



Citylabs 4.0

125592/FO/2019: Erection of a seven storey building comprising flexible Office (Use Class B1a), Research and Development (Use Class B1b) and Educational Space (Use Class D1), together with ground floor ancillary Retail uses (Use Classes A1 and A3), in addition to associated cycle parking, accessible car parking, landscaping, provision of plant and servicing and related access and highway's works, and other associated works (associated advert application reference 125593/AO/2019)

Condition 26c External Lighting

City Labs 4.0 Manchester – External Lighting

The external lighting strategy has been designed and will be installed in compliance with Table 2 (and its accompanying notes) of the ILP Guidance notes for the reduction of obtrusive light, 2011.

All external lighting (except for safety and security lighting) has been designed and installed to be automatically switched off between 23:00 and 07:00

All safety and security lighting designed and installed and used between 23:00 and 07:00, complies with the lower levels of lighting recommended during these hours in Table 2 of the ILP's guidance notes.

Lighting is controlled by timeclock and Photocell, to ensure operation only in set hours and when suitable light levels require.

All column mounted lights are to the perimeter of the site, facing inwards to the building to reduce any light spill to surrounding properties. In addition these fittings and have louvre kits installed to further reduce light spill, and these can be adjusted manually as required on site.

Regular maintenance should be carried out, checking external lights to ensure correct operation of timeclock and photocell should be carried out. This is especially relevant around BST time changes to ensure correct operational Hours.

Image 1 – External Lighting Light Level



Maintenance will be carried out by an on-site Facilities Team. Regular checks will be completed under a Planned Preventative Maintenance Regime, and all external lights are linked back to the Head End and Smart Building "KODE" platform which will automatically send signals of planned and reactive maintenance requirements

... Building Services Ltd. is a Limited Company Registered in England

Registered Number: 7427911. Registered Office: 2 Munroe Court, White Rose Office Park, Millshaw Park Lane, Leeds LS11 0EA



Project Name and No:	Citi Labs 4.0 Manchester Project Number M202
Submission No:	015
Material/Product Reference:	External Lighting
Manufacturer's Name, Address and Contact No	Main Office Thorn Lighting Durhamgate Spennymoor County Durham DL16 6HL United Kingdom T +44 0 191 365 2222 info.uk@zumtobelgroup.com
Proposed Location of Material/Plant on Project:	All Areas
Specification References	SPECIFICATION FOR ELECTRICAL SERVICES AT CITYLABS 4.0 26979-SP-ES-01 rev 3 CITYLABS 4.0 PERFORMANCE SPECIFICATION FOR MECHANICAL AND PUBLIC HEALTH SERVICES 26979-SP-MS-001 rev 2 Specifications - 6312_35_901 Cit labs 4.0 exposed services strategy_WS4_P02 L025-SRA-XX-01.XX-T-A-000001 (3)
List of Attachments:	 015 Technical Submission External Lighting  18169_group_datasheet Urba Bollard  0002295446 City Labs Manchester  96257239_product_datasheet Uplighters  96630495_product_datasheet Louvre  96630675_product_datasheet  96632555_product_datasheet Column  TLG_IsaroPro  ZG-DWG-0002295446-EXT-R06-161023.dwg  ZG-DWG-0002295446-EXT-R06-161023-A0

Sample Included (Y/N)	Available on request
Compliant with Specification and Regulations (Y/N) If No state Non-Compliance	Yes

Date 20/10/23	Name (Printed) matthew.gill@kng-services.co.uk On behalf of KNG Building Services Ltd
---------------	---

Approved/Approved with Comments	Name (Printed)	Representative of	Date
Comments			

Obtrusive Light - Compliance Report

CIE 150:2003, E3-Suburban, Post-Curfew
Filename: EXT_R4
16/10/2023 09:16:01

Illuminance
Maximum Allowable Value: 2 Lux

Calculations Tested (5):

Calculation Label	Test Results	Max. Illum.
ObtrusiveLight 4_Ill_Seg1	PASS	0.3
ObtrusiveLight 5_Ill_Seg1	PASS	2.0
ObtrusiveLight 6_Ill_Seg1	PASS	1.4
ObtrusiveLight 1_Ill_Seg1	PASS	0.7
ObtrusiveLight 2_Ill_Seg1	PASS	0.9

Luminous Intensity (Cd) At Vertical Planes
Maximum Allowable Value: 1000 Cd

Calculations Tested (5):

Calculation Label	Test Results
ObtrusiveLight 4_Cd_Seg1	PASS
ObtrusiveLight 5_Cd_Seg1	PASS
ObtrusiveLight 6_Cd_Seg1	PASS
ObtrusiveLight 1_Cd_Seg1	PASS
ObtrusiveLight 2_Cd_Seg1	PASS

Luminaire Schedule

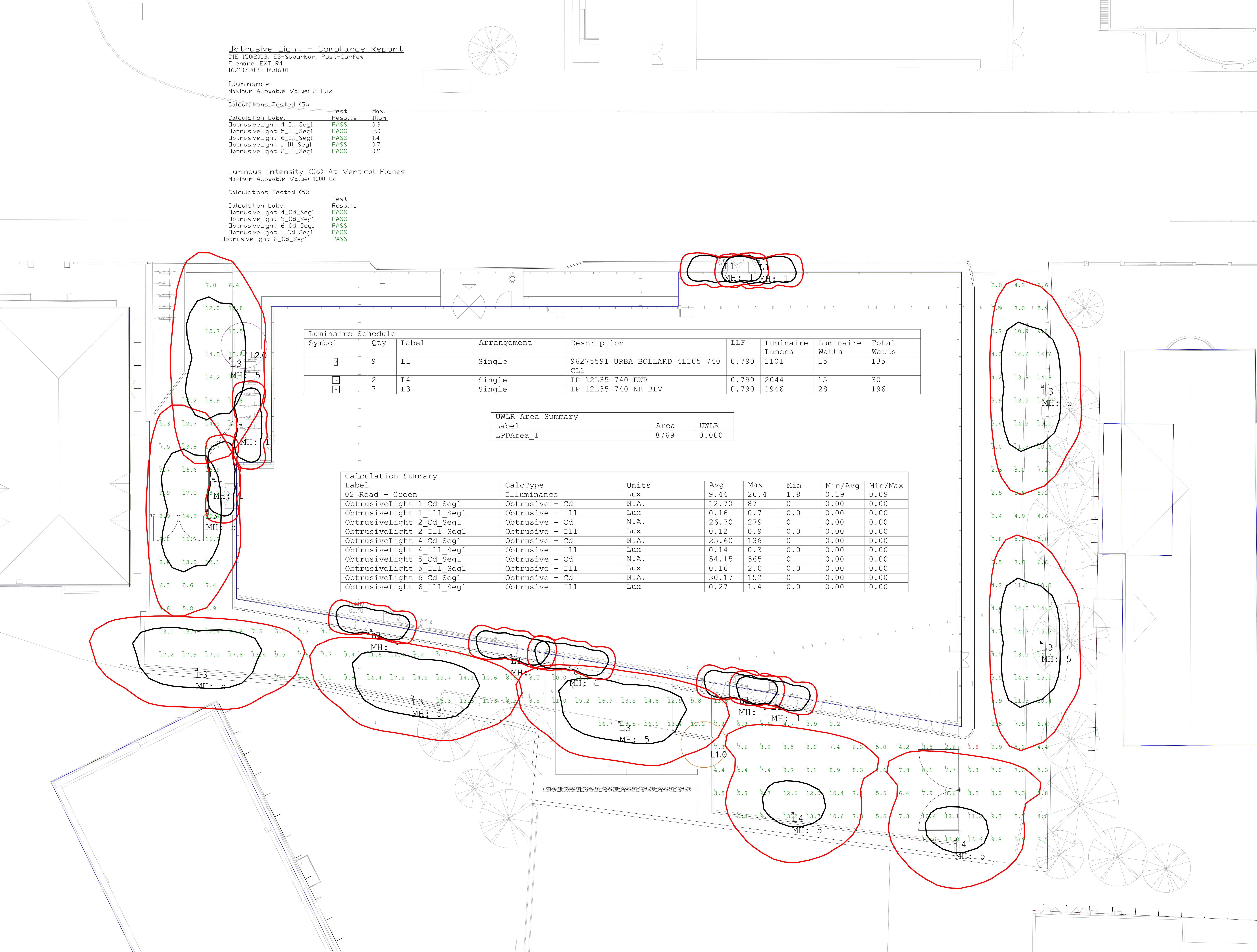
Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
☐	9	L1	Single	96275591 URBA BOLLARD 4L105 740 CL1	0.790	1101	15	135
☐	2	L4	Single	IP 12L35-740 EWR	0.790	2044	15	30
☐	7	L3	Single	IP 12L35-740 NR BLV	0.790	1946	28	196

UWLR Area Summary

Label	Area	UWLR
LPDArea_1	8769	0.000

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
02 Road - Green	Illuminance	Lux	9.44	20.4	1.8	0.19	0.09
ObtrusiveLight 1 Cd Seg1	Obtrusive - Cd	N.A.	12.70	87	0	0.00	0.00
ObtrusiveLight 1 Ill Seg1	Obtrusive - Ill	Lux	0.16	0.7	0.0	0.00	0.00
ObtrusiveLight 2 Cd Seg1	Obtrusive - Cd	N.A.	26.70	279	0	0.00	0.00
ObtrusiveLight 2 Ill Seg1	Obtrusive - Ill	Lux	0.12	0.9	0.0	0.00	0.00
ObtrusiveLight 4 Cd Seg1	Obtrusive - Cd	N.A.	25.60	136	0	0.00	0.00
ObtrusiveLight 4 Ill Seg1	Obtrusive - Ill	Lux	0.14	0.3	0.0	0.00	0.00
ObtrusiveLight 5 Cd Seg1	Obtrusive - Cd	N.A.	54.15	565	0	0.00	0.00
ObtrusiveLight 5 Ill Seg1	Obtrusive - Ill	Lux	0.16	2.0	0.0	0.00	0.00
ObtrusiveLight 6 Cd Seg1	Obtrusive - Cd	N.A.	30.17	152	0	0.00	0.00
ObtrusiveLight 6 Ill Seg1	Obtrusive - Ill	Lux	0.27	1.4	0.0	0.00	0.00



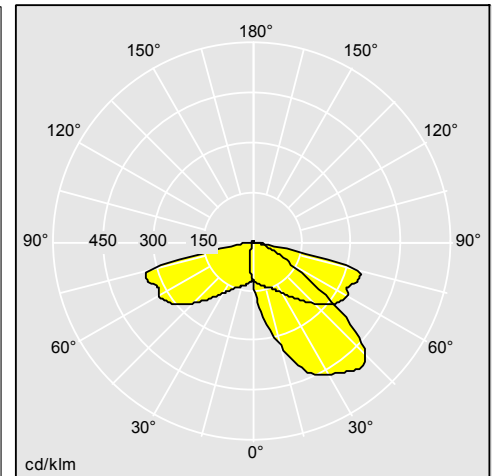
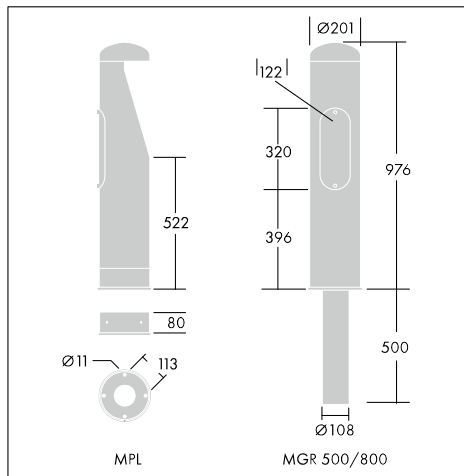
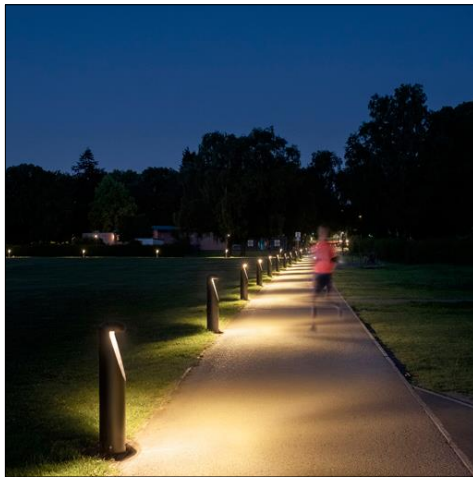
Urba Bollard

Stylish yet robust bollard enhancing urban areas

- IDA Dark Sky Approved
- *IDA fixture seal of approval relates to ≤ 3000 K only and clear enclosures. Luminaires must be mounted as photometered.
- Contemporary design which is easy to integrate into urban environments
- Robust, solid shape provides vandal resistant solution
- A light distribution with an optimised ULOR of 0 and asymmetric optic which reduces obtrusive light and glare
- LEDs offer low energy consumption, long lifetime and reduced maintenance



Photographs, line drawings and photometric data are representative only. For specific product detail please select an individual product.



96275591

Material/Finish

Body and bezel: low carbon steel SS1142 : SS-EN 10130 material DC01. Cathaphoresis treatment.
Diffuser: clear 5mm polycarbonate plate
Body and bezel colours: black (RAL 9005)

Installation/Mounting

Flange mounted. 500mm root to be fixed into concrete base. 800mm root to be fixed into the ground. Access door for connection box (not provided).

Specification

To specify state:
Decorative steel bollard with clear diffuser and asymmetrical light distribution.
As Thorn Urba.

Urba Bollard

Ordering Guide Supplied complete with LEDs. For flange mounting order the body and MPL base. For root mounting order the body and the MGR 500 or MGR 800 base.

Description	ILCOS Code	Socket	Wt (kg)	SAP Code
Urba Body				
URBA BOLLARD 4L105 730 CL1	LED		12,1	96275589
URBA BOLLARD 4L105 740 CL1	LED		12	96275591
Urba Base				
URBA BOLLARD BASE MPL			2,4	96275592
URBA BOLLARD BASE MGR 500			6,35	96275593
URBA BOLLARD BASE MGR 800			9,5	96275594

Quotation

ZUMTOBEL Group

ZG Lighting (UK) Limited
Durhamgate
Spennymoor
County Durham DL16 6HL
Tel: 0191 365 2222

KNG Building Services Ltd
The Bronte Suite
2 Munroe Court
White Rose Office Park
LEEDS LS11 0EA

Sales person: Martin Raper
Tel.: 07785280736
E-mail: martin.raper@zumtobelgroup.com

Date: 10.10.2023
Page: 1/5

Project: 0002295446 City Labs, Manchester
Quotation: 25832708
Subject: Citylabs External R1
Customer no.: 80140454

Dear Valued Customer,

We thank you for your valued enquiry and have pleasure in enclosing our formal quotation for the above project. The prices shown on this quotation are net and supersede all previous versions and revisions.

The prices quoted are for quantities as derived from your enquiry and are subject to ZG Lighting Limited Conditions of Sale which are included with this quotation, can be supplied on request, or can be found on our website. It is the responsibility of the recipient to ensure the quoted luminaire types and quantities comply with the specification requirements including all elements of ceiling integration.

This quotation remains open to an offer for purchase. Quantity amendments or orders in part may result in unit price increases at the discretion of ZG Lighting Ltd.

This quotation is valid until 16.07.2023 and any orders placed with reference to it after this date may be subject to review and change of pricing at our discretion. The quotation is based upon manufacture and delivery to a mutually agreed programme that will accompany any potential order. We reserve the right to charge for multiple deliveries or express shipments. In order to keep post procurement costs and complexity to a minimum and prevent any potential delays towards the end of a project, we strongly recommend ordering a contingency pack of additional luminaires and spares to be placed at the time of the original order, as additional later orders may incur higher prices. Please contact our quotations department for further details.

Lead times for projects are available upon request from our Customer Services Team. As we have a large stockholding we suggest you contact us prior to order placement to confirm our best available delivery.

Please refer to appendix for additional information on Return of Products.

We trust our quotation will be acceptable, however should you require any further information please do not hesitate to contact us.

Yours faithfully for and on behalf of ZG Lighting Limited

The Quotations Team

Project: 0002295446 City Labs, Manchester

Net quotation: All prices are in GBP

Item no.	Description	Article no	Qty.	Unit price GBP	Total GBP
	IP 12L35-740 EWR CL1 M76 GY-S	92926760			
	Delivery time: Delivery time approximately 10 days after receipt of the order. Material group: ME - Specifier Ranges http://www.thornlighting.co.uk/92926760				
	IP 12L35-740 NR CL1 M76 GY-S	92993725	7		
	Delivery time: Delivery time approximately 10 days after receipt of the order. Material group: ME - Specifier Ranges http://www.thornlighting.co.uk/92993725				
	ISARO PRO LOUVRE FRONT&BACK&LEFT&RIGHT	96630495	7		
	Louvre kit with more than 15 configurations. The light can be cut-off from the front, back, left or right but there is also the possibility to do all at the same time thanks to a smart design. Can be installed before or after installation on site. Delivery time: Delivery time approximately 10 days after receipt of the order. Material group: ME - Specifier Ranges http://www.thornlighting.co.uk/96630495				
	COL 5M STEEL STEP ROOT 76MM TOP*	96632555	9		
	5 metre steel stepped root mounted column Ø76mm with Ø76mm top spigot, galvanised to BSEN 1461:2022. Weight: 39 kg (approx) The following adaptors and brackets are suitable for use with this column: 96633563 : Adaptor to reduce to Ø60mm spigot 96632566 : Single arm bracket Ø42mm side entry 96632567 : Twin arm bracket Ø42mm side entry 96632568 : Single floodlighting bracket 96632569 : Double/quad floodlighting bracket Please note : Delivery charges will apply to this item. Delivery time: Delivery time on request. Material group: ME - Specifier Ranges				

Sales person
Martin Raper
07785280736

KNG Building Services Ltd
The Bronte Suite
2 Munroe Court
White Rose Office Park
LEEDS LS11 0EA

ZUMTOBEL Group

Quotation: 25832708
Date: 10.10.2023

Item no.	Description	Article no	Qty.	Unit price GBP	Total GBP
	D-CO R LED MAXI 6L50 840 CL	96257239	6		
	Catalogue No.: DCL4K12C A large size, ground recessed luminaire with 6 x 1.2W white LEDs for indoor or outdoor applications. Body in aluminium with ABS plastic recessed housing. Front glass, toughened with clear finish, stainless steel frame. Static load bearing 500kg. Complete with 5m cable. Dimensions: Ø241 x 199 mm Luminaire input power: 12 W Weight: 3 kg Delivery time: Delivery time approximately 20 days after receipt of the order. Material group: ME - Specifier Ranges http://www.thornlighting.co.uk/96257239				
	URBA BOLLARD 4L105 740 CL1 E3		8		
	Delivery time: Delivery time on request. Product guarantees are in accordance with our terms at www.zumtobel.com/guarantee				
	Value of goods				
	Special Surcharge				
	Total without VAT				

Sales person
Martin Raper
07785280736

KNG Building Services Ltd
The Bronte Suite
2 Munroe Court
White Rose Office Park
LEEDS LS11 0EA

ZUMTOBEL Group

Quotation: 25832708
Date: 10.10.2023

Project: 0002295446 City Labs, Manchester

Summary of costs

Article no	Description	Unit price	Qty.	Value
92926760	IP 12L35-740 EWR CL1 M76 GY-S		2	
92993725	IP 12L35-740 NR CL1 M76 GY-S		7	
96630495	ISARO PRO LOUVRE FRONT&BACK&LEFT&RIG		7	
96632555	COL 5M STEEL STEP ROOT 76MM TOP*		9	
96257239	D-CO R LED MAXI 6L50 840 CL		6	
	URBA BOLLARD 4L105 740 CL1 E3		8	
Total without VAT				

Returns Policy

<http://www.thornlighting.co.uk/en-gb/about-us/return-policy>

<https://www.zumtobel.com/gb-en/returns-policy.html>

Join our Newsletter



Nominated Charity 2023



Affiliate Member



D-CO Recessed

96257239 D-CO R LED MAXI 6L50 840 CL

THORN

LED 12W LED_D-CO_606	IP67	IK10					
----------------------	------	------	---	---	---	---	--

D-CO Recessed

A large size, ground recessed luminaire with 6 x 1.2W white LEDs for indoor or outdoor applications. Body in aluminium with ABS plastic recessed housing. Front glass, toughened with clear finish, stainless steel frame. Static load bearing 500kg. Complete with 5m cable.

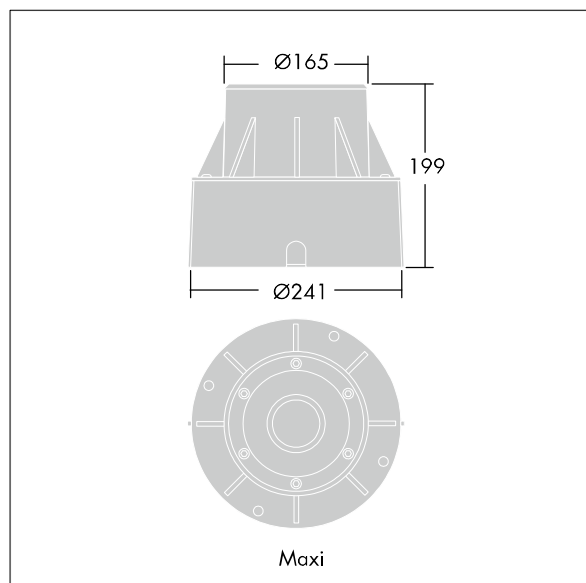
Dimensions: Ø241 x 199 mm

Luminaire input power: 12 W

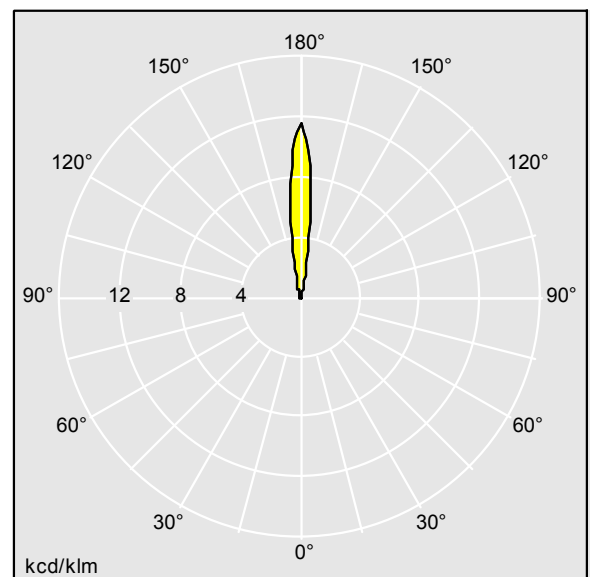
Weight: 3 kg



TLG_DCOL_F_LEDMAXIANGL.jpg



TLG_DCOL_M_ODL-165GZ.wmf



TLG_LA_DCOM2N_DC.ltd

Lamp position: STD - standard

Light Source: LED

Luminaire luminous flux*: 608 lm

Luminaire efficacy*: 51 lm/W

LOR: 1,00 ULOR: 1,00 DLOR: 0,00

Correlated colour temperature*: 4000 Kelvin

Rated median useful life*:

50000h at 25°C

Ballast: 1x LED_Con

Luminaire input power*: 12 W

All values marked with an * are rated values. Thorn uses tried and tested components from leading suppliers, however there may be isolated instances of technology-related failures of individual LEDs during the rated product lifetime. International standards set the tolerance in initial flux and connected load at $\pm 10\%$. Unless stated otherwise, the values apply to an ambient temperature of 25°C.

Thorn Lighting is constantly developing and improving its products. The right is reserved to change specifications without prior notification or public announcement.
© Thorn Lighting

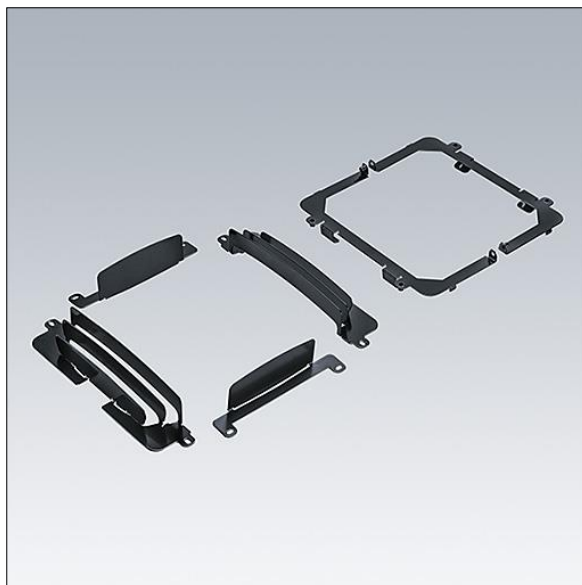
Isaro Pro

96630495 ISARO PRO LOUVRE FRONT&BACK&LEFT&RIGHT

THORN

Isaro Pro

Louvre kit with more than 15 configurations. The light can be cut-off from the front, back, left or right but there is also the possibility to do all at the same time thanks to a smart design. Can be installed before or after installation on site.



TLG_ISRP_F_LV.jpg

Isaro Pro

THORN

96630675 IP 12L35-740 NR BP 3550 CL1 M42 GY-S

LED 13W IP12L35-740NR	ISO 9223 C5	UK CA	IP66	IK09	CE						
-----------------------	-------------	-------	------	------	----	--	--	--	--	--	--

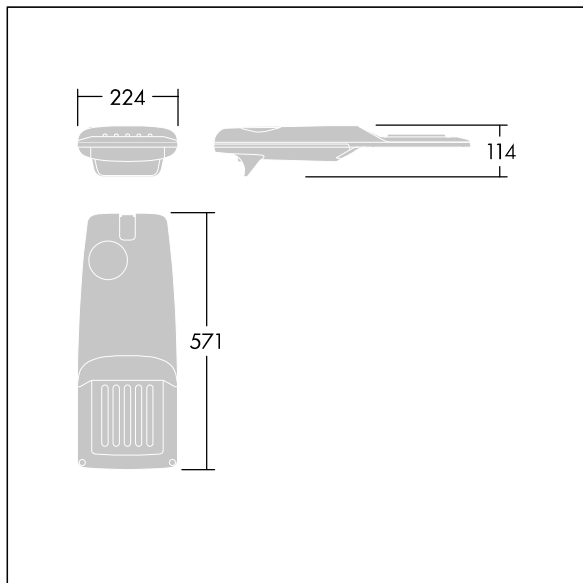
Isaro Pro

A state of the art LED road lighting lantern (small) with 12 LEDs driven at 350mA with Narrow Road optic. Programmable LED driver. Class I electrical, IP66, IK09. Housing: die-cast aluminium (EN AC-44300), powder coated textured light grey 150 (close to RAL9006). Spigot: die-cast aluminium (EN AC-44300), unpainted. Enclosure: 5mm thick glass. Fixings: stainless steel. Supplied with Ø42mm spigot adaptor which can be fitted for post-top (0°/5°/10°/15°/20° tilt) or side-entry (-15°/-10°/-5°/0°/5°/10°/15° tilt). Equipped with power reduction circuit, effective 3 hours before and 5 hours after a calculated midnight. Complete with 4000K LED. Surge protection: 10kV single pulse common mode and 8kV multipulse common mode and 6kV multipulse differential mode. If permanent DALI system is connected, 6kV multipulse common and differential mode.

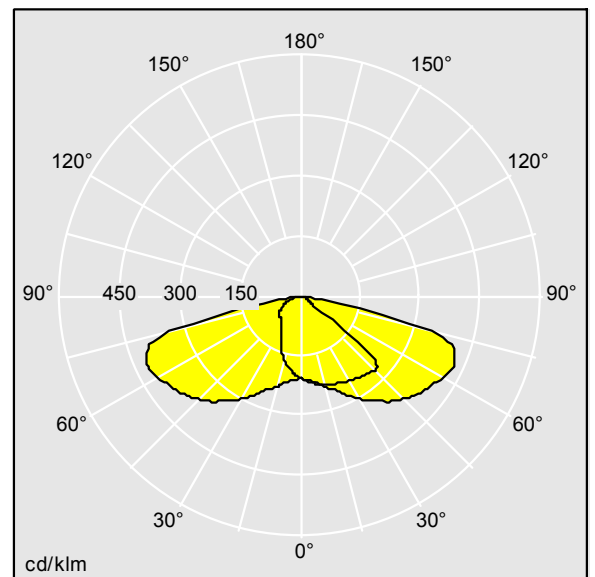
Dimensions: 571 x 224 x 114 mm
 Luminaire input power: 13.2 W
 Luminaire luminous flux: 2129 lm
 Luminaire efficacy: 161 lm/W
 Weight: 5.5 kg
 Scx: 0.054 m²



TLG_ISRP_F_PDB_SIL.jpg



TLG_ISRP_M_LD1.wmf



TL_IP12L35NR740.ltd

Lamp position: STD - standard
 Light Source: LED
 Luminaire luminous flux*: 2129 lm
 Luminaire efficacy*: 161 lm/W
 Colour Rendering Index min.: 70
 Ballast: 1 x 87500875 LCO 14/100-500/38 NF C ADV3

Correlated colour temperature*: 4000 Kelvin
 Chromaticity tolerance (initial MacAdam): 5
 Rated useful life (B10)*: L95 100000h at 25°C
 Luminaire input power*: 13.2 W Power factor = 0.83
 Dimming: PROG
 LOR: 1,00 ULOR: 0,00 DLOR: 1,00

This product contains a light source of energy efficiency class D.

All values marked with an * are rated values. Thorn uses tried and tested components from leading suppliers, however there may be isolated instances of technology-related failures of individual LEDs during the rated product lifetime. International standards set the tolerance in initial flux and connected load at $\pm 10\%$. Unless stated otherwise, the values apply to an ambient temperature of 25°C.

Thorn Lighting is constantly developing and improving its products. The right is reserved to change specifications without prior notification or public announcement.
 © Thorn Lighting

Steel Stepped Columns and Accessories

THORN

96632555 COL 5M STEEL STEP ROOT 76MM TOP*

Steel Stepped Columns and Accessories

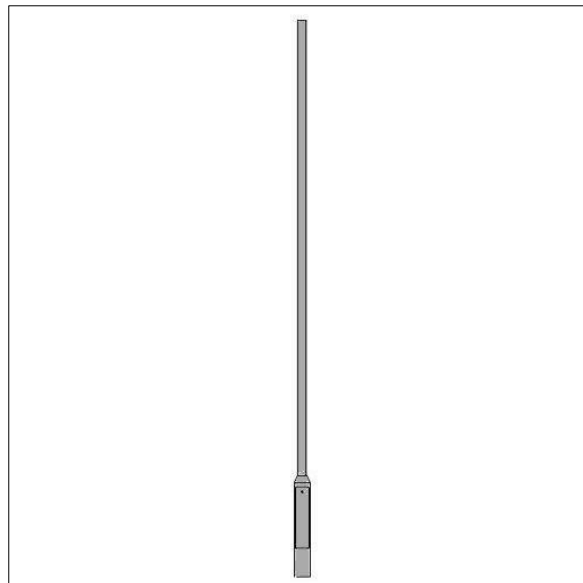
5 metre steel stepped root mounted column Ø76mm with Ø76mm top spigot, galvanised to BSEN 1461:2022.

Weight: 39 kg (approx)

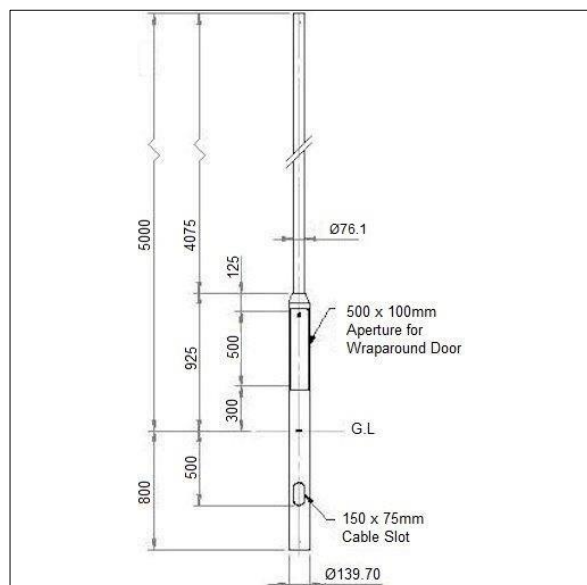
The following adaptors and brackets are suitable for use with this column:

- 96633563 : Adaptor to reduce to Ø60mm spigot
- 96632566 : Single arm bracket Ø42mm side entry
- 96632567 : Twin arm bracket Ø42mm side entry
- 96632568 : Single floodlighting bracket
- 96632569 : Double/quad floodlighting bracket

Please note : Delivery charges will apply to this item.



TLG_COLU_F_PDB.jpg



TLG_COLU_M_5MR.wmf

All values marked with an * are rated values. Unless stated otherwise, the values apply to an ambient temperature of 25°C.

Thorn Lighting is constantly developing and improving its products. The right is reserved to change specifications without prior notification or public announcement.
© Thorn Lighting

THORN
LIGHTING



ISARO PRO

Built to last

BUILT TO LAST

This robust and high-performance LED lantern brings comfort and safety to any road or street. Pressure to reduce energy costs and carbon emissions for outdoor lighting is stronger than ever. High-quality LED street lanterns offer a great solution, thanks to clever design, highly efficient light sources, long life and smart controls.



Motorways,
High speed roads,
Major roads



Minor roads &
Residential roads



Intersections



Parking



DARK SKY ACCREDITATION

The International Dark Sky Association is recognised as the global authority on light pollution and is the leading organisation combating this issue worldwide.

The IDA Fixture Seal of Approval is a highly regarded accreditation for manufacturers. The process to achieve this accreditation reviews key features and benefits of a luminaire, its fundamental design and deep dive analysis of photometric data to ensure the product meets strict requirements to limit light pollution.



ISARO PRO



READY TO CONNECT

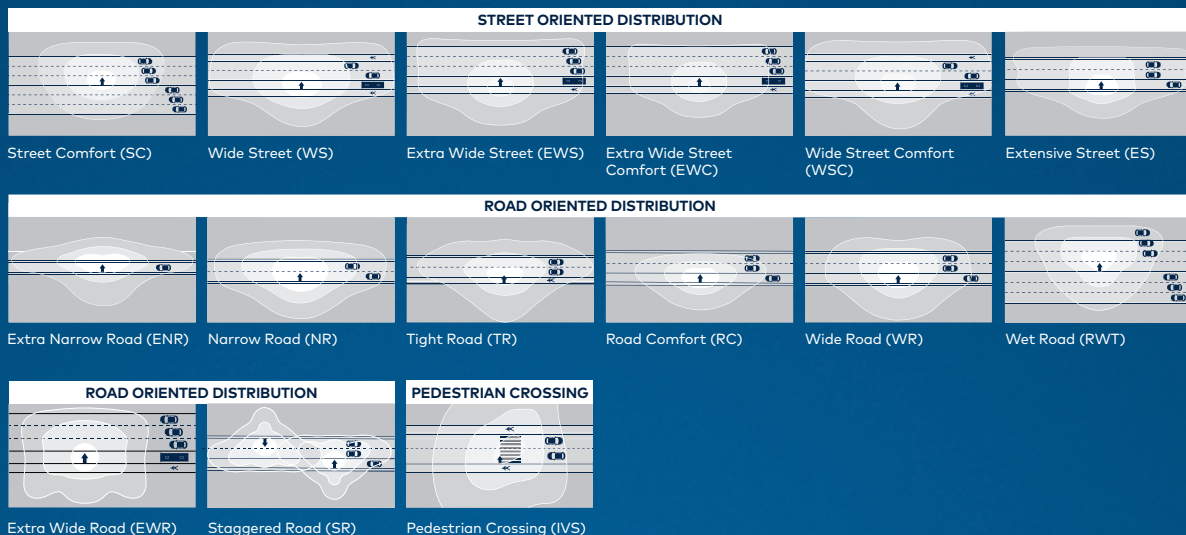
Both sizes can be configured with a NEMA or Zhaga interface, Zhaga-D4i certified.



SMART LIGHTING

Isaro Pro incorporates many control solutions such as UrbaSens, our state-of-the-art intelligent outdoor lighting system: save energy, provide light only when and where it is required and control the whole system from a simple dashboard. Combine it with our expert service team, and you'll get revolutionary lighting without the risk.

BEST IN CLASS ROAD AND STREET OPTICS



CONTRACTOR FRIENDLY

Isaro Pro is designed to make life easy for contractors. With internal components easily accessed from above without the need for tools, maintenance couldn't be simpler. It is available pre-wired and its automatic disconnect function means maintenance is safe.



R-PEC® OPTIC

Isaro Pro features the best in class optical performance of the R-PEC® optic. R-PEC® offers several precision light distributions, achieving wide column spacing, excellent uniformity plus no waste or obtrusive light.

TILTING TECHNOLOGY

Very versatile installation thanks to our tilting technology where using the same spigot you can achieve lateral ($-15^{\circ}/+15^{\circ}$) and top ($0^{\circ}/+20^{\circ}$) mounting with a wide choice of angles, by steps of 5° .



A FUTURE PROOF SOLUTION

Made of top-quality alloy, Isaro Pro is built to withstand all conditions, and to cope with physical impact and vibration. With a lifetime up to 100 000 hours, it guarantees years of reliable performance, ensuring a low-cost of ownership. And with connectivity built in, it's a truly futureproof solution. As well as being robust, this modern lantern is slim, sleek and performs brilliantly. With light output of up to 23 000 lm with 2 sizes, Isaro Pro is powerful enough

to handle roads & streets, residential areas, car parks and walking/cycling paths. Because every application is different, Isaro Pro uses Thorn's unique R-PEC® optic to offer unprecedented optical flexibility. A choice of several precise light distributions is available for highly efficient and comfortable light, exactly where it is needed, whether lighting a residential street, a busy road or a pedestrian crossing.



APPLICATION AREAS



ROADS



CAR PARKS



RESIDENTIAL AREAS



WALKING/CYCLING PATHS



IP66

IK09



Built to last

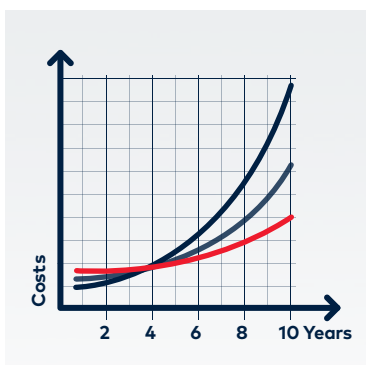
Isaro Pro is built to withstand almost everything that nature and the outdoor environment can throw at it. With an IP66 rating for ingress protection and IK09 for impact, the luminaire also has strong corrosion resistance and vibration resistance. There are few applications Isaro Pro can't handle.



Corrosion resistant

Thanks to the best in class alloy and the specific fixing system treatment, Isaro Pro has strong corrosion resistance and easily reaches Category 5 (C5 – very high corrosivity) according to ISO 9223 –

Corrosion of metal and alloys.



Great ROI potential

Isaro Pro's long life (up to 100 000 h) and efficacy of up to 170 lm/W in addition to a wide choice of controls (radio frequency, daylight sensor and others) mean that overall cost of ownership is low, ensuring a quick ROI (Return of Investment) but also allowing operators to make significant long-term savings. The ability to easily add or replace internal components including the driver, LEDs and controls, means the luminaire is truly futureproof.

— Existing 70 W SON HID
 — ISARO PRO 12LED WS
 — ISARO PRO 12LED WS + Light management

ISARO PRO CONFIGURATION GUIDE

thornlighting.com/ISRP

IP	12L	70	740	NR	CLO	BP2350	HFX	SP	CL1	N7	T60F	W6	R9006
Range	LED	mA	CCT/CRI	Optic	CLO	Diming	DALI	Fuse	Safety	Controls	Spigot	Wiring	Colour
													<i>Optional</i> RALxxx Different RAL possibility
												XX m	<i>Optional</i> Several wire lengths from 3 to 16 m and different cable types
													<i>Optional</i> Pre-fitted 42 mm spigot lateral 0°
													<i>Optional</i> Pre-fitted 60 mm spigot lateral 0°
													<i>Optional</i> Pre-fitted 60 mm spigot post top +5°
													<i>Optional</i> Pre-fitted 76 mm spigot post top +5°
													<i>Optional</i> 42 mm spigot non-fitted for freedom of position
													<i>Optional</i> 60 mm spigot non-fitted for freedom of position
													<i>Optional</i> 76 mm spigot non-fitted for freedom of position
													<i>Optional</i> 3 pin NEMA socket
													<i>Optional</i> 7 pin NEMA socket
													<i>Optional</i> Zhaga Up, Down, Up & Down
													<i>Optional</i> Minicell
													<i>Optional</i> Class I electrical (earthed)
													<i>Optional</i> Class II electrical (double insulated)
													<i>Optional</i> 10 kV multi pulse surge protection
													<i>Optional</i> DALI Dimmable
													<i>Optional</i> Bi Power Power Line
													<i>Optional</i> Light Reduction Twin Phases
													<i>Optional</i> Bi-Power switchable with different dimming profiles
													<i>Optional</i> Bi-Power with different dimming profiles
													<i>Optional</i> Constant Light Output
													<i>Optional</i> All R-PEC® optics available
													<i>Optional</i> CRI 70 – 2200 K
													<i>Optional</i> CRI 70 – 2700 K
													<i>Optional</i> CRI 70 – 3000 K
													<i>Optional</i> CRI 70 – 4000 K
													<i>Optional</i> CRI 70 – 5700 K
													<i>Optional</i> CRI 80 – 3000 K
													<i>Optional</i> CRI 80 – 4000 K
													<i>Optional</i> Adjustable lumen output
													<i>Optional</i> 350 mA to 1050 mA
													<i>Optional</i> From 12 LEDs to 72 LEDs
													<i>Optional</i> 12L to 72L
													<i>Optional</i> Isaro Pro



*IDA fixture seal of approval relates to <= 3000K only, clear enclosures, +/- 10° maximum tilt only. Luminaires must be mounted as photometered.

10 kV as standard
Up to 23 000 lm
Up to 170 lm/W
Up to 100 000 h L95 B10 @ Ta 25°C



* High operating temperature available depending on lumen output

Accessories

IK10 accessory
Back, front and side louvres

Material

Full Die cast Aluminium and flat glass

Standards



Configure the ideal product solution with myProduct. The myProduct configurator allows you to easily configure a luminaire according to your needs. Try it now at <http://www.thornlighting.com/myproduct>



As a globally leading luminaire manufacturer, Thorn Lighting provides a five-year warranty for its complete product range within all European Countries. thornlighting.com/guarantee

Thorn Lighting is constantly developing and improving its products. All descriptions, illustrations, drawings and specifications in this publication present only general particulars and shall not form part of any contract. The right is reserved to change specifications without prior notification or public announcement. All goods supplied by the company are supplied subject to the company's General Conditions of Sale, a copy of which is available on request. All measurements are in millimetres and weights in kilograms unless otherwise stated. 04/2022 (INT)

WE
MAKE
LIGHT
WORK

LIGHTING LEGEND

- L1 THORN LIGHTING LTD. 1000mm URBAN DIRECTIONAL BOLLARD - 96275591 URBAN BOLLARD 4L105 740 CL1, 1101 LUMENS / 135 WATTS
[ARROW INDICATES DIRECTION OF LIGHT]
- L1E AS ABOVE c/w EMERGENCY UNIT UNDER CONTROL BY THE INTERNAL EMERGENCY DALI SYSTEM
[ARROW INDICATES DIRECTION OF LIGHT]
- L3 THORN LIGHTING LTD. ISARO PRO 12L35-740 EWR 5m COLUMN LUMINAIRE, 2044 LUMENS / 30 WATTS
- L4 THORN LIGHTING LTD. ISARO PRO 12L35-740 NR BLV 5m COLUMN LUMINAIRE, 1946 LUMENS / 28 WATTS
- M THORN LIGHTING LTD. CIRCULAR UPLIGHTER - 96257239 D-CO R LED MAXI 6L50 840 CL

LEGEND

- 75mm DIAMETER (BT OPEN REACH DUCT) 450mm DEEP IN PRIVATE HIGHWAY AND FOOT PATHS.
- 75mm DIAMETER (BT OPEN REACH DUCT) EXISTING SERVICE MINIMUM OF 450mm DEEP IN PUBLIC FOOTPATH.
- LOW VOLTAGE (LV) SMALL POWER, LIGHTING AND POWER DUCT (CLASS 2 RIGI DUCT) 600mm DEEP IN PRIVATE HIGHWAY AND FOOT PATHS.
- EXTRA LOW VOLTAGE (ELV) DATA AND COMMS DUCT (CLASS 2 RIGI DUCT) 450mm DEEP IN PRIVATE HIGHWAY AND FOOT PATHS.
- EXTRA LOW VOLTAGE (ELV) BMS DUCT (CLASS 2 RIGI DUCT) 450mm DEEP IN PRIVATE HIGHWAY AND FOOT PATHS.
- MAINS WATER PIPEWORK, 800mm DEEP IN PRIVATE HIGHWAY AND FOOT PATHS.
- MANHOLE TO BT OPEN REACH SPEC.
- 600x600mm MANHOLE.
- 300x600mm MANHOLE.
- 1200x1200mm MANHOLE.

ELECTRICAL NOTES

- E1 2No. 75mm DIAMETER BT OPENREACH DUCTS.
- E2 1No. 100mm IDø DUCTS.
- E3 1No. 100mm IDø DUCT LV.
- E4 1No. 100mm IDø DUCT ELV.
- E5 1No. 125mm IDø DUCT LV.
- E6 2No. 100mm IDø DUCTS.
- E7 2No. 75mm IDø DATA DUCTS.
- E8 4No. 75mm DIAMETER EXISTING BT OPENREACH DUCTS.
- E9 4No. 100mm DIAMETER EXISTING COMMS DUCTS.
- E10 1No. 100mm DIAMETER EXISTING LV DUCT.
- E11 HV CABLE IN 2No. 150mm DUCTS.
- E12 1No. 75mm BMS DUCT AND INCOMING WATER MAINS.



THORN LIGHTING LTD. 1000mm URBAN DIRECTIONAL BOLLARD REF. L1 & L1E



THORN LIGHTING LTD. ISARO PRO 12L35-740 EWR 5m COLUMN LUMINAIRE REF. L3 & L4



THORN LIGHTING LTD. CIRCULAR UPLIGHTER REF. M

2 Detail 'A' - Positioning of Services in a Carriageway NTS

3 Detail 'B' - Typical Section Through Low Voltage Duct Route NTS

4 Detail 'C' - Typical Section Through Data Duct Route NTS

GENERAL NOTES

- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ASSOCIATED SERVICES DRAWINGS, ARCHITECTS AND STRUCTURAL DRAWINGS TOGETHER WITH THE SCHEMATIC DRAWINGS AND ALL MECHANICAL AND ELECTRICAL SPECIFICATIONS.
- ALL SERVICES INSTALLATIONS SHALL BE CO-ORDINATED AND FULLY INTEGRATED WITH THE MECHANICAL AND ELECTRICAL SERVICES, ARCHITECTURAL FEATURES, PLANT, STRUCTURAL ELEMENTS ETC.
- THE SERVICES CONTRACTORS SHALL FAMILIARISE THEMSELVES WITH THE MECHANICAL AND ELECTRICAL SERVICES, ARCHITECTURAL FEATURES, PLANT, STRUCTURAL ELEMENTS ETC.
- ONLY OPENREACH CABLE DUCTING AND DRAW PITS SHALL BE USED FOR OPENREACH INFRASTRUCTURE.

NOTES

This drawing should be used in conjunction with all other relevant layouts/scope of work and any other information provided.

DO NOT SCALE FROM THIS DRAWING

REV	DATE	REVISION HISTORY	REV BY
P01	09.11.23	ISSUED FOR COMMENT	PI
C01	18.01.24	DRAWING RELATED COMMENTS INCORPORATED UPDATES AS GIM COMMENTS ISSUED FOR CONSTRUCTION	PI
C02	18.01.24	ADDITIONAL COMMENTS BY GIM INCORPORATED	PI
C03	21.06.24	GIM COMMENTS INCORPORATED	PI

THIS DRAWING IS THE EXCLUSIVE PROPERTY OF © KING BUILDING SERVICES LTD. IT IS LOANED TO THE RECIPIENT SUBJECT TO RETURN, UNCOPIED, ON DEMAND. ITS CONTENTS MAY NOT BE ALTERED, REPRODUCED, ISSUED TO THIRD PARTIES OR USED OTHER THAN FOR THE CONTRACT WORK FOR WHICH IT IS ISSUED WITHOUT THE WRITTEN PERMISSION OF KING BUILDING SERVICES LTD



CLIENT

Bruntwood Science Ltd

TITLE

External Lighting Layout

ADDRESS

City Labs 4.0

Drawn	SF	Sign	SF	Date
Checked	PH			09/11/23
Approved	PI			09/11/23
DRAWING NUMBER	Revision	INITIAL DRAWING DATE	SCALE	PAPER SIZE
L025-KNG-96-01.00-D-E-960001	C03	SEPT 2023	As indicated	A0
DRAWING STATUS	CONSTRUCTION			