

ESR Logistics Park Lot 201

Outdoor Lighting Management Plan



New Edge Electrical Services Pty Ltd
Unit 5, 24 Daniel Street
Wetherill Park, NSW 2164

Report Details

Date: 22.03.2022
Project Number:
Document Number: PN-1
Revision: 01
Issue: For Approval

Revision	Details	Author	Approved by	Date
01	Issued for Approval	RN	RN	22.03.22

Introduction

The proposed development at Lot 201 consists of four warehouses(1, 2A, 2B and 3) with ancillary offices, Dock offices, and external car park.

The purpose of this report is to provide an overview of the selection, placement, installation, operation and maintenance of the external lighting installed in the external areas of the LOT 201.

The light management plan ensures the below,

- Safety of all staff working in the warehouse
- Safety of all visitors
- Minimize light spillage to surrounding properties
- Reduces Energy Consumption

The Electrical Services operational for the development will originate from various Main Switch Boards located in the development. Distribution Boards are located through the development to supply lighting and power internally and externally.

External Lighting in the LOT 201 consist of the below

- Pole Top Lights
- Lights mounted under Awning
- Flood Lights mounted to Building Facades
- Linear lights located externally on the building

Luminaire Selection and Light Calculations

All the outdoor lighting uses energy efficient LED lamps. The data sheets of all the lighting. Lighting calculations plots are attached as Appendix with this Report.

All light fittings are carefully selected to comply with AS 1158 – Lighting for Roads and Public Spaces and AS 4282 2019 – Control of Obtrusive effects of outdoor lighting. The lights fittings are located and mounted so as to minimise glare and reduce the spillage of light to surrounding properties.

External Awnings are provided with LED light fittings providing a minimum 100 lux at 1000mm from floor level. Car Parks, Truck Parks and other manoeuvring areas are provided with light levels as per AS 1158.

LED lights are located to external perimeter of the building to provide minimum 20lux at 1000mm above floor level.

LIGHT CONTROL

Control of lighting is achieved by a combination of Photo electric cells and programmable timers as outlined below.

PE cell (daylight sensing)

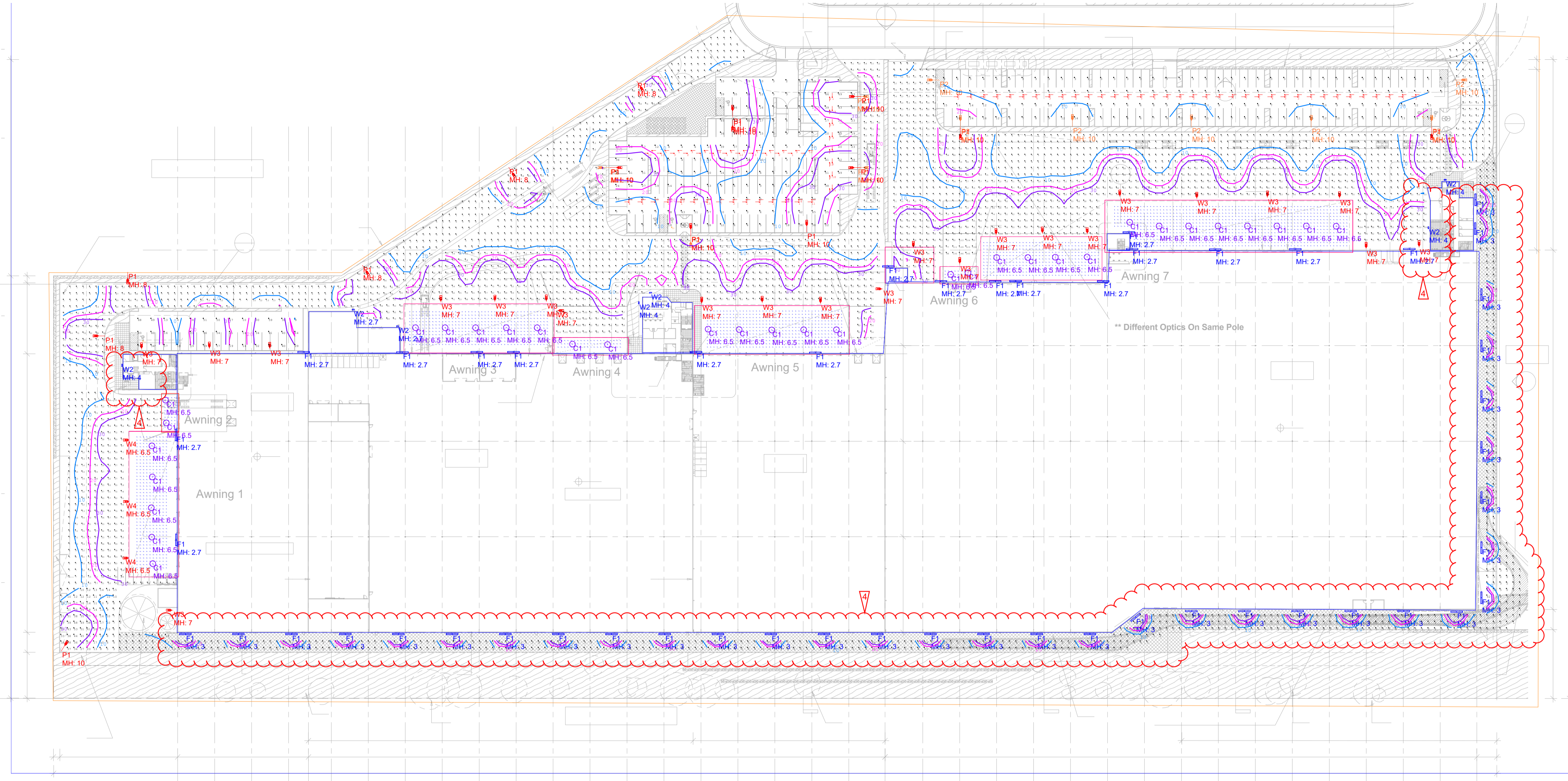
Photoelectric (PE) cells are used to measure the light level outside and activate outdoor lighting. The cell is programmed with a target light level and will turn lights on if the light level falls below the target level and turn lights off if the light level is above the target. PE cells are used in addition to other lighting control schemes described above.

Maintenance and Warranties

All external lighting fixtures shall be regularly inspected and maintained as part of the building maintenance plan. Refer to light manufacturer data sheet for respective maintenance plan for the light fittings. All fittings are provided with warranties as per the contractual requirements.

GENERAL LIGHTING NOTES:

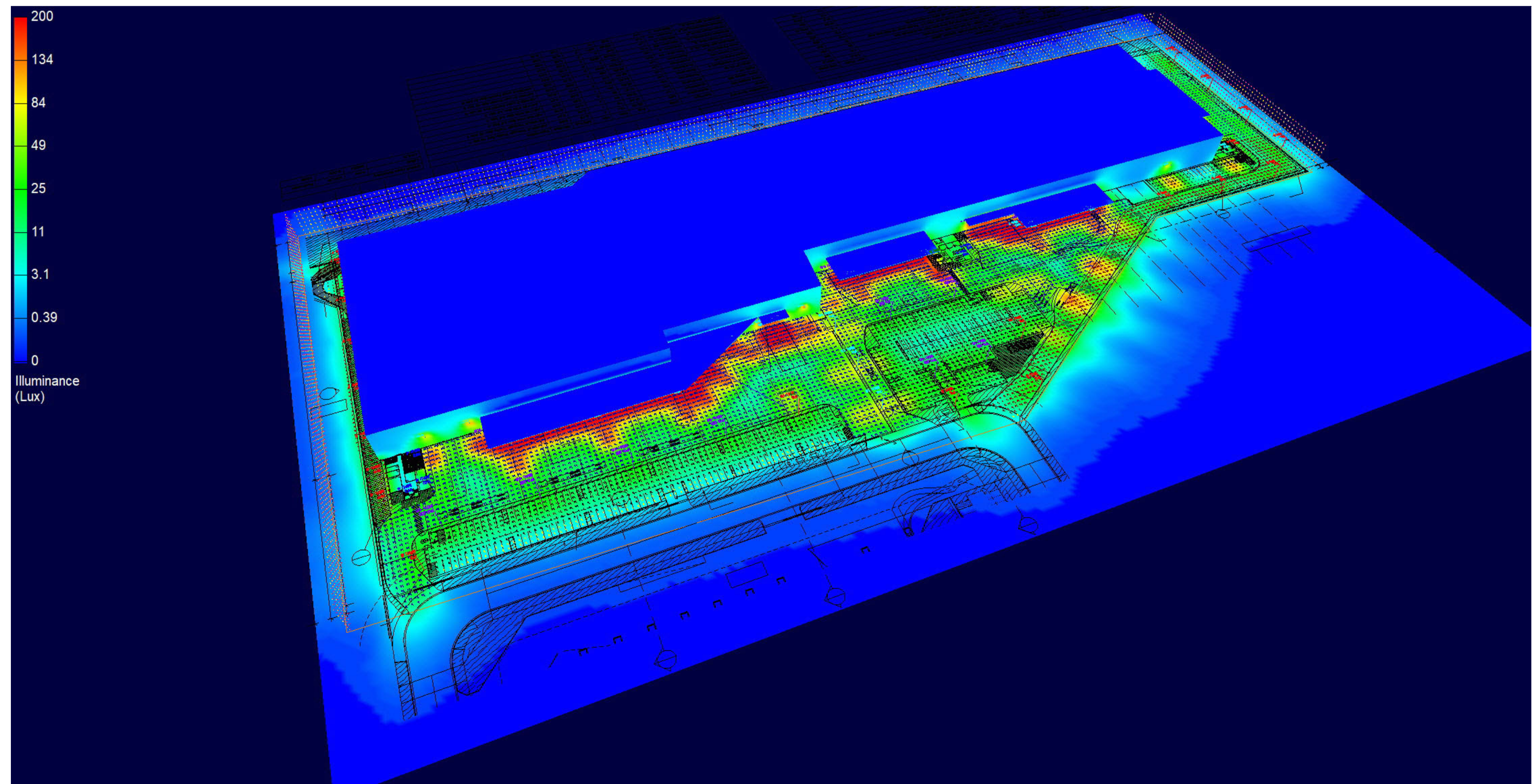
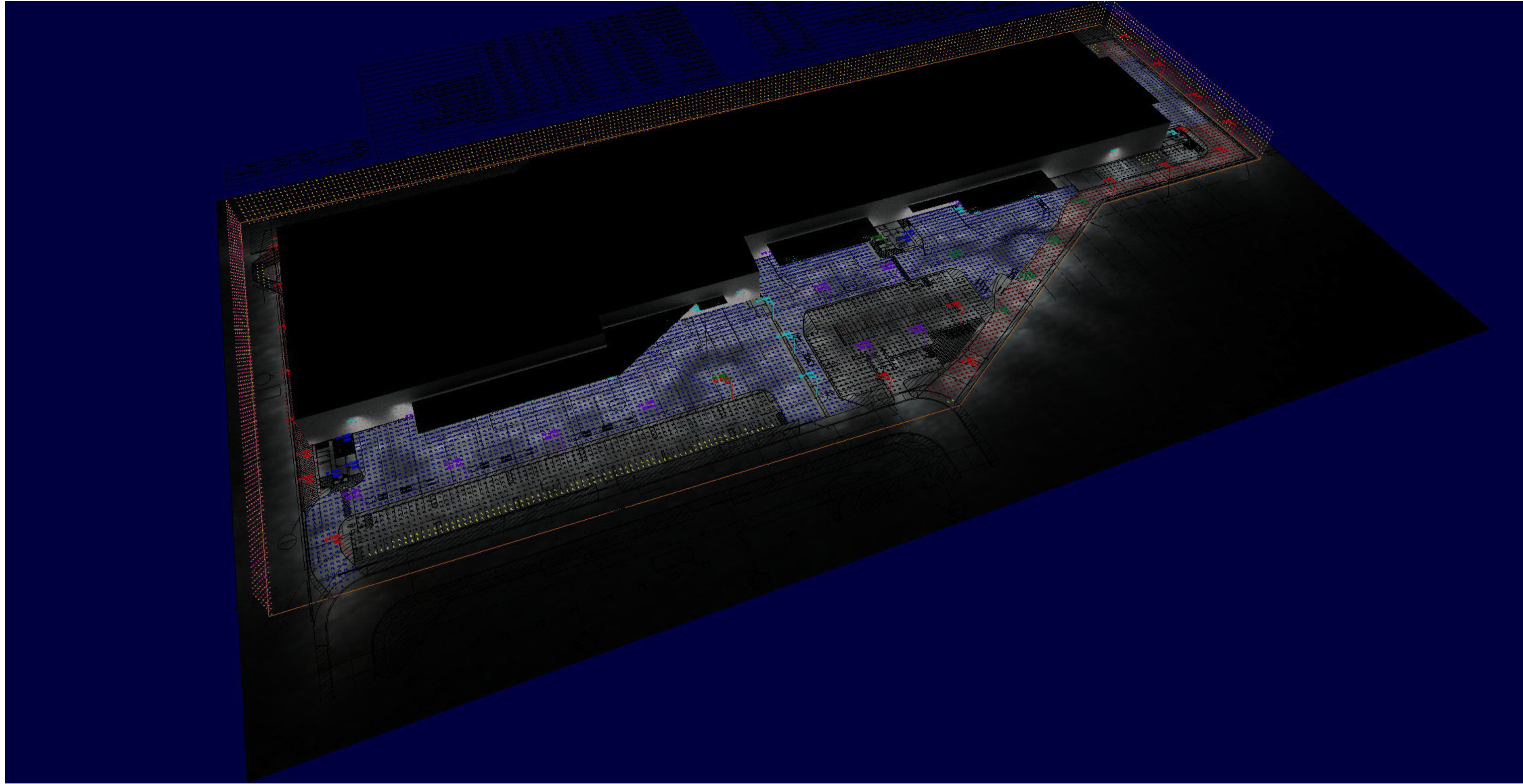
1. LIGHTING CALCULATIONS ARE PERFORMED BASED ON THE RECOMMENDATIONS OF THE FOLLOWING AUSTRALIAN STANDARDS FOR LIGHTING:
 - AS1680 SERIES FOR INTERNAL AND EXTERNAL WORKPLACE LIGHTING
 - AS1158 SERIES FOR EXTERNAL LIGHTING
2. LIGHTING CALCULATIONS ARE BASED ON MAINTAINED VALUES OF LFF = 0.8 UNLESS NOTED OTHERWISE.
3. THE SURFACE REFLECTANCE VALUES USED FOR ALL TYPICAL INTERNAL SURFACES ARE 0.2 FOR FLOORS, 0.5 FOR WALLS AND 0.7 FOR CEILINGS IN ACCORDANCE WITH AS1680 SERIES.
4. LIGHTING TECHNICAL PARAMETERS FOR CALCULATIONS ARE IN ACCORDANCE WITH MINIMUM REQUIREMENTS AND ILLUMINANCE LEVELS IN AS1680 SERIES AND THE UPS SCS PROJECT MANUAL MARCH 2021.
5. LIGHTING CALCULATIONS ARE PERFORMED IN ACCORDANCE WITH THE PROCEDURES OUTLINED IN AS1680 AND AS1158 SERIES.
6. LUMINAIRE MOUNTING HEIGHTS ARE AS NOTED ON THE LIGHTING LAYOUT.
7. ALL IES FILES ARE PROVIDED BY LIGHTING MANUFACTURERS.
8. LIGHTING LAYOUTS ARE BASED ON ARCHITECTURAL INFORMATION PROVIDED BY OTHERS.
9. THIS CALCULATION IS SCHEMATIC ONLY - ALL LUMINAIRE LOCATIONS ARE SUBJECT TO COORDINATION WITH ALL OTHER SERVICES BY OTHERS.
10. THIS CALCULATION IS TO BE READ IN CONJUNCTION WITH LUMINAIRE SCHEDULES OR DATASHEETS.
11. UGR CALCULATIONS ARE IN ACCORDANCE WITH VALUES AND ALLOWANCES IN AS1680 SERIES.
12. LIGHTING CALCULATIONS FOR OBTRUSIVE LIGHT AND UWLR ARE IN ACCORDANCE WITH THE RECOMMENDATIONS SET OUT IN AS4282:2019. REFER TO OBTRUSIVE LIGHT REPORT.
13. TYPICAL UNIFORMITY CALCULATIONS ARE GIVEN AS A SAMPLE STATISTICAL 50m² AREA IN ACCORDANCE WITH THE RECOMMENDATIONS IN AS1680 SERIES.



Symbol	Qty	Arrangement	LLF	Description	Tag	Lum. Watts	Lum. Lumens
	3	SINGLE	0.800	MRSE 110 840 L07 A024_Bin-L_T	W4	110	12893
	7	SINGLE	0.800	LNC2-18LU-4K-4	W2	44.8	3225
	15	SINGLE	0.800	MRSE 110 840 L08 A024 1m Outreach	P1	110	13154
	11	SINGLE	0.800	MRUE 050 740 L22 A016 CSN DG1 1m Outreach Arm	P2	50	6374
	23	SINGLE	0.800	MRSE 110 840 L08 A024 Wall Mount	W3	110	13154
	52	SINGLE	0.800	R3540_IESNA2002	F1	41.1	4636
	33	SINGLE	0.800	R3112SD 4000K Ra70 120DEG_IES20	C1	149.8	23500

Label	Units	Avg	Max	Min	Min/Avg	Max/Avg	Description
Carpark 2A 2B Ev 1	Lux	N.A.	16	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 2A 2B Ev 2	Lux	N.A.	15	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 2A 2B Ev 3	Lux	N.A.	18	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 2A 2B Ev 4	Lux	N.A.	30	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 2A 2B Ev 5	Lux	N.A.	19	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 2A 2B Ev 6	Lux	N.A.	16	2	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Access Road North	Lux	18.51	87	1	N.A.	4.7	AS1680.5: 10lux Avg, Eph Min 1lux, Max/Avg <7
Access Road South	Lux	14.67	99	1	N.A.	6.8	AS1680.5: 10lux Avg, Eph Min 1lux, Max/Avg <7
Carpark - DDA 2A	Lux	22.00	22	22	N.A.	1.0	AS1158 Cat PCD: >14lux, Eph >Carpark 1
Carpark - DDA 2B	Lux	48.00	48	48	N.A.	1.0	AS1158 Cat PCD: >14lux, Eph >Carpark 1
Carpark - DDA 3	Lux	74.00	74	74	N.A.	1.0	AS1158 Cat PCD: >14lux, Eph >Carpark 2
Carpark - DDA 1	Lux	24.50	26	23	N.A.	1.1	AS1158 Cat PCD: >14lux, Eph >Carpark 3
Carpark 1 Eh	Lux	7.39	26	3	N.A.	3.5	AS1158 Cat PC2: 7lux Avg, Eph Min 1.5lux, Max/Avg <8
Carpark 1 Ev 1	Lux	N.A.	7	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 1 Ev 2	Lux	N.A.	8	1	N.A.	N.A.	AS1158 Cat PC2: Epv Min 1lux
Carpark 2A 2B Eh	Lux	20.37	57	2	N.A.	2.8	AS1158 Cat PC2: 7lux Avg, Eph Min 1.5lux, Max/Avg <8
Carpark 3 Eh	Lux	35.64	83	6	N.A.	2.3	AS1158 Cat PC2: 7lux Avg, Eph Min 1.5lux, Max/Avg <8
Crossing 1	Lux	29.16	38	22	N.A.	1.3	AS1158 Cat PCX: 21lux Avg, Eph Min 5lux, Max/Avg <8
Crossing 2	Lux	32.27	42	24	N.A.	1.3	AS1158 Cat PCX: 21lux Avg, Eph Min 5lux, Max/Avg <8
Forecourt W1 - General Load Zone	Lux	27.52	146	3	N.A.	5.3	AS1680.5: 20lux Avg, Eph Min 2.5lux, Max/Avg <7
Forecourt W2 - General Load Zone	Lux	29.13	134	3	N.A.	4.6	AS1680.5: 20lux Avg, Eph Min 2.5lux, Max/Avg <7
Forecourt W3 - General Load Zone	Lux	34.29	207	3	N.A.	6.0	AS1680.5: 20lux Avg, Eph Min 2.5lux, Max/Avg <7
Under Awning 1	Lux	159.08	261	81	0.5	N.A.	100lux Avg, Min/Avg 0.5
Under Awning 2	Lux	225.40	280	156	0.7	N.A.	100lux Avg, Min/Avg 0.5
Under Awning 3	Lux	145.16	257	69	0.5	N.A.	100lux Avg, Min/Avg 0.5
Under Awning 4	Lux	165.98	238	96	0.6	N.A.	100lux Avg, Min/Avg 0.5
Under Awning 5	Lux	131.52	248	60	0.5	N.A.	100lux Avg, Min/Avg 0.5
Under Awning 6	Lux	284.27	319	204	0.7	N.A.	100lux Avg, Min/Avg 0.5
Under Awning 7	Lux	130.28	233	61	0.5	N.A.	100lux Avg, Min/Avg 0.5

Label	Area	UWLR	Perimeter
UWLR	83231	0.012	1269



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Obtrusive Light - Compliance Report

AS/NZS 4282:2019, A4 - High District Brightness, Curfew
 Filename: PLV_L0_005 - Obtrusive Light Calculation Rev 2
 27/10/2021 8:46:01 PM

Illuminance

Maximum Allowable Value: 5 Lux

Calculations Tested (3):

Calculation Label	Test Results	Max. Illum.
ObtrusiveLight West_Ill_Seg1	PASS	5
ObtrusiveLight South_Ill_Seg1	PASS	2
ObtrusiveLight East_Ill_Seg1	PASS	2

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 2500 Cd

Calculations Tested (3):

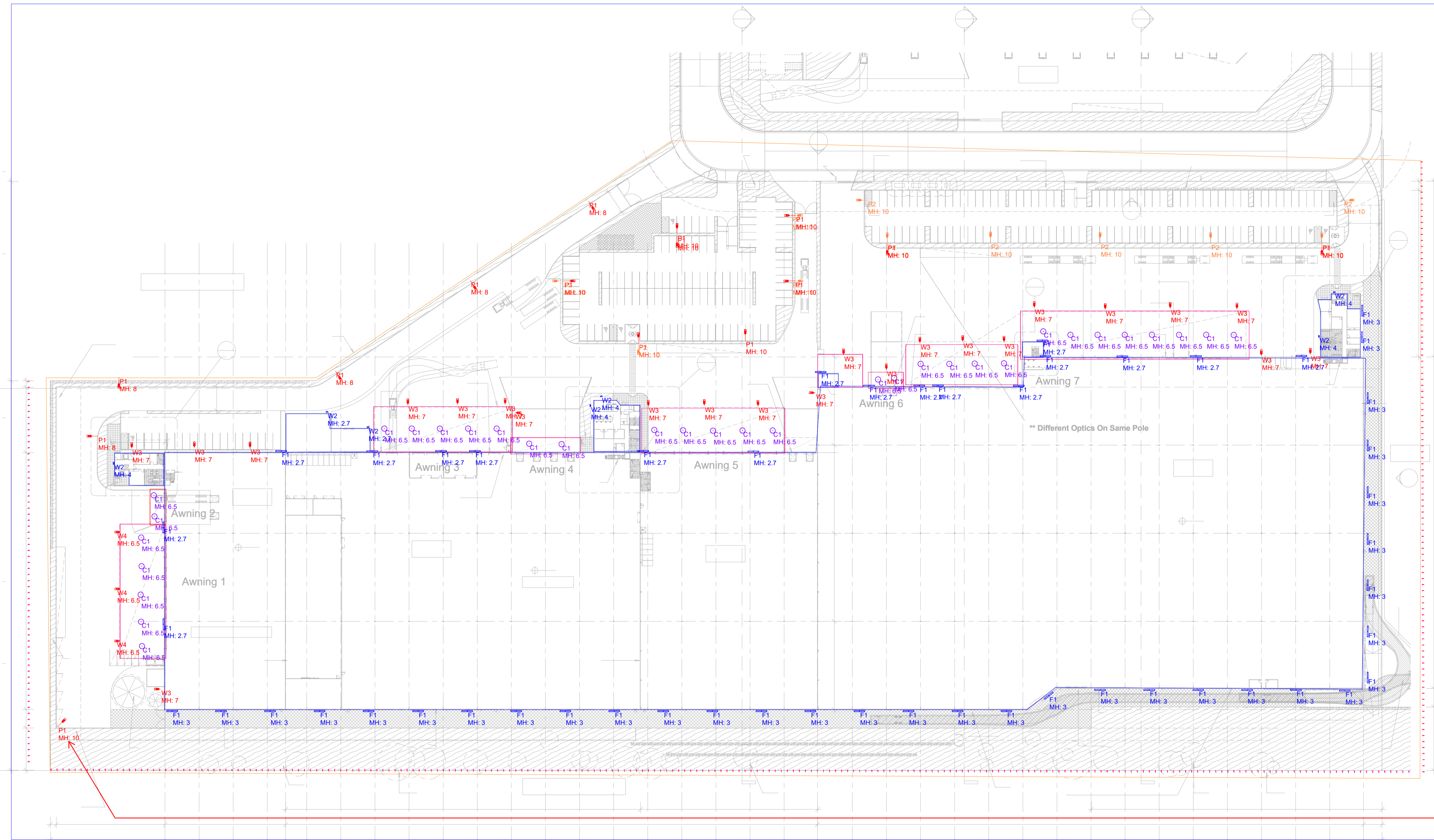
Calculation Label	Test Results
ObtrusiveLight West_Cd_Seg1	*SEE GUIDANCE PASS
ObtrusiveLight South_Cd_Seg1	PASS
ObtrusiveLight East_Cd_Seg1	PASS

Upward Waste Light Ratio (UWLR)

Maximum Allowable Value: 3.0 %

Calculated UWLR: 1.2 %
 Test Results: **PASS**

*THIS LUMINAIRE IS TO BE DIMMED TO 80% TO ACHIEVE POST-CURFEW REQUIREMENTS ON WESTERN BOUNDARY



Symbol	Qty	Arrangement	LLF	Tag	Lum. Watts	Lum. Lumens
[Symbol]	3	SINGLE	1.000	W4	110	12893
[Symbol]	7	SINGLE	1.000	W2	44.8	3225
[Symbol]	11	SINGLE	1.000	P2	50	6374
[Symbol]	15	SINGLE	1.000	P1	110	13154
[Symbol]	23	SINGLE	1.000	W3	110	13154
[Symbol]	52	SINGLE	1.000	F1	41.1	4636
[Symbol]	33	SINGLE	1.000	C1	149.8	23500

Label	Units	Avg	Max	Min	Min/Avg	Min/Max
ObtrusiveLight East_Cd_Seg1	N.A.	244.47	2025	61	0.25	0.03
ObtrusiveLight East_Ill_Seg1	Lux	0.77	2	0	0.00	0.00
ObtrusiveLight South_Cd_Seg1	N.A.	239.95	478	85	0.35	0.18
ObtrusiveLight South_Ill_Seg1	Lux	0.87	2	0	0.00	0.00
ObtrusiveLight West_Cd_Seg1	N.A.	325.82	1173	118	0.36	0.10
ObtrusiveLight West_Ill_Seg1	Lux	0.48	5	0	0.00	0.00

Label	Area	UWLR	Perimeter
UWLR	83231	0.012	1269

HORSLEY PARK - UPS SCS FACILITY EXTERNAL OBTUSIVE LIGHT CALCULATION
 Scale= 1: 750

PROJECT TITLE:

Horsley Park Logistics Centre

UPS SCS Australia

Site Lighting Calculation
 Obtrusive Light

Drawing No.

PLV_L0_005

Client:

Date:

27/10/2021

PULVIN

Design: RW - PULVIN

Checked: CC - PULVIN

Approved:

Horsley Park Warehouse | Type P1

VIZULO



Mini Martin

TOOL-LESS

CE RoHS 



Architectural & Landscape

Sports Lighting

Large Outdoor Industrial Area

Agricultural Area

Ventilation cable gland

Combines pressure equalization and cable gland in a single unit. It ensures high air flow rates as well as high water protection capacity

Glass

Flat glass. Glass is fixed to die-cast aluminium frame with metal clips and can easily be replaced

LED module

High quality LED's with optimal thermal resistance and energy consumption characteristic, for high lumen output and long expected life time. Color temperature available: 3000K, 4000K

(5000K, 5700K available on customer request)

Intelligent light control system

Power line or radio frequency

Protection

IP66 for the complete luminaire

Module temperature control

The LED driver will start reducing the light output when the LED's approach critical temperature. The temperature is measured via a sensor placed on the PCB

(function available on customer request)

Body

Die-cast aluminium

Lighting protection

Built-in surge protection starting from 3 kV till 10 kV

Light regulation

MINI MARTIN drivers offer integrated midnight dimming and network-controlled 1-10V and DALI protocols

Impact resistance

IK08 (Vandal protected) for the complete luminaire



Traffic roads

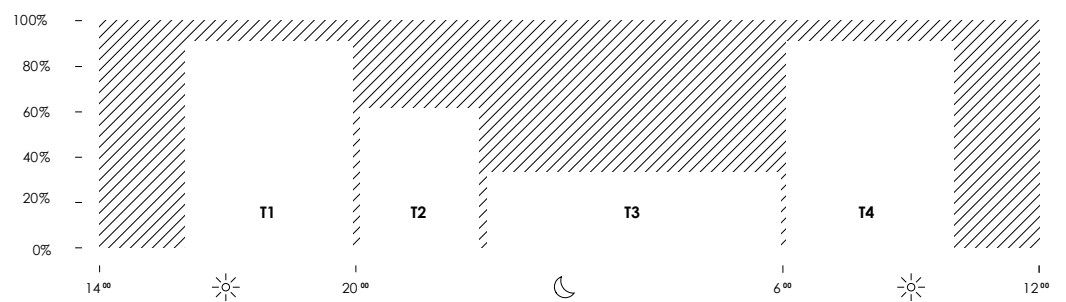
Pedestrian Roads

Residential Street/Area

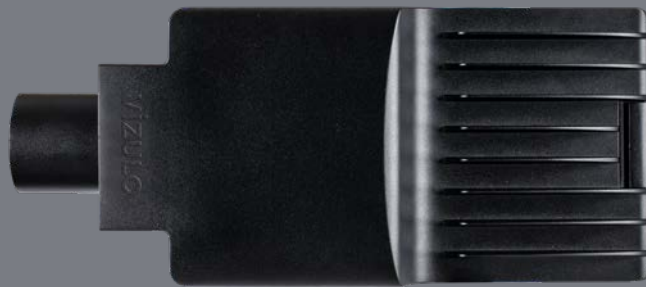
City Centre

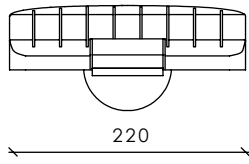
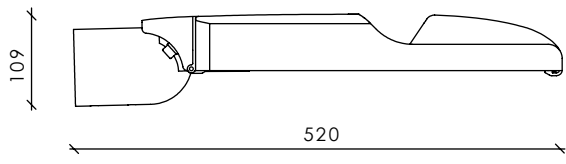
Midnight dimming

Midnight dimming provides multi-stage night-time power reduction based on an internal timer referenced to the power on/off time. There is no need for an external control infrastructure. The unit automatically performs a dimming profile based on the predefined scheduled reference to the midpoint, which is calculated based on the power on / off times.



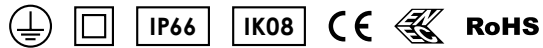
Mini martin tool-less





Other colors
available on request

Technical information



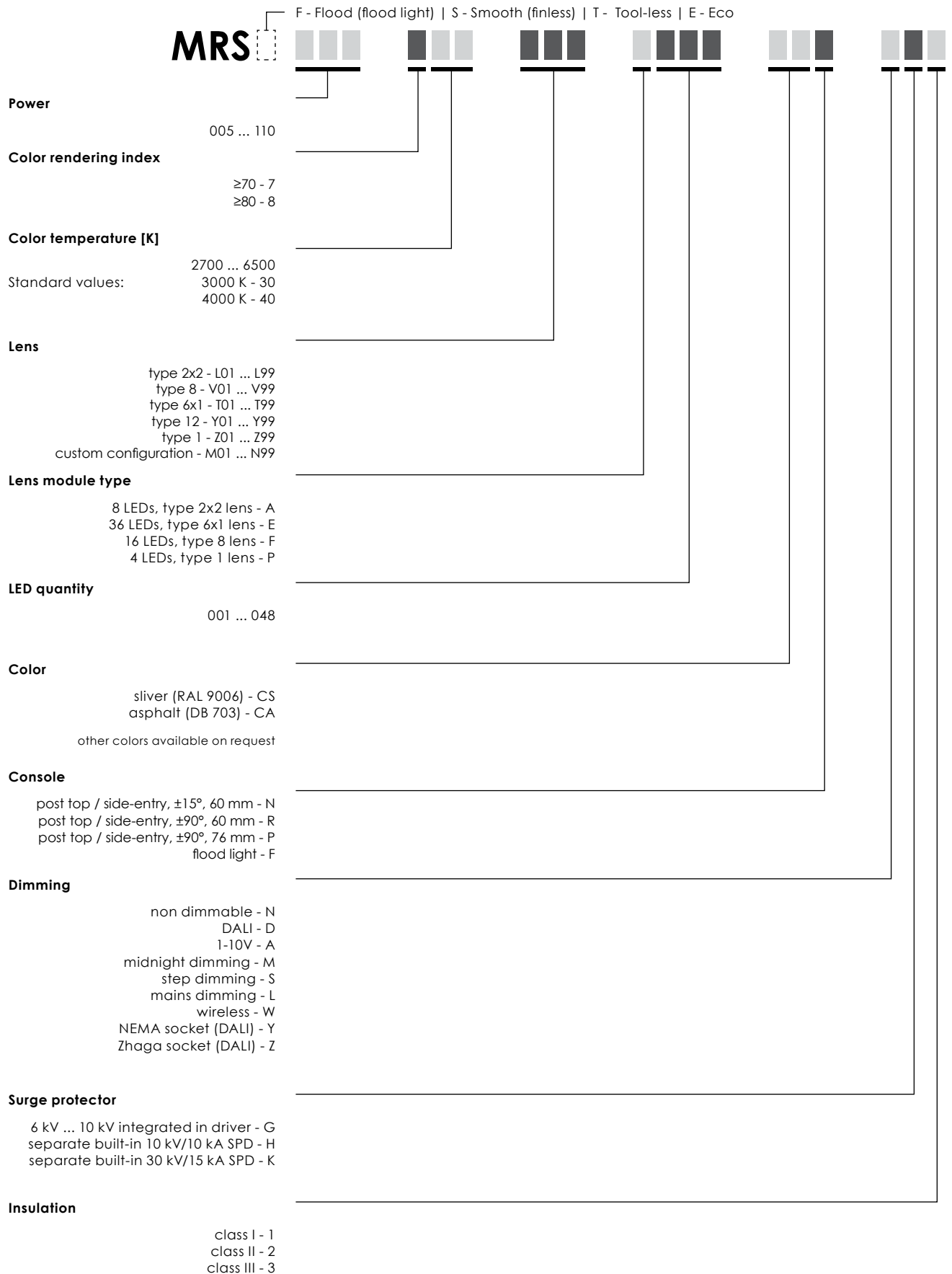
V	220 - 240	1-10V; DALI; Midnight dimming
Hz	50 - 60	Chromaticity tolerance (initial MacAdam): 5
W	10 - 110	Radio frequency
lm	1100 - 13550	Warranty 5 years
lm/W	110 - 136	100 000 h (L95B10C10) at Ta = 25 °C
K	3000 / 4000 / 5000	
°C	-40 to +50	
CRI	>70 / >80 ⁽¹⁾	<i>Surge protection:</i> 6kV (L-N) and 10 kV (L/N -PE without DALI connection) ⁽²⁾
		<i>Body:</i> Die-cast aluminum

(1) Luminaries with color rendering index (CRI): Ra >90 on request

(2) 10 kV (L-N; L/N-PE) surge protection device available on request

Standard configuration 35 cm cable. for easy installation, please see accessories- cable connector.
(This accessories are not included in standard price)

Model name principles



EXAMPLE MRS 050 740 L01 A024 CSN DG1

Standard modules

*Only with optic 01 / 02 / 03

4000K

Number of LED's	8			16			24			36*		
Nominal current, mA	350	520	700	350	500	700	350	500	700	350	500	710
Power, W	10	15	19	20	26	35	29	39	52	40	55	78
Luminous Flux, lm	1220	1820	2260	2550	3310	4350	3810	5060	6580	5470	7390	9930
Efficacy, lm/W	122	121	119	128	127	124	131	130	127	137	134	127
Power factor, PF	0,84	0,92	0,96	0,91	0,95	0,97	0,93	0,95	0,97	0,95	0,98	0,98

Luminaire efficacy	3000 K	10 - 78 W	1060 - 9610 lm	102 - 124 lm/W
	4000 K	10 - 78 W	1220 - 9930 lm	119 - 137 lm/W
	5000 K	10 - 78 W	1220 - 9930 lm	119 - 137 lm/W

High density modules

Only with optic 01 / 04 / 05 / 20 / 22 / 35

4000K

Number of LED's	16			32			48			
Nominal current, mA	350	500	700	370	500	700	350	500	700	760
Power, W	20	26	35	37	50	68	51	72	102	110
Luminous Flux, lm	2550	3310	4350	5010	6650	8690	7120	9710	13190	13550
Efficacy, lm/W	128	127	124	135	133	128	140	135	129	123
Power factor, PF	0,91	0,95	0,97	0,95	0,97	0,98	0,95	0,97	0,98	0,97

Luminaire efficacy	3000 K	20 - 110 W	2470 - 13620 lm	114 - 131 lm/W
	4000 K	20 - 110 W	2550 - 13550 lm	124 - 140 lm/W
	5000 K	20 - 110 W	2550 - 14070 lm	134 - 140 lm/W

4000K

Number of LED's	8			16			24		
Nominal current, mA	350	500	700	350	500	700	350	500	700
Power, W	19	26	38	37	52	75	54	76	110
Luminous Flux, lm	2580	3390	4460	5120	6770	8920	7680	10070	13270
Efficacy, lm/W	136	130	117	138	130	119	142	133	121
Power factor, PF	0,85	0,9	0,91	0,94	0,97	0,98	0,97	0,98	0,99

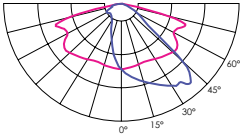
Logistic information

Carton size/cm L*W*H	Quantity per carton/pcs	Pallet quantity in 20' sea container	Pallet quantity in 40' sea container	QTY per pallet/pcs	Full palette size/cm L*W*H	Number of luminaires per row	Number of rows
54,5 x 23,5 x 16,5	1	20	25	70	120 x 80 x 177	7	10

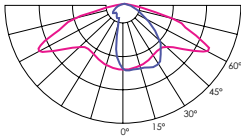
	NETO WEIGHT/KG		BRUTO WEIGHT/KG	
	Per 1 pcs	Per pallet	Per 1 pcs	Per pallet
MINI MARTIN 1 module luminaires	5,5	385	6,1	427
MINI MARTIN 2 module luminaires	5,55	388,5	6,15	430,5
MINI MARTIN 3 module luminaires	5,6	392	6,2	434
MINI MARTIN 4 module luminaires	5,65	395,5	6,25	437,5

Optics

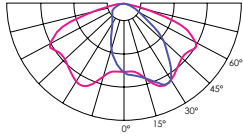
01



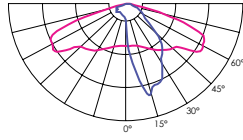
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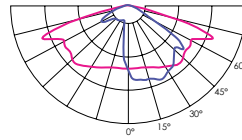
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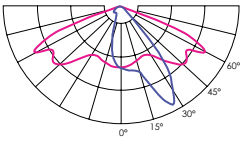
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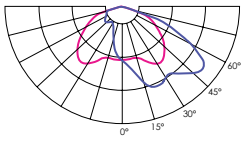
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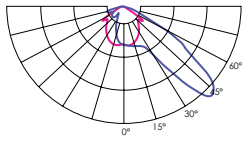
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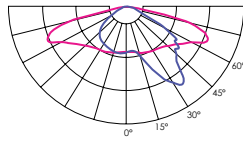
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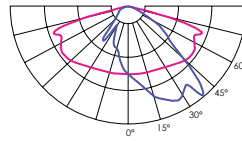
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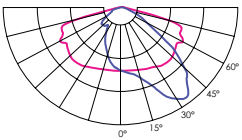
09



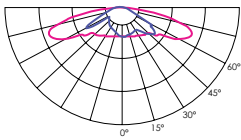
17



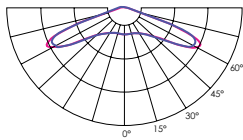
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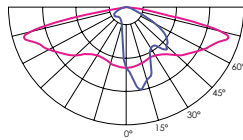
19



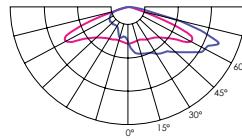
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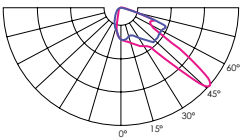
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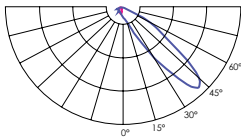
35



36



37

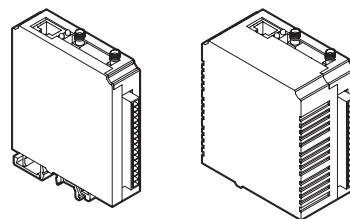


Accessories

Citintelly Segment controller

Segment Controller receives commands from Citintelly server via GSM and transmits tasks to Luminaire Controller via radio frequency communication.

Art. 70010004

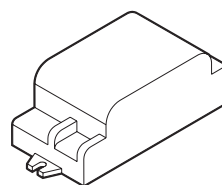


Citintelly Luminaire controller

Luminaire Controller is wireless mesh-networking device that uses 868 MHz for communication with Segment Controller and other Luminaire Controllers. It is delivered in various configurations to meet the needs of your applications.

Art. 70010001 /
LC2M-23-05-R Luminaire
Controller - 2 relays

Art. 70010002 /
LC2M-12-05-R Luminaire
Controller - 1 relay



Citintelly Surge Protection device

Surge Protection device offers protection against lighting surges;

Voltage Protection level up (L-N) $\leq 1,5$ kV

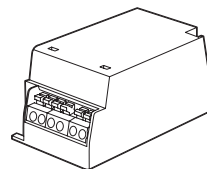
Voltage Protection level up (L/N-PE) $\leq 2,0$ kV

$U_{oc} = 10$ kV

$I_{max} = 10$ kA

$I_{nom} = 5$ kA

Art. 70020001



Radio Frequency Antenna

Heavy duty IP67 enclosure
Mounted in cabinet or luminaire body
with 14 mm screw
SMA connector

Art. 70000108



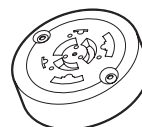
NEMA Socket

2213362-3, 5 pin NEMA socket 105°C wires

2213362-4, 7 pin NEMA socket 105°C wires

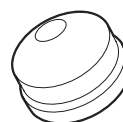
Art. 70000362

Art. 70000333



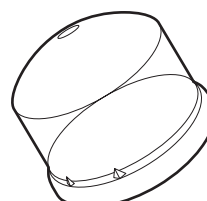
Dummy Link for NEMA Socket

Art. 70000113



MSLC205RGL Luminaire controller, Zhaga, 80mm

Art. 70010029



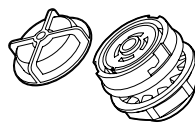
Zhaga socket no cap

Art. 70000612



Zhaga socket with cap

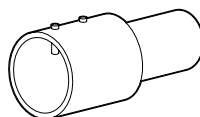
Art. 70000613



Console adapter

Spigot size 60 - 76mm

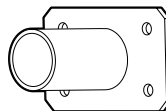
Art. 70044002



Wall mounting bracket

Spigot size 40 - 60 mm

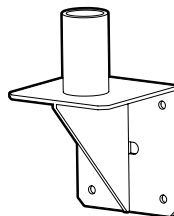
Art. 70044001



Wall mounting bracket

Vertical

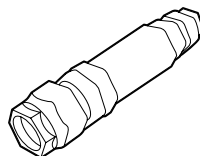
Art. 70044004



Connector

IP66 rated connector offers easy installation of the street luminaires.
3 wire cable connector

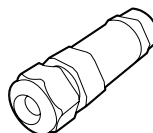
Art. 70000313



Connector

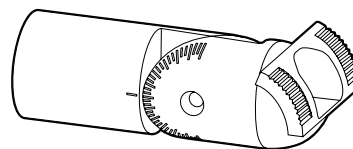
IP66 rated connector offers easy installation of the street luminaires.
5 wire cable connector

Art. 70000304



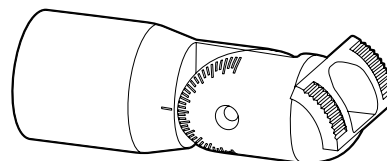
Adjustable Console ±90°
60 mm - Mini Martin / Micro Martin

Art. 70055005



Adjustable Console ±90°
76 mm - Mini Martin / Micro Martin

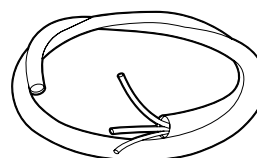
Art. 70055006



Pre-installed cable sets

For internal power supply:

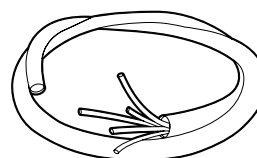
3 x 1,5 mm - 0,5 m long cable.....	Art. 70000319
3 x 1,5 mm - 5 m long cable.....	Art. 70000320
3 x 1,5 mm - 6 m long cable.....	Art. 70000321
3 x 1,5 mm - 8 m long cable.....	Art. 70000322
3 x 1,5 mm - 10 m long cable.....	Art. 70000323
3 x 1,5 mm - 12 m long cable.....	Art. 70000324
3 x 1,5 mm - 18 m long cable.....	Art. 70000325
3 x 1,5 mm - 20 m long cable.....	Art. 70000425
3 x 1,5 mm - 22 m long cable.....	Art. 70000426
3 x 1,5 mm - 25 m long cable.....	Art. 70000427
3 x 1,5 mm - 32 m long cable.....	Art. 70000430
3 x 1,5 mm - 42 m long cable.....	Art. 70000431
3 x 1,5 mm - 50 m long cable.....	Art. 70000432



Pre-installed cable sets

For internal power supply:

5 x 1,5 mm - 0,5 m long cable.....	Art. 70000305
5 x 1,5 mm - 5 m long cable.....	Art. 70000316
5 x 1,5 mm - 6 m long cable.....	Art. 70000317
5 x 1,5 mm - 8 m long cable.....	Art. 70000318
5 x 1,5 mm - 10 m long cable.....	Art. 70000306
5 x 1,5 mm - 12 m long cable.....	Art. 70000307
5 x 1,5 mm - 18 m long cable.....	Art. 70000308
5 x 1,5 mm - 20 m long cable.....	Art. 70000428
5 x 1,5 mm - 22 m long cable.....	Art. 70000429
5 x 1,5 mm - 25 m long cable.....	Art. 70000429
5 x 1,5 mm - 32 m long cable.....	Art. 70000433
5 x 1,5 mm - 42 m long cable.....	Art. 70000434
5 x 1,5 mm - 50 m long cable.....	Art. 70000435



VIZULO

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Production: + 371 67 383 024

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www.vizulo.com

 VIZULO

 VIZULO_PHOTO


Horsley Park Warehouse | Type P2

VIZULO



Micro Martin

TOOL-LESS



Architectural & Landscape

Sports Lighting

Large Outdoor Industrial Area

Agricultural Area

Ventilation cable gland

Combines pressure equalization and cable gland in a single unit. It ensures high air flow rates as well as high water protection capacity

Glass

Flat glass. Glass is fixed to die-cast aluminium frame with screws

LED module

High quality LED's with optimal thermal resistance and energy consumption characteristic, for high lumen output and long expected life time. Color temperature available: 3000K, 4000K

(5000K, 5700K available on customer request)

Intelligent light control system

Power line or radio frequency

Protection

IP66 for the complete luminaire

Module temperature control

The LED driver will start reducing the light output when the LED's approach critical temperature. The temperature is measured via a sensor placed on the PCB

(function available on customer request)

Body

Die-cast aluminium

Lighting protection

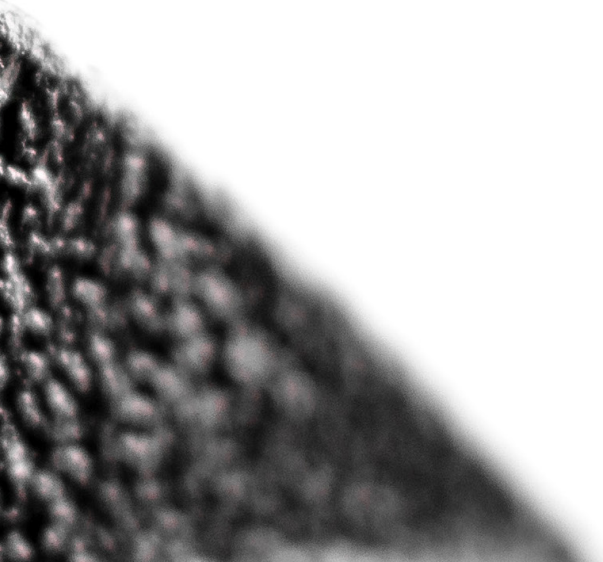
Built-in surge protection starting from 6 kV till 10 kV

Light regulation

MICRO MARTIN drivers offer integrated midnight dimming and network-controlled 1-10V and DALI protocols

Impact resistance

IK08 (Vandal protected) for the complete luminaire



Traffic roads

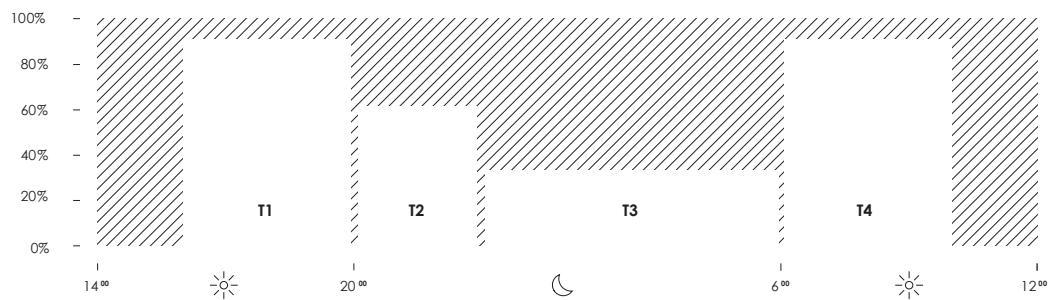
Pedestrian Roads

Residential Street/Area

City Centre

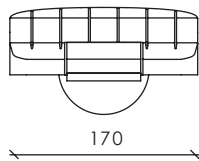
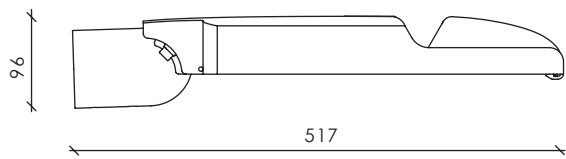
Midnight dimming

Midnight dimming provides multi-stage night-time power reduction based on an internal timer referenced to the power on/off time. There is no need for an external control infrastructure. The unit automatically performs a dimming profile based on the predefined scheduled reference to the midpoint, which is calculated based on the power on / off times.



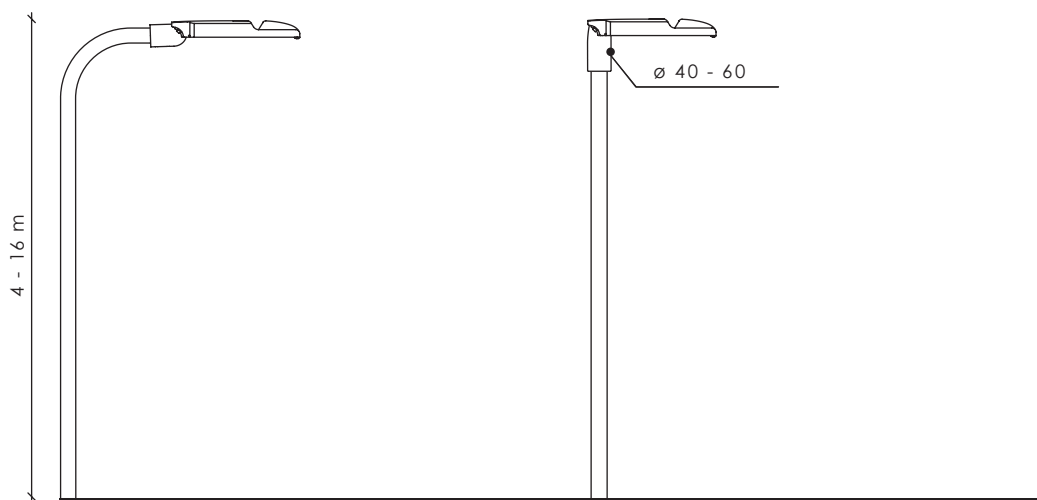
Micro martin tool-less





Other colors available on request

Max.wind load area, SCd, m²: 0,036



Technical information



V	220 - 240	1-10V; DALI; Midnight dimming
Hz	50 - 60	Chromaticity tolerance (initial MacAdam): 5
W	5 - 75	Radio frequency
lm	470 - 8875	Warranty 5 years
lm/W	90 - 132	100 000 h (L95B10) at ta = 25°C
K	3000 / 4000	100 000h (L80B10C10) ⁽²⁾
°C	-40 to +50	
CRI	>70 / >80 ⁽¹⁾	
		<i>Surge protection:</i> 6 kV / separate built-in 10 kV
		<i>Spigot:</i> ø 40 - 60 mm
		<i>Body:</i> Die-cast aluminum

⁽¹⁾ Luminaires with color rendering index (CRI): Ra >90 on request

⁽²⁾ Average lifetime value for ECO model at Ta = 25C is 100 000h L80/B10*

*This value is only informative and may change according to selected article. LED Lifetime is strongly depending from LEDs current and junction temperature – increase in LED current and luminaire power lead to increase of junction temperature and as consequence lifetime decrease. Thus, luminaire models with lower power, lower current (and lower junction temperature) will have higher lifetime than standard models and will reach 100 000h L90/B10. And high power and high current luminaire models may have negative lifetime deviation comparing to standard models. To receive precise value please contact VIZULO export representatives.

Technical parameters for final product can differ from typical data by 7% due to special conditions of LED manufacturing processes.

Standard modules

4000K

Number of LED's	8			16		
Nominal current, mA	350	520	700	350	520	700
Power, W	10	15	19	19	27	37
Luminous Flux, lm	1162	1687	2137	2360	3333	4450
Efficacy, lm/W	116	113	113	124	124	120
Power factor, PF	0,81	0,85	0,9	0,9	0,95	0,97
Luminaire efficacy	3000 K	8 - 37 W	884 - 4313 lm	102 - 124 lm/W		
	4000 K	8 - 37 W	914 - 4450 lm	119 - 137 lm/W		
	5000 K	8 - 37 W	914 - 4450 lm	119 - 137 lm/W		

High density modules

4000K

Number of LED's	16			32		
Nominal current, mA	350	500	740	350	500	760
Power, W	19	26	37	35	50	75
Luminous Flux, lm	2434	3283	4462	4654	6458	9130
Efficacy, lm/W	128	126	120	133	129	122
Power factor, PF	0,88	0,94	0,97	0,83	0,93	0,98
Luminaire efficacy	3000 K	10 - 75 W	1182 - 8835 lm	107 - 128 lm/W		
	4000 K	10 - 75 W	1221 - 9130 lm	124 - 140 lm/W		
	5000 K	10 - 75 W	1221 - 9130 lm	134 - 140 lm/W		

ECO

4000K

Number of LED's	4			8			16		
Nominal current, mA	140	520	700	250	500	700	250	500	700
Power, W	5	15	20	14	27	38	27	52	75
Luminous Flux, lm	559	1801	2307	1934	3483	4558	3842	6775	8832
Efficacy, lm/W	110	120	115	139	129	120	142	130	118
Power factor, PF	0,69	0,9	0,95	0,91	0,94	0,98	0,71	0,94	0,97

MCB / Inrush current table

Tridonic LED driver

Standard/High density	In-rush current (peak/duration)	B10A	B16A	B20A	B25A	C10A	C16A	C20A	C25A
MRU 8-16 LED, 8-33 W	36 A (195 μ s)	10	16	21	28	16	21	35	44
MRU 16-28 LED, 19-60 W	32 A (267 μ s)	7	12	15	19	11	20	25	30
MRU 32 LED, 28-75 W	32 A (267 μ s)	7	12	15	19	11	20	25	30

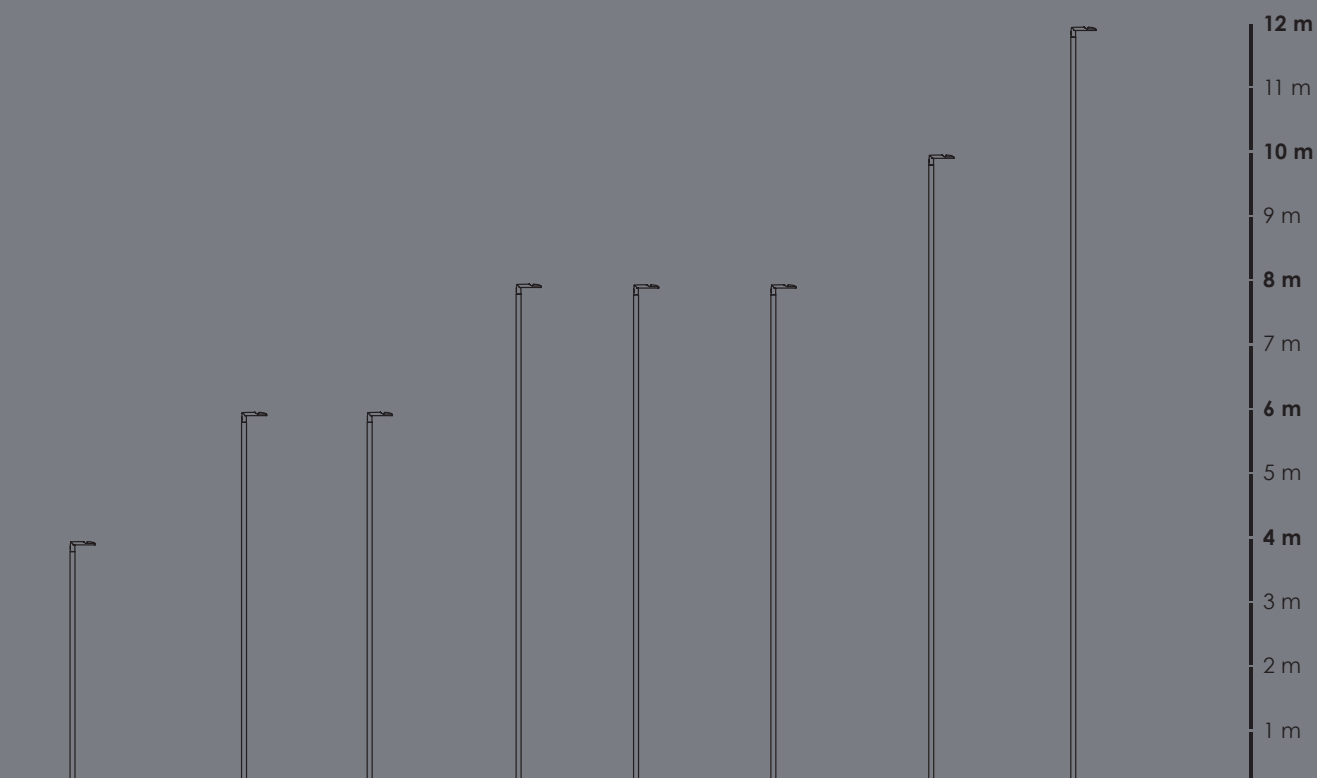
Eco		B10A	B16A	B20A	B25A	C10A	C16A	C20A	C25A
MRUE 4-12 LED, 8-33 W	36 A (195 μ s)	10	16	21	28	16	21	35	44
MRUE 6-12 LED, 17-60 W	32 A (267 μ s)	7	12	15	19	11	20	25	30
MRUE 12-16 LED, 22-75 W	37 A (287 μ s)	7	12	15	19	11	20	25	30

Osram LED driver

Standard/High density	In-rush current (peak/duration)	B10A	B16A	B20A	B25A	C10A	C16A	C20A	C25A
MRU 8-16 LED, 8-40 W	45 A (180 μ s)	10	17	21	28	16	27	33	44
MRU 20-32 LED, 18-66 W	53 A (200 μ s)	7	12	15	20	11	19	24	32
MRU 32 LED, 67-75 W	57 A (210 μ s)	7	12	15	20	11	19	24	32

Eco		B10A	B16A	B20A	B25A	C10A	C16A	C20A	C25A
MRUE 4-8 LED, 11-41 W	45 A (180 μ s)	10	17	21	28	16	27	33	44
MRUE 6-16 LED, 16-66 W	53 A (200 μ s)	7	12	15	20	11	19	24	32
MRUE 16 LED, 67-75 W	57 A (210 μ s)	7	12	15	20	11	19	24	32

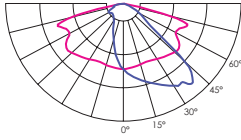
Pole height proposition



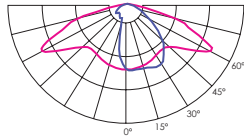
Pole height	4m	6 - 8 m	8 - 12 m
Standard modules	18 W	37 W	
High-density modules		37 W	75 W
ECO	18 W	37 W	75 W

Optics

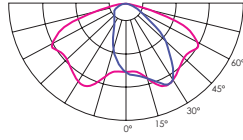
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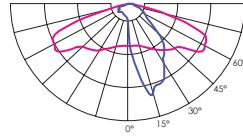
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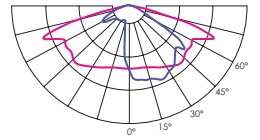
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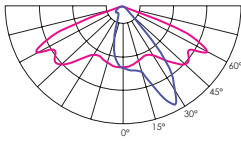
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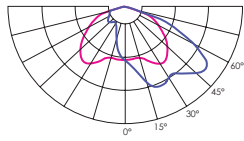
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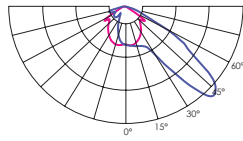
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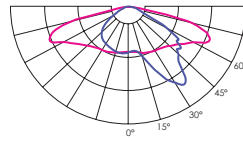
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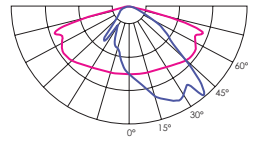
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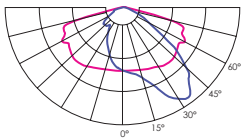
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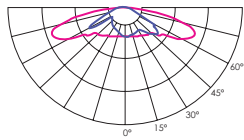
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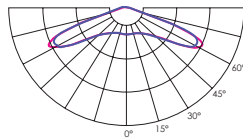
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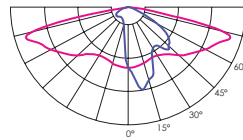
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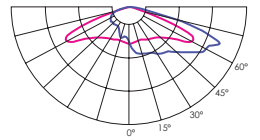
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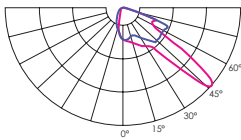
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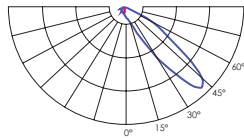
35



36



37

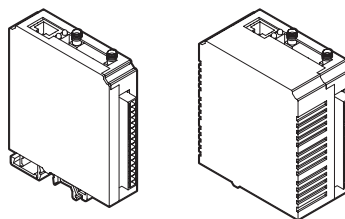


Accessories

Citintelly Segment controller

Segment Controller receives commands from Citintelly server via GSM and transmits tasks to Luminaire Controller via radio frequency communication.

Art. 70010004

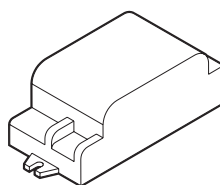


Citintelly Luminaire controller

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Art. 70010001 /
LC2M-23-05-R Luminaire
Controller - 2 relays

Art. 70010002 /
LC2M-12-05-R Luminaire
Controller - 1 relay



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Surge Protection device offers protection against lighting surges;

Voltage Protection level up (L-N) $\leq 1,5$ kV

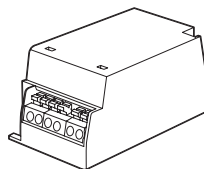
Voltage Protection level up (L/N-PE) $\leq 2,0$ kV

$U_{oc} = 10$ kV

$I_{max} = 10$ kA

$I_{nom} = 5$ kA

Art. 70020001



Radio Frequency Antenna

Heavy duty IP67 enclosure
Mounted in cabinet or luminaire body
with 14 mm screw
SMA connector

Art. 70000108



NEMA Socket

2213362-3, 5 pin NEMA socket 105°C wires

2213362-4, 7 pin NEMA socket 105°C wires

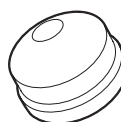
Art. 70000362

Art. 70000333



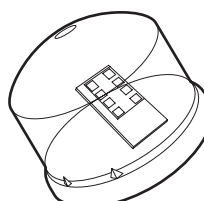
Dummy Link for NEMA Socket

Art. 70000113



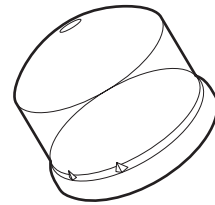
MSLC205RG Luminaire controller + radar, Zhaga, 80mm

Art. 70010027



**MSLC205RGL Luminaire controller,
Zhaga, 80mm**

Art. 70010029



Zhaga socket no cap

Art. 70000612



Zhaga socket with cap

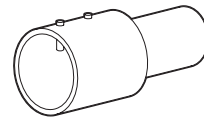
Art. 70000613



Console adapter

Spigot size 60 - 76mm

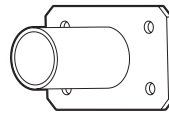
Art. 70044002



Wall mounting bracket

Spigot size 40 - 60 mm

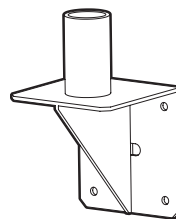
Art. 70044001



Wall mounting bracket

Vertical

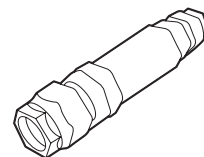
Art. 70044004



Connector

IP66 rated connector offers easy installation of
the street luminaires.
3 wire cable connector

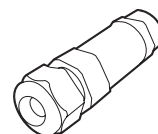
Art. 70000313



Connector

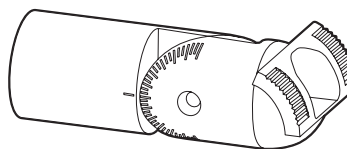
IP66 rated connector offers easy installation of
the street luminaires.
5 wire cable connector

Art. 70000304



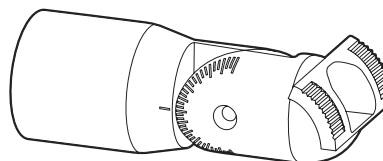
Adjustable Console ±90°
60 mm - Mini Martin / Micro Martin

Art. 70055005



Adjustable Console ±90°
76 mm - Mini Martin / Micro Martin

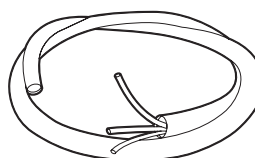
Art. 70055006



Pre-installed cable sets

For internal power supply:

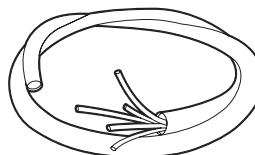
3 x 1,5 mm - 0,5 m long cable.....	Art. 70000319
3 x 1,5 mm - 5 m long cable.....	Art. 70000320
3 x 1,5 mm - 6 m long cable.....	Art. 70000321
3 x 1,5 mm - 8 m long cable.....	Art. 70000322
3 x 1,5 mm - 10 m long cable.....	Art. 70000323
3 x 1,5 mm - 12 m long cable.....	Art. 70000324
3 x 1,5 mm - 18 m long cable.....	Art. 70000325
3 x 1,5 mm - 20 m long cable.....	Art. 70000425
3 x 1,5 mm - 22 m long cable.....	Art. 70000426
3 x 1,5 mm - 25 m long cable.....	Art. 70000427
3 x 1,5 mm - 32 m long cable.....	Art. 70000430
3 x 1,5 mm - 42 m long cable.....	Art. 70000431
3 x 1,5 mm - 50 m long cable.....	Art. 70000432



Pre-installed cable sets

For internal power supply:

5 x 1,5 mm - 0,5 m long cable.....	Art. 70000305
5 x 1,5 mm - 5 m long cable.....	Art. 70000316
5 x 1,5 mm - 6 m long cable.....	Art. 70000317
5 x 1,5 mm - 8 m long cable.....	Art. 70000318
5 x 1,5 mm - 10 m long cable.....	Art. 70000306
5 x 1,5 mm - 12 m long cable.....	Art. 70000307
5 x 1,5 mm - 18 m long cable.....	Art. 70000308
5 x 1,5 mm - 20 m long cable.....	Art. 70000428
5 x 1,5 mm - 22 m long cable.....	Art. 70000429
5 x 1,5 mm - 25 m long cable.....	Art. 70000429
5 x 1,5 mm - 32 m long cable.....	Art. 70000433
5 x 1,5 mm - 42 m long cable.....	Art. 70000434
5 x 1,5 mm - 50 m long cable.....	Art. 70000435



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Production: + 371 67 383 024

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www.vizulo.com



VIZULO



VIZULO_PHOTO

LNC2

SMALL LED LITEPAK

FEATURES

- 60% more lumens and increased performance than smaller LNC models
- 3000K, 4000K and 5000K as well as Amber
- Type II, III and IV distributions available for a variety of application needs
- Quick-mount adapter allows easy installation/maintenance
- 347V and 480V versions for industrial applications and Canada
- Stock versions available for fast service
- Full cut-off, neighbor friendly, IDA approved
- Optional photocontrol for additional energy savings



RELATED PRODUCTS

- [LNC](#)
- [INC3](#)
- [LNC4](#)

CONTROL TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- Rugged die-cast aluminum housing protects components and provides an architectural appearance
- Casting thermally conducts LED heat to optimize performance and long life
- Powder paint finish provides durability in outdoor environments

OPTICS

- Zero uplight distributions using individual acrylic
- LED optics provide IES type II, III and IV distributions. Optional (CS) acrylic diffuser available for reduced glare
- Prismatic refractor lens provides ~10% uplight for increased vertical footcandles and forward light projection ideal for security lighting
- L96 at 60,000hrs (Projected per IESNA TM-21-11), see table on page 3 for all values

INSTALLATION

- Quick-mount adapter provides easy installation to wall or to recessed junction boxes (4" square junction box)
- Designed for direct j-box mount.
- Optional 1/2" conduit hubs available (standard for sensor, SiteSync and battery versions)

ELECTRICAL

- 120V-277V universal voltage 50/60Hz 0-10V dimming drivers
- 347V and 480V dimmable driver option in 12L-070 configuration
- Minimum operating temperature is -40°C/-40°F (excludes 12L-035 and P15 configurations)
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion
- Driver RoHS and IP66
- 10kA surge protector
- 3000K CCT nominal, 4000K CCT nominal, 5000K CCT nominal (70 CRI)
- 9, 12 and 18 LED configurations available see pages 2 and 3 for electrical and photometric details

CONTROLS

- Universal button photocontrol
- Occupancy sensor options available for complete on/off and dimming control
- SiteSync pre-commissioned wireless controls (with or without sensor)
- Integral Battery Backup provides emergency lighting for the required 90 minute path of egress
- Dual Driver and Dual Power Feed option for 18L-070 versions

CERTIFICATIONS

- DLC® DesignLights Consortium Qualified, with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Listed to UL1598 and CSAC22.2#250.0-24 for wet locations
- Made-to-order versions are IP-65 rated
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020. See [Buy American Solutions](#)

WARRANTY

- 5 year limited warranty
- See [HLI Standard Warranty](#) for additional information

KEY DATA	
Lumen Range	2600–4100
Wattage Range	29–42
Efficacy Range (LPW)	85–112
Fixture Projected Life (Hours)	L96>60K
Weights lbs. (kg)	9.6 (24.5)

LNC2

SMALL LED LITEPAK

ORDERING GUIDE

Example: LNC2-9L-3K-2-U-DBT-PCU

CATALOG #

ORDERING INFORMATION

Series	# LEDs	CCT/CRI	Drive Current	IES Distribution	Voltage	Mounting
LNC2 Small LitePak LNC2	9L 9 LEDs 12L 12 LEDs 18L 18 LEDs P15 15w Prismatic Refractor P25 25w Prismatic Refractor P35 35w Prismatic Refractor	3K 3000K nominal, 70 CRI 4K 4000K nominal, 70 CRI 5K 5000K nominal, 70 CRI AM Amber ⁹	070 700mA 035 350mA (12L & 18L only)	2 Type II ^f 3 Type III ^f 4 Type IV ^f FT Forward Throw (Prismatic Refractor only)	U 120-277V 1 120V 2 208V 3 240V 4 277V 5 480V ^g F 347V ^g	Leave blank for down position NV Inverted ²

Finish
BLT Black Matte Textured
BLS Black Gloss Smooth
DBT Dark Bronze Matte Textured
DBS Dark Brone Gloss Smooth
GTT Graphite Matte Textured
LGS Light Grey Gloss Smooth
PSS Platinum Silver Smooth
WHT White Matte Textured
WHS White Gloss Smooth
VGt Verde Green Textured
Color Option
CC Custom Color

Control Options
SCP Occupancy Sensor Programmable (Dim) ^{4,5}
PCU Universal Button Photocontrol
SWP SiteSync Pre-Commission ⁶
SWPM SiteSync Pre-commission w/ OCC Sensor ^{6,7}
Specify SCP Height
8F Up to 8ft mount height
20F Up to 20ft mount height

Options
EH Battery Backup Unit with Heater (-30°C) ³
E Battery Backup Unit (0°C) ³
F Fuse & Fuse-Holder (not available with Battery Backup) ³
CS Comfort Shield (N/A with Prismatic Refractor)
2DR Dual Driver (18L - 700mA only)
2PF Dual Power Feed (18L - 700mA only)
CH Surface Conduit Hubs)

Notes:

- IES distributions only available with 9L, 12L, and 18L versions
- Not available with occupancy sensor, battery backup or prismatic refractor options
- Must specify voltage (120 or 277 only for E & EH)
- Must order minimum of one remote control to program dimming settings, 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings, 120-277V only
- PCU option not applicable, included in sensor
- 18L - 700mA versions only. Not available with 2DR or 2PF options. Must specify group and zone information at time of order
- Specify time delay; dimming level and mounting height
- 12L - 700mA version only

STOCK ORDERING INFORMATION

Catalog Number	Lumens	Wattage	Distribution	CCT/CRI	Voltage	Distribution	Weight lbs. (kg)	Finish	Options
LNC2-12LU-4K-3-DB	2,662	29W	3	4000K/70CRI	120-277V	Type 3	7.0 (13.3)	Bronze	*
LNC2-12LU-5K-3-DB	2,868	29W	3	5000K/70CRI	120-277V	Type 3	7.0 (13.3)	Bronze	*
LNC2-12LU-5K-3-DB-PC-U	2,868	29W	3	5000K/70CRI	120-277V	Type 3	7.0 (13.3)	Bronze	Photocell *
LNC2-18LU-4K-3-DB	3,806	42W	3	4000K/70CRI	120-277V	Type 3	7.0 (13.3)	Bronze	*
LNC2-18LU-5K-3-DB	4,106	42W	3	5000K/70CRI	120-277V	Type 3	7.0 (13.3)	Bronze	*
LNC2-18LU-5K-3-DB-PC-U	4,106	42W	3	5000K/70CRI	120-277V	Type 3	7.0 (13.3)	Bronze	Photocell *
LNC2-P35-4K-PCU	4,025	37W	FT	4000K/70CRI	120-277V	FT	7.0 (13.3)	Bronze	Photocell
LNC2-P35-PCU	4,108	37W	FT	5000K/70CRI	120-277V	FT	7.0 (13.3)	Bronze	Photocell

REPLACEMENT PART - MADE TO ORDER

Catalog Number	Description
<input type="checkbox"/> SCP-Remote	Remote control for SCP option. Order at least one per project to program and control fixtures*

Notes:

* IES distributions only available with 9L, 12L and 18L versions

LNC2

SMALL LED LITEPAK

PERFORMANCE DATA

STANDARD 9, 12 AND 18L VERSIONS

# Of LEDs	Nominal Wattage	System Watts	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 80 CRI)				
				Lumens	LPW*	B	U	G	Lumens	LPW*	B	U	G	Lumens	LPW*	B	U	G
9	700mA	21W	2	2,083	97	1	0	1	2,072	97	1	0	1	1,927	90	1	0	1
			3	1,972	92	0	0	1	1,962	92	0	0	1	1,825	85	0	0	1
			4	2,097	98	0	0	1	2,087	98	0	0	1	1,941	91	0	0	1
12	350mA	14W	2	1,513	110	0	0	1	1,506	109	0	0	1	1,440	104	0	0	1
			3	1,433	104	0	0	1	1,426	103	0	0	1	1,364	99	0	0	1
			4	1,524	110	0	0	1	1,543	112	0	0	1	1,476	107	0	0	1
	700mA	29W	2	2,777	97	1	0	1	2,763	97	1	0	1	2,570	90	1	0	1
			3	2,629	92	1	0	1	2,616	91	1	0	1	2,433	85	1	0	1
			4	2,797	98	1	0	1	2,783	97	1	0	1	2,588	90	1	0	1
18	350mA	21W	2	2,270	107	1	0	1	2,259	106	1	0	1	2,074	97	1	0	1
			3	2,149	101	0	0	1	2,138	100	0	0	1	1,963	92	0	0	1
			4	2,286	107	0	0	1	2,275	107	0	0	1	2,125	100	0	0	1
	700mA	43W	2	4,261	99	1	0	1	4,240	98	1	0	1	3,943	91	1	0	1
			3	4,033	93	1	0	1	4,014	93	1	0	1	3,733	86	1	0	1
			4	4,290	99	1	0	1	4,270	99	1	0	1	3,971	92	1	0	1

PRISMATIC REFRACTOR

# Of LEDs	Nominal Wattage	Dist. Type	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 80 CRI)				
			Lumens	LPW*	B	U	G	Lumens	LPW*	B	U	G	Lumens	LPW*	B	U	G
1	15W	FT	1,741	132	0	3	2	1,706	129	0	3	2	1,648	125	0	3	2
	25W		2,929	117	1	3	2	2,806	112	1	3	2	2,773	111	1	3	2
	35W		4,108	112	1	3	3	4,025	110	1	3	3	3,889	106	1	3	3

Notes:
 * Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application. LNC2-12L battery mode produces 1,546 initial lumens. Meets UL924 90 minute discharge pattern.

PROJECTED LUMEN MAINTENANCE

STANDARD 9, 12 AND 18L VERSIONS

Ambient Temperature	OPERATING HOURS					
	0	25,000	50,000	TM-21-11* L96 60,000	100,000	L70 (Hours)
25°C / 77°F	1.00	0.98	0.97	0.96	0.95	>791,000
40°C / 104°F	0.99	0.98	0.96	0.96	0.95	>635,000

PRISMATIC REFRACTOR

Ambient Temperature	OPERATING HOURS					
	0	25,000	50,000	TM-21-11* L96 60,000	100,000	L70 (Hours)
25°C / 77°F	1.00	0.94	0.89	0.87	0.80	>160,000
40°C / 104°F	0.99	0.93	0.88	0.86	0.78	>150,000

* Projected per IESNA TM-21-11 * (Nichia 219B, 700mA, 85°C Ts, 10,000hrs). Data references the extrapolated performance projections for the LNC-12LU-5K base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

LNC2

SMALL LED LITEPAK

ELECTRICAL DATA

STANDARD 9, 12 AND 18L VERSIONS

# OF LEDS	Drive Current (mA)	Input Voltage (V)	Oper. Current (Amps)	System Power (W)
9	700mA	120	0.18	21
		277	0.08	21
12	350mA	120	0.12	14
		277	0.05	14
	700mA	120	0.24	29
		277	0.10	29
		347	0.08	29
		480	0.06	29
18	350mA	120	0.18	21
		277	0.08	21
	700mA	120	0.36	43
		277	0.16	43

PRISMATIC REFRACTOR

# OF LEDS	Drive Current (mA)	Input Voltage (V)	Oper. Current (Amps)	System Power (W)
1	350mA	120	0.11	13
		277	0.05	13
	600mA	120	0.21	25
		277	0.09	25
	900mA	120	0.31	37
		277	0.13	37

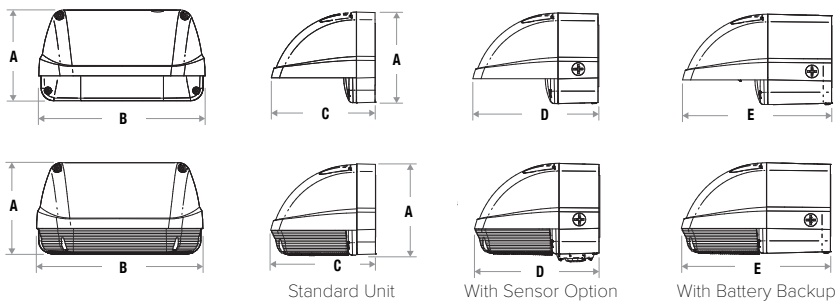
LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Standard 9, 12, 18L and Prismatic Versions

Ambient Temperature		Lumen Multiplier
0° C	32° F	1.02
10° C	50° F	1.01
20° C	68° F	1.00
25° C	77° F	1.00
30° C	86° F	1.00
40° C	104° F	0.99
50° C	122° F	0.98

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

DIMENSIONS



A	B	C	D	E
5.54" (141 mm)	10.16" (258 mm)	6.33" (161 mm)	7.64" (194 mm)	9.10" (231 mm)

LNC2

SMALL LED LITEPAK

ADDITIONAL INFORMATION

SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Carton Dimensions			Carton Qty. per Master Pack
		Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	
LNC2-12LU	14.3 (6.5)	14.5 (37)	11.4 (29)	8.4 (21.5)	2
LNC2-18LU	14.8 (6.7)	14.9 (38)	11.4 (29)	8.4 (21.5)	2

NV - INVERTED MOUNTING OPTIONS



*Requires Factory Installed Lens Option

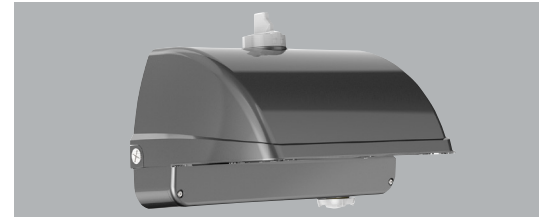
Inverted mounting capabilities for uplighting applications. Specially designed frosted acrylic diffuser option softens output, improves uniformity and protects LED lenses.

SCP - PROGRAMMABLE OCCUPANCY SENSOR



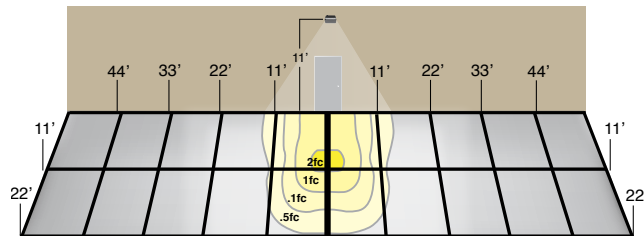
Sensor offers greater control and energy savings with SCP programmable sensor with adjustable delay and dimming levels (Factory default is 10%) Visit: <http://www.hubbellighting.com/solutions/controls/> for control application information

SWP & SWPM - SITESYNC™



When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project locations Group information, and Operating schedules. For more detailed information please visit www.HubbellLighting.com/products/sitesync or contact Hubbell Lighting tech support at (800) 345-4928.

LNC2 - BATTERY BACK UP



11' Mounting Height

Provides Life Safety Code average illuminance of 1.0 fc. Assumes open space with no obstructions and mounting height of 11'.

Diagrams for illustration purposes only, please consult factory for application layout.

Battery backup units consume 6 watts when charging a dead battery and 2 watts during maintenance charging. EH (units with a heater) consume up to an additional 8 watts when charging if the battery temp is lower than 10°C

E & EH EMERGENCY BATTERY BACKUP



Standard versions utilize 9, 12 or 18 High Power LEDs to generate 1,600 - 4,200 lumens in Normal Mode and use 4 LEDs for up to 700 lumens in Emergency Mode. Prismatic refractor versions utilize 1 COB LED to generate approximately 900 lumens in emergency mode.

USE OF TRADEMARKS AND TRADE NAMES

All product and company names, logos and product identifies are trademarks™ or registered trademarks® of Hubbell Lighting, Inc. or their respective owners. Use of them does not necessarily imply any affiliation with or endorsement by such respective owners.

Horsley Park Warehouse | Type W3 & W4

VIZULO



Mini Martin

TOOL-LESS

CE RoHS 



Architectural & Landscape

Sports Lighting

Large Outdoor Industrial Area

Agricultural Area

Ventilation cable gland

Combines pressure equalization and cable gland in a single unit. It ensures high air flow rates as well as high water protection capacity

Glass

Flat glass. Glass is fixed to die-cast aluminium frame with metal clips and can easily be replaced

LED module

High quality LED's with optimal thermal resistance and energy consumption characteristic, for high lumen output and long expected life time. Color temperature available: 3000K, 4000K

(5000K, 5700K available on customer request)

Intelligent light control system

Power line or radio frequency

Protection

IP66 for the complete luminaire

Module temperature control

The LED driver will start reducing the light output when the LED's approach critical temperature. The temperature is measured via a sensor placed on the PCB

(function available on customer request)

Body

Die-cast aluminium

Lighting protection

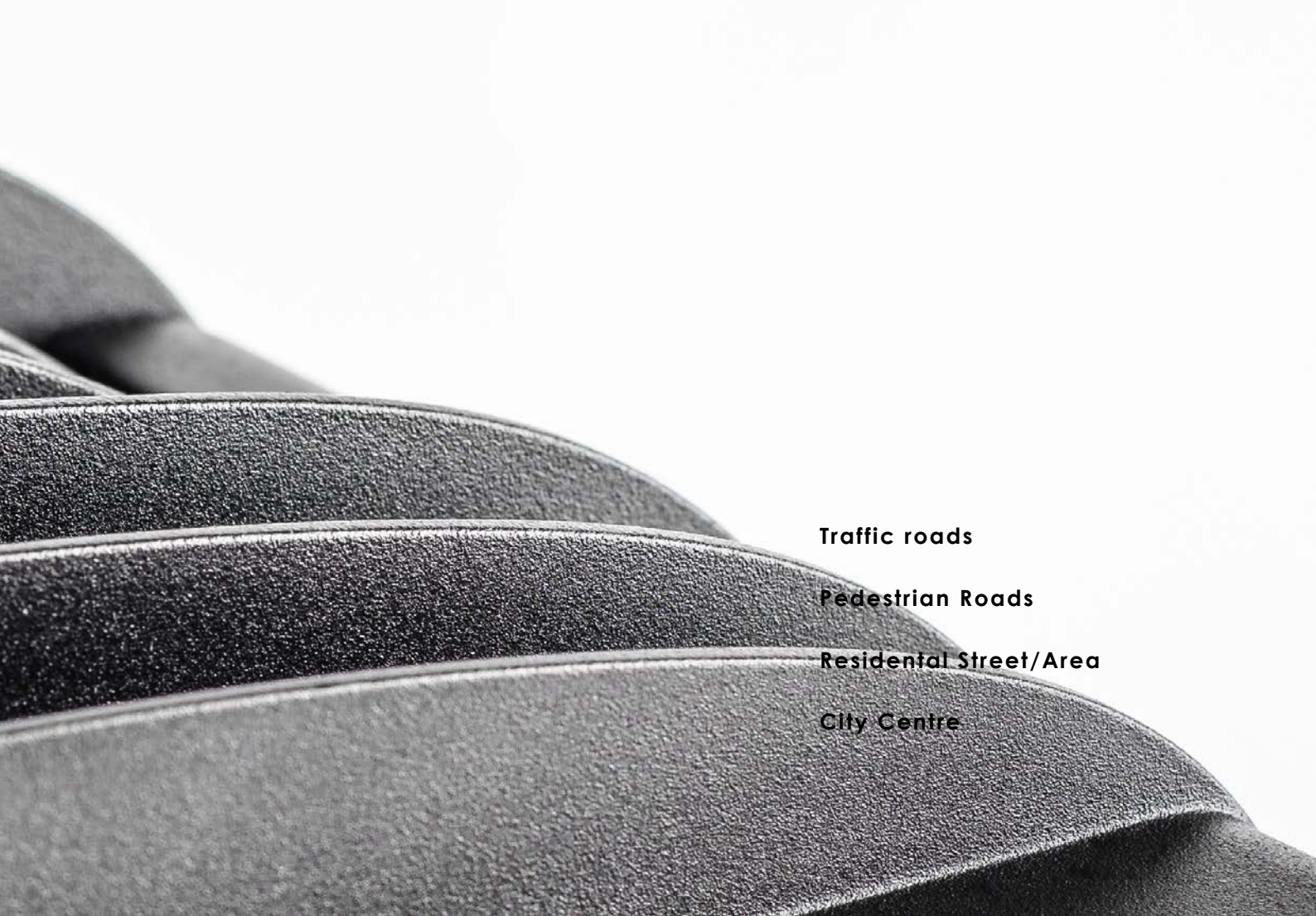
Built-in surge protection starting from 3 kV till 10 kV

Light regulation

MINI MARTIN drivers offer integrated midnight dimming and network-controlled 1-10V and DALI protocols

Impact resistance

IK08 (Vandal protected) for the complete luminaire



Traffic roads

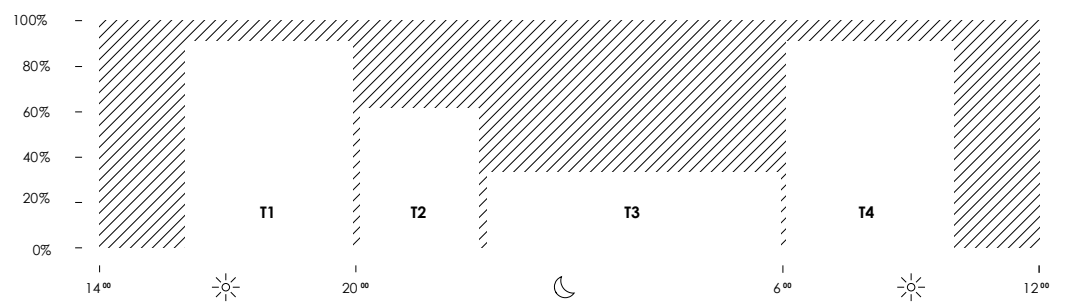
Pedestrian Roads

Residential Street/Area

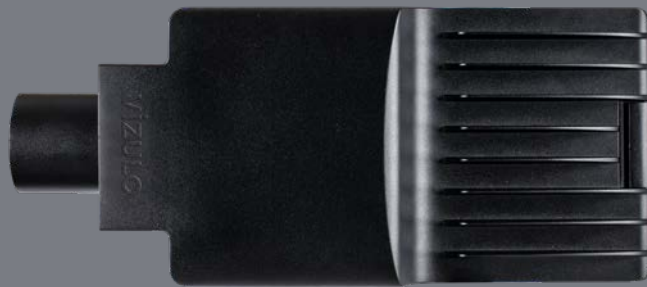
City Centre

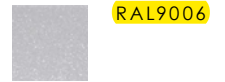
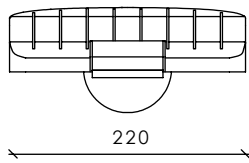
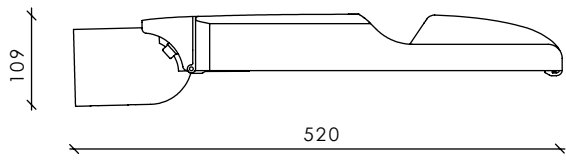
Midnight dimming

Midnight dimming provides multi-stage night-time power reduction based on an internal timer referenced to the power on/off time. There is no need for an external control infrastructure. The unit automatically performs a dimming profile based on the predefined scheduled reference to the midpoint, which is calculated based on the power on / off times.



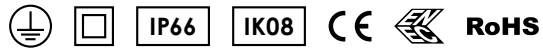
Mini martin tool-less





Other colors
available on request

Technical information



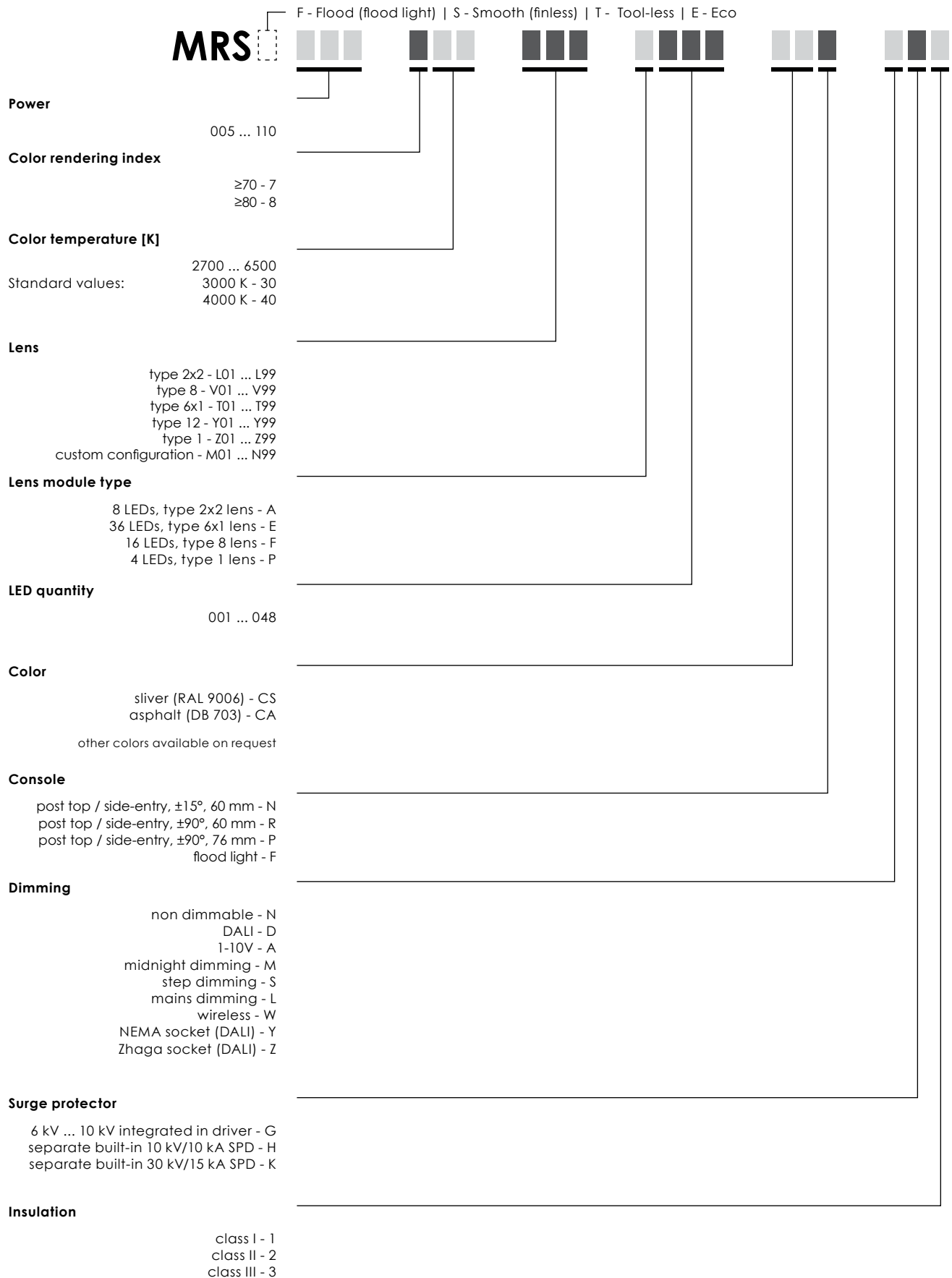
V	220 - 240	1-10V; DALI; Midnight dimming
Hz	50 - 60	Chromaticity tolerance (initial MacAdam): 5
W	10 - 110	Radio frequency
lm	1100 - 13550	Warranty 5 years
lm/W	110 - 136	100 000 h (L95B10C10) at Ta = 25 °C
K	3000 / 4000 / 5000	
°C	-40 to +50	
CRI	>70 / >80 ⁽¹⁾	<i>Surge protection:</i> 6kV (L-N) and 10 kV (L/N -PE without DALI connection) ⁽²⁾
		<i>Body:</i> Die-cast aluminum

(1) Luminaries with color rendering index (CRI): Ra >90 on request

(2) 10 kV (L-N; L/N-PE) surge protection device available on request

Standard configuration 35 cm cable. for easy installation, please see accessories- cable connector.
(This accessories are not included in standard price)

Model name principles



Standard modules

*Only with optic 01 / 02 / 03

4000K

Number of LED's	8			16			24			36*		
Nominal current, mA	350	520	700	350	500	700	350	500	700	350	500	710
Power, W	10	15	19	20	26	35	29	39	52	40	55	78
Luminous Flux, lm	1220	1820	2260	2550	3310	4350	3810	5060	6580	5470	7390	9930
Efficacy, lm/W	122	121	119	128	127	124	131	130	127	137	134	127
Power factor, PF	0,84	0,92	0,96	0,91	0,95	0,97	0,93	0,95	0,97	0,95	0,98	0,98

Luminaire efficacy	3000 K	10 - 78 W	1060 - 9610 lm	102 - 124 lm/W
	4000 K	10 - 78 W	1220 - 9930 lm	119 - 137 lm/W
	5000 K	10 - 78 W	1220 - 9930 lm	119 - 137 lm/W

High density modules

Only with optic 01 / 04 / 05 / 20 / 22 / 35

4000K

Number of LED's	16			32			48			
Nominal current, mA	350	500	700	370	500	700	350	500	700	760
Power, W	20	26	35	37	50	68	51	72	102	110
Luminous Flux, lm	2550	3310	4350	5010	6650	8690	7120	9710	13190	13550
Efficacy, lm/W	128	127	124	135	133	128	140	135	129	123
Power factor, PF	0,91	0,95	0,97	0,95	0,97	0,98	0,95	0,97	0,98	0,97

Luminaire efficacy	3000 K	20 - 110 W	2470 - 13620 lm	114 - 131 lm/W
	4000 K	20 - 110 W	2550 - 13550 lm	124 - 140 lm/W
	5000 K	20 - 110 W	2550 - 14070 lm	134 - 140 lm/W

4000K

Number of LED's	8			16			24		
Nominal current, mA	350	500	700	350	500	700	350	500	700
Power, W	19	26	38	37	52	75	54	76	110
Luminous Flux, lm	2580	3390	4460	5120	6770	8920	7680	10070	13270
Efficacy, lm/W	136	130	117	138	130	119	142	133	121
Power factor, PF	0,85	0,9	0,91	0,94	0,97	0,98	0,97	0,98	0,99

Logistic information

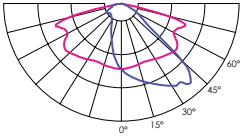
Carton size/cm L*W*H	Quantity per carton/pcs	Pallet quantity in 20' sea container	Pallet quantity in 40' sea container	QTY per pallet/pcs	Full pallet size/cm L*W*H	Number of luminaires per row	Number of rows
54,5 x 23,5 x 16,5	1	20	25	70	120 x 80 x 177	7	10

	NETO WEIGHT/KG		BRUTO WEIGHT/KG	
	Per 1 pcs	Per pallet	Per 1 pcs	Per pallet
MINI MARTIN 1 module luminaires	5,5	385	6,1	427
MINI MARTIN 2 module luminaires	5,55	388,5	6,15	430,5
MINI MARTIN 3 module luminaires	5,6	392	6,2	434
MINI MARTIN 4 module luminaires	5,65	395,5	6,25	437,5

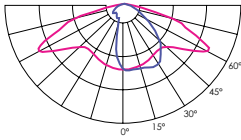
Optics

W3 - 08 Optic
W4 - 07 Optic

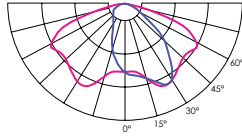
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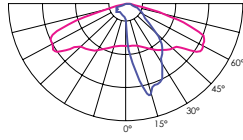
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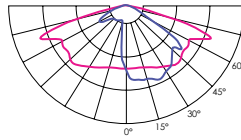
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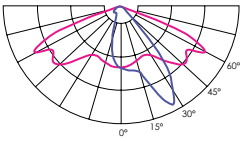
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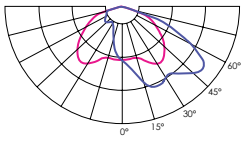
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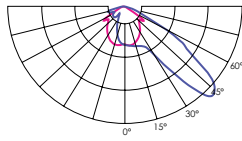
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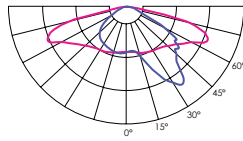
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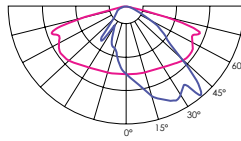
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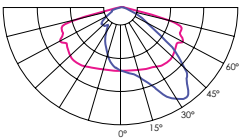
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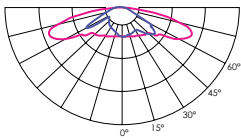
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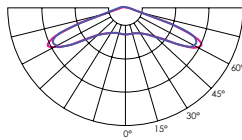
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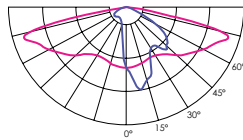
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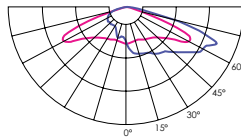
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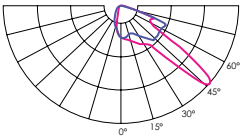
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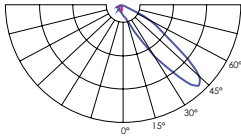
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36



37

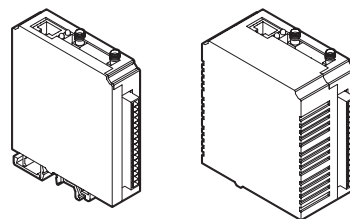


Accessories

Citintelly Segment controller

Segment Controller receives commands from Citintelly server via GSM and transmits tasks to Luminaire Controller via radio frequency communication.

Art. 70010004

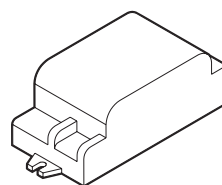


Citintelly Luminaire controller

Luminaire Controller is wireless mesh-networking device that uses 868 MHz for communication with Segment Controller and other Luminaire Controllers. It is delivered in various configurations to meet the needs of your applications.

Art. 70010001 /
LC2M-23-05-R Luminaire
Controller - 2 relays

Art. 70010002 /
LC2M-12-05-R Luminaire
Controller - 1 relay



Citintelly Surge Protection device

Surge Protection device offers protection against lighting surges;

Voltage Protection level up (L-N) $\leq 1,5$ kV

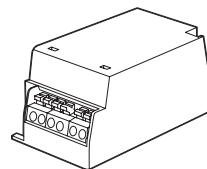
Voltage Protection level up (L/N-PE) $\leq 2,0$ kV

$U_{oc} = 10$ kV

$I_{max} = 10$ kA

$I_{nom} = 5$ kA

Art. 70020001



Radio Frequency Antenna

Heavy duty IP67 enclosure
Mounted in cabinet or luminaire body
with 14 mm screw
SMA connector

Art. 70000108



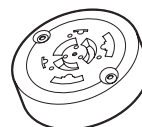
NEMA Socket

2213362-3, 5 pin NEMA socket 105°C wires

2213362-4, 7 pin NEMA socket 105°C wires

Art. 70000362

Art. 70000333



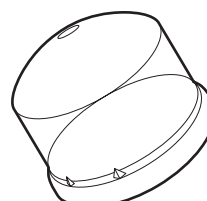
Dummy Link for NEMA Socket

Art. 70000113



MSLC205RGL Luminaire controller, Zhaga, 80mm

Art. 70010029



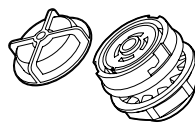
Zhaga socket no cap

Art. 70000612



Zhaga socket with cap

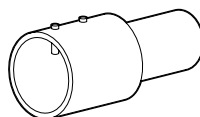
Art. 70000613



Console adapter

Spigot size 60 - 76mm

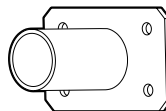
Art. 70044002



Wall mounting bracket

Spigot size 40 - 60 mm

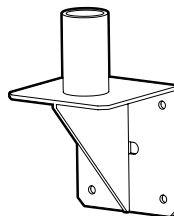
Art. 70044001



Wall mounting bracket

Vertical

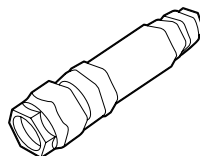
Art. 70044004



Connector

IP66 rated connector offers easy installation of the street luminaires.
3 wire cable connector

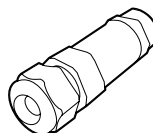
Art. 70000313



Connector

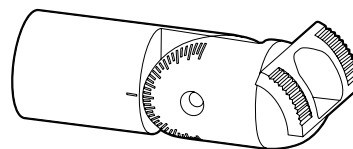
IP66 rated connector offers easy installation of the street luminaires.
5 wire cable connector

Art. 70000304



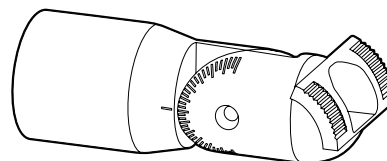
Adjustable Console ±90°
60 mm - Mini Martin / Micro Martin

Art. 70055005



Adjustable Console ±90°
76 mm - Mini Martin / Micro Martin

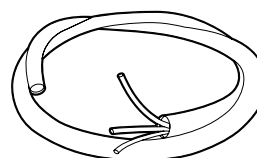
Art. 70055006



Pre-installed cable sets

For internal power supply:

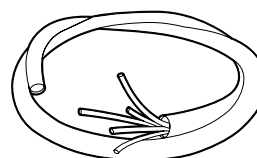
3 x 1,5 mm - 0,5 m long cable.....	Art. 70000319
3 x 1,5 mm - 5 m long cable.....	Art. 70000320
3 x 1,5 mm - 6 m long cable.....	Art. 70000321
3 x 1,5 mm - 8 m long cable.....	Art. 70000322
3 x 1,5 mm - 10 m long cable.....	Art. 70000323
3 x 1,5 mm - 12 m long cable.....	Art. 70000324
3 x 1,5 mm - 18 m long cable.....	Art. 70000325
3 x 1,5 mm - 20 m long cable.....	Art. 70000425
3 x 1,5 mm - 22 m long cable.....	Art. 70000426
3 x 1,5 mm - 25 m long cable.....	Art. 70000427
3 x 1,5 mm - 32 m long cable.....	Art. 70000430
3 x 1,5 mm - 42 m long cable.....	Art. 70000431
3 x 1,5 mm - 50 m long cable.....	Art. 70000432



Pre-installed cable sets

For internal power supply:

5 x 1,5 mm - 0,5 m long cable.....	Art. 70000305
5 x 1,5 mm - 5 m long cable.....	Art. 70000316
5 x 1,5 mm - 6 m long cable.....	Art. 70000317
5 x 1,5 mm - 8 m long cable.....	Art. 70000318
5 x 1,5 mm - 10 m long cable.....	Art. 70000306
5 x 1,5 mm - 12 m long cable.....	Art. 70000307
5 x 1,5 mm - 18 m long cable.....	Art. 70000308
5 x 1,5 mm - 20 m long cable.....	Art. 70000428
5 x 1,5 mm - 22 m long cable.....	Art. 70000429
5 x 1,5 mm - 25 m long cable.....	Art. 70000429
5 x 1,5 mm - 32 m long cable.....	Art. 70000433
5 x 1,5 mm - 42 m long cable.....	Art. 70000434
5 x 1,5 mm - 50 m long cable.....	Art. 70000435



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OUTDOOR LIGHTING LIMITED WARRANTY

Limited Warranty (“Warranty”): Subject to the exclusions set forth below, Hubbell Lighting, Inc. (“Hubbell”) warrants that the Hubbell branded outdoor fixtures identified on **Exhibit A (“Products”)** will be free from defects in material and workmanship which cause the Products to fail to operate in accordance with the specifications set forth in the documentation published or provided with the Products (the “**Specifications**”) for the applicable period and subject to the additional terms and conditions set forth on **Exhibit A** from the date of shipment (“**Warranty Period**”). Unless otherwise noted on **Exhibit A**, Hubbell warrants that any standard finish on a Product will be free from cracking, peeling, excessive fading, and corrosion defects during the applicable Warranty Period. For light emitting diode (“**LED**”) Products, the LED arrays in the Products will be considered defective in material or workmanship only if a total of 15% or more of the individual LEDs in the Products fail to illuminate.

Exclusions: This Warranty applies only when the Products have been properly handled, stored, wired, transported, installed, operated and maintained in accordance with the applicable Specifications, including, without limitation, installation in applications in which ambient temperatures are within the range of specified operating temperatures and operation within the electrical values shown on the Specifications. Hubbell shall have no responsibility under this Warranty for any failure of the Products that results from external causes including without limitation: acts of nature; physical damage; exposure to adverse or hazardous chemicals or other substances; use of reactive cleaning agents and/or harsh chemicals to clean the Products; environmental conditions; vandalism; fire; power failure, improper power supply, power surges or dips, and/or excessive switching; fatigue failure or similar phenomena resulting from induced vibrations, harmonic oscillation or resonance associated with movement of air currents around the Product; animal or insect activity; fault or negligence of the purchaser of the Products, any end user of the Products and/or any third parties not engaged by Hubbell, improper or unauthorized use, installation, handling, storage, alteration, maintenance or service, including failure to abide by any product classifications or certifications, or failure to comply with any applicable standards, codes, recommendations, product specification sheets, use of Products with products, processes or materials supplied by the purchaser of the Products, any end user or third parties, or any other occurrences beyond Hubbell's reasonable control. In addition, Hubbell shall have no responsibility under this Warranty for any substantial deterioration in the Product finish that is caused by failure to clean, inspect or maintain the finish of the Products. During the Warranty Period some staining, chalking or fading may occur. This is normal aging of the finish and is not a manufacturing defect; therefore it is not covered by this Warranty. Neither polycarbonate nor acrylic material used in the Products is warranted against yellowing, as yellowing may naturally occur over time due to normal aging. If the Products are used on existing foundations, anchorages or structures, the purchaser of the Products and/or any end user is solely responsible for the structural integrity of such existing foundations, anchorages or structures and all consequences arising from their use. Hubbell does not offer warranties for poles not manufactured by Hubbell. Any non-Hubbell poles shipped by Hubbell are subject to the applicable warranty provided by such manufacturer. Hubbell is not responsible for any costs or expenses relating to defective pole claims, repairs or replacements on such non-Hubbell poles.

Adequate records (as determined by Hubbell in its sole discretion) of operating history, maintenance, and/or testing must be kept by the end user and provided to Hubbell upon request to substantiate that the Products have failed to comply with the terms of this Warranty. The Products are not warranted against costs that may be incurred in connection with changes or modifications to the Products required to accommodate site conditions and/or faulty building construction or design. In addition, the Products are not warranted against cost resulting from installation of third party components, failures of third party supplied components, or failures of Hubbell supplied Products caused by third party supplied components. This Warranty is not applicable to any product(s) which are not installed and operated in accordance with the current edition of The National Electric Code (NEC), the Standards for Safety of Underwriters’ Laboratory, Inc. (UL), or the standards for the American National Standards Institute (ANSI), and with Hubbell instructions and guidelines for the Product. THIS WARRANTY IS VOID WITH RESPECT TO ANY PRODUCT IF THE PRODUCT IS NOT USED FOR THE PURPOSE FOR WHICH IT WAS DESIGNED OR IF ANY REPAIRS OR ALTERATIONS ARE MADE BY ANY PERSON NOT AUTHORIZED BY HUBBELL IN WRITING.

Except as otherwise set forth herein, Hubbell does not warrant ballasts, battery packs, lamps, photocells, occupancy sensors, low voltage indicators, fuses, surge suppressors, surge protection devices, high intensity discharge (“HID”) components and other third party devices that are not manufactured by Hubbell, which are covered by the applicable third party manufacturer warranty (if any). Such third party manufacturer shall be solely responsible for the costs related to any claims associated with any such devices.

Remedy: If the Product(s) fail to comply with the terms of this Warranty and the end user (and the purchaser of the Product(s) if different from the end user) has fully complied with all of the obligations under this Warranty and the Terms and Conditions of Sale for Hubbell Lighting, Inc. (which are available at www.hubbellighting.com/terms_and_conditions) including, without limitation, payment in full in respect of the Products, Hubbell, at its sole option, will repair or replace the Product(s) with the same or a functionally equivalent Product(s) or component part(s). Specifically, Hubbell will repair the Product, replace with a similar or like Product (as determined by Hubbell in its sole discretion), or issue a credit to the purchaser which may be used for future Hubbell product purchases. (The amount of such credit shall be calculated by Hubbell at its sole discretion). Hubbell reserves the right to use new, reconditioned, refurbished,

repaired or remanufactured products or parts in the repair or replacement of any Product covered by this Warranty. This Warranty excludes any and all removal or reinstallation costs and expenses including, without limitation, labor and equipment required to remove and/or reinstall original or replacement Product(s) or parts, shipping costs to return nonconforming Products(s) or any damage that may occur during the return of any Product(s) to Hubbell. This Warranty only extends to the Products as delivered to, and is for the sole and exclusive benefit of, the end user of the Products at the original location. This Warranty may not be transferred or assigned by the end user. The repair, issuing of future purchase credit or replacement of any Products or component part within the Products is the sole and exclusive remedy for failure of the Products to comply with the terms of this Warranty and does not extend the Warranty period. Warranty claims regarding Products must be submitted in writing within thirty (30) days of discovery of the defect or failure to an authorized Hubbell customer service representative. Products or component parts may be required to be returned for inspection and verification of non-conformance by Hubbell, but no Products or component parts will be accepted for inspection, verification or return unless accompanied by a completed return materials authorization form which can be obtained only from an authorized Hubbell customer service representative. Hubbell is not responsible for any costs and expenses incurred in connection with the shipment of Products to Hubbell, but Hubbell shall bear all cost and expense incurred in connection with the shipment of replacement Products to the end user.

NO OTHER WARRANTIES: THE FOREGOING WARRANTY TERMS ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND HUBBELL EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED RELATING DIRECTLY OR INDIRECTLY TO THE PRODUCT(S), WHETHER ORAL, WRITTEN, OR ARISING BY COURSE OF DEALING OR USAGE OF TRADE, INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY HUBBELL OR ANY EMPLOYEE, AGENT, DISTRIBUTOR OR OTHER SUPPLIER OF HUBBELL PRODUCTS SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THE WARRANTY. NO EMPLOYEE, AGENT, DISTRIBUTOR OR OTHER SUPPLIER OF HUBBELL PRODUCTS HAS THE AUTHORITY TO MODIFY OR AMEND THIS WARRANTY WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM HUBBELL.




LIMITATION OF LIABILITY: IN NO EVENT SHALL HUBBELL'S TOTAL LIABILITY IN RESPECT OF ANY AND ALL CLAIMS OF ANY KIND WHETHER IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE ARISING OUT OF OR IN CONNECTION WITH, OR RESULTING FROM HUBBELL'S PERFORMANCE OR BREACH OF THIS WARRANTY, OR FROM HUBBELL'S SALE, DELIVERY, RESALE, REPAIR, OR REPLACEMENT OF ANY PRODUCT(S) OR THE FURNISHING OF ANY SERVICE, EXCEED THE PURCHASE PRICE ALLOCABLE TO THE PRODUCT(S) THAT GIVE RISE TO THE CLAIM, AND ANY AND ALL SUCH LIABILITY SHALL TERMINATE UPON THE EXPIRATION OF THE WARRANTY PERIOD. IN NO EVENT SHALL HUBBELL BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY, MULTIPLE OR PUNITIVE DAMAGES, EVEN IF INFORMED OF THE POSSIBILITY OF SUCH DAMAGES, WHETHER AS THE RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR ANY OTHER THEORY, INCLUDING WITHOUT LIMITATION LABOR OR EQUIPMENT REQUIRED TO REMOVE AND/OR REINSTALL ORIGINAL OR REPLACEMENT PARTS, LOSS OF TIME, PROFITS OR REVENUES, LACK OR LOSS OF PRODUCTIVITY, LOSS OF USE OF THE PRODUCT(S) OR ANY ASSOCIATED EQUIPMENT, INTEREST CHARGES OR COST OF CAPITAL, COST OF SUBSTITUTE EQUIPMENT, FACILITIES, SYSTEMS, SERVICES OR DOWNTIME COSTS, DAMAGE TO OR LOSS OF PROPERTY OR EQUIPMENT, ANY INCONVENIENCE, COST OR DAMAGE ARISING OUT OF ANY DELAY IN PERFORMING, FAILURE TO PERFORM OR OTHER BREACH OF THE FOREGOING WARRANTY OR OBLIGATIONS UNDER SUCH WARRANTY, OR CLAIMS OF THIRD PARTIES AGAINST THE PURCHASER OF THE PRODUCTS OR THE END USER, ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, USE OF, INABILITY TO USE, OR THE REPAIR OR REPLACEMENT OF THE PRODUCTS.

Right to Modify or Discontinue Warranty: This Warranty is effective for the purchases of Products on or after the effective date set forth herein and is in consideration of and is expressly subject to and conditioned by the terms set forth herein. Hubbell reserves the right to modify or discontinue this Warranty without notice provided that any such modification or discontinuance will only be effective with respect to any Products purchased after such modification or discontinuance.

Effective December 1, 2017

EXHIBIT A

HUBBELL LIGHTING – C&I OUTDOOR FIXTURES LIMITED WARRANTY

HUBBELL LIGHTING ARCHITECTURAL OUTDOOR FIXTURES			
HUBBELL LIGHTING BRAND	LED¹	NON-LED	SPECIAL CONDITIONS AND EXCEPTIONS
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Copper and Bronze Landscape Components</u> : 25 year warranty <u>Composite In-Grade Components</u> : 7 year warranty <u>Aluminum Landscape Components</u> : 3 years for components not in direct contact with soil; 1 year for components in direct contact with soil <u>HID-to-LED Retrofit Kits</u> : 5 year warranty; 1 year warranty on re-used metal housing (additional conditions may apply) <u>Pole Warranty</u> : 3 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>HID-to-LED Retrofit Kits</u> : 5 year warranty; 1 year warranty on re-used metal housing (additional conditions may apply) <u>Pole Warranty</u> : 3 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 3 year warranty

¹ Includes LED arrays and LED drivers but excludes surge protection devices and other integral controls described in the Warranty. Devices and components manufactured by Hubbell and included with the Products are warranted separately; the terms of such warranties are located at www.hubbellighting.com/resources/warranty.

HUBBELL LIGHTING COMMERCIAL OUTDOOR FIXTURES

HUBBELL LIGHTING BRAND	LED ²	NON-LED	SPECIAL CONDITIONS AND EXCEPTIONS
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 1 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>12V LED Lightscape Fixtures</u> : 3 year warranty <u>Pole Warranty</u> : 1 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 1 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 1 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 1 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 1 year warranty
	5 years	1 year	<u>Exterior Housing Paint Finish</u> : 5 year warranty on all paint finishes for LED fixtures and poles <u>Pole Warranty</u> : 1 year warranty

Exception:

For ESR Horsely Park Project (Order # 8919) applied 10-Year warranty for Type W2, Hubbell Outdoor Lighting Range:-
7 X LNC2 / 18L / 4K / 070 / 4 / U / BLT

International Lighting Australia Pty. Ltd.
March 2022



Massis Kerkyasharian

² Includes LED arrays and LED drivers but excludes surge protection devices and other integral controls described in the Warranty. Devices and components manufactured by Hubbell and included with the Products are warranted separately; the terms of such warranties are located at www.hubbellighting.com/resources/warranty.

VIZUO - Warranty (<https://www.vizulo.com/en/company/warranty>)

This document sets forth the warranty rules for LED lighting products ("Products") sold by SIA VIZULO SOLUTIONS and SIA VIZULO NORDIC (LLC) ("VIZULO"). Unless otherwise stipulated in the purchase agreement, the warranty for Products is only applicable to the party purchasing the Products ("Purchaser") directly from VIZULO or authorised VIZULO distributor or dealer. This is a standard warranty by default applicable to the Purchaser. On request a customized warranty can be agreed after evaluation of the specific application conditions. VIZULO warrants that Products, when delivered in new condition and in its original packaging, will be free of defects for a period stated below if rules set in this warranty have been respected.

1.WARRANTY PERIOD

The foregoing warranty shall be valid for the period mentioned below:

5 years

- Micro Martin
- Stork Little Sister
- Stork Little Brother
- Stork
- Blackbird
- Colibri
- Colibri Midi
- Kiwi
- Luscinia
- Eagle
- Rook
- Heron
- Woodpecker
- Acorn
- Oak
- Pine
- Fern
- Robin
- Lapwing
- OWL
- MUSTANG
- Mini Martin
- Woodpecker pole
- Sunflower
- Nest
- Dove
- Leaf
- Shell
- Icicle
- Straw

For LED engine, driver: 5 years. For luminary body: 3 years

- Bell
- Orris
- Crocus
- Latana
- Allium
- Lilly

2. WARRANTY CONDITIONS

2.1. VIZULO warranty is valid only if Products are properly handled, stored, wired, transported, installed and used in accordance with the installation and operating instructions and the operating conditions of Products are in accordance with the environmental conditions provided in the specification, information on the Products, IEC standards, packaging or any document attached to the Product, and taking into account the specific tolerances on flux and system power, as mentioned in the Product's technical specification.

2.2. The working environment and conditions of Products should qualify with the relevant technical specification where exact temperature and voltage range, IP class, IK class and electrical safety class is defined. The values of temperatures and voltages mentioned in Product's technical specification must not be exceeded.

2.3. This warranty covers Product failures caused by material, design or production faults.

2.4. Purchase receipt for the Product has to be available for inspection by VIZULO.

2.5. If VIZULO determines to its satisfaction that this warranty applies to the Product, VIZULO will, at its option, repair or replace the Product or the defective part thereof, or reimburse Purchaser for the purchase price, subject to the terms and conditions set forth herein.

2.6. If VIZULO chooses to replace the Product and is not able to do so because it has been discontinued or is not available, VIZULO may replace it with a comparable product (that may make small deviations in designs and Product specification). VIZULO reserves the right to use new, reconditioned, refurbished, repaired or remanufactured products or parts in the repair or replacement of any Product covered by this warranty.

2.7. A Product shall not be considered defective solely as a result of the failure of individual LED components to emit light if the number of inoperable components is less than 10% of the total number of LED components in the Product.

2.8. The determination of whether the Products are defective shall be made by VIZULO in its sole discretion with consideration given to the overall performance of the Products.

2.9. Products shall be purchased directly from VIZULO, an authorised VIZULO distributor or dealer.

2.10. Third party products sold by VIZULO are not covered under this warranty.

3. SPECIAL CONDITIONS

3.1. Warranty period starts on the date of VIZULO invoice unless it is otherwise stipulated in the Products purchase agreement.

3.2. The power of the luminaries has to be measured 1-2 hours after the lights have been switched on.

3.3. VIZULO shall have access to the failed Products and to the fixtures used to operate Products. VIZULO reserves the right to visit the site and carry out necessary measurements. If the fixture or other parts become suspect, VIZULO shall have the right to evaluate the lighting system components and application.

- 3.4. The warranty is only valid if the minimum and maximum ambient temperature that is specified in the technical specification of the Product is respected.
- 3.5. The warranty for outdoor Products is only valid for maximum one switching per day.
- 3.6. This warranty does not apply and VIZULO will not change any components or will not repair the Products because of stains, scratches, grooves, colouration defects.
- 3.7. A new warranty period will not start in case of repair or replacement of the Product after approved claim.
- 3.8. The warranty period is based on a burning behaviour of max 4000 hours/year and the warranty applies when the lumen depreciation is below 80% of the original lumen output installed.
- 3.9. Dimming and application of network control systems have no influence on the warranty period.

4. THIS WARRANTY DOES NOT EXTEND WHEN:

- 4.1. The Product has been repaired, modified or transformed by any person or company other than VIZULO.
- 4.2. Defects or damages have occurred because of incorrect or inappropriate storage, installation or maintenance, including inappropriate external environmental factors or in case of abnormal use or use in violation of any applicable standard, code or instruction for use including but not limited to those contained in the latest safety, industry and electrical standards for the region.
- 4.3. Defects or damages have occurred because of the incorrect supply voltage, including over-voltages and any other problems in the power supply system.
- 4.4. Defect or damage was caused by physical interference, vandalism, military operations, disturbances or unrest, terrorism, natural disasters, by a car crush or any other Acts of God.
- 4.5. Defect or damage was caused by any ancillary installations or accessories that are not supported or recommended by the VIZULO.
- 4.6. The labels or serial numbers of the Product or any part there of have been altered, obscured or otherwise not readable.
- 4.7. Defects have occurred as a result of the normal depreciation of use.
- 4.8. The defect is caused by improper service of the Product performed by someone other than VIZULO or its authorized service provider.
- 4.9. The Purchaser or any unauthorised person has changed the driver settings of the Product.

5. Warranty claims

- 5.1. Warranty claims (using the warranty claim form available on www.vizulo.com) have to be reported to VIZULO within 30 days after discovery (unless otherwise specified in the purchase agreement) specifying at least the following information (additional info may be required on request): details about the failed Product; installation date; detailed problem description; project, model nr, article, photos (and videos if possible) of defective product, date of failure; application, hours burned and switching cycles. VIZULO may require Purchaser to return the Product to VIZULO freight prepaid.
- 5.2. Warranty claims shall be addressed to SIA "VIZULO Solutions", "Laucu lejas", Iecava, Iecavas novads, Latvia, LV-3913.

6. SUMMARY

- 6.1. VIZULO warranty rules apply only to Products that have been used in accordance with the purpose of its use and installation and operating instructions.
- 6.2. The Purchaser has to collect and save all the documentation related to the Product and records of operating history (i.e. previously recognised defects, performed repair works). The Purchaser will have to show this documentation to VIZULO if necessary.

- 6.3. The costs of the Product demounting, remounting, labour-costs and transportation in order to receive and return items are the responsibility of the Purchaser and are not covered under this warranty.
- 6.4. In the case of the Product failure, VIZULO quality department will analyse damaged Product samples and on its own insight might decide to repair defective Products or supply adequate Products as a replacement or compensate Products to the Purchaser.
- 6.5. No agent, distributor or dealer is authorized to change, modify or extend the terms of this warranty on behalf of VIZULO.
- 6.6. In no event shall VIZULO be liable for special, incidental, consequential, indirect or compensatory damages, including, without limitation, damages resulting from loss of use, profits, business or goodwill even if VIZULO was advised of or was otherwise aware of the possibility of such damages.
- 6.7. VIZULO has all the rights to acquire the non-conforming or defective Products as soon as they have been replaced.
- 6.8. This is a limited warranty and excludes, among other items, installation, providing access to products (scaffolding, lift etc.), and special, incidental and consequential damages (such as loss of profits/revenues, damage to property or other miscellaneous costs not previously mentioned). This limited warranty only applies to lighting fixtures specified in article 1 ("WARRANTY PERIOD"). Smart street light controls/sensors and other accessories are not covered under this warranty.
- 6.9. VIZULO reserves the right to modify this warranty from time to time and any modifications shall be effective for all orders placed on or after the effective date of such revised warranty.
- 6.10. This warranty states VIZULO's entire liability and obligations towards Purchaser and Purchaser's sole and exclusive remedy in connection with defective or non-conforming Products, whether or not such damages are based on any warranty not explicitly mentioned in these warranty rules, tort, contract or any other legal form, even if VIZULO has been advised or is aware of such defect.
- 6.11. Purchaser shall not rely upon any other documentation or information regarding warranty terms of the Products except this VIZULO Product warranty.

7. Effective Date: 2016, June 17.

WARRANTY CASE PROCEDURE

- 1) Fill in VIZULO claim report form;
- 2) You will receive two emails. One will be a copy of the claim data submitted, while the other one will contain a claim number. Mark each package with the received claim number and ship them to address specified in point 5.2.;
- 3) Our QC team will analyze the claim and in the case of guarantee will replace or repair the faulty goods;
- 4) You will also receive a detailed report once the QC team has finished analyzing the claim.

VIZULO quality control team will analyse this claim and in the case of guarantee will replace or repair the faulty goods.

When a warranty claim is justified, VIZULO will pay for shipping expenses. VIZULO can charge Client for returned Products that are not found to be defective or non-conforming, in addition to shipping, test, and handling costs associated therewith.

Exception:

For project ESR HORSLEY PARK (Order #8924) applies 10-year warranty!

(International Lighting Australia PTY LTD / Invoice 209812 / 08.02.2022)

Kristaps Ticmanis
Head of Business Development
VIZULO Solutions LTD

