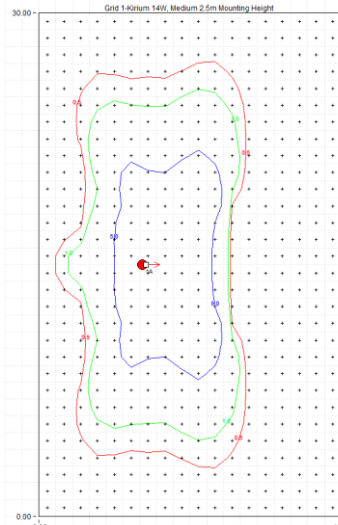
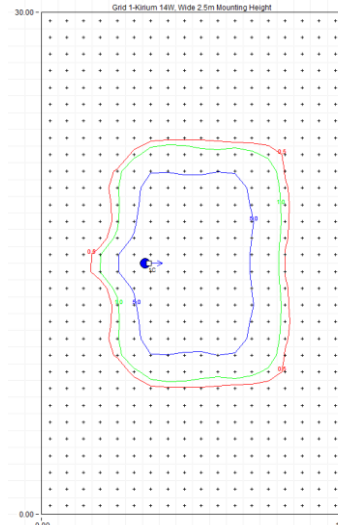
Type	Image	Quote	Description	Photometric Image		
6A		Dark Sky III £351.76 £400.59 as emergency Available with mini-Photocell	Dark Sky III 3000K 200-1050mA 7W (a), 10W (b), 15W (c), 20W (d), 27W (e), 12 LED 1193-5269 Lumen Output CRI >70. IP65 0% ULOR	7-Watt, 285mA 760 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	15-Watt, 600mA 1538 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	27-Watt, 1050 mA 2693 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

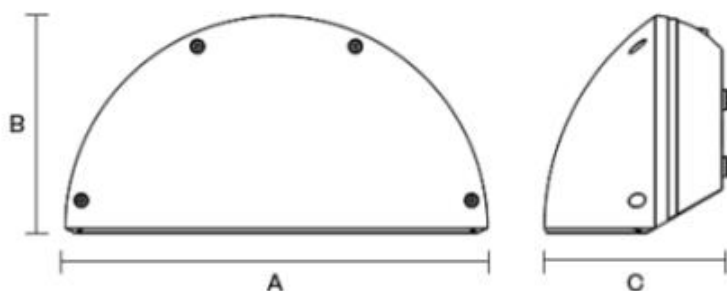
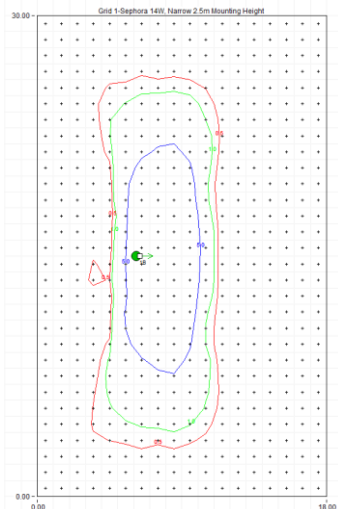
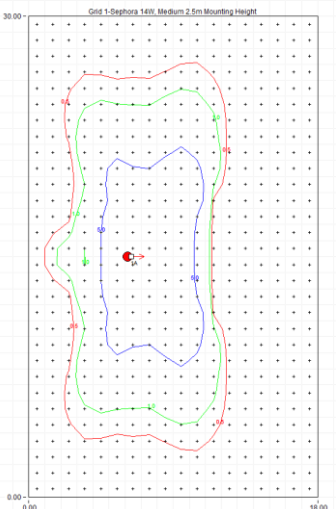
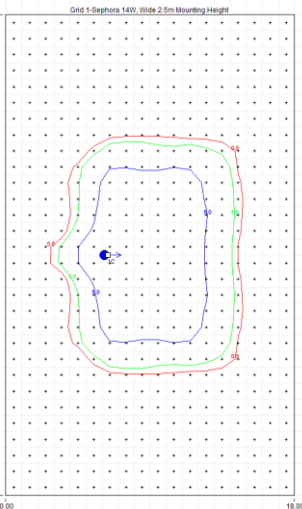
Type	Image	Quote	Description	Photometric Image		
7A		i-LED £361.41	i-LED Lightpack 3000K, 200- 1050mA 7W (a), 20W (b), 33W (c), 1000 to 4500 Lumen Output CRI >70 IP 67 0% ULOR	7 Watt with T3 Optic, 200mA, 1000 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	7 Watt with DWC Optic, 200mA, 1000 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	7 Watt with T4 Optic, 200 mA, 1000 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

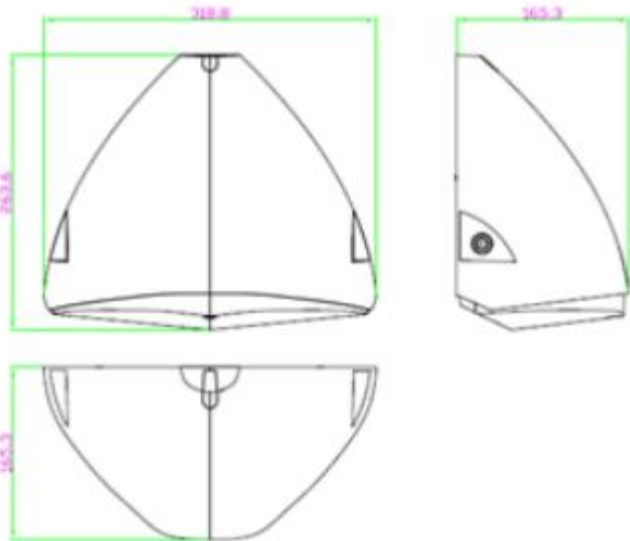
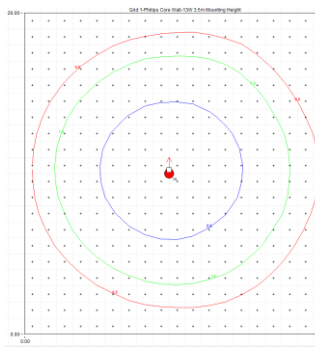
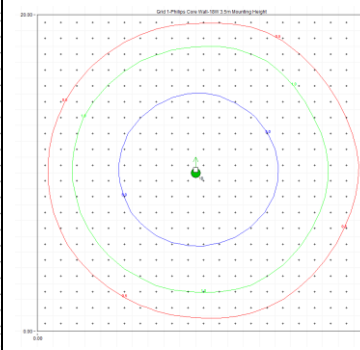
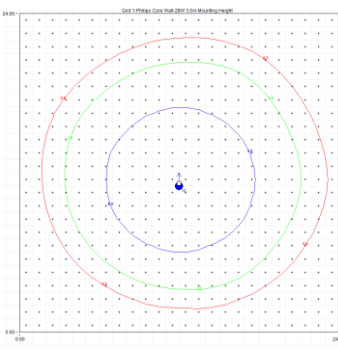
Type	Image	Quote	Description	Photometric Image		
1U		INDU Wall Pack 1 £124.96	INDU Wall Pack 1 3000K 15W 87mA 24 LED 1,700 Lumen Output CRI of >80. IP 65 0% ULOR	15 Watt with 1,700 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	15 Watt with 1,700 lumen output. Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	15 Watt with 1,700 lumen output. Mounting height 4.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
	 AxBxC (mm inch) INDU WALL PACK 1 - 250x117x201 9.8x4.6x7.9 Weight (kg lbs) INDU WALL PACK 1 - 1.4 3.1 Recommended installation height 3m to 6m					

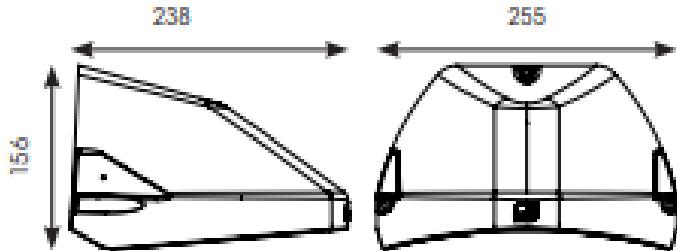
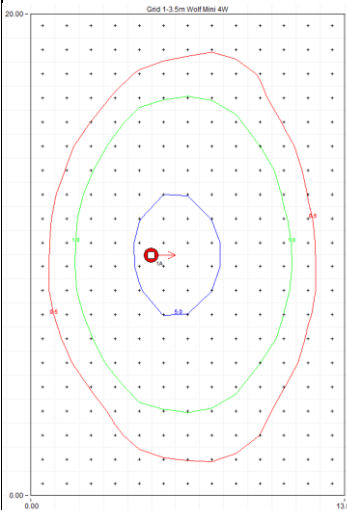
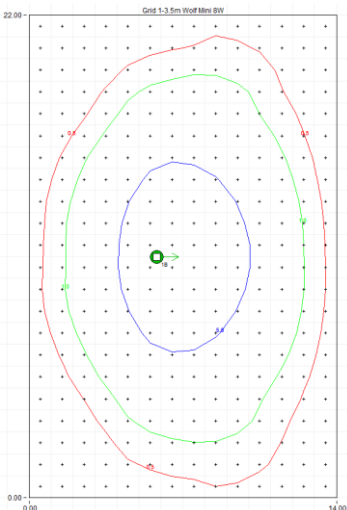
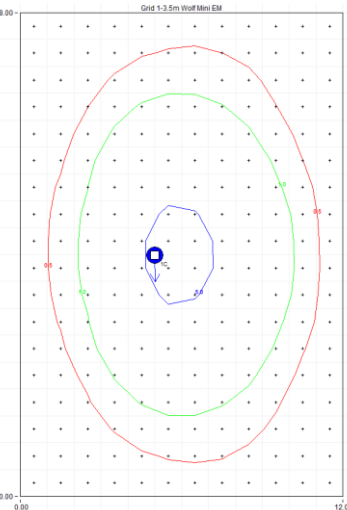
Type	Image	Quote	Description	Photometric Image		
2U		INDU Wall Pack 2 £147.84	INDU Wall Pack 2 3000K 35W 106mA 48 LED 4,200 Lumen Output CRI of >80. 0% ULOR	35 Watt with 4,200 lumen output. Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	35 Watt with 4,200 lumen output. Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	35 Watt with 4,200 lumen output. Mounting height 4.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
	 AxBxC (mm inch) INDU WALL PACK 2 - 20x130x257 12.6x5.1x10.1 Weight (kg lbs) INDU WALL PACK 2 - 2.1 4.6 Recommended installation height 3m to 6m					

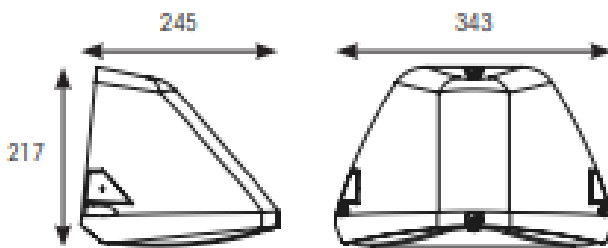
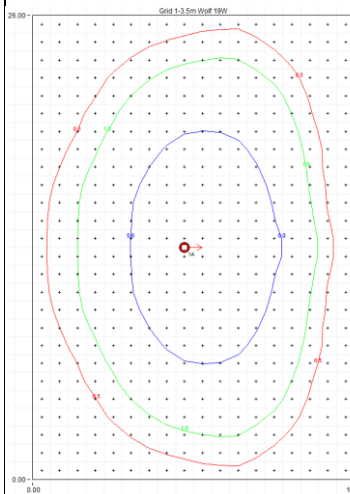
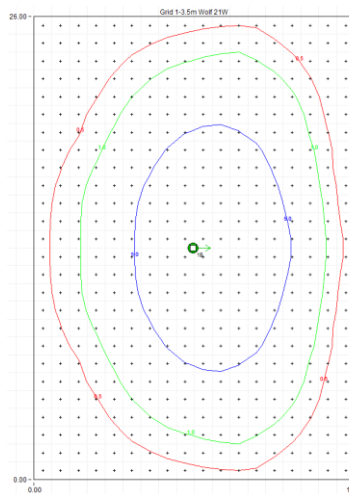
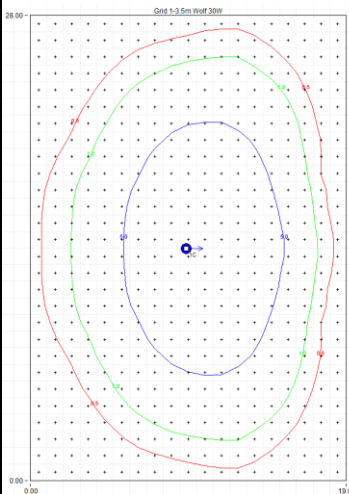
Type	Image	Quote	Description	Photometric Image		
3U		Zenith Wall Pack £137.96 With Emergency £270.92	Urbis Zenith Wall Pack 3000K 13-28W 13W (a), 18W (b), 28W (c), 1700-3300 Lumen Output CRI of >80. IP65 0% ULOR	13 Watt with 1700 lumen output. 275 Lumen Output in emergency mode Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	18 Watt with 2300 lumen output. 275 Lumen Output in emergency mode Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	28 Watt with 3300 lumen output. 275 Lumen Output in emergency mode Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Wall Pack options have multiple optic variations available. Please contact supplier for further information.			Available with 3 hours Emergency battery backup		
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
	 Weight (kg) 1.92kg Standard 2.07kg with emergency Recommended installation height 2m to 5m					

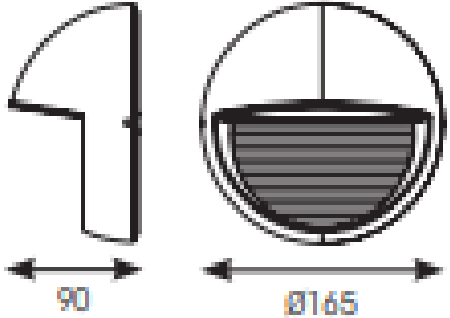
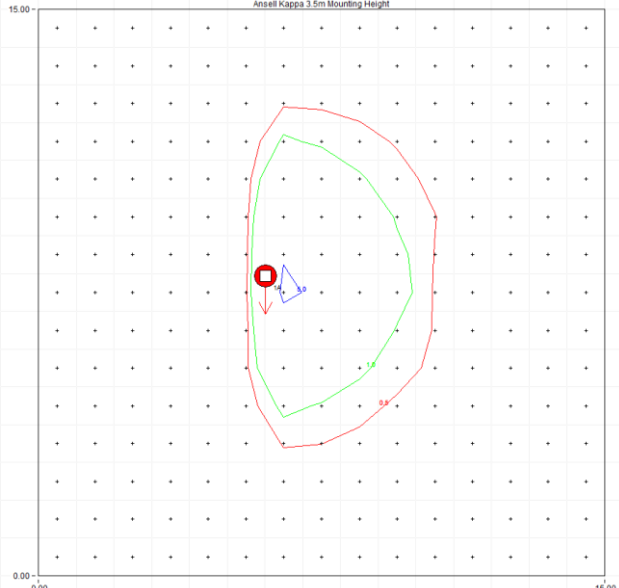
Type	Image	Quote	Description	Photometric Image			
1D		DW Windsor Kirium Wall £270.59	DW Windsor Kirium Wall 2700 or 3000K 300-700mA 6 to 37W 8-16 LED Up to 3,989 Lumen Output CRI 70/80/95 0% ULOR IP66	8 LED, 14 Watt, 500mA with Clear, Narrow Optic Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	8 LED, 14 Watt, 500mA with Clear, Medium Optic Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	8 LED, 14 Watt, 500mA with Clear, Wide Optic Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.			
	 Dimensions (mm): A 340 B 235 C 182 Weight (kg): 3.5						

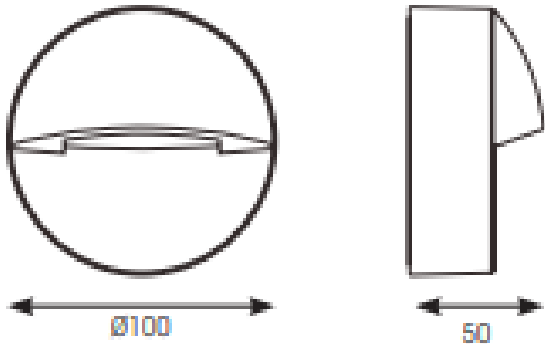
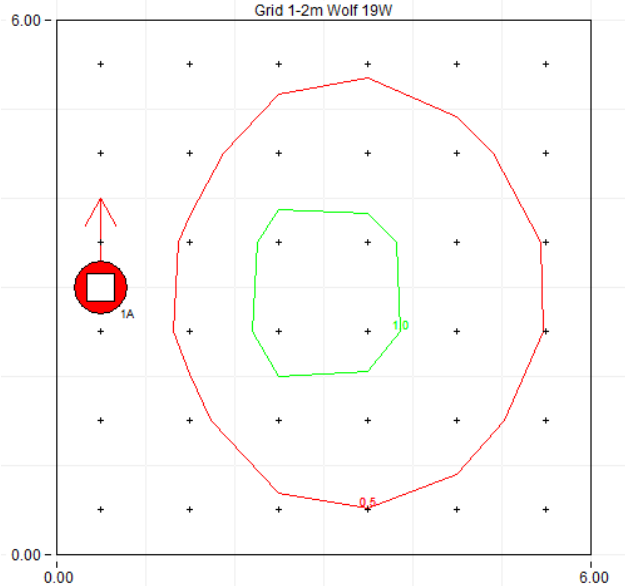
Type	Image	Quote	Description	Photometric Image			
2D		DW Windsor Sephora Wall £247.06	DW Windsor Sephora Wall 2700 or 3000K Up to 37W 8-16 LED 300-700mA Up to 3,989 Lumen Output CRI 70 (3K) CRI 80 (27K) 0% ULOR IP66	8 LED, 14 Watt, 500mA with Clear, Narrow Optic Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	8 LED, 14 Watt, 500mA with Clear, Medium Optic Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	8 LED, 14 Watt, 500mA with Clear, Wide Optic Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.			
	 Dimensions (mm): A 380 B 195 C 165 Weight (kg): 3						

Type	Image	Quote	Description	Photometric Image		
2P		Philips Core Wall £130 Emergency £185 <i>Integrated basic 3- hour emergency</i>	Philips Core Wall 3000K 13W-28W 1,700- 3,500 Lumen Output CRI >80 0% ULOR IP65	13 Watt, 500mA with Clear, Narrow Optic Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	18 Watt, 500mA with Clear, Narrow Optic Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	28 Watt, 500mA with Clear, Narrow Optic Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

Type	Image	Quote	Description	Photometric Image		
1E		Ansell Wolf Mini £95.94 With Emergency	Ansell Wolf Mini 3000K 4W-8W 500-1000 Lumen Output CRI >80 0% ULOR IP65	4 Watt Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	8 Watt Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	Emergency Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

Type	Image	Quote	Description	Photometric Image		
2E		Ansell Wolf £109.62	Ansell Wolf 3000K 19,21 & 30W 2200,2400, 3600 Lumen Output CRI >80 0% ULOR IP65	19 Watt Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	21 Watt Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	30 Watt Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

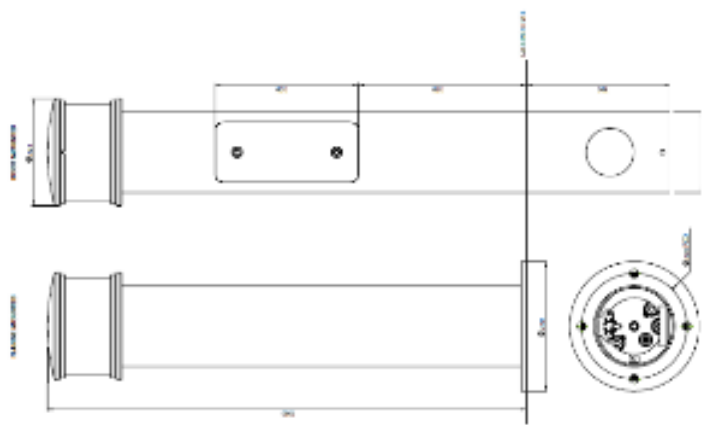
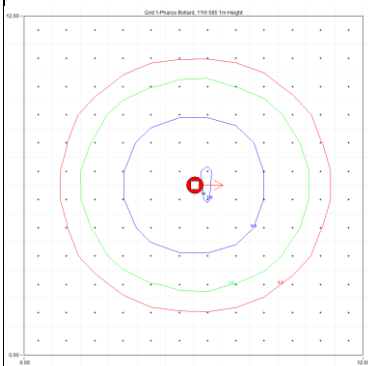
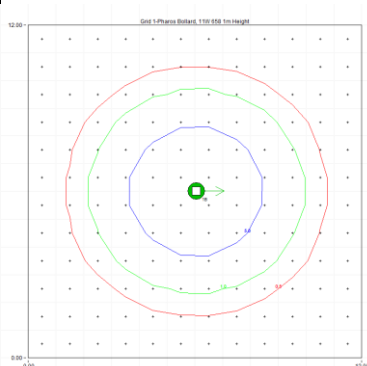
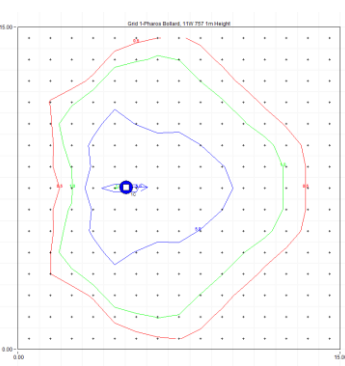
Type	Image	Quote	Description	Photometric Image
3E		Ansell Kappa £???	Ansell Kappa 3000K 5W 120 Lumen Output CRI >70 0% ULOR IP65	5 Watt Mounting height 3.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
				

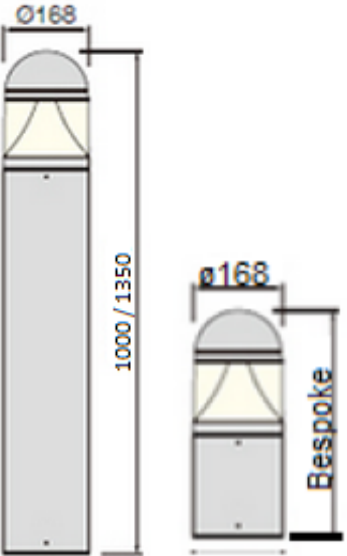
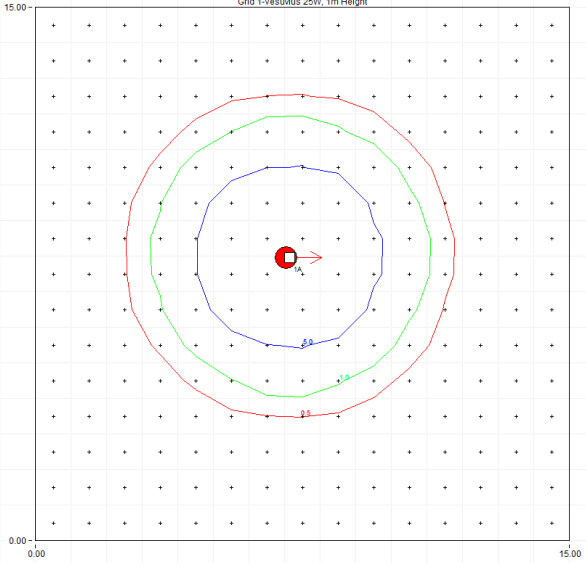
Type	Image	Quote	Description	Photometric Image
4E		Ansell PI Low Level £75.66	Ansell PI Low Level 3000K 2.5W 60 Lumen Output CRI >80 0% ULOR IP65	2.5 Watt Mounting height 2.5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
				

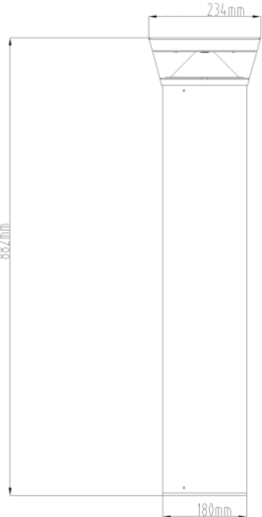
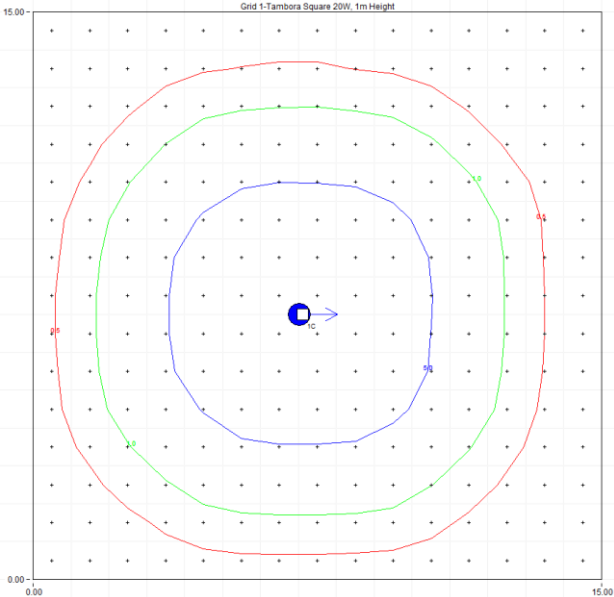
General Bollard Units

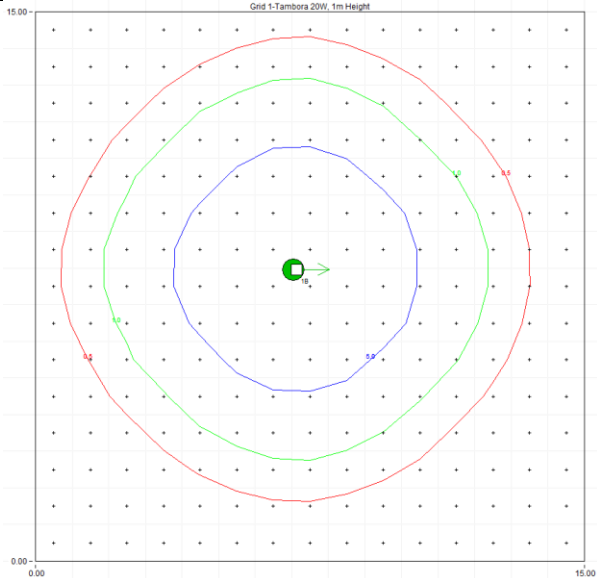
Examples of existing fittings you may find on site

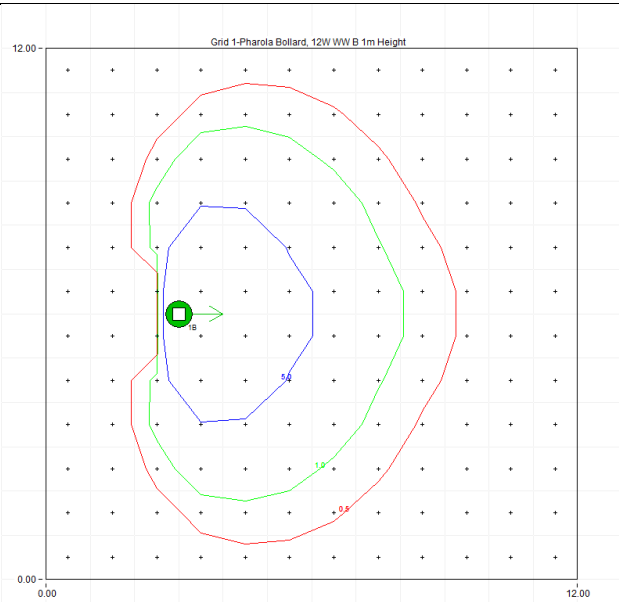
Examples of available fittings that could be used as a Dark Skies compliant replacement

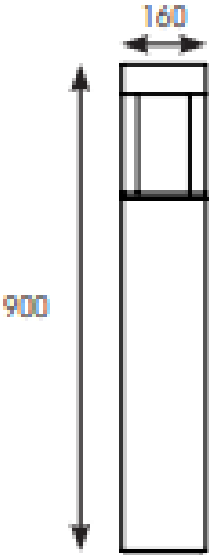
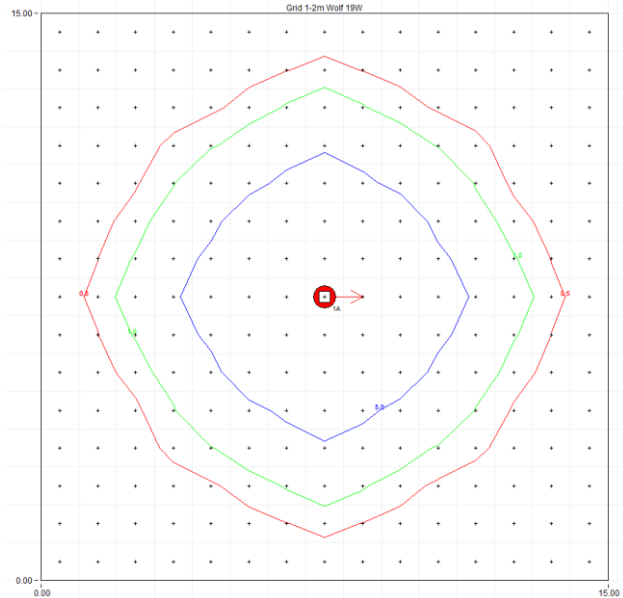
Type	Image	Quote	Description	Photometric Image		
8U		Pharos Bollard £501.09	Pharos Bollard 3000K 11W 350mA 8 LED 585-757 Lumen Output CRI >70. IP66	11 Watt with 585 lumen output. Symmetrical Frosted Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	11 Watt with 658 lumen output. Symmetrical Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	11 Watt with 757 lumen output. 5119 Optic. Asymmetrical Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions	Points shown are 0.5m from edges and then at 1m spacing.				
						

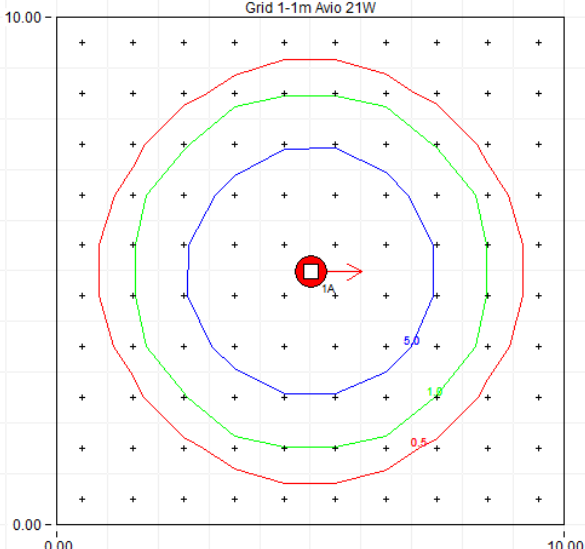
Type	Image	Quote	Description	Photometric Image
8A		Vesuvius £350.59 £52.02 mounting kit Available with mini-Photocell	Vesuvius LED Bollard Maxi & Mini 3000K 12W, 25W, 1650 Lumen Output CRI >70 IP65 0% ULOR	25 Watt with 1650 lumen output. Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
				

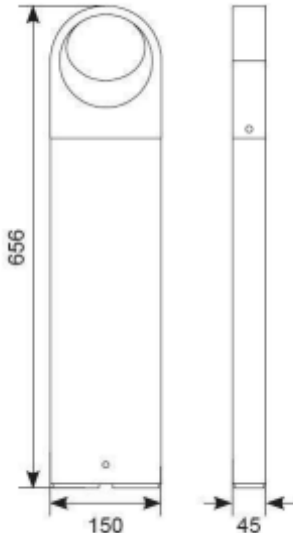
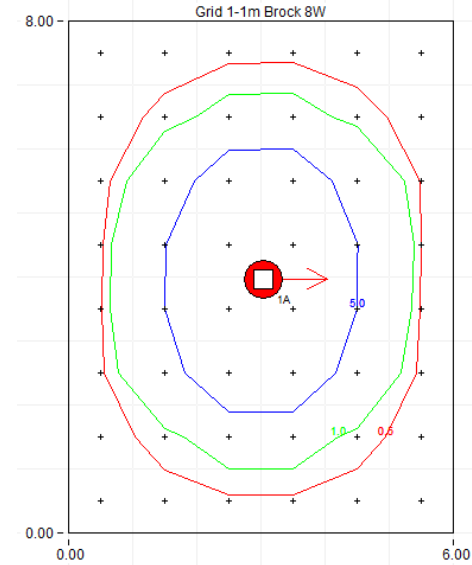
Type	Image	Quote	Description	Photometric Image
9A		Tombora Square £465.94 £75.99 mounting kit	TAMBORA SQUARE Bollard 3000K 20W 2282 Lumen Output CRI >70 IP66 0% ULOR	20 Watt with 1650 lumen output. Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
	Dimensions 			

Type	Image	Quote	Description	Photometric Image
10A		Tambora Round £465.94 £75.99 mounting kit	TAMBORA Round Bollard 3000K 20W 2409 Lumen Output CRI >70 IP66 0% ULOR	25 Watt with 1650 lumen output. Mounting height 1m. Contour lines Blue= 5 Lux, Green= 1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
	Dimensions 			

Type	Image	Quote	Description	Photometric Image
3D		DW Windsor Phaorla Bollard £614.12	DW Windsor Pharola Bollard 3000-4000K 12W 700mA 4 LED Up to 785 Lumen Output CRI 70 0% ULOR IP66	4 LED, 12 Watt with back shield Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
	 Dimensions (mm): A 1000 ØB 89 C 500 Weight (kg): 13			

Type	Image	Quote	Description	Photometric Image
5E		Ansell Aries £241.80	Ansell Aries 3000K 20W 1300 Lumen Output CRI >80 0% ULOR IP65	20 Watt Mounting height 900mm. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
				

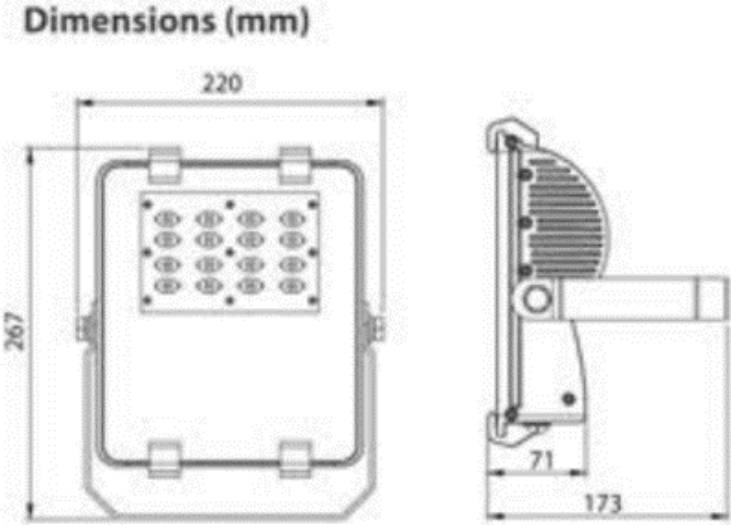
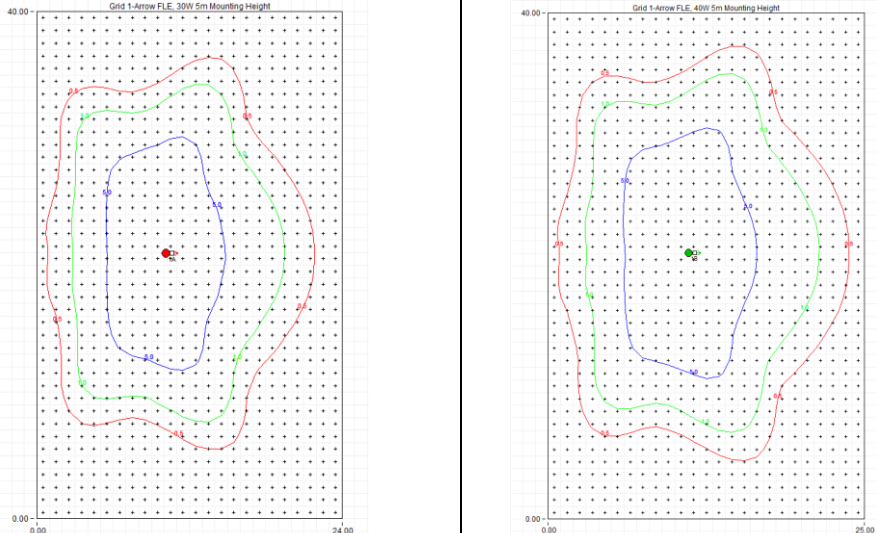
Type	Image	Quote	Description	Photometric Image
6E		Ansell Avio £???	Ansell Avio 3000K 21W 800 Lumen Output CRI >80 0% ULOR IP65	21 Watt Mounting height 900mm. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
				

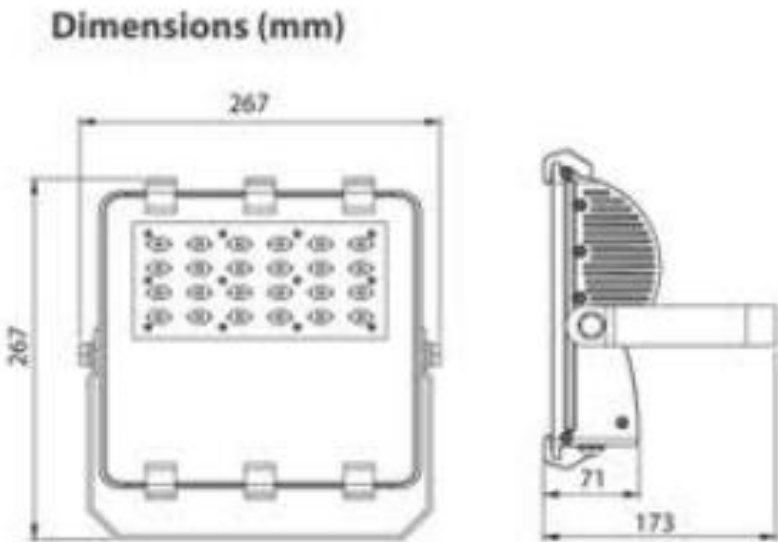
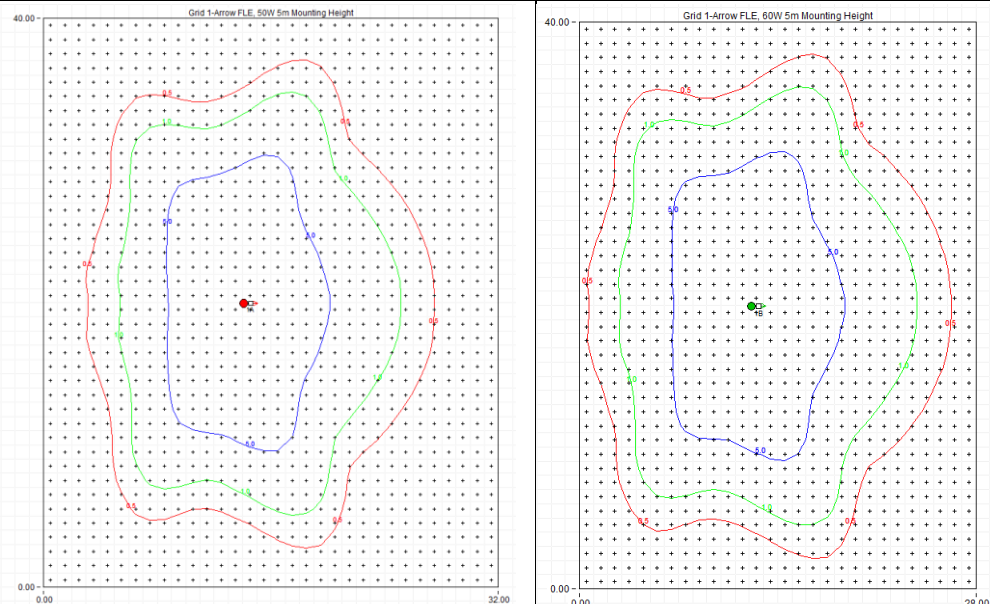
Type	Image	Quote	Description	Photometric Image
8E		Ansell Brock £???	Ansell Brock 3000K 8W 800 Lumen Output CRI >80 0% ULOR IP65	8 Watt Mounting height 656mm. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.
				

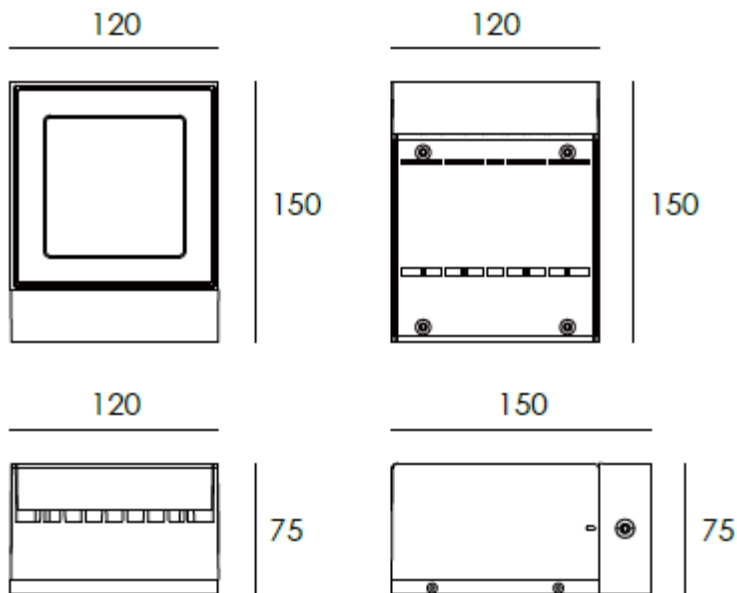
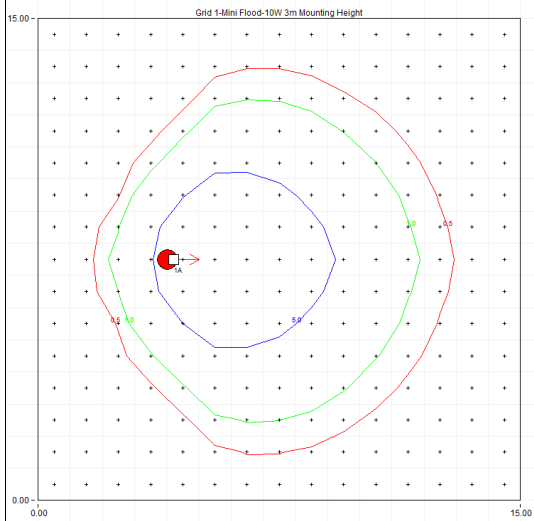
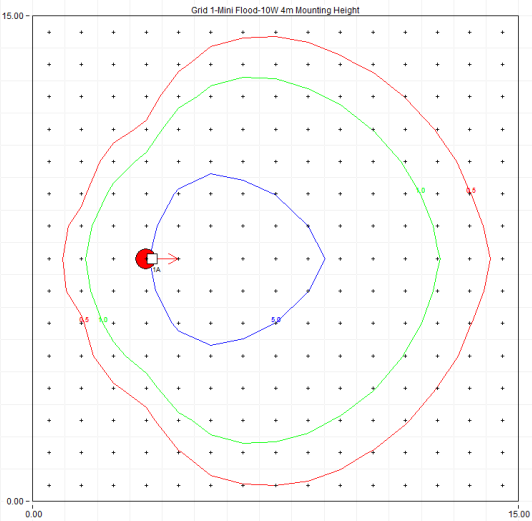
General Floodlight Units

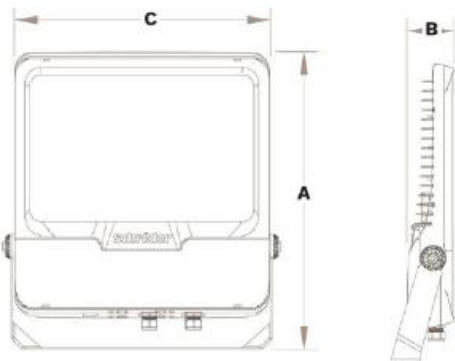
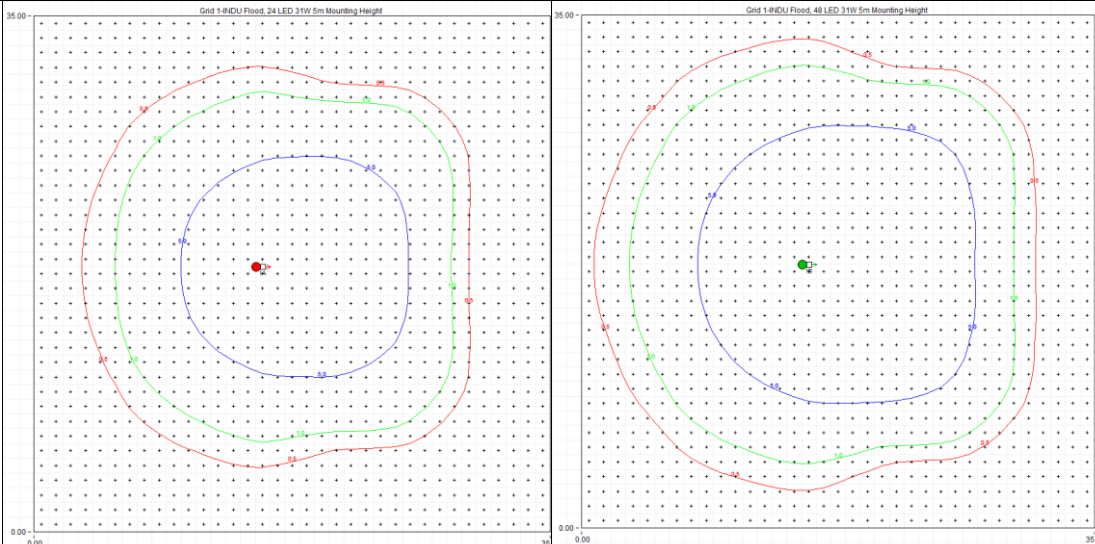
Examples of existing fittings you may find on site

Floodlight options have multiple optic variations available. Please contact supplier for further information.

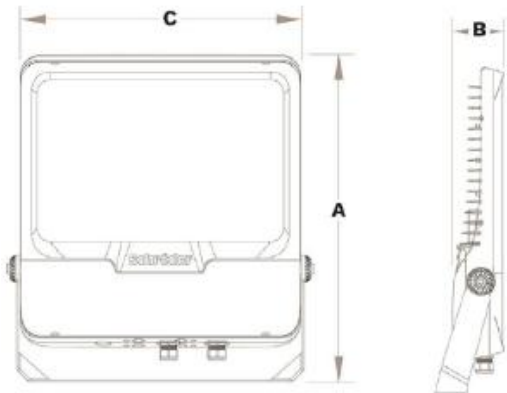
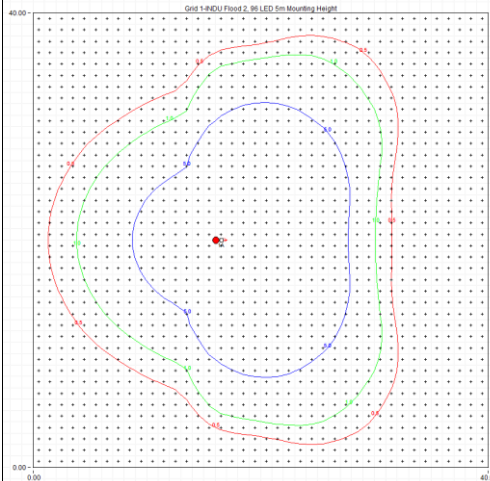
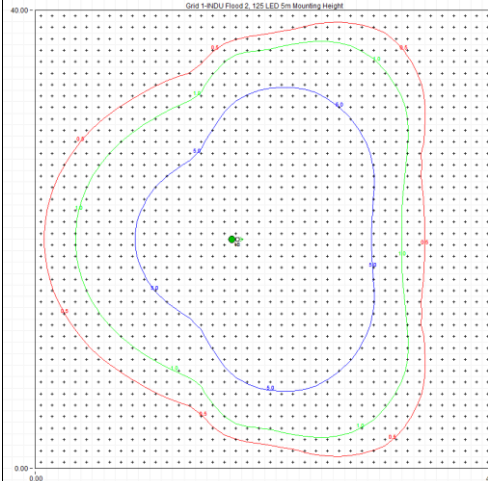
Examples of available fittings that could be used as a Dark Skies compliant replacement					
Type	Image	Quote	Description	Photometric Image	
11A		ARROW Mini 30 W £212.08 40 W £229.25 Available with mini-Photocell	ARROW Mini ALUX-FLE 3000K 30W & 40W 3,150-4200 Lumen Output, CRI >70. IP65 0% ULOR (Subject to tilt)	30-Watt Arrow Flood with 3150 lumen output. Mounting height 5m. Contour lines Blue =5 Lux, Green =1.0 Lux, Red =0.5 Lux. Typical full moon approx. 0.1Lux	40-Watt Arrow Flood with 4200 lumen output. Mounting height 5m. Contour lines Blue =5 Lux, Green =1.0 Lux, Red =0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
	Dimensions (mm) 				

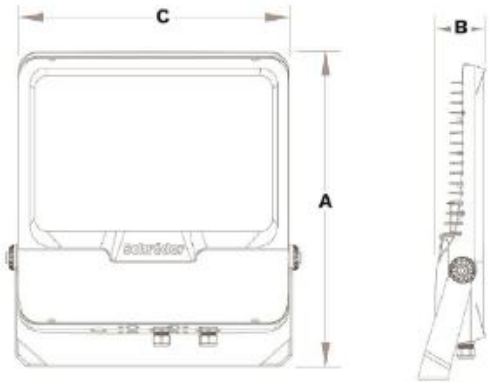
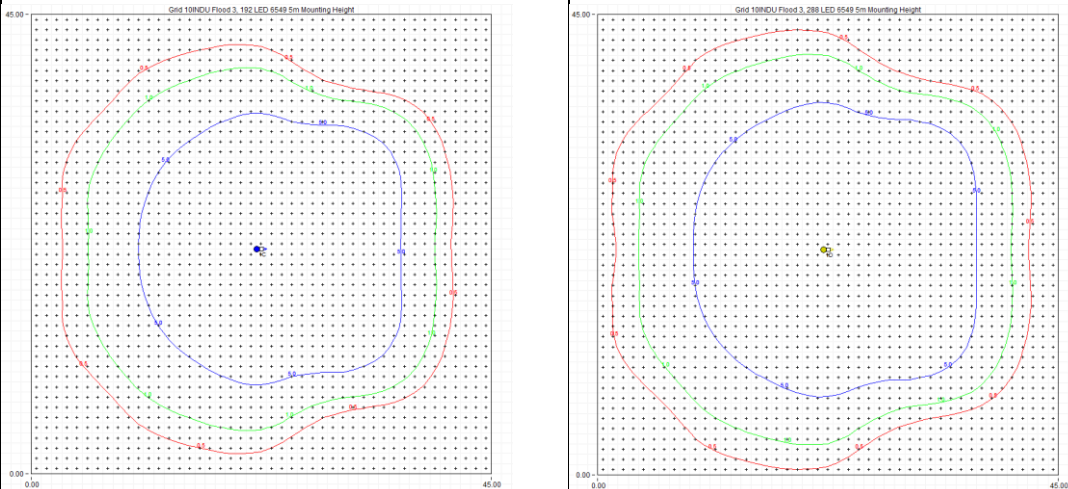
Type	Image	Quote	Description	Photometric Image	
12A		ARROW Mini 50W £298.89 60W £335.39 Available with mini-Photocell	ARROW Mini ALUX-FLE 3000K 50W & 60W, 5,250-6,300 Lumen Output, CRI >70. IP65 0% ULOR (Subject to tilt)	50-Watt Arrow Flood with 5250 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	60-Watt Arrow Flood with 6300 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
	Dimensions (mm) 				

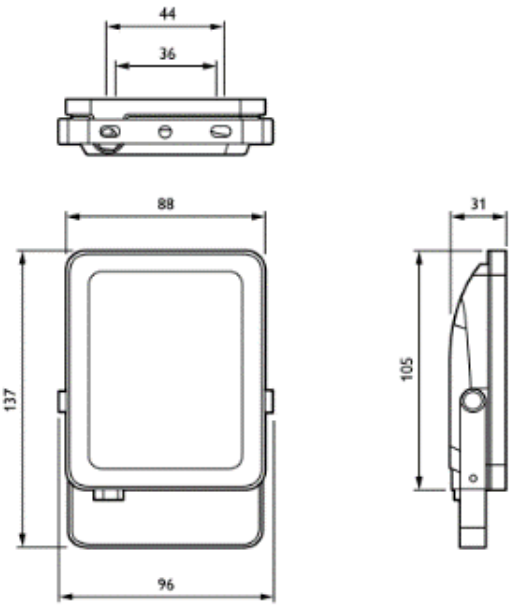
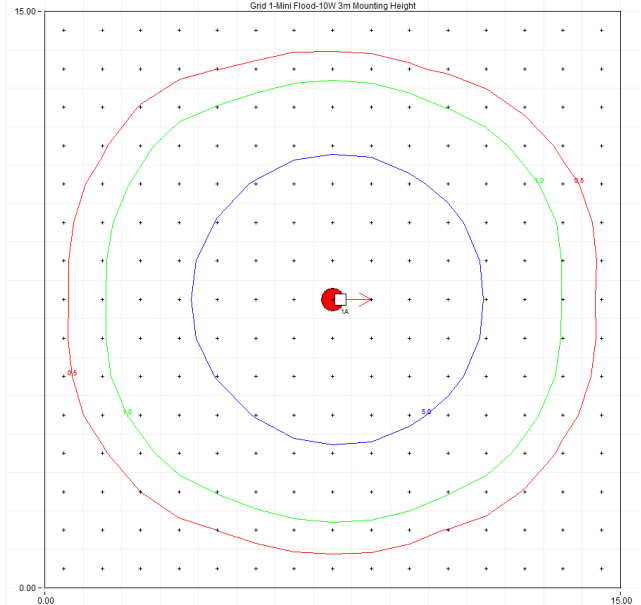
Type	Image	Quote	Description	Photometric Image	
		Ark KFL-12 Mini Asymmetric Flood £190.00	Ark KFL-12 3000K 12W 8-16 LED 520 Lumen Output CRI >80 0% ULOR IP65 (Subject to tilt)	12 Watt with 520 lumen output. Mounting height 3m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	12 Watt with 520 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
16A	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
	 Top view: 120 x 120 mm Side view (3m): 150 mm Side view (4m): 150 mm Front view: 120 x 75 mm Rear view: 150 x 75 mm			 Grid 1-Mini Flood-10W 3m Mounting Height	 Grid 1-Mini Flood-10W 4m Mounting Height

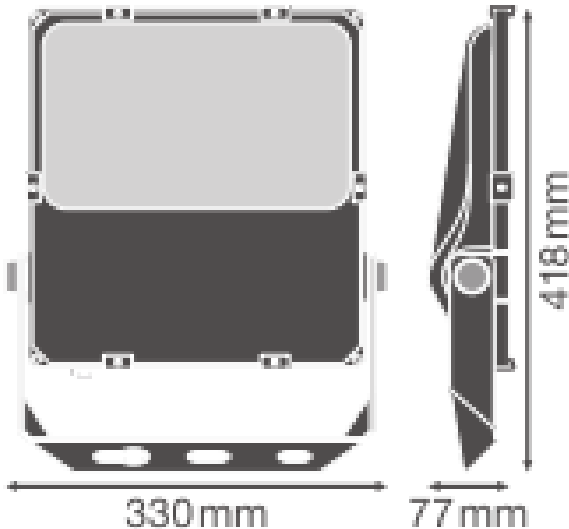
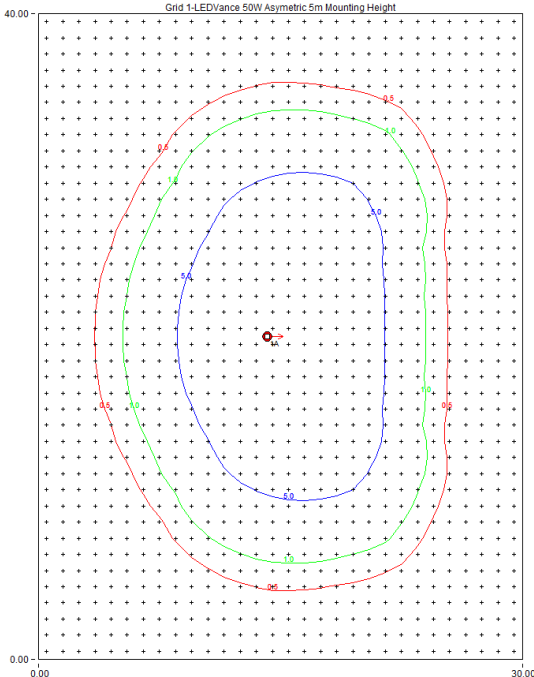
Type	Image	Quote	Description	Photometric Image	
5U		INDU Flood Gen2 1 £200.75 to £262.14	INDU Flood Gen2 1 Floodlight 3000K 31W or 63W, 24-48 LED 3,800-9600 Lumen Output CRI >70. IP66 0% ULOR (Subject to tilt)	24 LED, 31 Watt with 4,800 lumen output. 6549 Optic Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	48 LED, 63 Watt with 9,600 lumen output. 6549 Optic Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
	 INDU FLOOD GEN2 1 AxBxC (mm inch) 390x77x321 15.4x3.0x12.6 Weight (kg lbs) 5.6 12.3				

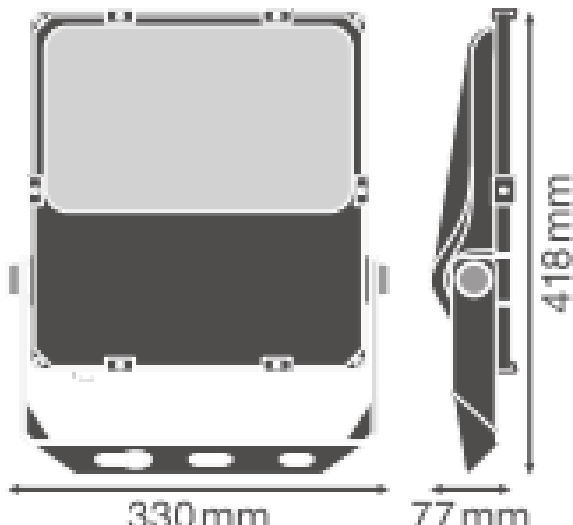
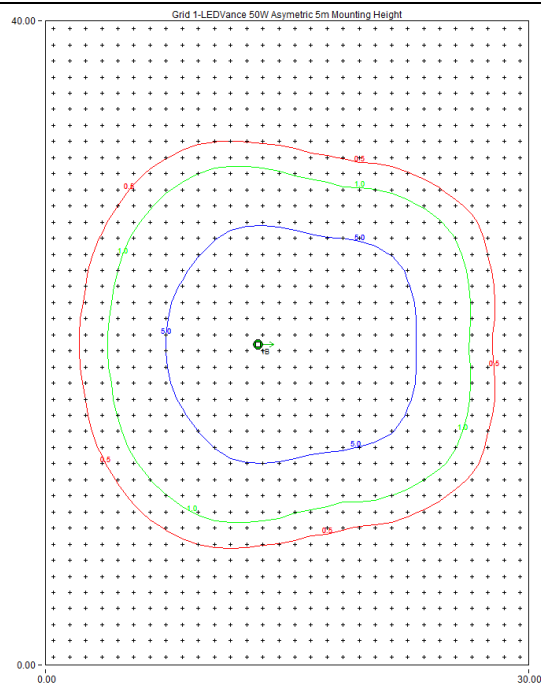
	Recommended installation height 3m to 16m				
Type	Image	Quote	Description	Photometric Image	
6U	 Recommended installation height 3m to 16m	INDU Flood Gen2 2 £308.99 to £339.11	INDU Flood Gen2 2 Floodlight 3000K 125W or 190W, 96-144 LED 15,800-29,200 Lumen Output CRI >70. 0% ULOR (Subject to tilt)	96 LED, 125 Watt with 19,500 lumen output. 6547 Optic Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	144 LED, 190 Watt with 29,200 lumen output. 6547 Optic Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	

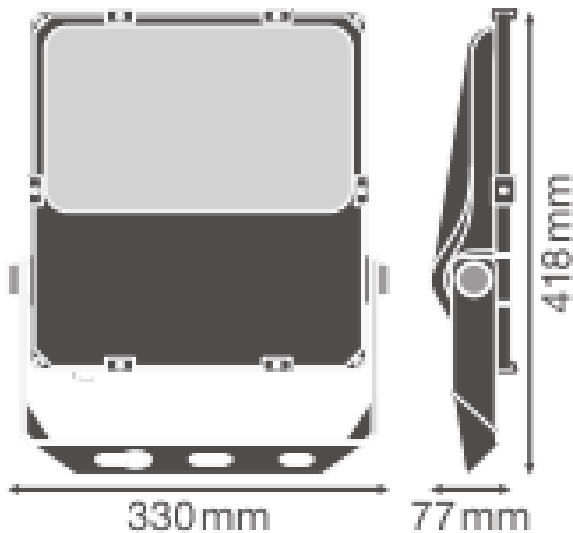
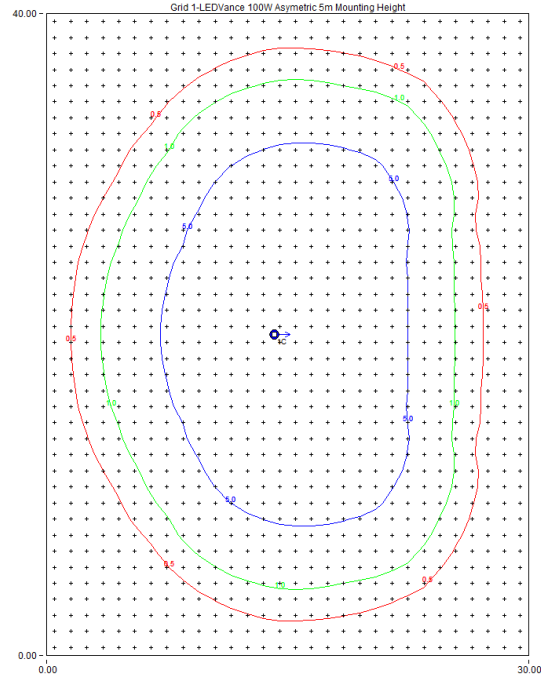
					
	INDU FLOOD GEN2 2 AxBxC (mm inch) 492x77x421 19.4x3.0x16.6 Weight (kg lbs) 2-8.8 19.4				
Type	Image	Quote	Description	Photometric Image	
7U	 Recommended installation height 3m to 16m	INDU Flood Gen2 3 £522.26 to £633.46	INDU Flood Gen2 3 Floodlight 3000K 250W-375W, 192-288 LED 32,900-58,900 Lumen Output CRI >70. 0% ULOR (Subject to tilt)	192 LED, 250 Watt with 39,300 lumen output. 6549 Optic Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux	288 LED, 375 Watt with 58,900 lumen output. 6549 Optic Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux

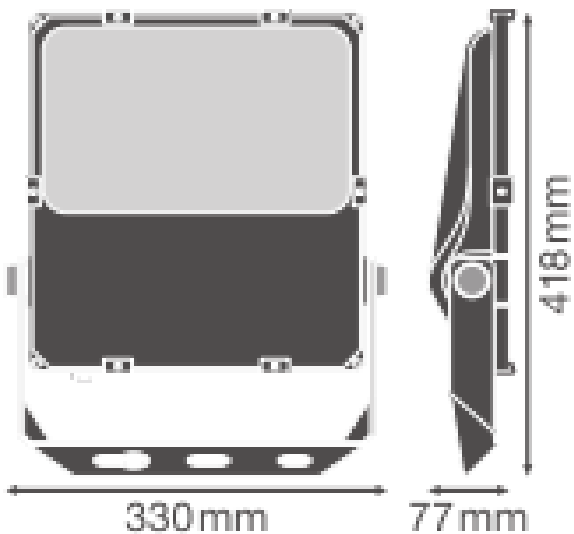
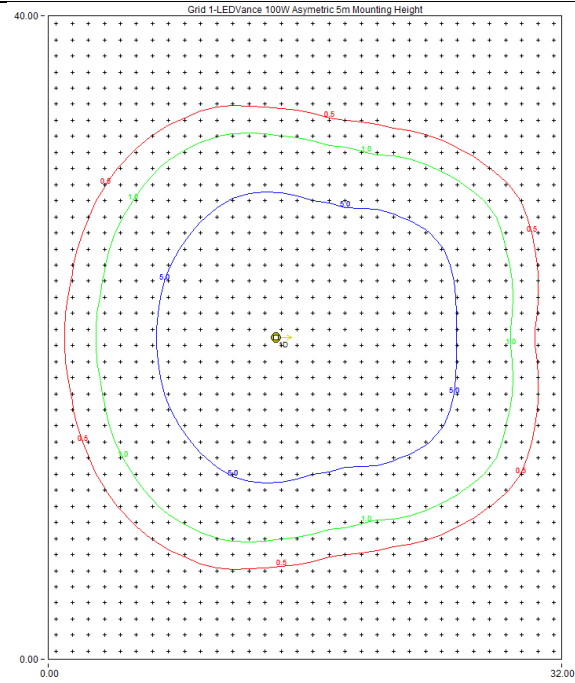
	Dimensions		Points shown are 0.5m from edges and then at 1m spacing.	
	 INDU FLOOD GEN2 3 AxBxC (mm inch) 622x90x521 24.5x3.5x20.5 Weight (kg lbs) 16.8 37.0			
Type	Image	Quote	Description	Photometric Image
1P		Philips Ledinaire 10W £14.06 20W £19.54 30W 26.38	Philips Ledinaire. Mini Floodlight. 3000K 10W 1000 Lumen Output CRI 80 IP 65 0% ULOR (Subject to tilt)	10 Watt with 1000 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1 Lux
	Dimensions		Points shown are 0.5m from edges and then at 1m spacing.	

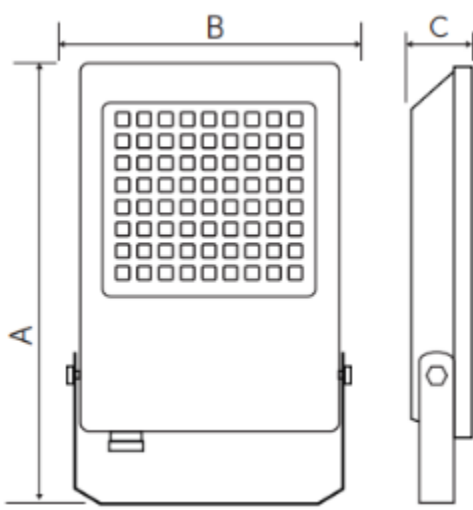
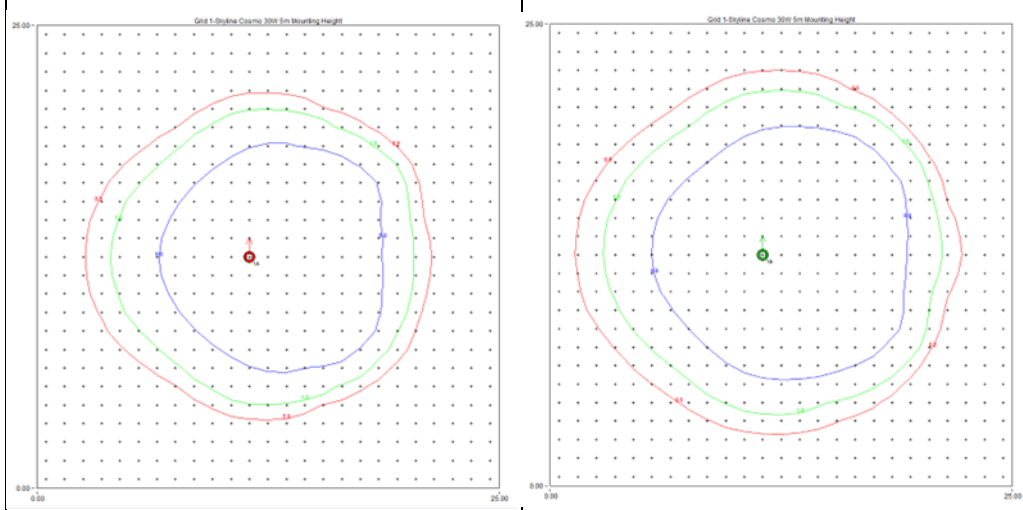
				
Type	Image	Quote	Description	Photometric Image
1L		LEDVance Floodlight £116.47	Ledvance 4058075353619 3000K 50W 5,700-5,800 Lumen Output, CRI >80. IP66 0% ULOR (Subject to tilt)	50 Watt Ledvance with 5700 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.

				
Type	Image	Quote	Description	Photometric Image
2L		LEDVance Floodlight £116.47	Ledvance 4058075353299 3000K 50W 5,700-5,800 Lumen Output, CRI >80. IP66 0% ULOR (Subject to tilt)	50 Watt Ledvance with 5800 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.

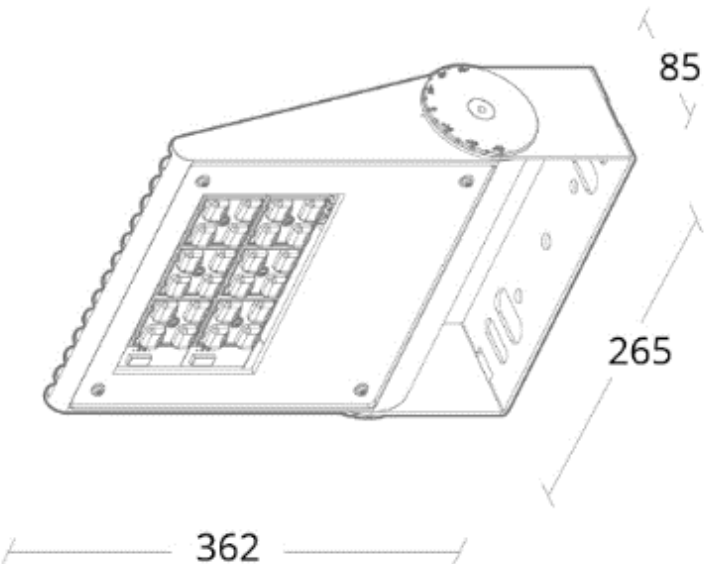
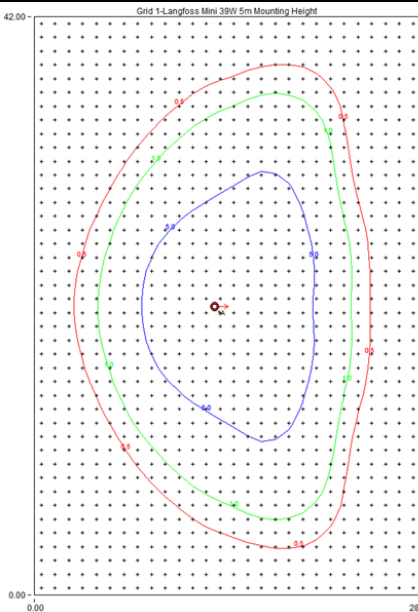
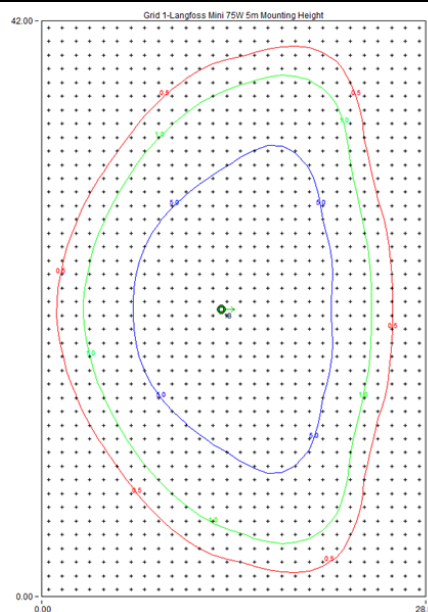
				
Type	Image	Quote	Description	Photometric Image
3L		LEDVance Floodlight £161.18	Ledvance 4058075353633 3000K 100W 11,800-11,900 Lumen Output, CRI >80. IP66	100 Watt Ledvance with 11800 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.

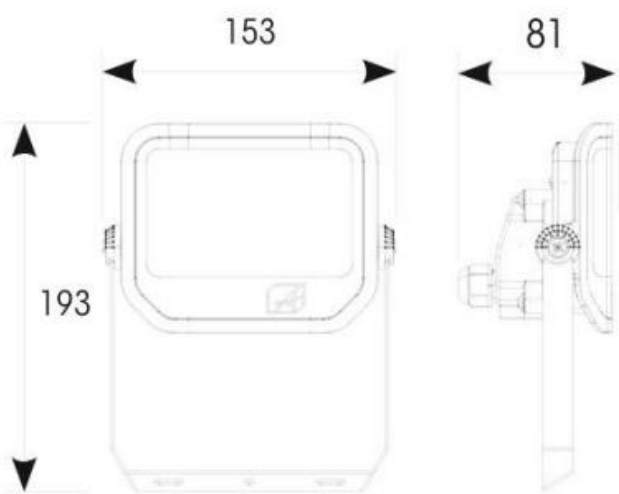
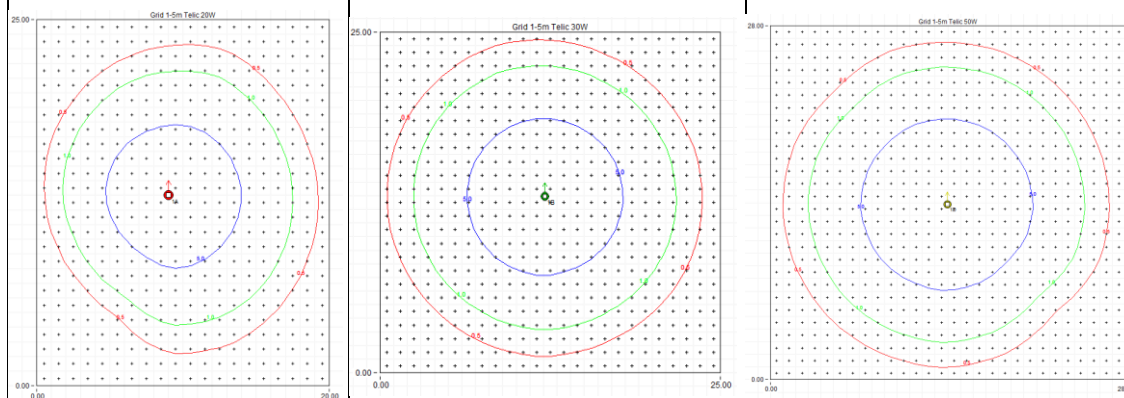
				
Type	Image	Quote	Description	Photometric Image
4L		LEDVance Floodlight £161.18	Ledvance 4058075353312 3000K 100W 11,800-11,900 Lumen Output, CRI >80. IP66 0% ULOR (Subject to tilt)	100 Watt Ledvance with 11900 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.

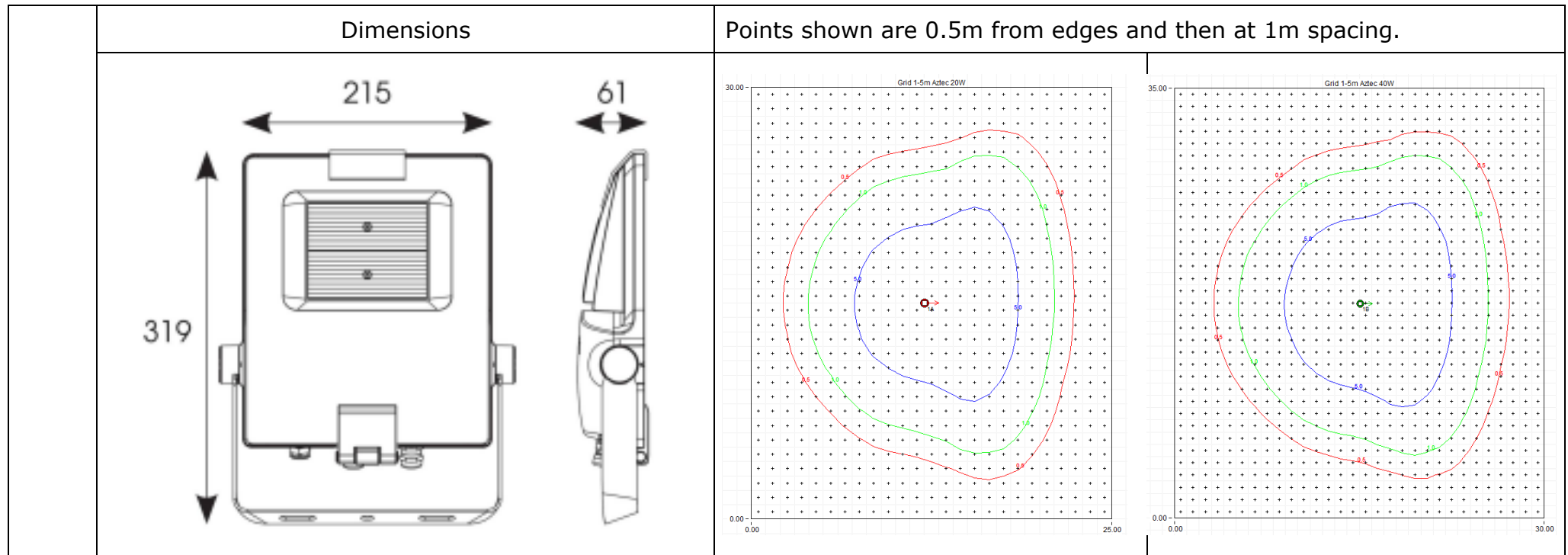
					
Type	Image	Quote	Description	Photometric Image	
1B		Bell Lighting Skyline Cosmos Floodlight 30W £53.98 50W £82.80	Bell Lighting Skyline Cosmos 3000K 30 or 50W 3300-5500 Lumen Output, CRI >80. IP65 0% ULOR (Subject to tilt)	30-Watt (10937) Bell Lighting Skyline Cosmos with 3300 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	50-Watt (10938) Bell Lighting Skyline Cosmos with 5500 lumen output. Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux

Dimensions		Points shown are 0.5m from edges and then at 1m spacing.													
		<table><tr><th></th><th>30W</th><th>50W</th></tr><tr><th>A</th><td>219mm</td><td>282mm</td></tr><tr><th>B</th><td>176mm</td><td>203mm</td></tr><tr><th>C</th><td>42mm</td><td>57mm</td></tr></table>			30W	50W	A	219mm	282mm	B	176mm	203mm	C	42mm	57mm
	30W	50W													
A	219mm	282mm													
B	176mm	203mm													
C	42mm	57mm													
															

Type	Image	Quote	Description	Photometric Image	
10S		Langfoss Mini Floodlight £244.61	Langfoss Mini Graphite 3000K 39W & 75W 4830 to 8590 Lumen Output, CRI >70. IP66 0% ULOR (Subject to tilt)	39 Watt Langfoss Mini with 4830 lumen output. Mounting height 5m. Contour lines Blue =5 Lux, Green =1.0 Lux, Red =0.5 Lux. Typical full moon approx. 0.1Lux Points shown are 0.5m from edges and then at 1m spacing.	75 Watt Langfoss Mini with 8590 lumen output. Mounting height 5m. Contour lines Blue =5 Lux, Green =1.0 Lux, Red =0.5 Lux. Typical full moon approx. 0.1Lux Points shown are 0.5m from edges and then at 1m spacing.

Dimensions				Points shown are 0.5m from edges and then at 1m spacing.		
						
Type	Image	Quote	Description	Photometric Image		
7E		Ansell Telic 10W £24.65 20W £32.86 30W £38.75 50W 60.14	Ansell Telic 3000K 10-50W 900-4600 Lumen Output CRI >80 0% ULOR IP65	20 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	30 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	50 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux

	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
	 10W A 193mm B 153mm C 81mm 20W A 225mm B 188mm C 81mm 30W A 225mm B 188mm C 81mm 50W A 252mm B 218mm C 81mm					
Type	Image	Quote	Description	Photometric Image		
10S		Ansell Aztec Floodlight £244.61	Ansell Aztec 3000K 40W-320W, CRI >70. IP66 0% ULOR (Subject to tilt)	Aztec 1 20 Watt, Asymmetrical Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux Points shown are 0.5m from edges and then at 1m spacing.	Aztec 2 40 Watt, Asymmetrical Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux Points shown are 0.5m from edges and then at 1m spacing.	

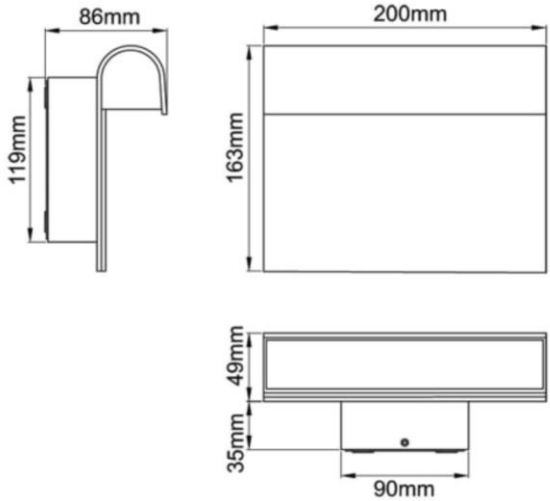
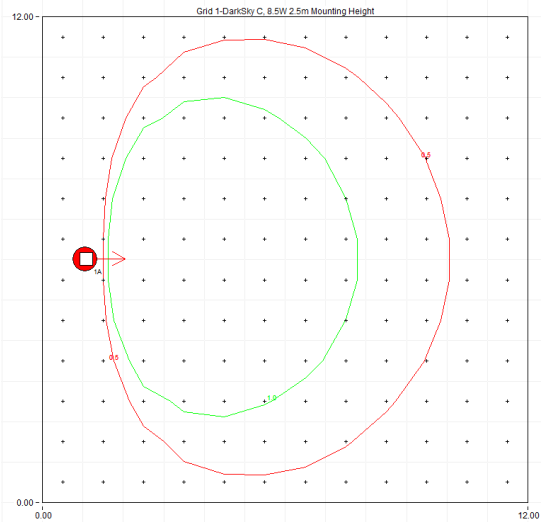


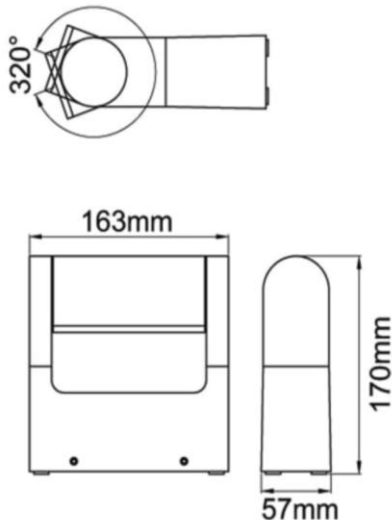
General Sign Lighting Units

Examples of existing fittings you may find on site



Examples of available fittings that could be used as a Dark Skies compliant replacement

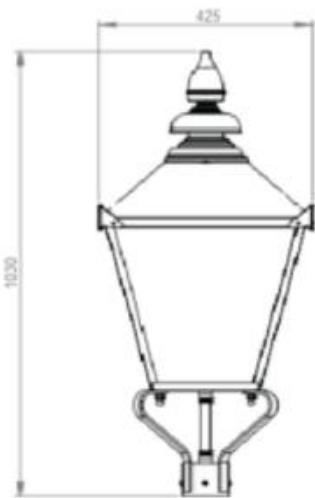
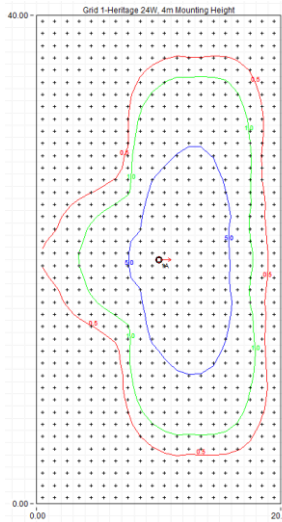
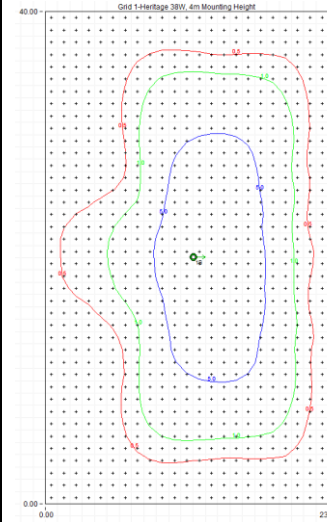
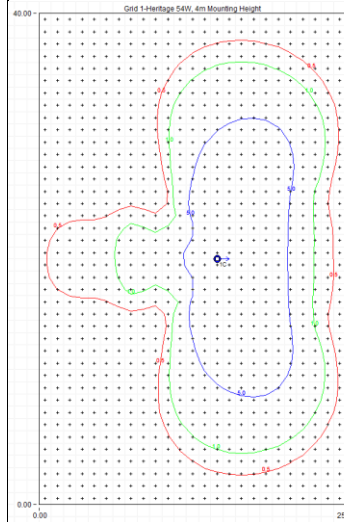
Type	Image	Quote	Description	Photometric Image
13A		DARKSKY C £55.61	DARKSKY C 3000K 8.5W 319 Lumen Output CRI Ra 85 IP54 0% ULOR	8.5 Watt with 319 lumen output. Mounting height 1m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			
				

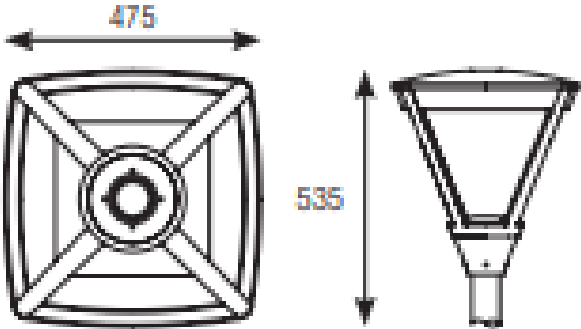
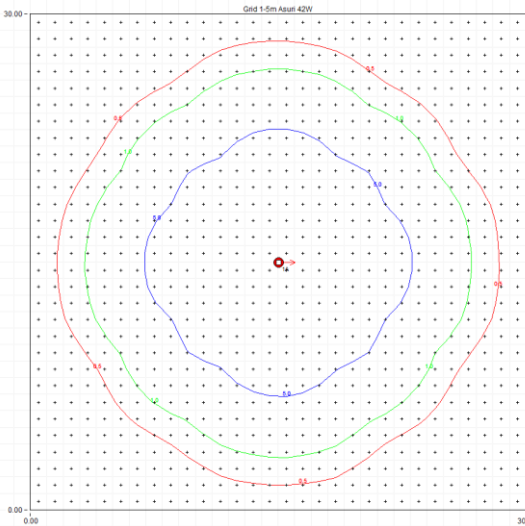
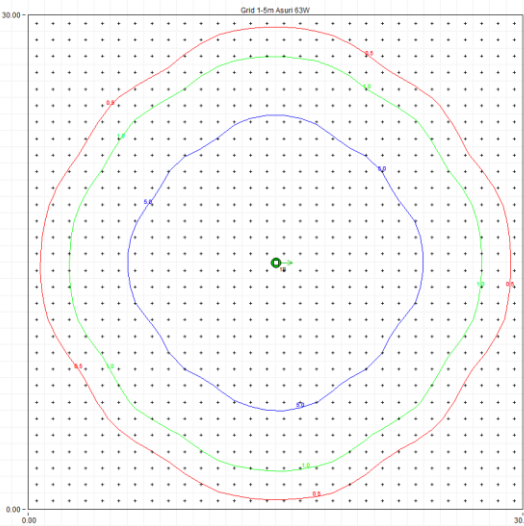
Type		Quote	Description	Photometric Image
14A		DARKSKY D £65.45	DARKSKY D 3000K 8.5W 330 Lumen Output CRI 85 IP54 0% ULOR (Angled 90 degrees downwards)	Unable to Show in Reality
	Dimensions			
				

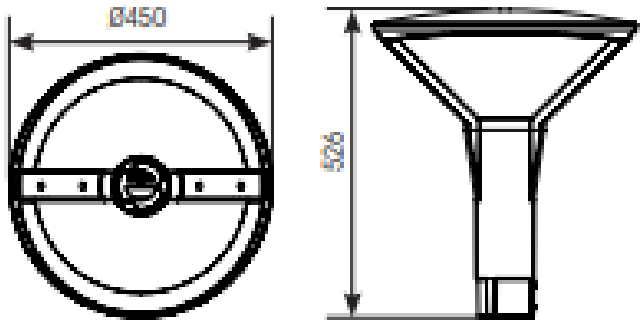
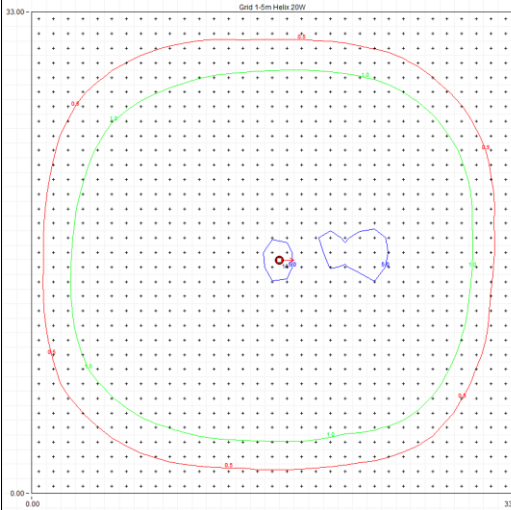
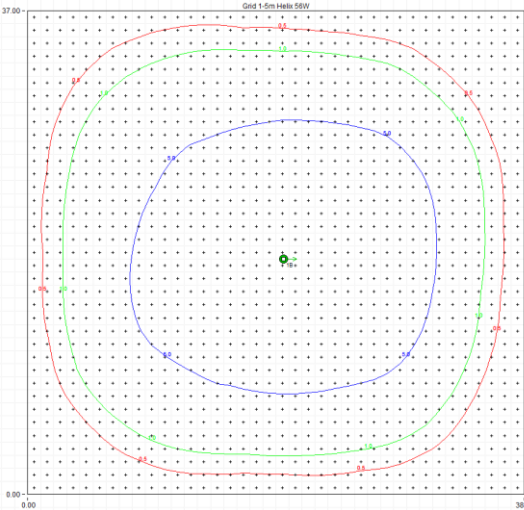
General Ornate Style Units

Examples of existing fittings you may find on site

Heritage options have multiple optic variations available. Please contact supplier for further information.

Examples of available fittings that could be used as a Dark Skies compliant replacement						
Type	Image	Quote	Description	Photometric Image		
15A		Victor Heritage Road lantern £782.39 Available with photocell or PIR	Victor Heritage Road Lantern 2700 or 3000K 7.4W to 216W, 12 to 48 LED 1,088-24,564 Lumen Output CRI >70 IP 66 0% ULOR	24-Watt T3-B Optic with 3496 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	36-Watt DWC Optic with 5443 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	54-Watt ME Optic with 7621 lumen output. Mounting height 4m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.		
						

Type	Image	Quote	Description	Photometric Image	
8E		Ansell Asuri £???	Ansell Asuri 3000K 42-63W CRI >70 0% ULOR IP66	42 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	63 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
					

Type	Image	Quote	Description	Photometric Image	
9E		Ansell Helix £???	Ansell Helix 3000K 20 & 75W CRI >70 0% ULOR IP66	20 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux	75 Watt Mounting height 5m. Contour lines Blue=5 Lux, Green=1.0 Lux, Red=0.5 Lux. Typical full moon approx. 0.1Lux
	Dimensions			Points shown are 0.5m from edges and then at 1m spacing.	
					

3 Summary

The above Luminaires are the start of what is planned to be a growing list of units that are manufactured with Dark Sky's in mind therefore environmentally protecting the night sky and projecting light in the downward direction to the areas that require illumination.

It is a desire to have a wider range and choice of Luminaires in the near future and will be a developing document as time progresses so is not intended to be an exhaustive nor a limiting list.

When installing lights, be it for Commercial, Leisure or Domestic purposes it is an aim that it should only be provided to the areas required, to the level required and with limiting intrusion on neighboring facilities, public, wildlife, flora or fauna. This can be achieved through computer aided design for the larger schemes although, recognizing that domestic use does not fall into this bracket, the information above should hopefully provide a visual aid to help advice and assist on an effective solution to the many varying requirements.

4 Glossary and Terms of Reference

Beam Angle

The total angle over which the luminous intensity of a luminaire drops to 50% of the peak beam value.

Colour Rendering

The ability of a light source to render the colours of objects as similar to those under a reference light source, or an acceptable source such as daylight.

Disability Glare

Glare produced directly or by reflection that impairs the visibility of objects without necessarily causing discomfort.

Discomfort glare

Glare which causes a visual discomfort.

Glare

The discomfort or impairment of vision experienced when parts of the visual field are excessively bright in relation to the general surroundings.

Illuminance

The luminous flux density at a surface i.e. the luminous flux incident per unit area. Unit $\text{lm}\cdot\text{m}^{-2}$, lux.

Luminance

The average road surface luminance (of a carriageway of a road)

Unit is candelas per square metre ($\text{cd}\cdot\text{m}^{-2}$)

Lamp flux maintenance factor

The proportion of the initial luminous flux of a lamp that is produced after a set time.

Light trespass

Unwanted light from an installation falling on an area.

Light pollution

Term designating the spillage of a light into areas where it is not desired.

Louvre

A screen geometrically disposed to prevent lamps from being directly visible at a given angle.

Luminaire

Apparatus which distributes, filters or transforms the light emitted by a lamp. It includes all the parts necessary for supporting, fixing and protecting the lamp, but not the lamp itself.

Lux

The SI unit of Illuminance equal to one lumen per square metre.

Sky glow

Localized brightening of the night sky caused by upward light interacting with particles in the air. Upward light comprises light emitted by lighting above the horizontal as well as downward light reflected upwards from illuminated surfaces. This effect is more noticeable on misty nights or when there is a low cloud base.

Spill light

Stray light from a luminaire that incidentally illuminates nearby objects or surfaces in the public environment, this can be a cause of light trespass.