Circle Square 5,6,7 & 8 – Manchester

External Lighting Strategy Statement

Ref: 1610 R002 Rev 03 Date: 21/08/2020

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Revision Record

Date	Reference	Revision	Prepared By	Checked By
02/06/2020	R002	Draft	SA	RJ
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22/06/2020	R002	R02	SA	RJ
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1.0 Introduction

This report covers the external lighting to the surrounding areas of Circle Square buildings 5,6,7 & 8 on Oxford Rd, Manchester. The lighting philosophy to the external realm is based on achieving a good level of maintained illuminance across the site, minimising dark areas to create a safe environment whilst avoiding light spillage and light pollution to surrounding areas.

The lighting scheme is based on energy efficient LED luminaires and seeks to illuminate architectural features of both the buildings and the external landscaping scheme. The external lighting also takes into consideration both the level and uniformity of lighting required for security, CCTV operation, safe movement of visitors, staff and residents to the buildings/landscaping around the site.

2.0 Design Standards, policy & guidance

2.1 Standards

The external lighting design has been carried out in accordance with the following standards: -

- SLL Code for Lighting
- BS 12464-2:2014
- BS5489-1: 2013 Code of practise for the design of road lighting
- CIBSE guide LG6 – 2016
- ILE Guidance Notes 2011
- ILP Guidance note 1 2020

The lighting seeks to reduce lighting pollution by preventing upward light pollution through optimal mounting heights and local light distribution, and by utilising low energy, efficient LED lighting luminaires that limit glare through design. The lighting design seeks to meet the guidance of the ILE guidance note 2011.

It is important that the lighting provides the appropriate levels of illumination and uniformity to ensure that adequate lighting is provided to roadways and pedestrian routes. The lighting should also offer a pleasing aesthetic quality.

The intention is to light the roadway and pedestrian routes to provide safe and secure access around the site. The illuminance levels will take into account feature areas to allow the integrated lighting to the structures and feature elements to be more visible, adding interest and depth to these areas.

Lighting levels will be suitable for pedestrian and vehicular access. Maintained average illuminance levels recommended by the standards below will be achieved as detailed typically on the external lighting strategy drawing. Lighting will be installed to provide sufficient illumination for safe circulation and to promote a feeling of safety and security.

3.0 Vertical illuminance on buildings

This section aims to highlight that the current external lighting scheme complies with the ILP & CIBSE guidance relating to reduction of obtrusive light. Calculations have been performed to demonstrate that the vertical illuminance on buildings 5, 6, 7 & 8 comply with Table 3 of the ILP guidance (below) and ensure that the maximum lux level of 25 lux pre curfew and 5 lux post curfew is met as per environmental zone E4.

Table 3 (CIE 150 table 2): Maximum values of vertical illuminance on properties.

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Note:

* If the installation is for public (road) lighting then this may be up to 1 lx.

A vertical plane has been included within the calculation at 3 points along each elevation of each building to ensure an accurate value can be determined. The vertical planes have been calculated at ground floor level where there are retail units and at level 01 for residential levels.

The tables in appendix 3 below summarise the outputs from the calculations. Table 1 details the results of the calculation at retail level and table 2 details the results at residential level. References for elevations of each building can be found on the drawing 'Appendix 4 – Vertical illuminance elevations drawing' at the bottom of this document. Where compliant lux levels are met, they have been highlighted green within the tables.

Where compliant levels are not achievable the intention shall be to utilise the fully addressable KNX DALI lighting control system to dim the lighting within these areas. As shown in the calculation summary in appendix 3, the current lighting fulfils the criteria set out in the ILP guidance at residential level. However, to ensure the correct levels are achieved at retail level we shall need to use dimming control.

Commissioning of the external lighting system shall be policed and witnessed to ensure that final agreed levels are met.

4.0 Lighting control

The public realm surrounding buildings 5,6,7 & 8 is provided with a fully addressable KNX DALI lighting control system with built-in programming for timer control. The system allows for the flexible control of the luminaires including switching and dimming to meet various applications. The lighting control system is linked with external lux level sensors to ensure the lighting switches off at dawn and on at dusk.

The lighting controls are located within feeder pillars with zones of lighting electrically fed from the various buildings around the site.

See below for a schematic example of the public realm surrounding buildings 5,6,7 & 8.

5.0 Overview of the Particular Design

The external lighting design to the public realm surrounding buildings 5,6,7 & 8 on Oxford Road, Manchester provides functional LED lighting and feature lighting by way of building mounted LED downlights, bollard luminaires, column mounted LED lighting and in-ground LED up lights.

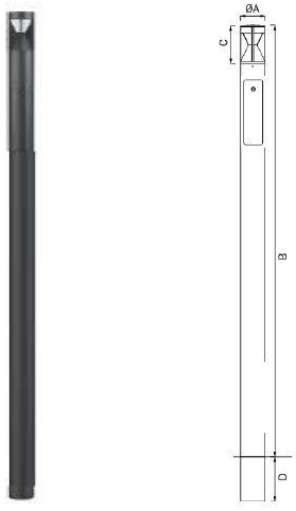
5.1 Entrance and road lighting

Vehicular access routes and Brancaster Road shall be illuminated utilising column mounted luminaires which shall provide functional illumination. It is proposed to install the luminaires on 6 metre columns.



Proposed Column mounted luminaires.

Medlock walk shall be illuminated using 3-metre-high bollard luminaires. Due to the walk being a flood area a number of the bollard fittings shall be installed with high level doors to allow electrical connections to be above the water line.



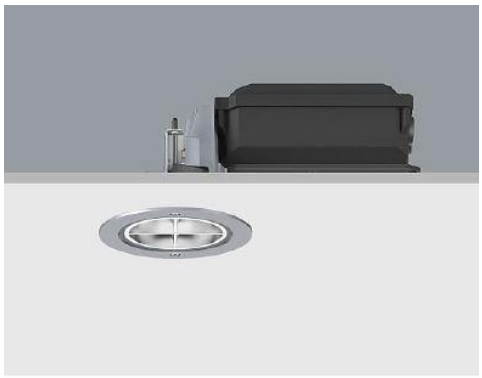
Proposed bollard luminaires.

The area around Central Square shall be illuminated using wide beam and medium beam spotlights mounted at various angles on columns 10 meters above finished floor level.



5.2 Building perimeter lighting

It is proposed that the building perimeter lighting shall be via building mounted downlights which shall be recessed into the underside of the building façades.



Proposed building mounted perimeter luminaire

5.3 Feature Lighting

The feature lighting to the amenity and public realm spaces around circle square shall be provided by a number of types of luminaire. Floor recessed up lights shall be included along walkways around the site and on Brancaster Road.



Proposed floor recessed luminaires.

Stairs around the site shall be illuminated using low-level recessed wall lights and luminaires concealed within the underside of handrails.



Proposed handrail luminaire.



Proposed wall recessed luminaire.

6.0 Appendices

Appendix 1 - Exterior lighting drawing

The Isolux plots indicated on the below drawing confirm that there is no adverse impact on the amenity of residents within this and adjacent developments.

This drawing shall not be scaled. Work from the dimensions shown in the drawing or given in relevant specifications



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
Bldg 10 and 11 Passage	Illuminance	Lux	7.22	12.0	3.6	0.50	0.30
Bldg 5 and 6 Passage	Illuminance	Lux	60.84	137.4	29.9	0.49	0.22
Bldg 6 and 9 Walkway	Illuminance	Lux	21.26	131.4	4.6	0.22	0.04
Bldg6and7 Ramp1	Illuminance	Lux	42.87	69.6	31.0	0.72	0.45
Bldg6and7 Ramp2	Illuminance	Lux	44.98	72.1	35.4	0.79	0.49
Bldg6and7 Stairs1	Illuminance	Lux	85.95	151.8	37.2	0.43	0.25
Bldg6and7 Stairs2	Illuminance	Lux	115.46	198.5	34.2	0.30	0.17
Block 6 by Square	Illuminance	Lux	15.82	31.0	3.0	0.19	0.10
Block 7 and 8 Passage	Illuminance	Lux	53.43	70.3	35.5	0.66	0.50
Brancaster Road	Illuminance	Lux	14.62	65.8	2.3	0.16	0.03
Central Square	Illuminance	Lux	20.42	45.4	2.3	0.11	0.05
Charles Street	Illuminance	Lux	13.96	49.5	1.6	0.11	0.03
Medlock Place	Illuminance	Lux	10.37	46.9	0.9	0.09	0.02
Medlock Place Stairs1	Illuminance	Lux	134.40	232.1	47.8	0.36	0.21
Medlock Walk	Illuminance	Lux	4.81	10.9	0.9	0.19	0.08
MSCP Path	Illuminance	Lux	8.77	21.7	1.6	0.18	0.07
MSCP Steps	Illuminance	Lux	19.86	23.7	16.5	0.83	0.70
Oxford Road	Illuminance	Lux	7.10	16.3	0.6	0.08	0.04
Ribbon 1	Illuminance	Lux	21.15	38.7	2.2	0.10	0.06
Ribbon 2 Pt1	Illuminance	Lux	17.37	28.3	7.3	0.42	0.26
Ribbon 2 Pt2	Illuminance	Lux	26.16	102.3	7.5	0.29	0.07
The Walks Pt 1	Illuminance	Lux	8.98	44.9	1.7	0.19	0.04
The Walks Pt 2	Illuminance	Lux	7.27	24.0	4.2	0.58	0.18
The Walks Pt 3	Illuminance	Lux	8.84	25.8	1.0	0.11	0.04
The Walks Pt 4	Illuminance	Lux	11.28	27.3	2.3	0.20	0.08

Requirements:

Block 5 and 6 Passage
Block 7 and 8 Passage
BS5489-1:2013 Code of practice for the design of road lighting
Subways (open)
Average Illuminance: 50 lux
Minimum Illuminance: 25 lux

Brancaster Road
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Busy Traffic Flow, High Ambient Illuminance (Zone E4)
Category S2
Average Illuminance: 10 lux
Minimum Illuminance: 2 lux

Medlock Place
The Walks Pt 1
The Walks Pt 2
Bldg 10 and 11 Passage
Bldg 6 and 9 Walkway
Block 6 by Square
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road – Slow moving vehicles, cyclists & pedestrians
Busy Traffic Flow, High Ambient Illuminance (Zone E4)
Category S4
Average Illuminance: 5 lux
Minimum Illuminance: 1 lux

Medlock Walk
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road – Slow moving vehicles, cyclists & pedestrians
Normal Traffic Flow, High Ambient Illuminance (Zone E4)
Category S5
Average Illuminance: 3 lux
Minimum Illuminance: 0.6 lux

The Walks Pt 3
The Walks Pt 4
MSCP Path
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Normal Traffic Flow, High Ambient Illuminance (Zone E4)
Category S3
Average Illuminance: 7.5 lux
Minimum Illuminance: 1.5 lux

Central Square (Event Usage)
Ribbon 1
Ribbon 2 Pt1
Ribbon 2 Pt2
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Busy Traffic Flow, High Ambient Illuminance (Zone E4)
Category S2 modified to S1
Average Illuminance: 15 lux
Minimum Illuminance: 3 lux

Central Square (Non-Event Usage)
Ribbon 1
Ribbon 2 Pt1
Ribbon 2 Pt2
(To be achieved through dimming)
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Normal Traffic Flow, High Ambient Illuminance (Zone E4)
Category S3
Average Illuminance: 7.5 lux
Minimum Illuminance: 1.5 lux

Bldg6and7 Ramp1
Bldg6and7 Ramp2
Bldg6and7 Stairs1
Bldg6and7 Stairs2
Medlock Place Stairs1
MSCP Steps
BS5489-1:2013 Code of practice for the design of road lighting
Stairways/ramps (open)
Average Illuminance: 80 lux
Minimum Illuminance: 150 lux

CDM Pre-Construction Information

The following information is provided in pursuance of Regulations 9 of the CDM Regulations 2015:

1. Man-safe system required for access.

NOTES:

1. The drawing does not necessarily show all the information needed to interpret the design intent or the construction details.
2. The drawing contains information from more than one source and must be read in conjunction with all relevant specifications.
3. Any apparent drafting errors and differences between other drawings and specifications shall be brought to our attention.
4. Based on Planit Drawing PL1502-MP-VW-001-05-WORKING FILE_Masterplan
5. Type G luminaries to be installed on temporary columns prior to completion of Block 7&8 landscape. Type G luminaires are not intended to be replaced and must not suffer damage during installation or through the construction process. During Block 7&8 landscape construction, permanent columns to be installed in final positions and Type G luminaires relocated to permanent columns. Type G luminaires to be relocated without damage.
6. 2 qty Type X2 uplighters to be prepared for installation but not installed during Phase 1A. All containment for power and control etc to be installed and connection made to all Type X2 uplighters further along Brancaster Way. The 2 qty Type X2 luminaries to be installed in accordance with the construction phasing plan.

Index	Description	Drawn & Chk by	Rev'd by	Date
P05	Drawing background updated to Planit-ie drawing PL1502-MP-VW-001-05-WORKING FILE_Masterplan	DLB	SD	170914
P04	Lighting results summary added	DLB	SD	130717
P03	Lighting results added	DLB	SD	110717
P02	Control Channels Added	DLB	SD	260517

Revisions

Architect
Planit-ie
Fielden Clegg Bradley Studios
5Plus Architects

Client
Oxford Property Trading Ltd

PRELIMINARY ISSUE

HOARE LEA LIGHTING
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PLYMOUTH
POOLE

Project Title
CIRCLE SQUARE
MANCHESTER

Drawing Title
Landscape Masterplan Lighting Layout Plan
Functional & Feature Lighting
All Masterplan Lighting

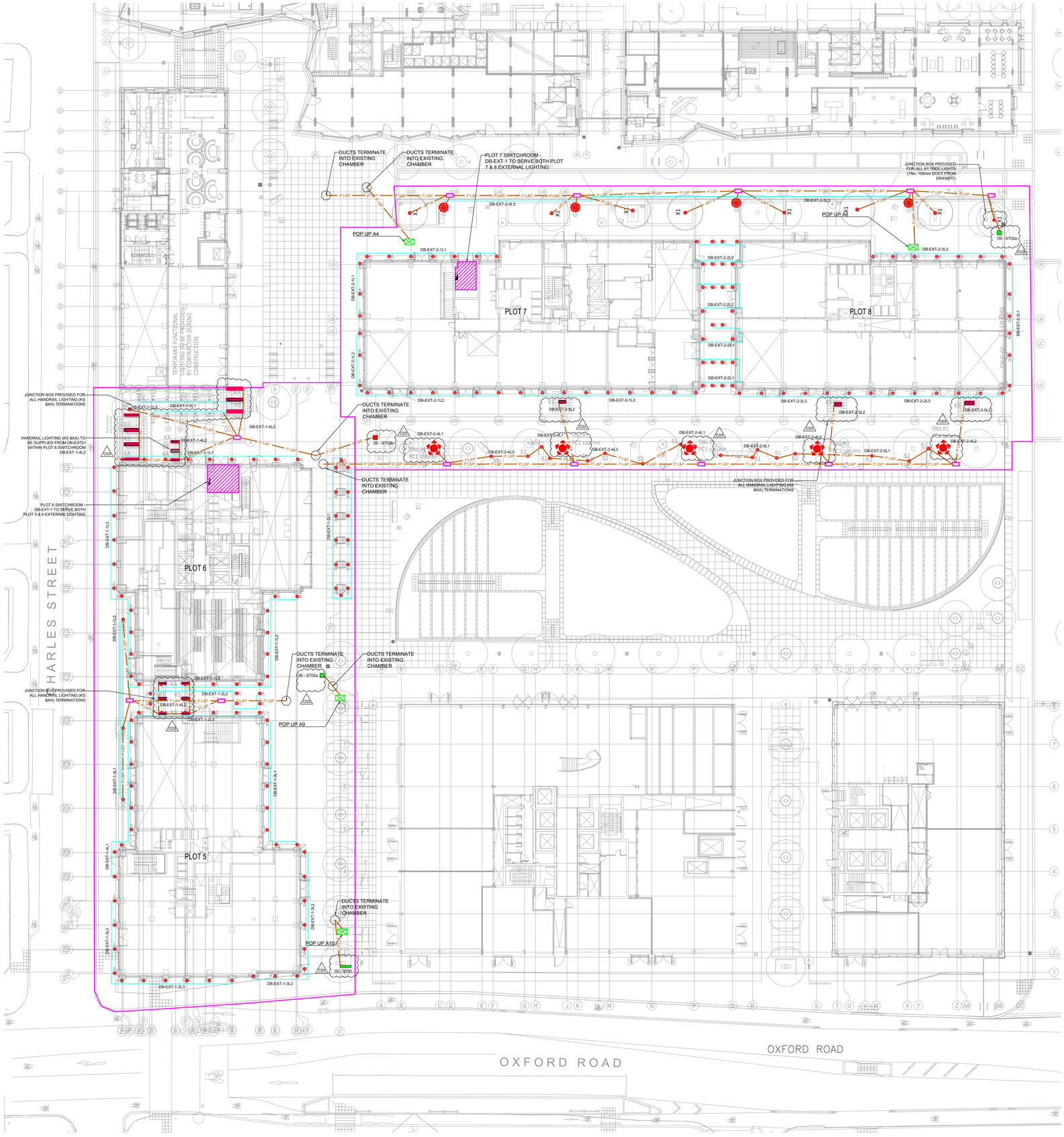
Project No	Drawn & Checked by	Reviewed by
1602419	DLB	SD
Date	Scale	Issuing Office
170914	1:500@A1	MANCHESTER

DRAWING NUMBER

Project Code	Orig.	Zone	Level	Type	Role	Class.	Number	Rev.
1602419	HL	XX	LS	DR	Y	630	0006	P5

CAD ORIGINAL - NOT TO BE MODIFIED BY HAND

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NOTES

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE FULL MEP AND ARCHITECTURAL STAGE 4 INFORMATION.
2. ALL WORKS SHALL BE IN FULL COMPLIANCE WITH THE LATEST VERSION OF BS7671 THE IET WIRING REGULATIONS

A	ERCO COMPACT DOWNLIGHT SOFIT RECESSED 8W 840lm 3000K LED
X15*	BEGA LIGHTING LOW LEVEL RECESSED WALL LIGHT 14.5W 1000lm 3000K LED
G	WE-EF LIGHTING POST TOP COLUMN 36W 4842lm 3000K LED
X1	MAXI LED - GLOBE LED TREE LIGHT (SPECIALIST INSTALLATION) COOL WHITE 4000K LED
X2	IGUZZINI LIGHTING LIGHT UP - UPLIGHTER 21.4W 2335lm 4000K LED
KA	SELUX ILLUMINATED HANDRAIL (ASYMMETRIC) 3000K LED
KS	SELUX ILLUMINATED HANDRAIL (SYMETRIC) 3000K LED
S1	ERCO LIGHTING MIDIPOLL BOLLARD LUMINAIRE DIAMETER - 120mm, HEIGHT - 800mm 8W 840lm 3000K LED
S2	ERCO LIGHTING MIDIPOLL BOLLARD LUMINAIRE DIAMETER - 120mm, HEIGHT - 525mm 8W 840lm 3000K LED
P1	SELUX LIGHTING OLIVIO MICRO - COLUMN SPOT LIGHT HEIGHT 260mm 41W 2925lm 3000K LED 5No. P1 TYPE FITTINGS MOUNTED ON 11M WOODEN TAPERED COLUMN - PC1
	L&P DRAWPIT PROPOSED 900x450mm
	PROPOSED 2 X 100mm DUCTS FOR LIGHTING AND POWER
	POP UP POWER
	TOTEM SIGNAGE 09 - ST02a 06 - ST02a 02 - ST01 05 - ST02b

Rev	Description	DRN	CHK	Date
C03	UPDATED WITH PLANIT EXTERNAL LAYOUT DRAWING INFORMATION	SA	RJ	26.06.20
C02	EXTERNAL DUCTING & POP UPS ADDED	SA	RJ	05.06.20
C01	CONTRACT ISSUE	JW	RJ	23.03.20

drawn by | drawn date | checked by | checked date | approved by | approved date

CHECK PLOT
UNCONTROLLED DRAWING
Return to:

A	OK	ready for transmittal
B	Minor Comments	mods to be actioned then ready for transmittal
C	Major Comments	mods to be actioned then returned for checking

signed: .....
date: .....

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client approval			client approval, initials and date
	A	Approved	
	B	Approved with Comments	
	C	Not Approved	

client/main contractor: SISK
consultant/structural: CWC

project: Circle Square
Plot 5,6,7,8

drawing title: External Lighting

drawing status	purpose of issue		
For Comment	S3		
scale @ paper size	project number	drawn by	date
As indicated @ A0	P070090	CWC	23.03.20

drawing no: CSAL-IES-XX-XX-DR-E-90004
Format|Site|Originator|Zone|Level|Type|Role|Classification|Number
revision: C03

Contract Issue

Appendix 2 – Exterior lighting calculation summary

Exterior Lighting Calculation Summary Table

Calculation Summary								
	Area Type	Target Average Lux Level	Average	Minimum	Maximum	Target Uniformity	Uniformity	Comments
Label	From Table 2.2	(lX)	(lX)	(lX)	(lX)	u0	u0	
Bldg 5 and 6 Passage	Walkway	5	31	9.21	112	0.25	0.292	
Bldg 6 and 9 Walkway	Walkway	5	13	4.81	20	0.25	0.374	
Bldg 6 and 7 Ramp 1	Walkway	5	5.55	2.93	8.13	0.25	0.528	
Bldg 6 and 7 Ramp 2	Walkway	5	8.04	4.58	11	0.25	0.57	
Bldg 6 and 7 Stairs 1	Walkway	5	5.31	3.99	6.99	0.25	0.751	
Bldg 6 and 7 Stairs 2	Walkway	5	13	4.71	20	0.25	0.359	
Block 6 by Square	Walkway	5	21	6.14	59	0.25	0.298	
Block 7 and 8 Passage	Walkway	5	77	34	108	0.25	0.436	

Non Compliant
Marginally Compliant
Compliant

Appendix 3 – Vertical illuminance calculation summary

Circle Square External Lighting Vertical Illuminance Summary Table 1

Calculation Summary - Retail Level							
Building	**Elevation**	**Height**	**Maximum illuminance (pre curfew)**	**Maximum illuminance (post curfew)**	**Calculated illuminance (Point 1)**	**Calculated illuminance (Point 2)**	**Calculated illuminance (Point 3)**
5	A	Ground Floor Retail Level	25lx	5lx	2.30 lx	0.91 lx	0.76 lx
5	B	Ground Floor Retail Level	25lx	5lx	27.00 lx	9.93 lx	29.00 lx
5	C	Ground Floor Retail Level	25lx	5lx	5.05 lx	3.96 lx	2.09 lx
5	D	Ground Floor Retail Level	25lx	5lx	1.60 lx	1.64 lx	2.05 lx
6	A	Ground Floor Retail Level	25lx	5lx	0.80 lx	2.43 lx	1.22 lx
6	B	Ground Floor Retail Level	25lx	5lx	0.90 lx	0.74 lx	1.41 lx
6	C	Ground Floor Retail Level	25lx	5lx	6.68 lx	13.00 lx	14.00 lx
6	D	Ground Floor Retail Level	25lx	5lx	25.00 lx	11.00 lx	15.00 lx
7	A	Ground Floor Retail Level	25lx	5lx	11.00 lx	21.00 lx	14.00 lx
7	B	Ground Floor Retail Level	25lx	5lx	7.92 lx	6.16 lx	2.09 lx
7	C	Ground Floor Retail Level	25lx	5lx	0.89 lx	2.15 lx	1.02 lx
7	D	Ground Floor Retail Level	25lx	5lx	1.84 lx	1.44 lx	1.10 lx
8	A	Ground Floor Retail Level	25lx	5lx	1.36 lx	2.55 lx	1.50 lx
8	B	Ground Floor Retail Level	25lx	5lx	11.00 lx	8.92 lx	4.96 lx
8	C	Ground Floor Retail Level	25lx	5lx	16.00 lx	16.00 lx	13.00 lx
8	D	Ground Floor Retail Level	25lx	5lx	1.43 lx	0.97 lx	0.84 lx

Compliant
Marginally compliant
Non-Compliant - compliant level to be achieved by dimming if required to retail elevations

Notes

1. Vertical plane calculation included at 3 points along the elevation.

Circle Square External Lighting Vertical Illuminance Summary Table 2

Calculation Summary - Residential Level							
Building	**Elevation**	**Height**	**Maximum illuminance (pre curfew)**	**Maximum illuminance (post curfew)**	**Calculated illuminance (Point 1)**	**Calculated illuminance (Point 2)**	**Calculated illuminance (Point 3)**
5	A	Residential Level 01	25lx	5lx	0.01 lx	0.00 lx	0.01 lx
5	B	Residential Level 01	25lx	5lx	0.39 lx	0.16 lx	0.29 lx
5	C	Residential Level 01	25lx	5lx	0.89 lx	0.51 lx	0.66 lx
5	D	Residential Level 01	25lx	5lx	0.01 lx	0.00 lx	0.00 lx
6	A	Residential Level 01	25lx	5lx	0.02 lx	0.46 lx	0.00 lx
6	B	Residential Level 01	25lx	5lx	0.01 lx	0.03 lx	0.08 lx
6	C	Residential Level 01	25lx	5lx	1.48 lx	0.41 lx	0.66 lx
6	D	Residential Level 01	25lx	5lx	0.23 lx	0.17 lx	0.04 lx
7	A	Residential Level 01	25lx	5lx	0.43 lx	0.34 lx	0.43 lx
7	B	Residential Level 01	25lx	5lx	0.12 lx	0.11 lx	0.03 lx
7	C	Residential Level 01	25lx	5lx	0.00 lx	0.00 lx	0.00 lx
7	D	Residential Level 01	25lx	5lx	0.00 lx	0.00 lx	0.01 lx
8	A	Residential Level 01	25lx	5lx	0.03 lx	0.04 lx	0.04 lx
8	B	Residential Level 01	25lx	5lx	0.05 lx	0.13 lx	0.14 lx
8	C	Residential Level 01	25lx	5lx	0.44 lx	0.56 lx	0.42 lx
8	D	Residential Level 01	25lx	5lx	0.00 lx	0.00 lx	0.00 lx

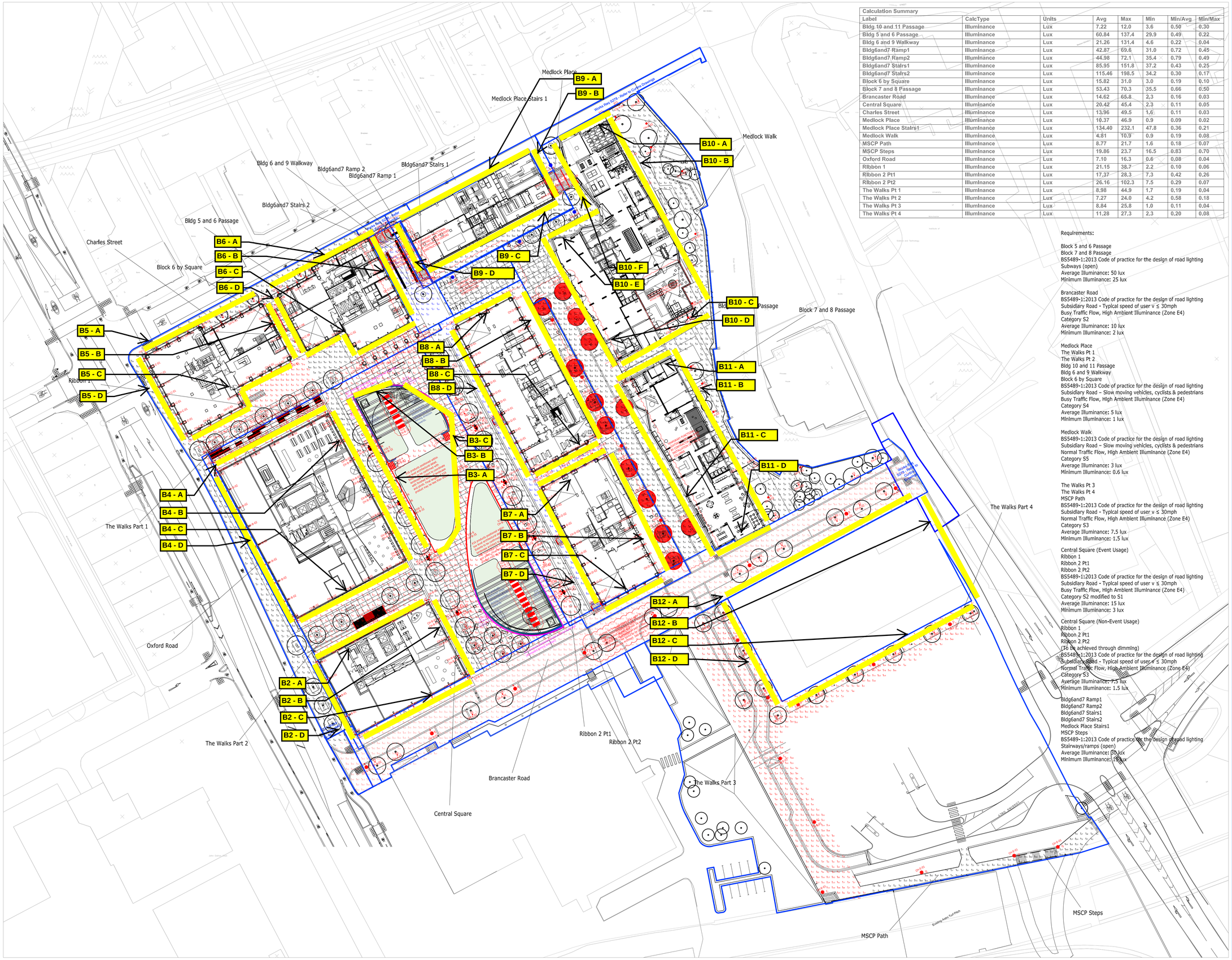
Compliant
Marginally compliant
Non-Compliant - compliant level to be achieved by dimming if required to retail elevations

Notes

1. Vertical plane calculation included at 3 points along the elevation.

Appendix 4 – Vertical illuminance elevations drawing

This drawing shall not be scaled. Work from the dimensions shown in the drawing or given in relevant specifications



Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
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Medlock Place Stairs1	Illuminance	Lux	134.40	232.1	47.8	0.36	0.21
Medlock Walk	Illuminance	Lux	4.81	10.9	0.9	0.19	0.08
MSCP Path	Illuminance	Lux	8.77	21.7	1.6	0.18	0.07
MSCP Steps	Illuminance	Lux	19.86	23.7	16.5	0.83	0.70
Oxford Road	Illuminance	Lux	7.10	16.3	0.6	0.08	0.04
Ribbon 1	Illuminance	Lux	21.15	38.7	2.2	0.10	0.06
Ribbon 2 Pt1	Illuminance	Lux	17.37	28.3	7.3	0.42	0.26
Ribbon 2 Pt2	Illuminance	Lux	26.16	102.3	7.5	0.29	0.07
The Walks Pt 1	Illuminance	Lux	8.98	44.9	1.7	0.19	0.04
The Walks Pt 2	Illuminance	Lux	7.27	24.0	4.2	0.58	0.18
The Walks Pt 3	Illuminance	Lux	8.84	25.8	1.0	0.11	0.04
The Walks Pt 4	Illuminance	Lux	11.28	27.3	2.3	0.20	0.08

Requirements:

Block 5 and 6 Passage
Block 7 and 8 Passage
BS5489-1:2013 Code of practice for the design of road lighting
Subways (open)
Average Illuminance: 50 lux
Minimum Illuminance: 25 lux

Brancaster Road
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Busy Traffic Flow, High Ambient Illuminance (Zone E4)
Category S2
Average Illuminance: 10 lux
Minimum Illuminance: 2 lux

Medlock Place
The Walks Pt 1
The Walks Pt 2
Bldg 10 and 11 Passage
Bldg 6 and 9 Walkway
Block 6 by Square
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road – Slow moving vehicles, cyclists & pedestrians
Busy Traffic Flow, High Ambient Illuminance (Zone E4)
Category S4
Average Illuminance: 5 lux
Minimum Illuminance: 1 lux

Medlock Walk
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road – Slow moving vehicles, cyclists & pedestrians
Normal Traffic Flow, High Ambient Illuminance (Zone E4)
Category S5
Average Illuminance: 3 lux
Minimum Illuminance: 0.6 lux

The Walks Pt 3
The Walks Pt 4
MSCP Path
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Normal Traffic Flow, High Ambient Illuminance (Zone E4)
Category S3
Average Illuminance: 7.5 lux
Minimum Illuminance: 1.5 lux

Central Square (Event Usage)
Ribbon 1
Ribbon 2 Pt1
Ribbon 2 Pt2
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Busy Traffic Flow, High Ambient Illuminance (Zone E4)
Category S2 modified to S1
Average Illuminance: 15 lux
Minimum Illuminance: 3 lux

Central Square (Non-Event Usage)
Ribbon 1
Ribbon 2 Pt1
Ribbon 2 Pt2
(To be achieved through dimming)
BS5489-1:2013 Code of practice for the design of road lighting
Subsidiary Road - Typical speed of user v ≤ 30mph
Normal Traffic Flow, High Ambient Illuminance (Zone E4)
Category S3
Average Illuminance: 7.5 lux
Minimum Illuminance: 1.5 lux

Bldg6and7 Ramp1
Bldg6and7 Ramp2
Bldg6and7 Stairs1
Bldg6and7 Stairs2
Medlock Place Stairs1
MSCP Steps
BS5489-1:2013 Code of practice for the design of road lighting
Stairways/ramps (open)
Average Illuminance: 80 lux
Minimum Illuminance: 15 lux

CDM Pre-Construction Information

The following information is provided in pursuance of Regulations 9 of the CDM Regulations 2015:

1. Man-safe system required for access.

NOTES:

1. The drawing does not necessarily show all the information needed to interpret the design intent or the construction details.
2. The drawing contains information from more than one source and must be read in conjunction with all relevant specifications.
3. Any apparent drafting errors and differences between other drawings and specifications shall be brought to our attention.
4. Based on Planit Drawing PL1502-MP-VW-001-05-WORKING FILE_Masterplan
5. Type G luminaries to be installed on temporary columns prior to completion of Block 7&8 landscape. Type G luminaires are not intended to be replaced and must not suffer damage during installation or through the construction process. During Block 7&8 landscape construction, permanent columns to be installed in final positions and Type G luminaires relocated to permanent columns. Type G luminaires to be relocated without damage.
6. 2 qty Type X2 uplighters to be prepared for installation but not installed during Phase 1A. All containment for power and control etc to be installed and connection made to all Type X2 uplighters further along Brancaster Way. The 2 qty Type X2 luminaries to be installed in accordance with the construction phasing plan.

Index	Description	Drawn & Chk by	Rev'd by	Date
P05	Drawing background updated to Planit-ie drawing PL1502-MP-VW-001-05-WORKING FILE_Masterplan	DLB	SD	170914
P04	Lighting results summary added	DLB	SD	130717
P03	Lighting results added	DLB	SD	110717
P02	Control Channels Added	DLB	SD	260517

Revisions

Architect
Planit-ie
Fielden Clegg Bradley Studios
5Plus Architects

Client
Oxford Property Trading Ltd

PRELIMINARY ISSUE

HOARE LEA LIGHTING
www.hoarelea.com
BIRMINGHAM
BRISTOL
CARDIFF
ISLE of MAN
LEEDS
LONDON
MANCHESTER
OXFORD
PLYMOUTH
POOLE

Project Title
CIRCLE SQUARE
MANCHESTER

Drawing Title
Landscape Masterplan Lighting Layout Plan
Functional & Feature Lighting
All Masterplan Lighting

Project No	Drawn & Checked by	Reviewed by
1602419	DLB	SD
Date	**Scale**	**Issuing Office**
170914	1:500@A1	MANCHESTER

DRAWING NUMBER

Project Code	Orig.	Zone	Level	Type	Role	Class.	Number	Rev.
1602419	HL	XX	LS	DR	Y	630	0006	P5

CAD ORIGINAL - NOT TO BE MODIFIED BY HAND

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Appendix 5 – Luminaire Schedule

Technical Submittal

Circle Square, Affinity Living - Technical Submission

Equipment:	Ref:	Date:
External Lighting Luminaires	TS-E-98	23/04/2020

Drawing Ref:	Specification Ref:
As below listed enclosed documents	Imtech M&E Services Contractors Proposals 06/06/18 rev 08

The Information Enclosed Within This Technical Submission Is Issued for:

Tender	Information	Comment	Procurement	Construction
☐	☐	☑	☑	☑

Issued to (where applicable):

Main Contractor	BMS Specialist	Drawing Coordinator	O&M Technical Author	MEP Consultant	Other.....
☑	☐	☑	☐	☑	☐

Information provided encompasses the following elements (where applicable)

Building Work Requirements	Drainage Requirements	Electrical Requirements	Mechanical Requirements	BMS Requirements	Asset Register / Maintenance Required
☐	☐	☑	☐	☐	☐

Sample	Install Info	Co-ordination Info	O&M Info	Acoustic Info	Other.....
☑	☑	☑	☑	☐	☐

Technical Submission:

Introduction:

Please find attached a copy of the External Lighting Propoals for Blocks 5, 6 7 & 8.
This is based on the latest External Design drawings also attached

Please provide your comments on the following proposals:

Documents 'Enclosed':

As above PDF Document

Compliance/VE statement(s):

The equipment 'detailed' above is specification/ER's compliant and there are no cost (£nil) implications associated with this proposal.

Notes:

1. Please be advised that in the absence of a response by the 'due date' stated below, it is our intention to proceed with the ordering/installation of the
2. We believe that we have provided sufficient information for you to fully appraise our proposal(s), however, should you require anything further or would like to meet

Response required by: 07/05/2020 **Raised By:** W Grice

Response: (Please Feel Free To Mark Up Drawings With Any Comments)

A) No Comments	B) Minor Comments	C) Major Comments	D) Rejected
☐	☐	☐	☐

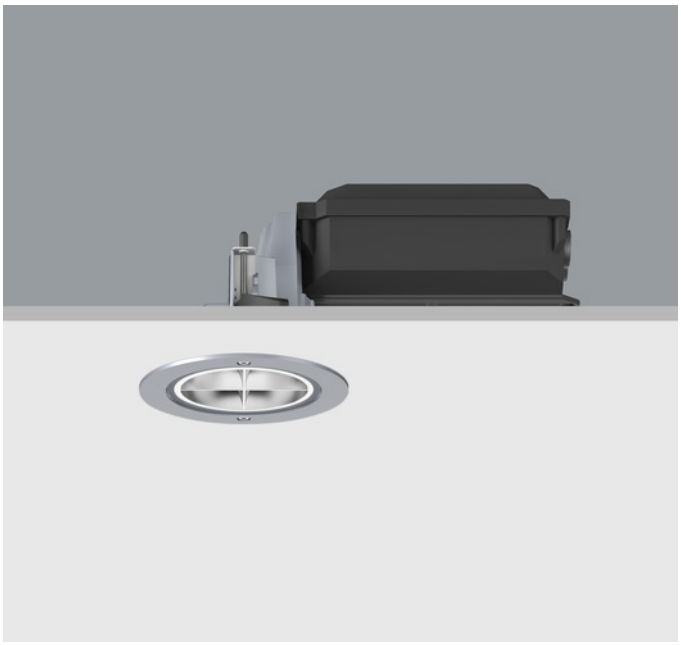
Response Date: **Completed By:** **Signed:**

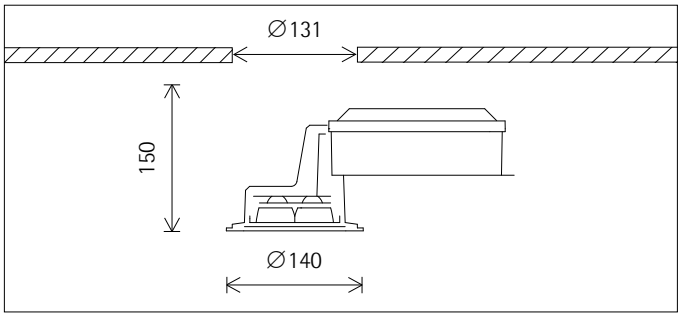
			Buildings			Lighting Control		
Reference	Manufacturer	Description	5 & 6 Qty	7 & 8 Qty	Total Qty	Dali	Electronic	Comments
A	Erco	Product Name: Quintessence Downlight, IP65 Mounti ng Type: Soffit recessed La mp Type: 6W 630l m 3000k LED Opti c: Spherolit lens , flood Performance: 61 l m/W Dimensions : Cut-out 131mm, Bezel Dia 145mm. Height (incl air g p) 150mm	94	81	175	Y		
G	We-ef	Product Name: CFT540 LED -Post Top Mounting Type: Column Top (76mm dia spigot, 80mm long minimum) Lamp Type: 36W 4842lm 3000k LED Optic: Rectangular Performance: 107 Luminaire lm/Circuit W Dimensions : 700mm (Dia) x 323mm (h)	N/A	4	4		Y	
GC1	We-ef	Product Name: 6m Column - Tapered Column Mounting Type: Root Material : Galvanised Steel (Painted RAL9007) Luminaire Mount: Suitable for Type G Luminaire (above)	N/A	4	4	N/A	N/A	
KA	Selux	Product Name: Lini LED Mounting Type: Handrail Lamp Type: 3000k LED Optic: Asymmetric Performance: TBC Di mens i ons : Modul e i ncrements of 300mm	6 Pieces	6 Pieces	12 Piecse		Y	
KS	Selux	Product Name: Lini LED Mounting Type: Handrail Lamp Type: 3000k LED Opti c: Symmetri c Performance: TBC Di mens i ons : Modul e i ncrements of 300mm	4 Pieces	N/A	4 Pieces		Y	
P1	Sel ux	Product Name: Olivio Medio - SpotLight SX 961 11-9 Mounti ng Type: Col umn (10m) Lamp Type: 41W 2925lm 3000K LED Optic: Medium Beam Performance: 71 Luminaire lm/W Di mens i ons : 260mm (h) x 163mm (w) x 260mm (d)	N/A	5No. Per PC1 Column	5No. Per PC1 Column		Y	
PC1	Sel ux	Product Name: 6m Column - Tapered Column includes 5No. P1 Luminaires Mounting Type: Root Material : Galvanised Steel Luminaire Mount:	N/A	5	5	N/A	N/A	
S1	Erco	Product Name: Midipoll Bollard - Illuminated Bollard Mounting Type: Ground Surface La mp Type: 8W 840l m 3000K LED Optic: Symmetrical Performance: 25 Luminaire lm/Circuit W Di mens i ons : 120mm Di a x 800mm (h)	N/A	8	8	Y		
S2	Erco	Product Name: Midipoll Bollard - Illuminated Bollard Mounting Type: Ground Surface Lamp Type: 8W 840lm 3000K LED Optic: Symmetrical Performance: 25 Luminaire lm/Circuit W Di mensions : 120mm Dia x 525mm (h)	N/A	8	8	Y		
X1	LITE	Product Name: Maxi LED - Globe LED's Mounting Type: Tree (Specialist installation required) Lamp Type: LED Cool White (4000K nominal) Optic: Clear Globes Performance: N/A	N/A	8	8		Y	
X2	iGuzzini	Product Name: E157 + X209 + X188 Mounting Type: Ground recessed Lamp Type: 21.4W 2335lm 4000K LED Optic: 32 degree beam Performance: 109 lm/W Dimensions: Diameter 250mm, height 201mm (Excl cable)	4	N/A	4		Y	
X15	Bega	Product Name: 33-058 Recessed Luminaire Mounting Type: Wall Recessed Lamp Type: 14.8W 1100lm 3000K LED Optic: Asymmetric forward throw Performance: 74.3 Luminaire lm/CircuitW Dimensions: 330mm (L) x 125mm (h) x 10mm (d)	12	N/A	12	Y		

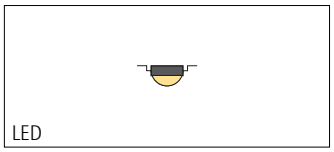
TYPE A

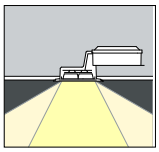
ERCO

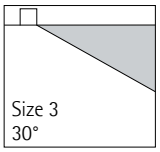
Compact Downlight oval flood







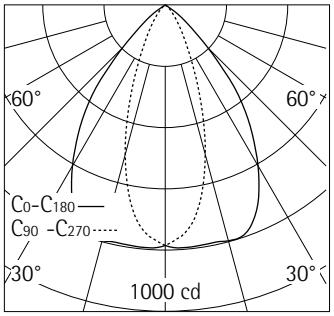






84435.000 Silver
LED 8W 840lm 3000K warm white
Phase dimmable
Version 5
Size 3
Lens system, oval flood

Product description
Housing with cover ring: corrosion-resistant cast aluminium, No-Rinse surface treatment. Silver, double powder-coated. Mounting with 2-point support and screw fixing, for ceiling thicknesses of 1-30mm. Side-mounted control gear: polymer, black.
ERCO control gear, dimmable. 2 cable entries. Through-wiring possible. 5-pole terminal block.
LED module: high-power LEDs on metal-core PCB. Lens system made of optical polymer.
Anti-glare ring with cross-baffle: polymer, aluminium vaporised, silver, ribbed.
Optical cut-off 30°.
Non-reflective safety glass.
Dimming with external dimmers possible (trailing edge).
Protection mode IP65: dust-proof and water jet-proof.
Weight 1.30kg
Version with 3000K CRI 97 or 2700K, 3500K, 4000K CRI 92 available on request.



h(m)	E(lx)	D(m)	
		C0	C90
		76°	37°
1	785	1.56	0.67
2	196	3.13	1.34
3	87	4.69	2.01
4	49	6.25	2.68
5	31	7.81	3.35

Technical data

Luminous flux of the luminaire	661lm
Connected load	11.0W
Luminaire efficacy	60lm/W
Colour deviation	1.5 SDCM
Colour rendition index	CRI 92
Lumen maintenance (LED manufacturer specifications)	L90/B10 ≤50000h L90 ≤100000h
LED failure rate	0.1% ≤50000h
Dimming range	1%-100%
Dimming method	CCR_PWM
LMF	E
Energy efficiency class	EEI A+
Standby power per control gear	--
Luminaires per circuit breaker B16	216

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Compact Downlight oval flood

Planning data

Cleaning (a)	1				2				3			
Ambient conditions	P	C	N	D	P	C	N	D	P	C	N	D
LMF	0.96	0.94	0.90	0.86	0.93	0.91	0.86	0.81	0.92	0.90	0.84	0.79
RSMF	0.97	0.95	0.91	0.86	0.97	0.94	0.90	0.86	0.97	0.94	0.90	0.86

Hours of operation (h)	1000	5000	10000	20000	30000	40000	50000
LLMF	1.00	0.99	0.98	0.96	0.94	0.92	0.90
LSF	1	1	1	1	1	1	1

MF	LMFxRSMFxLLMFxLSF
MF	Maintenance Factor
LMF	Luminaire Maintenance Factor
RSMF	Room Surface Maintenance Factor
LLMF	Lamp Lumens Maintenance Factor
LSF	Lamp Survival Factor
P	Room pure
C	Room clean
N	Room normal
D	Room dirty

Technical data in accordance with international norms and standards

IEC 60598	Luminaires – Part 1+2: general requirements, specific requirements and tests
IEC 62031	LED modules for general lighting – safety requirements
IEC 62471	Photobiological safety of lamps and lamp systems
EN13032-4	Light and lighting – measurement and representation of photometric data
CIE 13	Method of measuring and specifying colour rendering properties of light sources

All technical data is subject to industrially standard tolerances.
Also see www.erco.com/erco-led

CFT540 LED
105-0082

TYPE G

we-ef



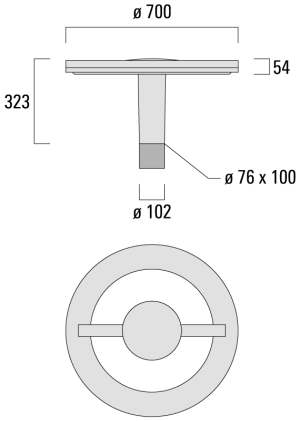
Description
IP66. Class I. IK08. Marine-grade, die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware. Silicone CCG® Controlled Compression Gasket. RFC® Reflection Free Contour main lens. Integral EC electronic converter in thermally separated compartment. CAD-optimised optics for superior illumination and glare control. OLC® One LED Concept. Factory installed LED circuit board. The luminaire is factory-sealed and does not need to be opened during installation. Recommended mounting height 3.0-4.5 m, depending on wattage selected.

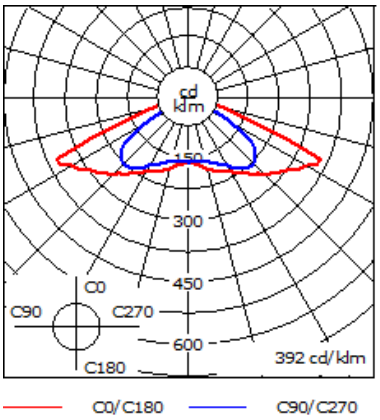
Beam Type	rectangular [R]
Light Source	LED-36/36W / 350 mA - 3000 K
CRI	80
Gear Type	EC
Nominal Luminous Flux (lm)	
LED Lumens	134.5 lm
LEDs	36
Total Lumens	4842 lm
Tj	85 °C
Rated Luminous Flux (lm)	
LED Lumens	125.5 lm
Total Lumens	4519.8 lm
Ta	25 °C
Rated Input Power	42 W

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CFT540 LED

105-0082





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CFT540 LED

105-0082

Material Specification

Body:	Marine-grade, die-cast aluminium alloy
Weight (kg):	13.30
Lens:	PMMA RFC® Reflection Free Contour technology
Colours:	RAL9004 Signal black RAL9006 White aluminium RAL9007 Grey aluminium RAL7016 Anthracite grey RAL9016 Traffic white
Prepare to Connect	WE-EF luminaires that offer the option of P2C are, in principle, the precursor to the R2C. They are designed to accommodate the necessary equipment for integration into a light management system, yet only contain standard operating equipment. The IPX6 protected and standardized interface are also factory-installed at P2C stage and equipped with a robust protective cap. If a decision for a light management system is later made, only the necessary 'smart' LED driver, with communication interface and power supply for the controller/sensor, must be installed and connected. This P2C solution avoids having to make engineering adjustments to the luminaire housing, which can lead to damage and water ingress. On request.
Ready to Connect	WE-EF luminaires that offer the option of R2C have all the necessary equipment and interfaces on board for integration into a light management system. DALI LED drivers with additional built-in power supply (12-24V DC) are the basic requirements for R2C. In addition, there is an IPX6 protected and standardized interface which is pre-wired and provided with a robust protective cap. Once the decision for a light management system has been made, a controller/sensor can simply be connected to the standardized (Zhaga Book18) interface via a bayonet lock. No additional work on the luminaire is required. On request.
Gasket:	Silicone CCG® Controlled Compression Gasket
Fasteners:	PCS Polymer Coated Stainless Steel Hardware
Ingress protection:	IP66
Impact protection:	IK08
Corrosion protection:	5CE
Surge protection:	6/6 kV (optional SP10)
Windage (EPA):	0.065 m²

Electrical Specification

Power supply:	220-240V / 50-60 Hz
Power factor:	> 0.9
Driver / Ballast:	Integral EC electronic converter

Lifetime
LED 350mA: >80,000 h Ta 25°(L90/B10)
LED 700mA: >80,000 h Ta 25°(L80/B10)
LED 1050mA: >80,000 h Ta 25°(L90/B10)
LED 1400mA: >80,000 h Ta 25°(L80/B10)
Control gear: >50,000 h Ta 25°

Electrical Accessories

Surge Protection SP10

The luminaire is fitted with an electronic converter featuring high voltage surge protection 6/6kV exceeding the requirements of EN 61000-4-5. For installation in high-risk areas, the optional SP10 (10/10kV) surge protection accessory is recommended. For comprehensive protection of the luminaires with LED light sources and electronic drivers against the effects of lightning and electrical surges, we generally recommend primary (Type 1) and secondary (Type 2) surge arrestors be installed in the sub-distribution.

430-0020 SP10 Integral

Control

Eco Step Dim® Advanced LED

A factory programmed Electronic Controller is fitted in the luminaire to reduce the luminous flux and power. The luminaires are operated in stand-alone mode, so no special supply and/or control cables are required. Up to five different dimming levels (D1-D5) may be individually and optionally specified for a maximum of five time periods (T1-T5). Set and programmed at the factory by agreement. Reprogramming on site is also possible. Contact WE-EF direct or your local WE-EF sales representative for an individual solution designed to precisely meet your needs.

430-0002 Eco Step Dim® Advanced LED

Eco Step Dim® Basic LED

A factory programmed Electronic Controller is fitted in the luminaire to reduce luminous flux and power to a preset value. Control phases such as those that are, for example, used in networks using luminaires with two conventional lamps is required to activate the switch. One step dimming only is available. As standard, lumen output is reduced to 50 per cent. Intermediate values (e.g., 25 per cent) may also be optionally realised by agreement. Contact WE-EF direct or your local WE-EF sales representative for an individual solution designed to precisely meet your needs.

430-0001 Eco Step Dim® Basic LED

CFT540 LED

105-0082

Photocell PV

Standard 70 lx 'on' / 105 lx 'off', other on request

430-0017 Photocell PV

P2C Prepare to Connect

Entry level conversion of the luminaire into a ‘semi-smart’ P2C luminaire, for future integration into a light management system. Factory installed IP-X6-protected and standardized interface (Zhaga Book18). For future integration into a light management system, the necessary ‘smart’ LED driver with built-in power supply for the controller / sensor (3rd party supplier) needs to be installed and connected. P2C allows for the future inclusion into a light management system without having to make engineering adjustments to the luminaire housing, which can lead to damage and water ingress. On request.

430-0023 P2C Prepare to Connect

R2C Ready to Connect

Complete conversion of the luminaire into a ‘smart’ R2C luminaire, for future integration into a light management system. Factory installed IP x6 protected and standardized interface (Zhaga Book18) with DALI LED driver including additional built-in power supply (24V DC) for end controller / sensor (3rd party supplier). Pre-wired and provided with a robust protective cap, the controller / sensor can simply be connected to the standardized interface via a bayonet lock. No additional work on the luminaire required.

430-0019 R2C Ready to Connect

WE-EF LEUCHTEN GmbH - Headquarter
Toepinger Strasse 16 | 29646 Bispingen | Germany | Tel +49 5194 909 0 | Fax +49 5194 909 299 | info.germany@we-ef.com | www.we-ef.com | 31-03-2020 08:22

Sicherheit
Der Hersteller übernimmt keine Haftung für Schäden, die durch unsachgemäßen Einsatz oder Montage entstehen.

Werden nachträglich Änderungen an Leuchten und/oder Zubehör vorgenommen, so gilt derjenige als Hersteller, der diese Änderungen vornimmt.

Safety indices
The manufacturer is then discharged from liability when damage is caused by improper use or installation.

If any luminaire and/or accessory is subsequently modified, the persons responsible for the modification shall be considered as manufacturer.

Produkthinweis / Überspannungsschutz

Diese Leuchte kann mit einem Überspannungsschutz Typ 2-3 ausgestattet sein. Die technischen Daten finden Sie in diesem Fall direkt auf dem eingebauten Gerät. Wurde der Überspannungsschutz im Schadensfall ausgelöst, wird die Leuchte automatisch vom Netz getrennt. Bei eingeschalteter Stromversorgung leuchtet dann die Leuchtdiode am Überspannungsschutz nicht mehr.

Zu einem umfassenden Schutz der Leuchte gegen Blitzeinwirkungen und Überspannungen ist es notwendig, zusätzlich einen Grob- (Typ 1) und Mittelschutzableiter (Typ 2) in die Stromversorgung einzubauen. Wir empfehlen einen Kombiableiter (Typ 1+2+3) für die Montage im Schaltschrank.

Der Fachplaner/Installateur ist für die fachgerechte Auswahl, Dimensionierung und die Montage der bauseits einzusetzenden Überspannungsschutzbausteine verantwortlich. Bitte beachten Sie die unterschiedlichen Schutzpegel für die Schutzklassen I und II sowie die geltenden gesetzlichen Vorschriften zum Überspannungsschutz. Die Installation und Wartung ist nur von einem entsprechend qualifiziertem Elektro-Fachbetrieb durchzuführen.

Product Information / Surge Protection

This luminaire can be fitted with a surge protection device of type 2-3. The technical data can be found directly on the installed device. If the surge protector has been triggered by an adverse event , the luminaire is automatically disconnected from the mains. In that case, the LED on the surge protector no longer lights up.

For comprehensive protection of the luminaire against lightning and electrical surges, primary (Type 1) and secondary (Type 2) surge arrestors must be installed into the power supply. We recommend a combination arrestor (Type 1+2+3), which is installed in the control cabinet.

The technical planner/installer is responsible for the proper selection, sizing and installation of the surge protection modules that must be provided on site. Please note the various protection levels for Class I and II, as well as the applicable statutory provisions regarding surge protection. Installation and maintenance may only be performed by a qualified electrician.



we-ef

WE-EF LEUCHTEN

Montage- und
Wartungshinweise für
Mastaufsatzleuchte
Serie CFT500 LED

Installation and
Maintenance Instructions for
Post Top Luminaire
CFT500 LED Series

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www.we-ef.com

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CFT500_010320 / 006-1200

Technische Änderungen vorbehalten.
Technical specifications are subject to change.

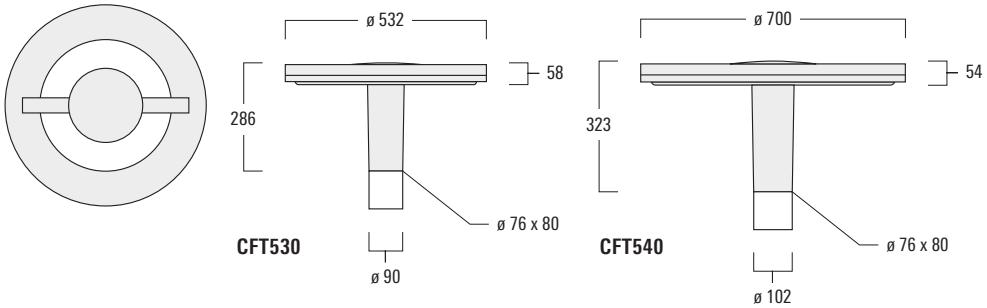
© WE-EF 2020

Mastaufsatzleuchten

IP66, IK08

Post Top Luminaires

IP66, IK08



Leuchtmittel / Light source

CFT530 . . . . . 24 LED 24W / 48W*

CFT540 . . . . . 36 LED 36W / 72W / 108W*

* Pour la puissance nominale, les données actualisées, voir www.we-ef.com

* Nominal power, for latest data refer to www.we-ef.com

Schutzklasse / Class I, II, ta = 25°C

Lichtpunkthöhe / Mounting height: . . . . . 3-6 m

Gewicht / Weight:

CFT530 . . . . . 9,8 kg

CFT540 . . . . . 13,3 kg

Windangriffsfläche / Windage area:

CFT530 . . . . . max. 0,16 m^2

CFT540 . . . . . max. 0,24 m^2

Ø 9 – 14 mm  1 – 2,5 mm^2 

Benötigtes Werkzeug

– Innensechskantschlüssel 4 mm

– Seitenschneider

– Schraubendreher 4,0mm x 1,0 mm Klinge

Tools required

– 4 mm Allen key

– diagonal cutting pliers

– Screwdriver with 4.0 mm x 1.0 mm blade

Montage

Montage und Wartung des Produkts dürfen nur von Fachpersonal mit entsprechender beruflicher Qualifikation in Übereinstimmung mit den geltenden bautechnischen und/oder elektrischen Vorschriften durchgeführt werden.

Hinweis: Modifikationen an der Leuchte, die nicht durch den Originalhersteller erfolgen, führen zum Erlöschen der Garantie und Gewährleistung des Originalherstellers und zum vollständigen Übergang der Verpflichtungen daraus auf die modifizierende Person/Organisation. Ansprüche aufgrund von Mängeln, die direkt oder indirekt auf unsachgemäße Montage und/oder Anwendung zurückzuführen sind, sind ausgeschlossen.

Bei Ausfall von Komponenten, bei LED-Wechsel aufgrund ungewöhnlicher Umstände oder am Ende der Lebensdauer darf der Austausch nur von geschultem Fachpersonal mit entsprechender beruflicher Qualifikation ausgeführt werden.

Bei Fragen wenden Sie sich bitte an unsere technische Hotline unter +49 5194 909209 (Montag - Freitag von 08:00 Uhr bis 16:00 Uhr).

Wartung

Abgesehen von der äußerlichen Reinigung des Produkts ist keine besondere Wartung erforderlich. Keine Hochdruckreiniger verwenden.
Für die Entsorgung der LEDs sind die zur Zeit gültigen Umweltgesetze zu beachten.

Installation

The product must be installed and maintained by a suitably qualified professional in compliance with latest building/ construction and/or electrical regulations and relevant legislation.

Notice: If the luminaire is modified by anybody other than the original manufacturer, then the warranty will no longer be valid and shall become the full responsibility of the modifying person/organisation. Claims based on defects attributable to improper installation and/or application, and the consequences thereof, are excluded.

In case of component failure, LED replacement due to abnormal circumstances or at end of life, replacement must be carried out by a suitably qualified and trained professional.

In case of questions please contact our technical hotline: +49 5194 909209 (from Monday - Friday from 08.00 until 16.00 hours.

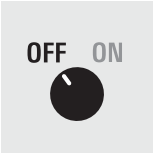
Maintenance

Apart from cleaning the product's exterior surfaces, no special maintenance work is required. Do not use high-pressure cleaners.
Protect our environment: Discard used LEDs in compliance with the most recent environmental legislation.

Vorgehensweise

Leuchte ist vorverdrahtet, zum Anschließen nicht öffnen!

1) Spannungsfreiheit der Anschlussleitung herstellen.



2) Entsprechend der Masthöhe zugeschnittene Anschlussleitung an den Leitungsverbinder **A** anschließen (**Abb. 1-6**).

WE-EF Eco Step Dim® Advanced und nicht dimmbare Leuchten

SKI ➔ Phase (L1) an 1, Neutralleiter (N) an 3 und Schutzleiter an ⏚

SKII ➔ Phase (L1) an 1, Neutralleiter (N)an 3

WE-EF Eco Step Dim® Basic

SKI ➔ Phase (L1) an 1, Steuerphase (L2) an 2, Neutralleiter (N) an 3 und Schutzleiter an ⏚

SKII ➔ Phase (L1) an 1, Steuerphase (L2) an 2, Neutralleiter (N) an 3

1-10V / DALI

SKI ➔ Phase (L1) an 1, Neutralleiter (N) an N, Steuerphase (+) an 2, Steuerphase (–) an 3 und Schutzleiter an ⏚

SKII ➔ Phase (L1) an 1, Neutralleiter (N) an 3, Steuerphase (+) an 2, Steuerphase (–) an 4

Vergleichen Sie die örtliche Spannung und Frequenz mit den Daten auf dem Leistungsschild.

Verschrauben Sie die Überwurfmutter mit einem Anzugsdrehmoment von 5 Nm (**Abb. 5**).

3) Das Anschlusskabel durch den Mast ziehen. Die Leuchte auf den Mast aufsetzen und die Befestigungsschrauben **B** der Leuchte mit einem Anziehmoment von 10 Nm anziehen.

Installation Procedure

Luminaire prewired, do not open!

1) Switch off the mains electrical supply.

2) Cut cable to the corresponding height of the pole and connect cable to the connector **A** (**fig. 1-6**).

WE-EF Eco Step Dim® Advanced and not dimmable luminaires

Class I ➔ Phase (L1) to 1, Neutral (N) to 3 and Earthing ⏚

Class II ➔ Phase (L1) to 1, Neutral (N)to 3

WE-EF Eco Step Dim® Basic

Class I ➔ Phase (L1) to 1, Control Phase (L2) to 2, Neutral (N) to 3 and Earthing ⏚

Class II ➔ Phase (L1) to 1, Control Phase (L2) to 2, Neutral (N) to 3

1-10V / DALI

Class I ➔ Phase (L1) to 1, Neutral (N) to N, Control Phase (+) to 2, Control Phase (–) to 3 and Earthing ⏚

Class II ➔ Phase (L1) to 1, Neutral (N) to 3, Control Phase (+) to 2, Control Phase (–) to 4

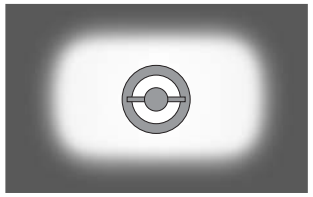
Compare the local voltage and frequency with date mentioned on the label of the luminaire.

Screw the gland nut together, tightening to a torque of 5 Nm (**fig. 5**).

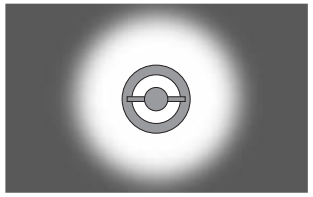
3) Pull the connecting cable through the pole. Put the luminaire on top of the pole and tighten the fixing screws **B**, tightening to a torque of 10 Nm.

Lichttechnische Orientierung der Leuchte

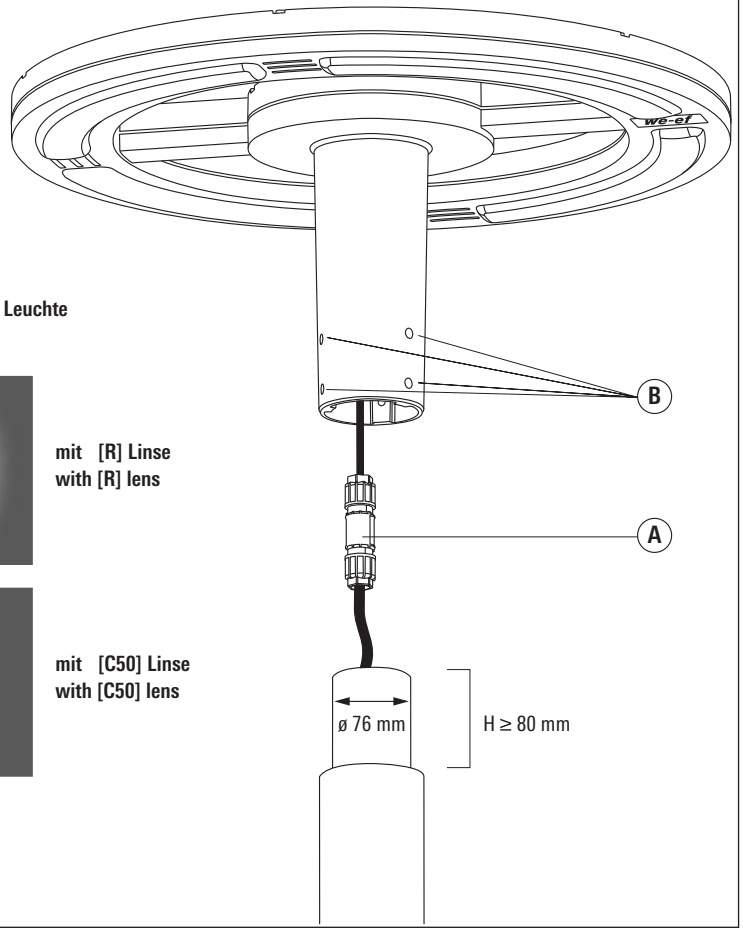
Luminaire Orientation



mit [R] Linse
with [R] lens



mit [C50] Linse
with [C50] lens



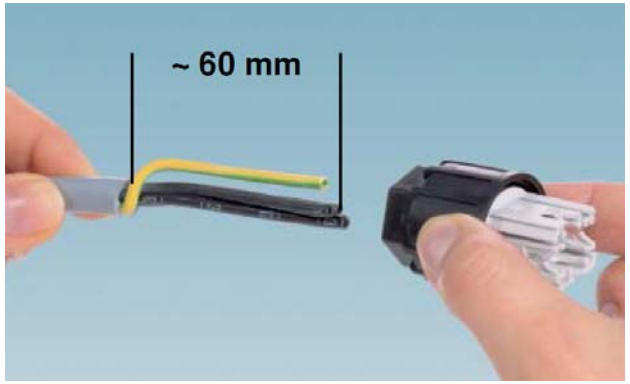


Abb. 1
fig. 1

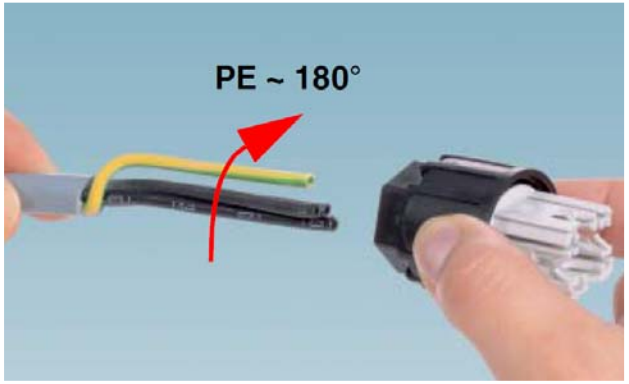


Abb. 2
fig. 2

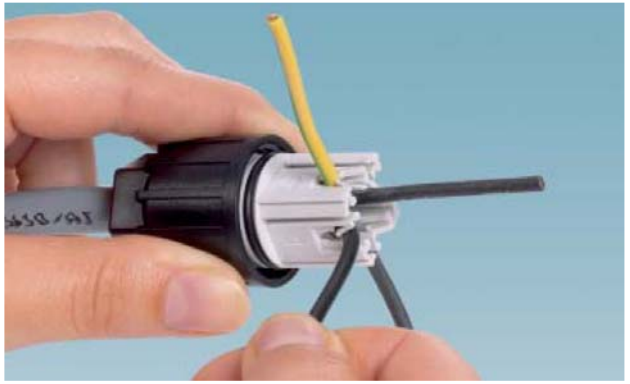


Abb. 3
fig. 3



Abb. 4
fig. 4



Abb. 5
fig. 5



Abb. 6
fig. 6



Abb. 7
fig. 7

liniLED®

TYPE KA & KS



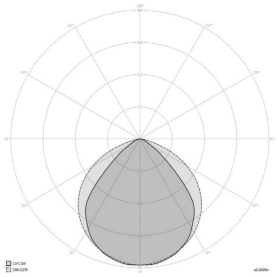
Datasheet

liniLED® Handrail 48.3

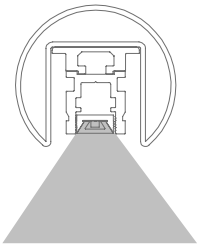
V0519

Product specifications Top LED strips

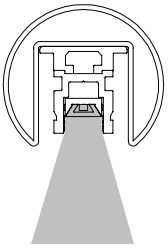
The high-quality, flexible liniLED® Top LED strips are fully integrated into the stainless steel handrail. With a unique co-extrusion technology, all the liniLED® Top LED strips realise an optimal light output (24 V DC). The LED strips are available several colours.



12100



12134



liniLED® Top Deco LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	1.1	90	20 m
2700K	24	1.1	106	20 m
3000K	24	3.3	102	20 m
4000K	24	1.1	113	20 m
6500K	24	2.2	113	20 m
Red	24	4.4	55	20 m
Green	24	2.5	106	20 m
Blue	24	1.7	23	20 m
Amber	24	4.4	47	20 m

liniLED® Top Power LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	4.5	381	10 m
2700K	24	4.6	415	10 m
3000K	24	4.3	381	10 m
4000K	24	4.1	411	10 m
6500K	24	4.1	426	10 m
Red	24	8.3	102	10 m
Green	24	4.9	153	10 m
Blue	24	7.2	68	10 m
Amber	24	8.3	94	10 m

liniLED® Top High Power LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	8.9	623	10 m
2700K	24	8.9	703	10 m
3000K	24	8.3	617	10 m
4000K	24	8.6	711	10 m
6500K	24	8.6	693	10 m

liniLED® Top Photon 1200 LED strips (IP40/65)

Colour	V DC	W/m	lm/m	Max. Length
2000K	24	10.6	811	9 m
2400K	24	10.6	958	9 m
2700K	24	8.9	997	9 m
3000K	24	8.9	1023	9 m
4000K	24	8.1	1008	9 m
6500K	24	8.1	1003	9 m

liniLED® Top Tunable White LED 1200 strips (IP40)

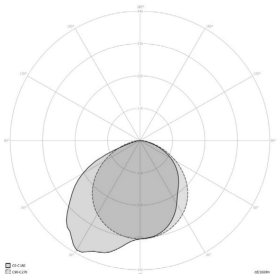
Colour	V DC	W/m	lm/m	Max. Length
2700K/ 6500K	24	10.5	838	9 m

liniLED® Top RGB 160/240 LED strips (IP40)

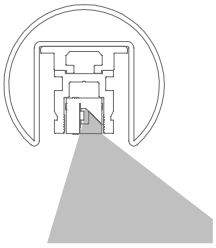
Colour	V DC	W/m	lm/m	Max. Length
RGB 160	24	4.8	139	10 m
RGB 240	24	7.2	209	5 m

Product specifications Side LED strips

The high-quality, flexible liniLED® Side LED strips are fully integrated into the stainless steel handrail. With a unique co-extrusion technology, all the liniLED® Side LED strips realise an optimal light output (24 V DC). The LED strips are available several colours.
liniLED® Side LED strips can only be used in 48.3 Handrails.



12134



liniLED® Side Deco LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	1.1	81	20 m
2700K	24	1.1	84	20 m
3000K	24	3.3	91	20 m
4000K	24	1.1	92	20 m
6500K	24	2.2	93	20 m
Red	24	4.4	46	20 m
Green	24	2.5	88	20 m
Blue	24	1.7	19	20 m
Amber	24	4.4	39	20 m

liniLED® Side Power LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	4.5	316	10 m
2700K	24	4.6	320	10 m
3000K	24	4.3	290	10 m
4000K	24	4.1	324	10 m
6500K	24	4.1	298	10 m
Red	24	8.3	84	10 m
Green	24	4.9	126	10 m
Blue	24	7.2	56	10 m
Amber	24	8.3	77	10 m

liniLED® Side High Power LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2400K	24	8.9	499	10 m
2700K	24	8.9	546	10 m
3000K	24	8.3	505	10 m
4000K	24	8.6	557	10 m
6500K	24	8.6	559	10 m

liniLED® Side Photon 1200 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2000K	24	10.6	697	9 m
2400K	24	10.6	799	9 m
2700K	24	8.9	827	9 m
3000K	24	8.9	836	9 m
4000K	24	8.1	831	9 m
6500K	24	8.1	830	9 m

liniLED® Side Tunable White 1200 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
2700K/ 6500K	24	10.5	838	9 m

liniLED® Side RGB 160/240 LED strips (IP40)

Colour	V DC	W/m	lm/m	Max. Length
RGB 160	24	4.8	97	10 m
RGB 240	24	7.2	168	5 m

Material

AISI 316 L tube

Chemical composition									Mechanical Test		
		C	Si	Mn	P	S	Cr	Ni	Mo	T.S.	Y.S.	Elongation
Item No.	Polish	%	%	%	%	%	%	%	%	MPa	MPa	%
		≤ 0.080	≤ 0.75	≤ 2.000	≤ 0.040	≤ 0.030	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0			
2004976	#320 satin	0.023	0.33	1.11	0.003	0.004	16.10	10.15	2.08	616	330	57
2004981	#320 satin	0.028	0.20	1.05	0.010	0.002	16.05	10.10	2.12	618	326	55

AISI 316 Brackets

Chemical composition								
	C	Si	Mn	P	S	Cr	Ni	Mo
Item No.	%	%	%	%	%	%	%	%
	≤ 0.080	≤ 0.75	≤ 2.000	≤ 0.040	≤ 0.030	16.0 - 18.0	10.0 - 14.0	2.0 - 3.0
40-1287.1	0.002	0.500	1.020	0.041	0.008	16.219	10.275	2.099
40-1285.1	0.032	0.604	0.0833	0.042	0.008	17.473	10.413	2.315
40-1288.1	0.008	0.462	1.003	0.036	0.005	16.706	10.350	2.184
40-1260.0	0.022	0.607	0.994	0.037	0.007	16.959	10.584	2.327
40-1284.1	0.002	0.624	1.209	0.039	0.008	17.190	11.159	2.422
40-1283.1	0.023	0.682	0.947	0.038	0.007	17.237	10.272	2.265
40-1286.1	0.022	0.550	1.025	0.032	0.004	17.231	10.327	2.229

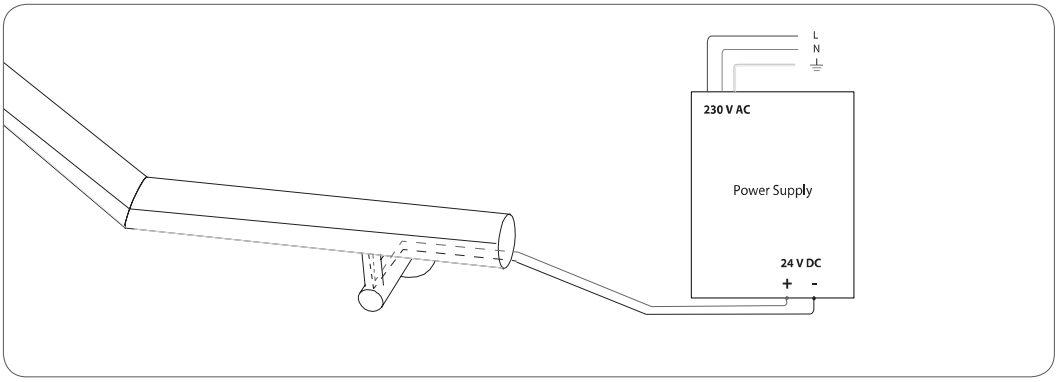
Aluminium Alloy 6036-T6

Chemical composition							Mechanical Test			
Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	T.S.	Y.S.	Elongation
0.2- 0.6%	≤ 0.35%	≤ 0.10%	≤ 0.10%	0.45- 0.90%	≤ 0.10%%	≤ 0.10%%	≤ 0.10%%	min. 215	min. 170	min 8%

⚠ **Danger!** Danger electric shocks! Whenever this sign is shown, the user should be aware of dangerous situations, which can cause electric shocks. Follow the safety instructions to prevent physical injuries of life-threatening situations.

⚠ **Warning!** In soms cases the user can injure himself or damage the product. The warning sign points out such damage, when the user does nog follow the procedures.

Power Supply



Warning! The Power Supply and any Drivers are always connected externally. Always use a SELV Driver.



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POWER CONSUMPTION	3
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POWER AND CONNECTION DIAGRAM	4
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Top High Power White G4

The liniLED® Top High Power LED strip (IP40) is a high quality, flexible LED strip with a unique co-extrusion technology. The combination of high quality and exceptional flexibility, allows for an endless range of indoor and outdoor applications. Combine with either the IP40, IP67 or IP68 solution.

In order to power liniLED® products safely, it is necessary to operate them with an electronically stabilized power supply protected against short circuits, overload and overheating.

To ease the luminaire/installation approval, electronic control gear for liniLED® products should carry the CE mark. Preferably a controller from the liniLED® Control range. In Europe, the declarations of conformity must include the following standards: CE: EN 55015, IEC 61547 and IEC 61000-3-2.

For the latest version of this datasheet, visit our website: www.liniLED.com

USPs

Unique co-extrusion technology (hollow chamber)
Up to IP68 with liniLED® Welded Connector
UV, frost, seawater, cleaning agents & chlorine vapour resistant
Up to 2 SDCM ellipse
Extra long lifetime – 60,000 h (L80/B10)
Internal constant current regulator
Excellent lumen/Watt ratio
Single piece reel-to-reel technology
Made in Europe

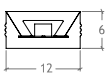
Available colours

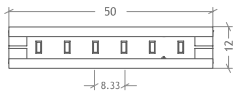
Colour	Description
Warm White 3000K	liniLED® Top WW 3000K High Power G4

Technical specifications

	Warm White 3000K
Product code [m]	12321
Power (24 V DC)	7.0 W/m
Power (25 V DC)	7.3 W/m
CCT[1]	3052 K
CRI	>80
Luminous flux[1]	617 lm/m
Luminous efficiency[1]	88 lm/W
Spool length	Max. 50 m
Section length	50 mm
LED type	3014
Number of LEDs	6 per section/120 per metre
Max. connection length	10 m
Min. operating voltage	23 V DC
Max. operating voltage	25 V DC
Beam angle	110°
Dimensions	6 x 12 mm
Dimmable	PWM dimming, 24 V DC Common Anode
MacAdam Steps	3 steps
Weight	70 gram per metre
Expected lifetime	L80/B10 > 60000 hrs @ Tc = 40°C
Ingress protection	IP40/IP67/IP68
Storage temperature	-30°C ... 55°C
Operating temperature[2]	-30°C ... 55°C
Minimum bending radius	30 mm

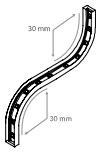
[1] Calculated values are given, which due to tolerances in components and production process can vary up to 10%.
[2] Max. connection length between -30°C and -20°C is 7 metres.



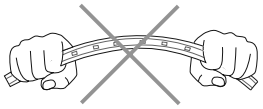


Bending radius

Maximum bending radius is 30 mm. Solely bend up or downward. Do not compress, stretch or bend the LED strip sideways.



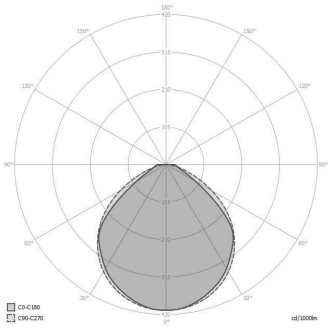




Photometric information (preliminary)

In the process of lighting design and calculations, the luminous flux and beam angle alone are not enough information to create a representative and realistic calculation or render. There is one set of photometric files for a one metre length of LED strip and one for a segment length, that corresponds to the cutting length of each LED strip type. Using the one metre data, quick calculations and long lengths can be simulated with photometric software. The segment data allows very detailed simulations, even curved lines can be approached in high detail.

The information on the website is available in two different file formats:
- Eulumdat (.ldt)
- IES LM-63-1995 (.ies)



Power consumption

To power the liniLED® LED strips and lighting fixtures, a power supply from the liniLED® Power assortment can be selected. Selection of the correct power supply must be done by taking the total requested power and the environment into account.

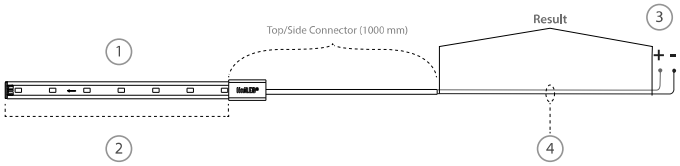
The total power consumption can be calculated by summing the requested power of all connected products. To calculate the power consumption of a single length of LED strip, use the equation below. The typical equation is valid if the product is supplied by a 24 V DC constant voltage power supply. If the output voltage of a power supply is increased, the power consumption will increase with the same ratio and needs to be corrected by using the optional part of the equation found between brackets.

$$P_{STRIP} = P_{PRODUCT} \times X_{LENGTH} \times 110\% \left[\times \frac{U_{SUPPLY}}{24} \right]$$

P_{STRIP}	Calculated power consumption of one LED strip in Watt
$P_{PRODUCT}$	Typical power consumption in Watt per metre of the selected LED strip This value can be found under 'Product characteristics' on page 2
X_{LENGTH}	Length of the connected LED strip in metres
110%	Safety margin to buffer differences over all production batches
	Optional:
U_{SUPPLY}	Set supply voltage of the power supply in Volt
24	Nominal supply voltage of liniLED® in Volt

Maximum cable length

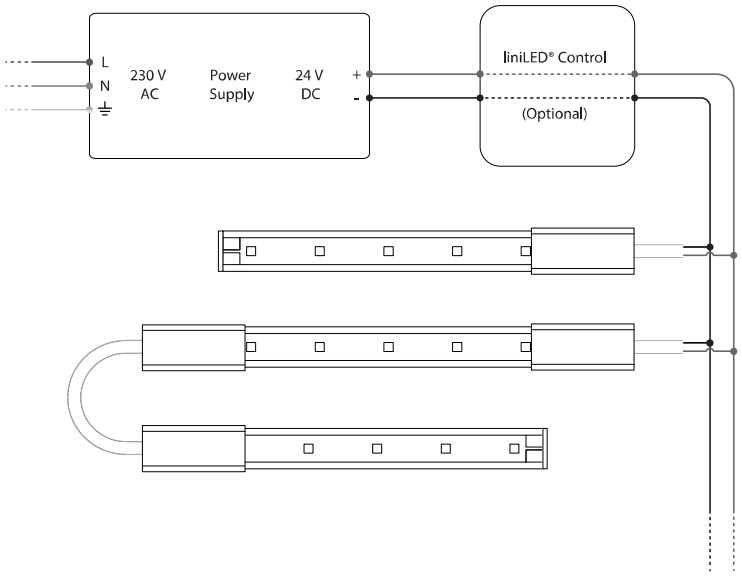
1 = Select colour temperature.
2 = Select LED strip length.
3 = Select output voltage.
4 = Select cable cross section.
Result = Maximum cable length based on the cable thickness and power supply voltage.



1. Colour temperature		3000K							
2. LED strip length		1 m		2 m		5 m		10 m	
3. Voltage		*24 V DC*	*25 V DC*	*24 V DC*	*25 V DC*	*24 V DC*	*25 V DC*	*24 V DC*	*25 V DC*
4. Cable cross section	**0.50 mm²** - 0.035 Ω/m	42.9 m	83.7 m	20.8 m	41.2 m	7.5 m	15.7 m	3.1 m	7.2 m
	0.75 mm² - 0.023 Ω/m	64.6 m	125.9 m	31.3 m	62.0 m	11.3 m	23.6 m	4.7 m	10.8 m
	1.00 mm² - 0.018 Ω/m	85.9 m	167.4 m	41.7 m	82.4 m	15.1 m	31.4 m	6.2 m	14.4 m
	1.50 mm² - 0.012 Ω/m	129.3 m	251.8 m	62.7 m	124.0 m	22.7 m	47.2 m	9.4 m	21.7 m
	2.50 mm² - 0.007 Ω/m	215.2 m	419.2 m	104.4 m	206.3 m	37.9 m	78.6 m	15.7 m	36.1 m

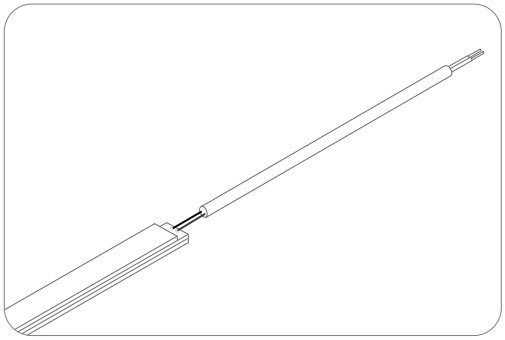
⚠ **Note:** Calculations are based on a standard connector with 1 metre cable (0.5 mm²).

Power and connection diagram

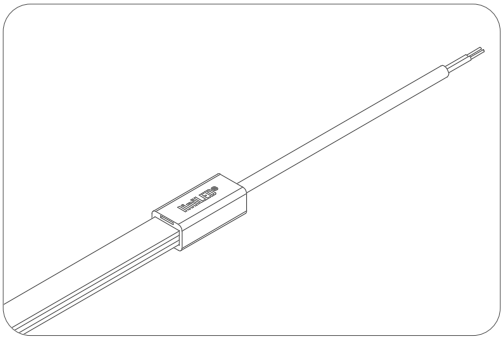


Area advice

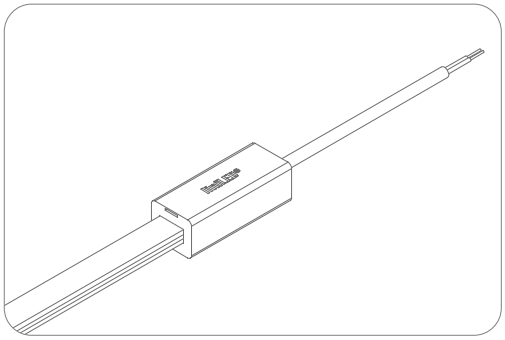
Depending on the installation area of the liniLED® LED strip we offer a range of IP40, IP67 and IP68 solutions to cope with external factors. Below the different connectors are displayed for use in different environments. See corresponding pages or individual product manual for further instructions.



Indoor environment | (IP20)
Solder

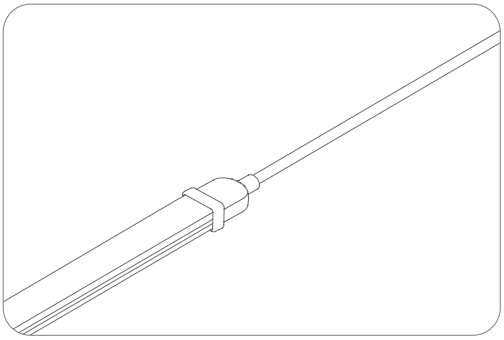


Indoor environment | (IP40) | liniLED® Top Connector set.
Product code: 11200 (1 m), 11201 (5 m)



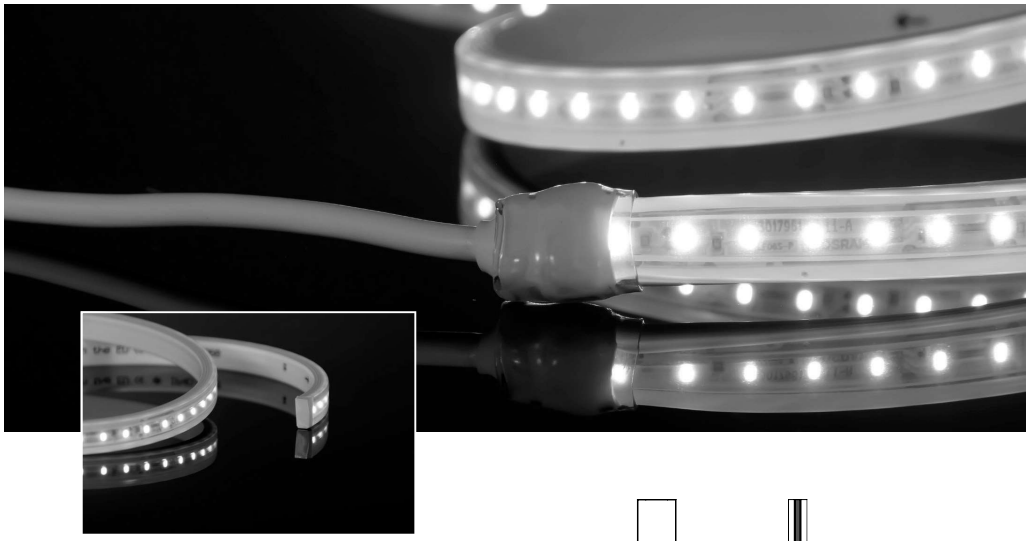
Wet environment | (IP67) | liniLED® Top IP67 Kit
Product code: 11490

See Manual liniLED® Top IP67 Kit for installation instructions.



Submersible, chlorine resistant | (IP68) | Mirror Welded Connector
Product code: 11290

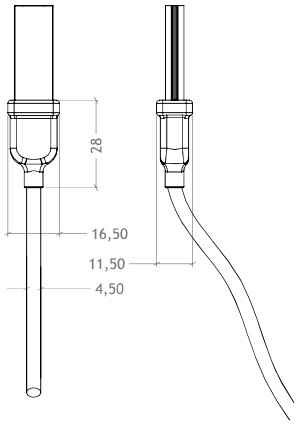
The connector is pre-assembled to the LED strip.



liniLED Mirror Welded Connector

We offer the unique possibility to provide selected liniLED® LED strips with a so-called 'mirror welded connector'. The mirror welded connector allows an immediate IP68 waterproof solution of the LED strip. The strip is pre-connected to the connector, so that it can be installed straight away.

All liniLED® Top and Side LED strips (incl. Diffuse) can be delivered with a mirror welded connector, with the exception of RGB and Tunable White LED strips.



General Product Characteristics

Article number	11290
Dimensions	L31W15xH11 mm
Cord length	1 m, 5 m
Degree of protection	IP68
Colour	White
Material	PVC
Power Cord	White, PVC
Weight	1 m: 51 g
	5 m: 175 g
Included	Mirror Welded End Cap



Index

TECHNICAL SPECIFICATIONS	2
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MAXIMUM CABLE LENGTH	4
POWER AND CONNECTION DIAGRAM	4
AREA ADVICE	5
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Top High Power White G4

The liniLED® Top High Power LED strip (IP40) is a high quality, flexible LED strip with a unique co-extrusion technology. The combination of high quality and exceptional flexibility, allows for an endless range of indoor and outdoor applications. Combine with either the IP40, IP67 or IP68 solution.

In order to power liniLED® products safely, it is necessary to operate them with an electronically stabilized power supply protected against short circuits, overload and overheating.

To ease the luminaire/installation approval, electronic control gear for liniLED® products should carry the CE mark. Preferably a controller from the liniLED® Control range. In Europe, the declarations of conformity must include the following standards: CE: EN 55015, IEC 61547 and IEC 61000-3-2.

For the latest version of this datasheet, visit our website: www.liniLED.com

USPs

Unique co-extrusion technology (hollow chamber)
Up to IP68 with liniLED® Welded Connector
UV, frost, seawater, cleaning agents & chlorine vapour resistant
Up to 2 SDCM ellipse
Extra long lifetime – 60,000 h (L80/B10)
Internal constant current regulator
Excellent lumen/Watt ratio
Single piece reel-to-reel technology
Made in Europe

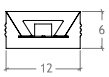
Available colours

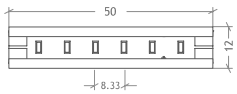
Colour	Description
Warm White 3000K	liniLED® Top WW 3000K High Power G4

Technical specifications

	Warm White 3000K
Product code [m]	12321
Power (24 V DC)	7.0 W/m
Power (25 V DC)	7.3 W/m
CCT[1]	3052 K
CRI	>80
Luminous flux[1]	617 lm/m
Luminous efficiency[1]	88 lm/W
Spool length	Max. 50 m
Section length	50 mm
LED type	3014
Number of LEDs	6 per section/120 per metre
Max. connection length	10 m
Min. operating voltage	23 V DC
Max. operating voltage	25 V DC
Beam angle	110°
Dimensions	6 x 12 mm
Dimmable	PWM dimming, 24 V DC Common Anode
MacAdam Steps	3 steps
Weight	70 gram per metre
Expected lifetime	L80/B10 > 60000 hrs @ Tc = 40°C
Ingress protection	IP40/IP67/IP68
Storage temperature	-30°C ... 55°C
Operating temperature[2]	-30°C ... 55°C
Minimum bending radius	30 mm

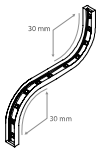
[1] Calculated values are given, which due to tolerances in components and production process can vary up to 10%.
[2] Max. connection length between -30°C and -20°C is 7 metres.



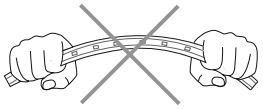


Bending radius

Maximum bending radius is 30 mm. Solely bend up or downward. Do not compress, stretch or bend the LED strip sideways.



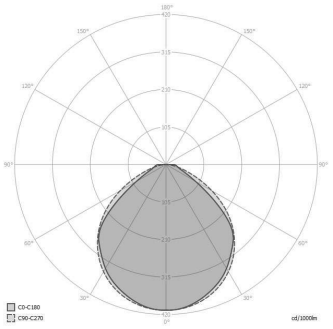




Photometric information (preliminary)

In the process of lighting design and calculations, the luminous flux and beam angle alone are not enough information to create a representative and realistic calculation or render. There is one set of photometric files for a one metre length of LED strip and one for a segment length, that corresponds to the cutting length of each LED strip type. Using the one metre data, quick calculations and long lengths can be simulated with photometric software. The segment data allows very detailed simulations, even curved lines can be approached in high detail.

The information on the website is available in two different file formats:
- Eulumdat (.ldt)
- IES LM-63-1995 (.ies)



Power consumption

To power the liniLED® LED strips and lighting fixtures, a power supply from the liniLED® Power assortment can be selected. Selection of the correct power supply must be done by taking the total requested power and the environment into account.

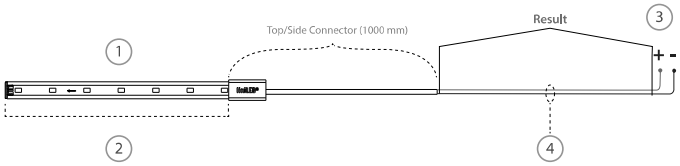
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$$P_{STRIP} = P_{PRODUCT} \times X_{LENGTH} \times 110\% \left[\times \frac{U_{SUPPLY}}{24} \right]$$

P_{STRIP}	Calculated power consumption of one LED strip in Watt
$P_{PRODUCT}$	Typical power consumption in Watt per metre of the selected LED strip This value can be found under 'Product characteristics' on page 2
X_{LENGTH}	Length of the connected LED strip in metres
110%	Safety margin to buffer differences over all production batches
	Optional:
U_{SUPPLY}	Set supply voltage of the power supply in Volt
24	Nominal supply voltage of liniLED® in Volt

Maximum cable length

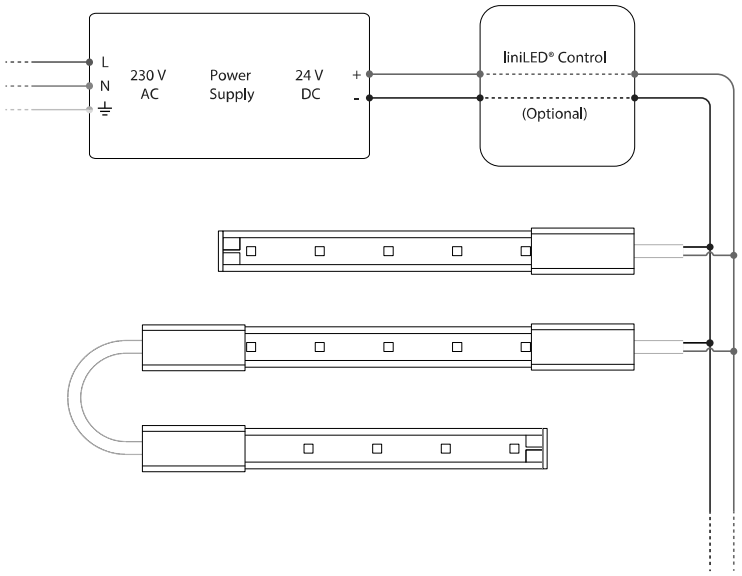
1 = Select colour temperature.
2 = Select LED strip length.
3 = Select output voltage.
4 = Select cable cross section.
Result = Maximum cable length based on the cable thickness and power supply voltage.



1. Colour temperature		3000K							
2. LED strip length		1 m		2 m		5 m		10 m	
3. Voltage		*24 V DC*	*25 V DC*	*24 V DC*	*25 V DC*	*24 V DC*	*25 V DC*	*24 V DC*	*25 V DC*
4. Cable cross section	**0.50 mm²** - 0.035 Ω/m	42.9 m	83.7 m	20.8 m	41.2 m	7.5 m	15.7 m	3.1 m	7.2 m
	0.75 mm² - 0.023 Ω/m	64.6 m	125.9 m	31.3 m	62.0 m	11.3 m	23.6 m	4.7 m	10.8 m
	1.00 mm² - 0.018 Ω/m	85.9 m	167.4 m	41.7 m	82.4 m	15.1 m	31.4 m	6.2 m	14.4 m
	1.50 mm² - 0.012 Ω/m	129.3 m	251.8 m	62.7 m	124.0 m	22.7 m	47.2 m	9.4 m	21.7 m
	2.50 mm² - 0.007 Ω/m	215.2 m	419.2 m	104.4 m	206.3 m	37.9 m	78.6 m	15.7 m	36.1 m

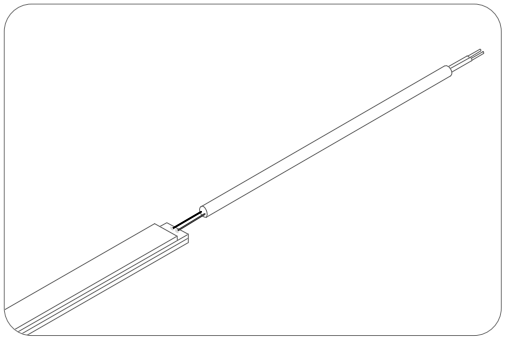
⚠ **Note:** Calculations are based on a standard connector with 1 metre cable (0.5 mm²).

Power and connection diagram

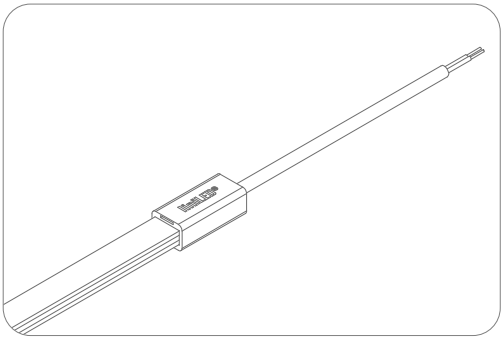


Area advice

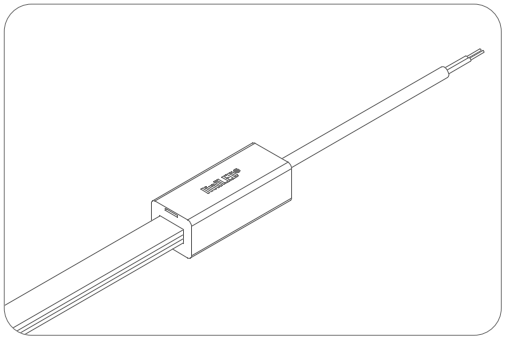
Depending on the installation area of the liniLED® LED strip we offer a range of IP40, IP67 and IP68 solutions to cope with external factors. Below the different connectors are displayed for use in different environments. See corresponding pages or individual product manual for further instructions.



Indoor environment | (IP20)
Solder

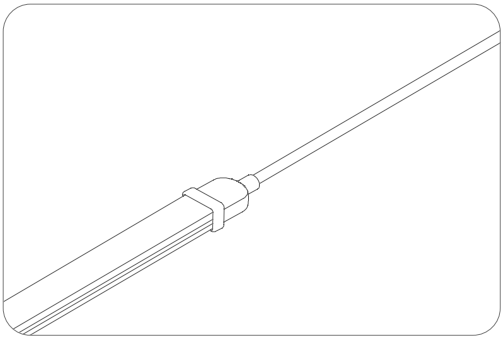


Indoor environment | (IP40) | liniLED® Top Connector set.
Product code: 11200 (1 m), 11201 (5 m)



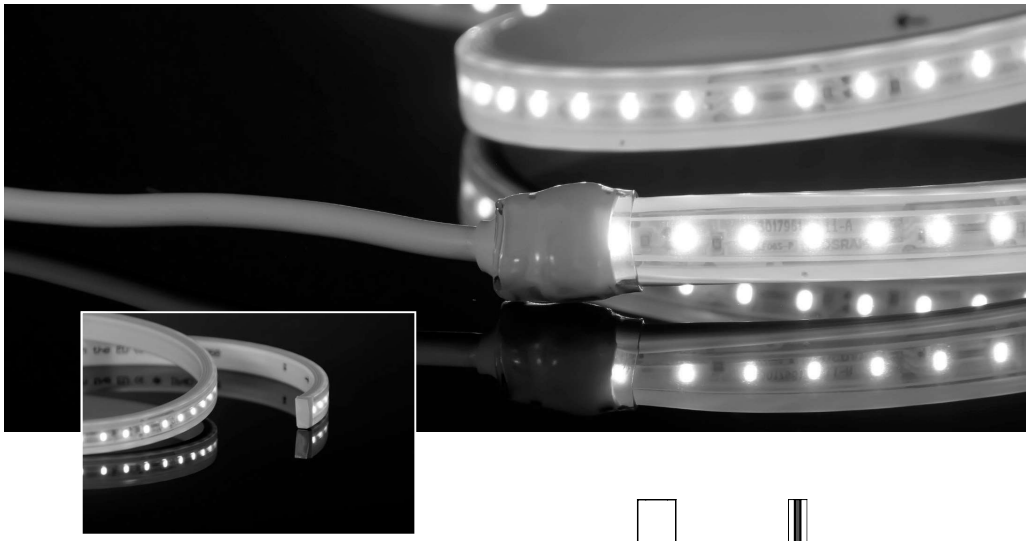
Wet environment | (IP67) | liniLED® Top IP67 Kit
Product code: 11490

See Manual liniLED® Top IP67 Kit for installation instructions.



Submersible, chlorine resistant | (IP68) | Mirror Welded Connector
Product code: 11290

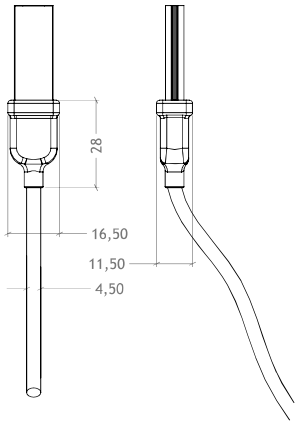
The connector is pre-assembled to the LED strip.



liniLED Mirror Welded Connector

We offer the unique possibility to provide selected liniLED® LED strips with a so-called 'mirror welded connector'. The mirror welded connector allows an immediate IP68 waterproof solution of the LED strip. The strip is pre-connected to the connector, so that it can be installed straight away.

All liniLED® Top and Side LED strips (incl. Diffuse) can be delivered with a mirror welded connector, with the exception of RGB and Tunable White LED strips.



General Product Characteristics

Article number	11290
Dimensions	L31W15xH11 mm
Cord length	1 m, 5 m
Degree of protection	IP68
Colour	White
Material	PVC
Power Cord	White, PVC
Weight	1 m: 51 g
	5 m: 175 g
Included	Mirror Welded End Cap

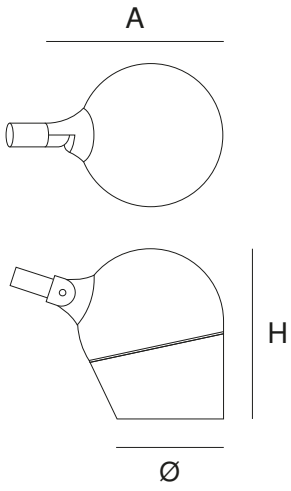
TYPE P1

selux

Olivio Medio

SX 961 11-9





luminaire head
rotation symmetrical 40° (± 20°), medium beam,
LED, 3000 lm, 3000 K, CRI > 80, electronic converter, Total power: 27 W

luminaire head, to be mounted on Olivio Candelabra, Sistema or Floracion poles and brackets, luminaire housing made of die-cast aluminium, painted, aluminium, screws made of stainless steel, adjustable head joint ensures precise direction of luminaire head, wide pivoting range from 20° to 195°, can be rotated + / - 180°, shielding made of safety glass
Optical system: medium reflector
hidden cable entry through the head joint, incl. 10m feed cable, easy maintenance access via lockbar mechanism,

Certifications

CE, ENEC 05, IK06, IP67, Protection Class II,optional I

colour: Selux Graphite or special finish

Height H: 260 mm
Diameter Ø: 163 mm
Outreach : 260 mm
Weight: 6 kg
Windpressure: 0,05 m²

Make: Selux, Type: SX 961 11-9

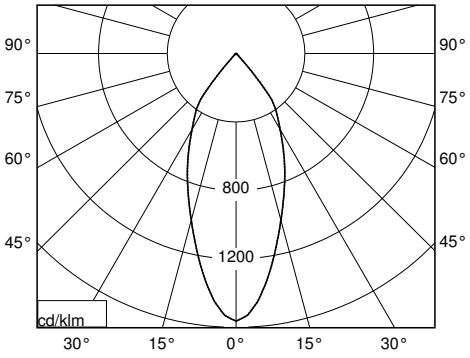
IK06 IP67

Modifications are possible due to the constant development and improvement of LED technology.
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Selux AG, Motzener Straße 34, D-12277 Berlin, T +49 30 72001-0, F -100, info@selux.com, www.selux.com

Olivio Medio

SX 961 11-9

Technics



Photometric data: 8480
Upward light ratio (ULR): 0 %

Lamp

LED · 3000lm Light colour: 3000 K · CRI > 80.

Optic

medium reflector · medium beam.

Electrics

electronic converter · Total power: 27W · 10m feed cable
control options:
dynamic · DALI · fix value · AmpDim · individual power reduction in 300 lumen steps ex work

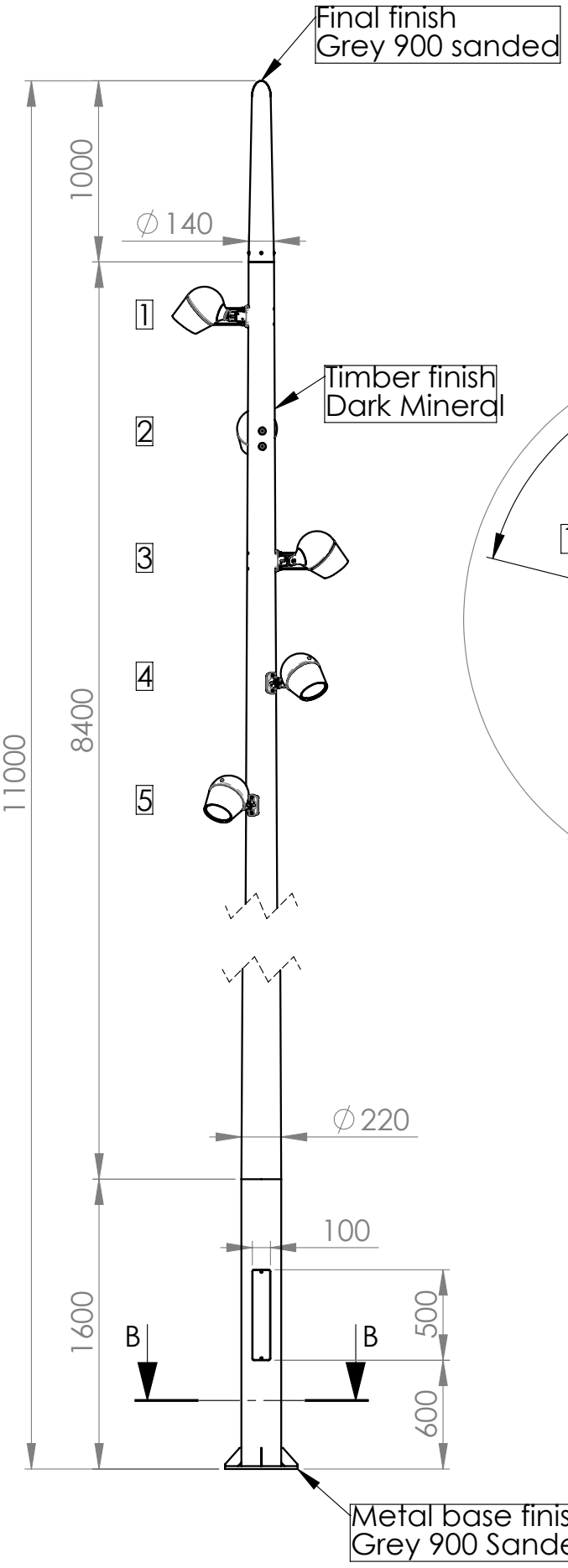
Luminous flux characteristics / Operating time of LED

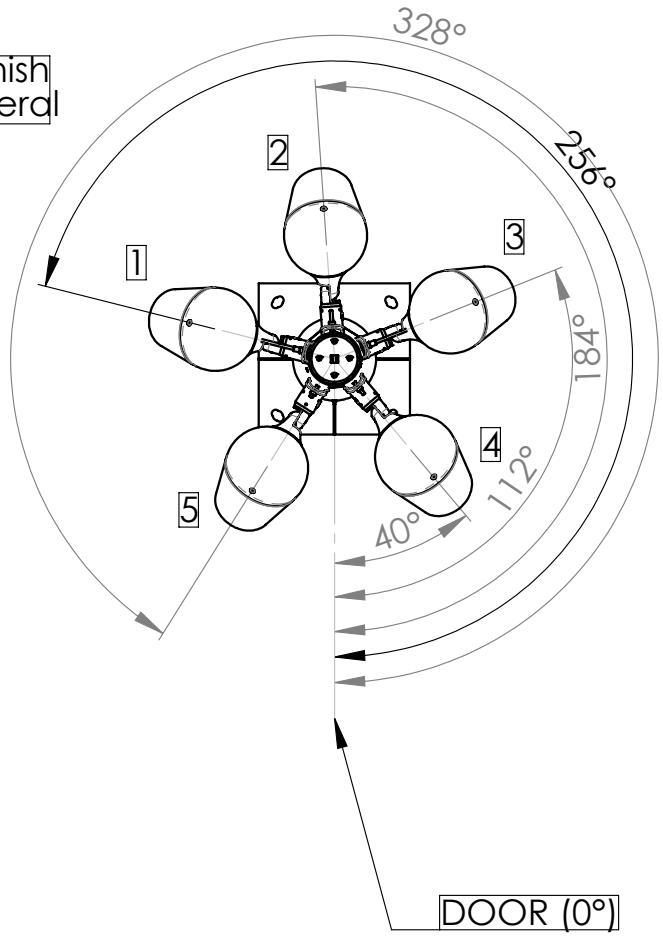
Operating time LED	20000	40000	60000	80000
Lumen maintenance	95%	92%	89%	86%
LLMF*	0.95	0.92	0.89	0.86

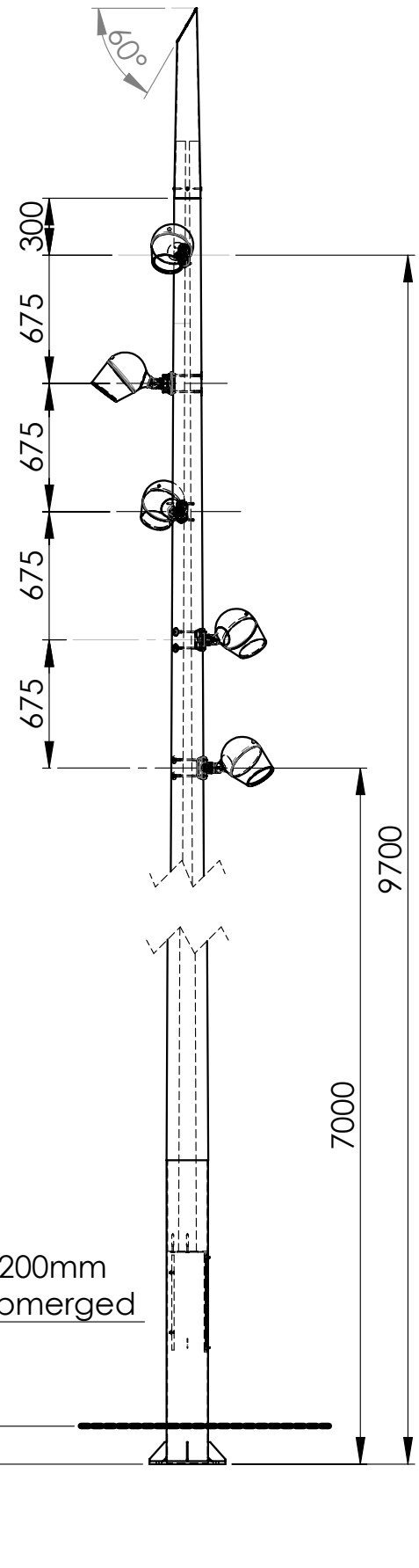
* = Lamp lumen maintenance factor

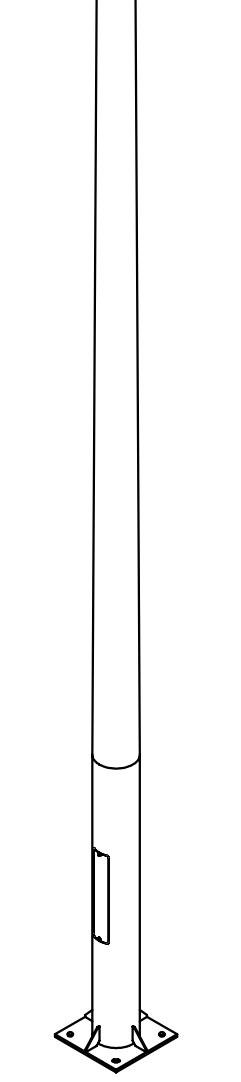
Modifications are possible due to the constant development and improvement of LED technology.
© Selux AG, Subject to technical modification 1.2020
Selux AG, Motzener Straße 34, D-12277 Berlin, T +49 30 72001-0, F -100, info@selux.com, www.selux.com

Rep.	QTE	Code	Désignation	Mat.	Observation	Surface	Volume	Poids(Kg)
1	1	AMP06791	1927601SM-Embase ronde XL Ø220 UK Sp MANCHESTER	S235	Galvanisation + thermolaquage	2.57	0.01	49.39
2	1	SFF00941	1927603SM-Fût Dôme XL 220-140 11m MANCHESTER	GL24	Lasuré	7.319	0.204	85.592
3	2	AVV0175 - AVV01665	VAM TBHC 6x20 ACIER INOX A2 C50 inviolable - AVV0175	INOX A2		0.0	0.0	0.0
4	3	AVV0481 - AVV01785	Vis ASSY 3 TF Ø10 x 100-60 Acier Zingué- AVV0481		Wurth: 0170 310x100 Bichromaté	0.0	0.0	0.0
5	10	AVZ0151 - AVZ01867	Vis Femelle M8 D13 L40 INOX - AVZ0151	INOX		0.0030	0.0000	0.0336
6	10	AMB0912 - AMB02027	RP pour Vis femelle Inox M8 - AMB0912	INOX		0.0028	0.0000	0.0291
7	10	AVF0147 - AVF01496	Tige M8x190 Inox A2	Acier inox	Coupée à longueur 190mm	0.00	0.00	0.07
8	10	AVR0107 - AVR01583	RP M8 ACIER INOX - AVR0107	INOX A2		0.00	0.00	0.00
9	10	AVE0114 - AVE01435	EH M8 ACIER INOX A2 C50 - AVE0114	INOX A2		0.00	0.00	0.00
10	10	AAP0176 - AAP00680	Cache ecrou plastique noir M8 - AAP0176	ABS				
11	1	AMP0999Z2J53001	1813603SM-Réhausse top de mat spéciale	S235 - Classe 1	Galvanisation + thermolaquage	0.72	0.00	8.41
12	4	AAP0102 - AAP00665	AAP0102 - Bouchon plastique noir Ø10	ABS				
13	4	AVV0357 -AVV01737	VAP TBX 6x40 ACIER INOX A2 C50 - AVV0357	INOX A2		0.0	0.0	0.0
14	1	SZB0645 - SFF00308	1809410PS-Planche UK	GI24		0.09	0.00	0.26
15	2	AVV0138 - AVV01644	VAM TFHC 6x25 ACIER INOX A2 C50 - AVV0138	INOX A2		730.3	755.3	5.5
16	5		OLIVIO 200 +MANCHON		Non fourni par Aubrilam			
17	5		OLIVIO 200-300 PATIN		Non fourni par Aubrilam			

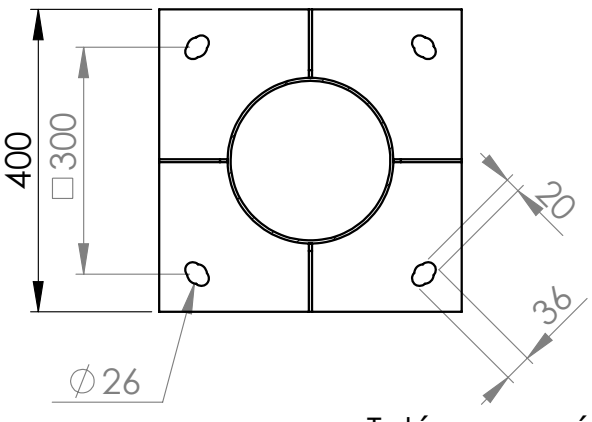








COUPE B-B
ECHELLE 1 : 10



Tolérance générale: ISO 2768-cK

MP	A3	02/03/2020	Rajout de la réhausse
PS	A2	03/02/2020	MODs accroding to new SW instructions
PS	A1	19/12/2019	MODs accroding to SW instructions
SM	A	03/10/2019	CREATION
Par	Ind.	Date	Observation

Dessiné par : SM
Vérifié par : SM

N° plan : 1927602SM-Dôme XL 11m 220-140 MANCHESTER
Type : Plan d'ensemble **Folio :** 1/1
Objet 3D : 1927602SM-Dôme XL 11m 220-140 MANCHESTER
N° affaire : CCL2003AUBxxxx-COM0002394 **Code art.:**PCA06792
Nom affaire : CIRCLE SQUARE MANCHESTER **ECH :** 1:35

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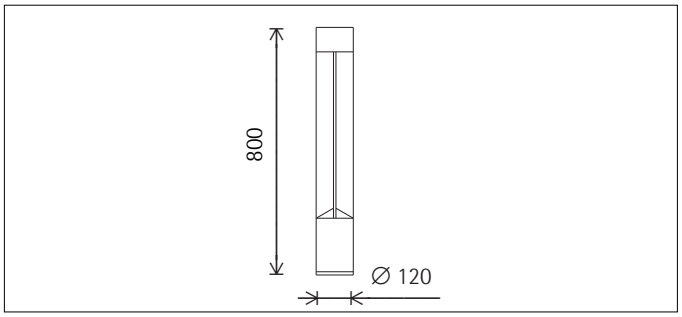
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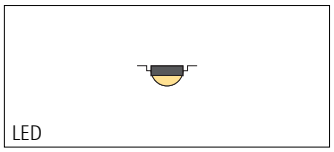
TYPE S1
Midipoll Bollard luminaire

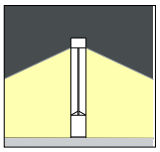
ERCO

Floor washlight







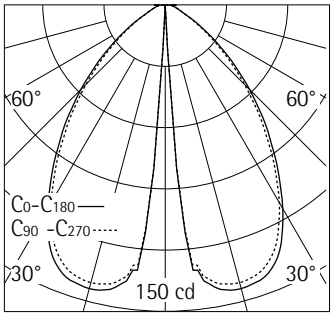


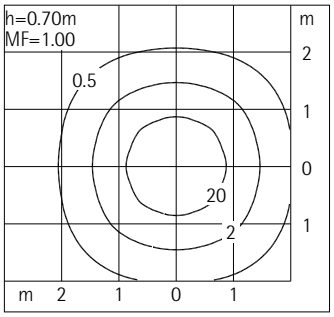




33316.000 Graphit m
LED 8W 840lm 3000K warm white
DALI-2
Version 8

Product description
For mounting on accessories.
Cross-shaped aluminium profile and cylindrical housing: corrosion-resistant cast aluminium, No-Rinse surface treatment. Double powder-coated.
Optimised surface for reduced accumulation of dirt.
DALI control gear. 2 cable entries. 5-pole terminal block.
LED module: high-power LEDs on metal-core PCB. Collimating lens made of optical polymer.
Cylindrical luminaire head with lower prismatic lens: corrosion-resistant cast aluminium, double powder-coated.
Mounting accessories to be ordered separately.
Protection mode IP65: dust-proof and water jet-proof.
Weight 4.80kg
Housing temperature 46°C
Maximum wind load area 0.1m²
Version with 3000K CRI 97 or 2700K, 3500K, 4000K CRI 92 available on request.





Technical data

Luminous flux of the luminaire	277lm
Connected load	11.0W
Luminaire efficacy	25lm/W
Colour deviation	1.5 SDCM
Colour rendition index	CRI 92
Lumen maintenance (LED manufacturer specifications)	L90/B10 ≤50000h L90 ≤100000h
LED failure rate	0.1% ≤50000h
Dimming range	1%-100%
Dimming method	CCR
LMF	E
Energy efficiency class	EEI A+
Standby power per control gear	0.27W
Luminaires per circuit breaker B16	--
Temperature on the light aperture	37°C

For your regional contact in the ERCO Sales network click here
www.erco.com/contact

Technical Region:
220V-240V/50Hz-60Hz
We reserve the right to make technical and design changes.
Edition: 29.01.2020
Current version under
www.erco.com/33316.000

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Midipoll Bollard luminaire

Planning data

Cleaning (a)	1				2				3			
Ambient conditions	P	C	N	D	P	C	N	D	P	C	N	D
LMF	0.96	0.94	0.90	0.86	0.93	0.91	0.86	0.81	0.92	0.90	0.84	0.79
RSMF	0.91	0.83	0.68	0.51	0.90	0.81	0.67	0.50	0.90	0.81	0.67	0.50

Hours of operation (h)	1000	5000	10000	20000	30000	40000	50000
LLMF	1.00	0.99	0.98	0.96	0.94	0.92	0.90
LSF	1	1	1	1	1	1	1

MF	LMFxRSMFxLLMFxLSF
MF	Maintenance Factor
LMF	Luminaire Maintenance Factor
RSMF	Room Surface Maintenance Factor
LLMF	Lamp Lumens Maintenance Factor
LSF	Lamp Survival Factor
P	Room pure
C	Room clean
N	Room normal
D	Room dirty

Technical data in accordance with international norms and standards

IEC 60598	Luminaires – Part 1+2: general requirements, specific requirements and tests
IEC 62031	LED modules for general lighting – safety requirements
IEC 62471	Photobiological safety of lamps and lamp systems
EN13032-4	Light and lighting – measurement and representation of photometric data
CIE 13	Method of measuring and specifying colour rendering properties of light sources

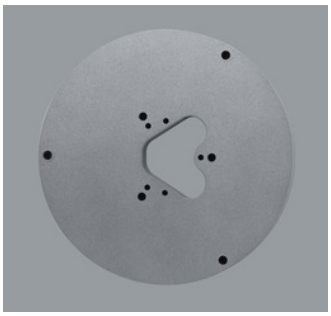
All technical data is subject to industrially standard tolerances.
Also see www.erco.com/erco-led

Midipoll Bollard luminaire

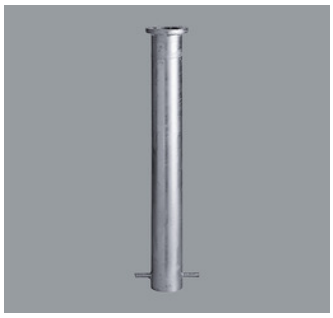
Accessories



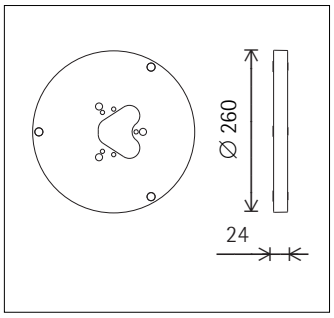
34974.000
Distribution box, IP68
With four cable entries, 7-25mm.
Polymer.
ø 102mm, L 305mm.
Weight 0.47kg
CE IP 68 3m

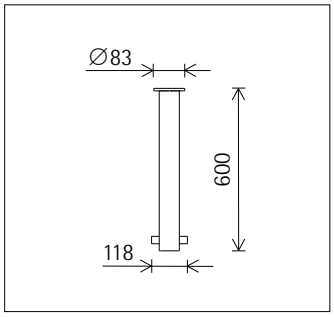


33982.000
Mounting plate
Corrosion-resistant cast aluminium, No-Rinse surface treatment. Graphit m, double powder-coated.
Weight 1.70kg



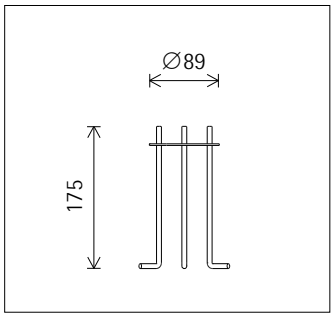
33975.000
Ground socket
Metal, hot-dip galvanised.
Weight 2.10kg







33980.000
Concrete anchor
Mounting plate with threaded bar and fixing nuts M6. Individual parts to be assembled on-site.
Weight 0.30kg

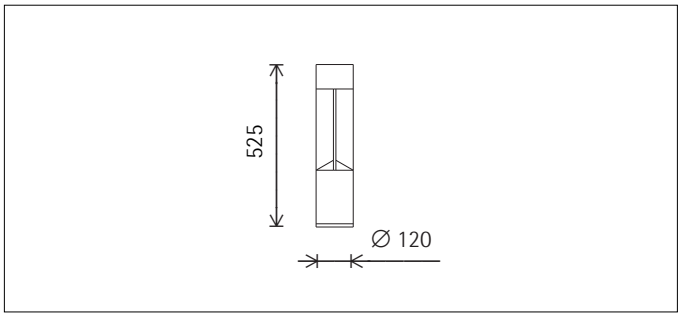


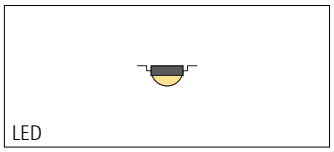
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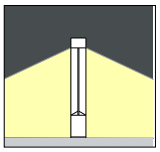
ERCO

Midipoll Bollard luminaire Floor washlight







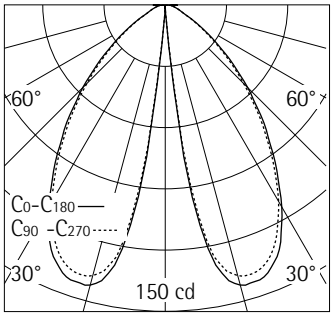


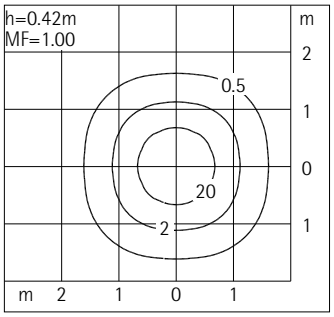




33318.000 Graphit m
LED 8W 840lm 3000K warm white
DALI-2
Version 8

Product description
For mounting on accessories.
Cross-shaped aluminium profile and cylindrical housing: corrosion-resistant cast aluminium, No-Rinse surface treatment. Double powder-coated.
Optimised surface for reduced accumulation of dirt.
DALI control gear. 2 cable entries. 5-pole terminal block.
LED module: high-power LEDs on metal-core PCB. Collimating lens made of optical polymer.
Cylindrical luminaire head with lower prismatic lens: corrosion-resistant cast aluminium, double powder-coated.
Mounting accessories to be ordered separately.
Protection mode IP65: dust-proof and water jet-proof.
Weight 3.30kg
Housing temperature 46°C
Maximum wind load area 0.06m²
Version with 3000K CRI 97 or 2700K, 3500K, 4000K CRI 92 available on request.





Technical data

Luminous flux of the luminaire	268lm
Connected load	11.0W
Luminaire efficacy	24lm/W
Colour deviation	1.5 SDCM
Colour rendition index	CRI 92
Lumen maintenance (LED manufacturer specifications)	L90/B10 ≤50000h L90 ≤100000h
LED failure rate	0.1% ≤50000h
Dimming range	1%-100%
Dimming method	CCR
LMF	E
Energy efficiency class	EEI A+
Standby power per control gear	0.27W
Luminaires per circuit breaker B16	--
Temperature on the light aperture	37°C

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Technical Region:
220V-240V/50Hz-60Hz
We reserve the right to make technical and design changes.
Edition: 29.01.2020
Current version under
www.erco.com/33318.000

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Midipoll Bollard luminaire

Planning data

Cleaning (a)	1				2				3			
Ambient conditions	P	C	N	D	P	C	N	D	P	C	N	D
LMF	0.96	0.94	0.90	0.86	0.93	0.91	0.86	0.81	0.92	0.90	0.84	0.79
RSMF	0.91	0.83	0.68	0.51	0.90	0.81	0.67	0.50	0.90	0.81	0.67	0.50

Hours of operation (h)	1000	5000	10000	20000	30000	40000	50000
LLMF	1.00	0.99	0.98	0.96	0.94	0.92	0.90
LSF	1	1	1	1	1	1	1

MF	LMFxRSMFxLLMFxLSF
MF	Maintenance Factor
LMF	Luminaire Maintenance Factor
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LLMF	Lamp Lumens Maintenance Factor
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C	Room clean
N	Room normal
D	Room dirty

Technical data in accordance with international norms and standards

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IEC 62471	Photobiological safety of lamps and lamp systems
EN13032-4	Light and lighting – measurement and representation of photometric data
CIE 13	Method of measuring and specifying colour rendering properties of light sources

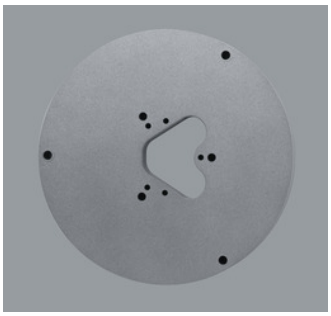
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Midipoll Bollard luminaire

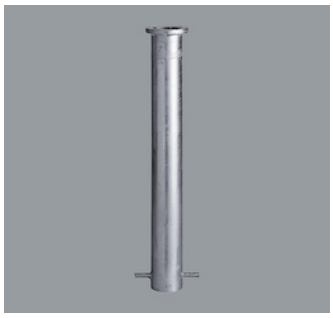
Accessories



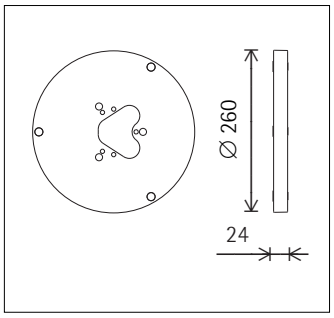
34974.000
Distribution box, IP68
With four cable entries, 7-25mm.
Polymer.
ø 102mm, L 305mm.
Weight 0.47kg
CE IP 68 3m

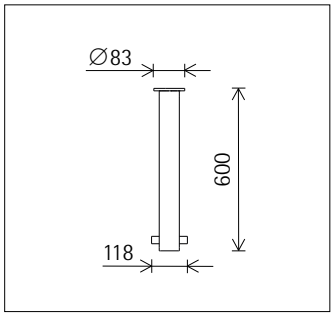


33982.000
Mounting plate
Corrosion-resistant cast aluminium, No-Rinse surface treatment. Graphit m, double powder-coated.
Weight 1.70kg



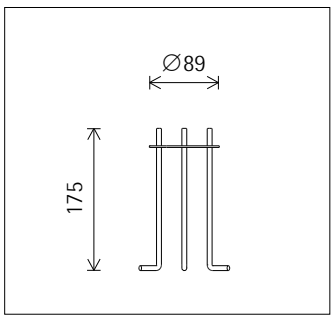
33975.000
Ground socket
Metal, hot-dip galvanised.
Weight 2.10kg







33980.000
Concrete anchor
Mounting plate with threaded bar and fixing nuts M6. Individual parts to be assembled on-site.
Weight 0.30kg

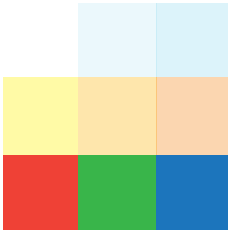


MaxiLED Lighting

TYPE X1







Static LED

MaxiLED Small Globe Series

Static Colours

IP68 IK07

MaxiLED Small Globe Series
Static - Datasheet



KEY FEATURES

- Static Colours
- IP68
- 24VDC

Product Overview

MaxiLED Strands provide exceptionally long strands of globe-lensed LEDs that can be used to outline trees buildings and bridges or connect architectural features with brilliant white / colour lighting. Each strand is built for permanent installations with rugged, injection-molded outer globes, heavy gauge wiring and dependable LEDs. More than one colour can be used on a single strand.

Specifications	Static Colours
Electrical specification	
Power input:	**24VDC**
LED Current:	**-**
Watts per unit:	**0.6w**
Max. Units per system (1.5mm sq cable):	**See Chart below**
Lumens (Est.)	**-**
Lumen Maintenance 85%:	**70,000Hrs**
LED options	
Cool White (10,000K):	**YES**
Warm White (2700K):	**YES**
Red, Green, Blue, Pink and Amber	**YES**
System Cable Distances	
Max. Run distance	**100m (328 ft)**
Protection	
IP Rating:	**IP68**
Operation Temperature:	**-25 to +50**
Globe	
Material:	**UV stabilized polycarbonate**
Listings:	**UL / cUL, CE. BS EN60598, IEC 60598**
Cable Colours	
Black (Standard):	**YES**
White: (Minimum order):	**YES (on request)**
RAL (Minimum order):	**YES (on request)**
Dimensions & Weights	
Diameter (mm):	**34 mm (1.3/8ins)**
Height (mm):	**34 mm (1.3/8ins)**
Weight:	**24G (0.8 Ounce)**

Transformer	Max. Quantity of Fittings
100W	**100 Globes**
150W	**200 Globes**
240W	**300 Globes**

Even though the total load is below the power supply capacity, this is due to the inrush current limitations on start up.

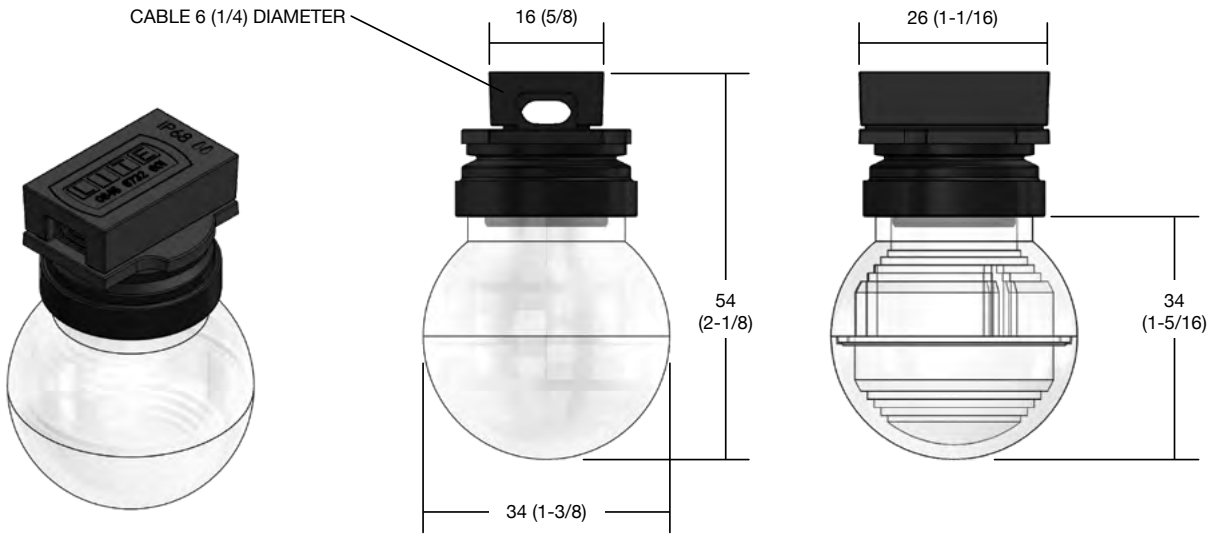
UK Designed and Manufactured

MaxiLED Lighting

Unit 2, Farrington Place, Rossendale Road Ind. Est. Burnley, Lancashire. UK. BB11 5TY
T: **+44 (0)845 8732 601** E**: sales@maxiledlighting.com** Web: **www.maxiledlighting.com**

MaxiLED Small Globe Series
Dimensions

MM (INCHES)

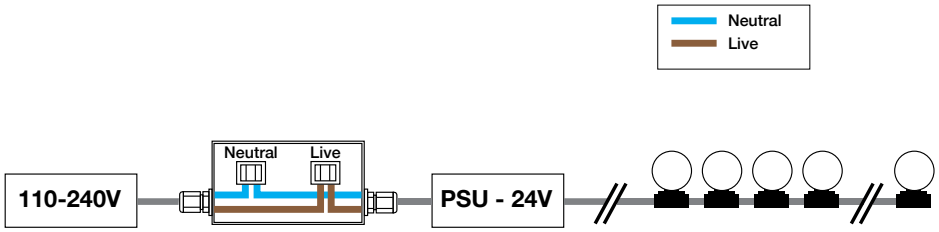


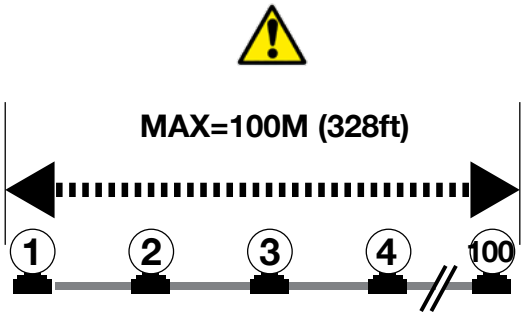
MaxiLED Lighting

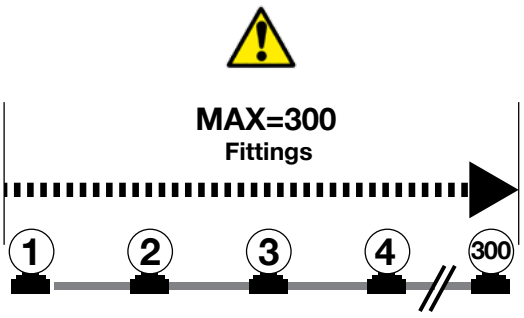
Unit 2, Farrington Place, Rossendale Road Ind. Est. Burnley, Lancashire. UK. BB11 5TY
T: **+44 (0)845 8732 601** E**: sales@maxiledlighting.com** Web: **www.maxiledlighting.com**

MaxiLED Small Globe Series
Wiring Illustration

This product must be installed by a qualified electrician in accordance with all national and local electrical and construction codes.
Failure to comply with the installation instructions can result in serious injury or death.







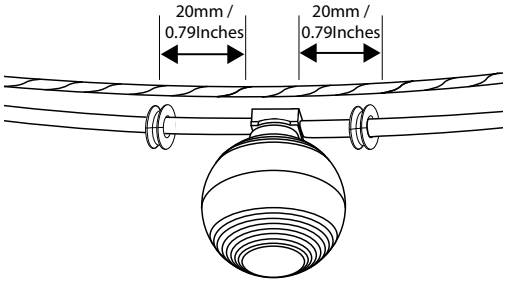
MaxiLED Lighting

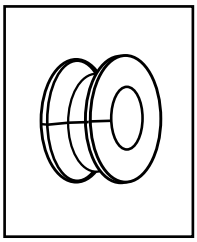
Unit 2, Farrington Place, Rossendale Road Ind. Est. Burnley, Lancashire. UK. BB11 5TY
T: **+44 (0)845 8732 601** E**: sales@maxiledlighting.com** Web: **www.maxiledlighting.com**

MaxiLED Large / Small Globe Series
Catenary Installation Instructions

This product must be installed by a qualified electrician in accordance with all national and local electrical and construction codes.
Failure to comply with the installation instructions can result in serious injury or death.

1 Place rubber grommets over MaxiLED Cable

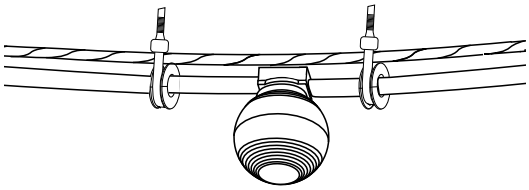




(a).Make sure catenary cable is taught and secure.

(b). With the secure catenary cable above the MaxiLED Cable, place a rubber grommet 20mm / 0.79 inches either side of the MaxiLED housing.

2 Secure MaxiLED Cable

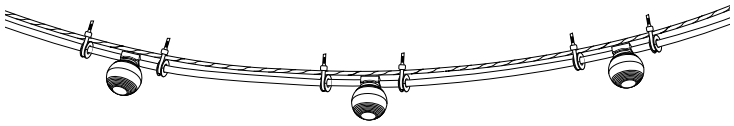


(a). Using a suitable sized UV resistant zip tie (4.8mm width), secure the grommet up against the catenary cable.

(b). Trim excess cable tie.

NOTE: GROMMET PLACED OVER MAXILED CABLE

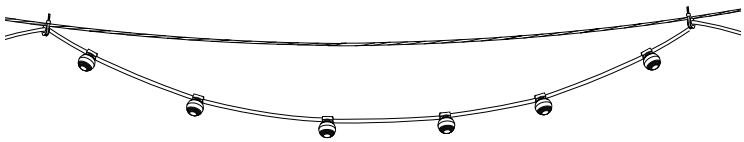
3 Repeat Procedure



(a). Repeat process 1-2 until the installation is complete.

(b). Connect the installed unit to the correct transformer.

4 Alternative Fixing Method



(a). alternative fixing method creating a hoop effect.

The transformer must be installed by a qualified electrician in accordance with all national and local electrical and construction codes.
Failure to comply with the installation instructions can result in serious injury or death.

MaxiLED Lighting

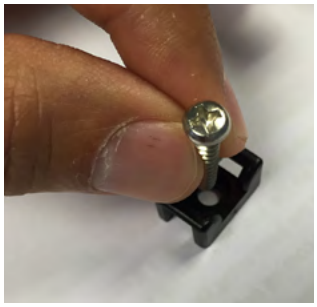
Unit 2, Farrington Place, Rossendale Road Ind. Est. Burnley, Lancashire. UK. BB11 5TY
T: **+44 (0)845 8732 601** E**: sales@maxiledlighting.com** Web: **www.maxiledlighting.com**

Revision 0.1

MaxiLED Strand Fixing Clip Installation Instructions

This product must be installed by a qualified electrician in accordance with all national and local electrical and construction codes.
Failure to comply with the installation instructions can result in serious injury or death.

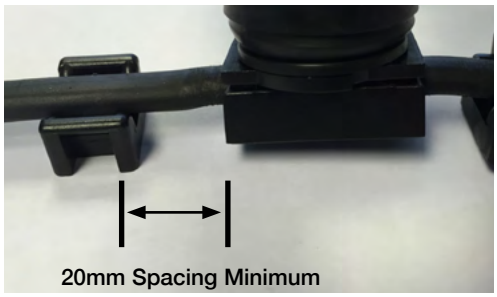
1 Fitting the Fixing Clip to the desired Surface



(a). Screw fix the Fixing clip to the desired surface.

NOTE: Correct screw must used to assure that the head is counter sunk within the fixing clip.

2 Spacing the Fixing Clip



(a). Ensure that the Spacing between each Fixing Clip and **MaxiLED Globe** is **20mm Minimum**

3 Cable Tie the MaxiLED Strand Cable to the Fixing Clip



(a). Using the Supplied UV/Weather resistant Cable tie.

(b). Feed the Cable tie through the Fixing Clip and Secure the MaxiLED Strand Cable

4 Repeat Procedure



(a). Repeat process 1-3 until the installation is complete.

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MaxiLED Small Globe Series
Order codes

Product		LED		Globe		Cable colour	
Series Small Globe	**SSG**	Red	**RED**	Matt	**ML**	Black (Standard unless stated)	**CB**
		Green	**GRE**	Clear	**CL**	White	**CW**
		Blue	**BLU**			RAL	**CRAL**
		Amber	**AMB**				
		Pink	**PNK**				
		Cool White (10,000K)	**CW**				
		Warm White (2700K)	**WW**				
EXAMPLE:	**SSG**		**RED**		**ML**		**CB**

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Global Distributors

Australia:

Light Project Pty ltd.
T: +61 3 8415 1970
M: +61 4 1607 8999
E: Francis@lightproject.com.au
W: www.lightproject.com.au

Ireland:

Fantasy Lights
T: +353 1 460 1052
M: +353 87 927 3566
E: sales@fantasylights.com
W: www.fantasylightsgroup.ie

MENA/GCC Region
(Including Turkey & Turkic Republics)
Lightitude

M +971 04 5588674
E: lbastaki@lightitude.com
W: www.lightitude.com

Netherlands:

Q CAT Lighting
T: +31 (0) 10 415 18 11
E: info@qcat.nl
W: www.qcat.nl

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Energy Light Ltd.
T: +64 3 977 2034
E: customerservice@energylight.net
W: www.energylight.net

North America:

VLT
T: +1 949 581 9398
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W: www.vltcorp.com

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T: +65 6453 1978
E: enquiry@technolite.com.sg
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South Africa:

SSLI - Solid State Lighting
M: +27(0)82 785 3890
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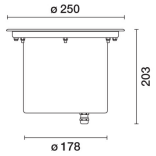
TYPE X2

Light Up

Design iGuzzini **iGuzzini**

Last information update: April 2020





Recessed floor luminaire Earth D=250 mm - Neutral White - Flood optic - DALI

Product code
E157

Technical description
Recessed luminaire applicable to the floor or ground, designed for fitting monochrome white LED sources, for illumination, fixed optic, with DALI dimmable incorporated electronic control gear. The round frame has a diameter D=250 mm; the body and frame are made of AISI 304 stainless steel with sodium-calcium extra clear glass, thickness 15 mm. Stainless steel body coated with black paint. The luminaire is fixed to the outer casing by means of two TORX-type screws that ensure proper anchoring. Inclusive of LED circuit, OPTI BEAM aluminium reflector and black plastic cover. The product is wired using an A2 stainless steel cable gland, with type A07RNF 4x1 mm² outgoing power cord having L=1200 mm. The cable is equipped with an anti-transpiration device (IP68) consisting of a silicone seal placed on the power cable and housed inside the product. The outer casing for installation can be ordered separately from the plastic optical assembly. The assembly made up of the frame, optical assembly and outer casing guarantees 5000 kg resistance to static loads. Maximum glass surface temperature is lower than 40°C.

Installation
The product is secured to the outer casing by means of two TORX-type screws. The luminaire can be installed recessed, floor-standing, using an outer casing or on the ground without outer casing.

Dimension (mm)
Ø250x203

Colour
Steel (13)

Weight (Kg)
4.98

Mounting
Floor recessed|ground recessed

Wiring
Product inclusive of 220-240 VAC DALI dimmable electronic control gear.

Notes
IP68 degree of protection on the product and cable when using IP68 connectors * The product is not suitable for installation in swimming pools and fountains. Overvoltage protection: 4KV Common mode, 3,5KV differenzial mode

Complies with EN60598-1 and pertinent regulations

IK10 5000 kg IP68 Immersione completa per periodi limitati, non idoneo in piscine e fontane.

The lighting fixtures were designed and tested to withstand a static load of up to 50000 N and to resist drive-over stress by vehicles with tires. The fixtures cannot be used in lanes subjected to horizontal stresses due to acceleration, braking and / or changes of direction.

Product configuration: E157

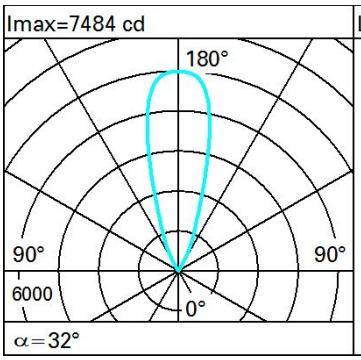
Technical data

Im system:	2374
W system:	21.4
Im source:	3050
W source:	18
Luminous efficiency (lm/W, real value):	110.9
Im in emergency mode:	-
Total light flux at or above an angle of 90° [Lm]:	2374
Light Output Ratio (L.O.R.) [%]:	78
Beam angle [°]:	32°
CRI:	80
Colour temperature [K]:	4000
MacAdam Step:	2
Life Time LED 1:	100,000h - L80 - B10 (Ta 25°C)

Life Time LED 2:	100,000h - L80 - B10 (Ta 40°C)
Ballast losses [W]:	3.4
Lamp code:	LED
Number of lamps for optical assembly:	1
ZVEI Code:	LED
Number of optical assemblies:	1
Ambient operating temperature range:	from -20°C to +35°C. (*)
Power factor:	See installation instructions
Inrush current:	10 A / 200 µs
Maximum number of luminaires of this type per miniature circuit breaker:	B10A: 18 luminaires B16A: 30 luminaires C10A: 31 luminaires C16A: 51 luminaires
Overvoltage protection:	5kV Common mode & 4kV Differential mode
Dimming mode:	CCR
Control:	DALI

* Preliminary data

Polar



Lux

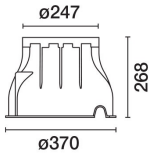
h	d	Em	Emax
8	4.6	96	117
16	9.2	24	29
24	13.8	11	13
32	18.4	6	7

Plastic casing for installation on floors + end cap

Design iGuzzini **iGuzzini**

Last information update: March 2020





Plastic casing for installation on floors + end cap

Product code
X209

Technical description
Made of plastic (polypropylene). Inclusive of front cap with system for extracting the cables and double cable entry.

Installation
Floor-standing (concrete)

Dimension (mm)
Ø247x268

Colour
Black (04)

Weight (Kg)
1.9

Mounting
ground surface|Floor recessed|ground recessed

Complies with EN60598-1 and pertinent regulations

Underscore InOut

Design iGuzzini **iGuzzini**

Last information update: February 2020



2-way junction connector - IP68

Product code
X188

Technical description
IP68 2-way cable joiner with internal 4-pole terminals suitable for cables with a cross-section of Ø=0.5÷4mm2. Made of PA66 plastic (polyamide, GWT 960°C). Complete with rubber pads for a single cable with a diameter of Ø=2.5÷12mm and rubber pads for a double cable with a diameter of Ø=2.5÷4,5mm: the latter type of pad, when used with Underscore Inout, allows 2 cables exiting the connector to be connected.

Dimension (mm)
Ø23

Colour
Indeterminate (00)

Complies with EN60598-1 and pertinent regulations

IK10

EAC

BEGA

TYPE X15

33 058

Recessed luminaire

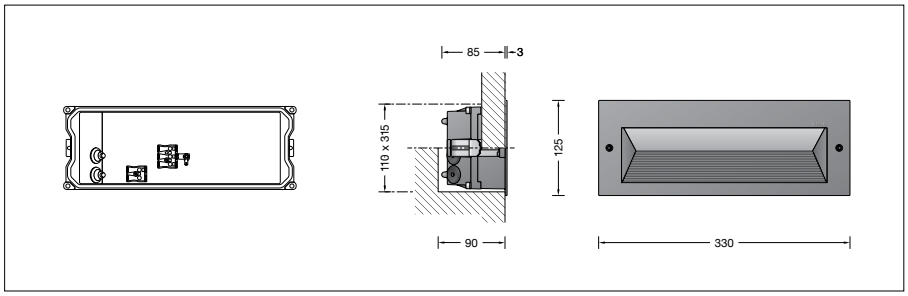
IK10 IP 65

Project · Reference number

Date

Product data sheet





Application
LED luminaire with asymmetrical light distribution for installation in walls.

Product description
Luminaire made of highly corrosion-resistant cast aluminium, aluminium and stainless steel
BEGA Tricoat® coating technology
Clear safety glass
Silicone gasket
Reflector made of pure anodised aluminium
Fixing is achieved by using two adjustable wedge-shaped claws
Required recessed opening 315 x 110 mm
Recessed depth 90 mm
2 cable entries for through-wiring of mains supply cable ø 7-10.5 mm, max. 5G1.5□
Connecting terminal and earth conductor terminal 2.5□
LED power supply unit
220-240 V ∿ 0/50-60 Hz
DC 176-280 V
DALI controllable
A basic isolation exists between power cable and control line
Safety class I
Protection class IP 65
Dust-tight and protection against water jets
Impact strength IK10
Protection against mechanical impacts < 20 joule
IK10 – Safety mark
CE – Conformity mark
Weight: 1.8 kg

Lamp

Module connected wattage	12.3 W
Luminaire connected wattage	14.8 W
Rated temperature	t_a = 25 °C
Ambient temperature	$t_{a\,max}$ = 35 °C
When installed in heat-insulating material	$t_{a\,max}$ = 25 °C

On request we can offer you modifications for enviroments with higher temperatures as a customized product.

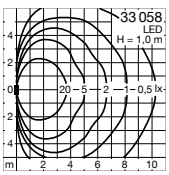
33 058 K3

Module designation	LED-0572/830
Colour temperature	3000 K
Colour rendering index	CRI > 80
Module luminous flux	1695 lm
Luminaire luminous flux	1100 lm
Luminaire luminous efficiency	74,3 lm/W

33 058 K4

Module designation	LED-0572/840
Colour temperature	4000 K
Colour rendering index	CRI > 80
Module luminous flux	1695 lm
Luminaire luminous flux	1100 lm
Luminaire luminous efficiency	74,3 lm/W

Light distribution



Service life · Ambient temperature
Ambient temperature t_a = 25 °C
LED psu: > 50,000 h
LED module: 72,000 h (L80B50)
100,000 h (L70B50)

Ambient temperature t_a = 35 °C
LED psu: 50,000 h
LED module: 41,000 h (L80B50)
62,000 h (L70B50)

Inrush current
Inrush current: 5 A / 50 µs
Maximum number of luminaires of this type per miniature circuit breaker:
B10A: 31 luminaires
B16A: 50 luminaires
C10A: 52 luminaires
C16A: 85 luminaires

Light technique
Luminaire data for the light planning program DIALux for outdoor lighting, street lighting and indoor lighting as well as luminaire data in EULUMDAT- and IES-format you will find on the BEGA web page www.bega.com.

Article No. 33 058
LED colour temperature optionally 3000 K or 4000 K
3000 K – Article number + **K3**
4000 K – Article number + **K4**

Colour graphite or silver
graphite – article number
silver – article number + **A**

Accessories
10 436 Installation housing
13 522 Installation housing for installation in insulated façades (EWIS)

10 036 Plaster frame
13 506 Plaster frame flush

A separate instructions for use can be provided upon request.