



50716-VE-SW-XX-RP-E-6301 Revision P2

Installation : Chamber House External Lighting

Project number : VC50716

Customer : Rochdale Council

Processed by : Arthur Simpson

Date : 25.05.2023

Project description:

External lighting to Auxillary transformer and Solar Substations

Design to BS EN 12464-2 Table; 5.11 Ref; 5.11.4

Average 100Lux Uniformity 0.4

The following values are based on precise calculations performed on calibrated lamps and luminaires, and their configurations, whereby gradual, unavoidable deviations can occur in practice. All guarantee claims are excluded for the specified data.

This exclusion of liability applies irrespective of the legal grounds for both damages and consequential damages suffered by users and third parties.

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1 Luminaire data

1.1 Thorn, PIAZZA II LED 2700-840 HF E3 AN... (96666262)

1.1.1 Data sheet

Manufacturer: Thorn

96666262 Wall mounted PIAZZA II LED 2700-840 HF E3 ANT [STD]

A robust Wall mounted luminaire. Electronic, fixed output control gear with 3 hour, manual test, emergency lighting circuit. Back plate: die-cast aluminium, painted anthracite. Body: anthracite polycarbonate. Ø20mm cable entry via rear or side conduit entries, BESA compatible. IP65, IK10. Complete with 4000K LED.

Dimensions: 381 x 196 x 305 mm

Luminaire input power: 25 W

Luminaire luminous flux: 2910 lm

Luminaire efficacy: 116 lm/W

Weight: 3.1 kg

Luminaire data

Absolute Photometry

Luminaire efficacy : 116.4 lm/W

Classification : A21 ↓97.6% ↑2.4%

CIE Flux Codes : 23 53 86 98 100

UGR 4H 8H : 34.6 / 41.0

Power : 25 W

Luminous flux : 2910 lm

Equipped with

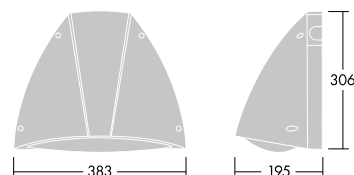
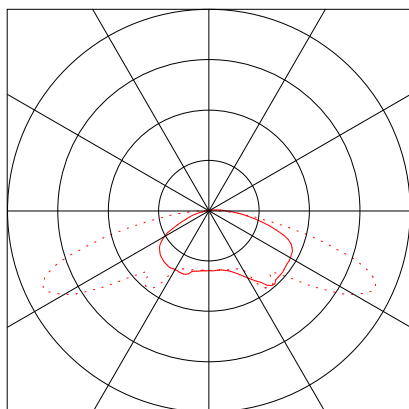
Quantity : 1

Designation : TL_PIA2

Colour : 4000

Colour reproduction : 80

Dimensions : 381 mm x 196 mm x 305 mm



Emergency Lighting

Light source from normal operation with reduced flux

Luminous flux : 540 lm

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1 Luminaire data

1.2 Thorn, Voyager SOLID L MS E3BC WH (96635564)

1.2.1 Data sheet

Manufacturer: Thorn

96635564 surface mounted Voyager SOLID L MS E3BC WH

IP65 LED safety luminaire for surface ceiling mounting. Semi-recessed mounting possible with optional mounting frame. Electronic, fixed output control gear Luminaire with local battery supply for 3h emergency lighting in maintained or non-maintained mode with integrated radio module basicDim Wireless (Casambi) for wireless communication with central monitoring system. Radio frequency: 2.4...2.483 GHz, Radio power: +4 dBm. Body: white polycarbonate. Cover: transparent polycarbonate. Class II electrical. Internal ISO legends available for 26m viewing distance (96629768, to be ordered separately).

Self-contained emergency luminaires rely on long-lasting batteries. Voyager Solid's high-tech battery is robust and comes with a three-year guarantee (applicable subject to the terms and conditions of and to the extent as set forth in the manufacturer's guarantee on Thorn products, which shall be applicable analogously and which is available under

http://www.thornlighting.com/en/products/5-year-guarantee/5-year-warranty/terms-of-guarantee_en.pdf. The battery guarantee shall not come into effect if the product has been installed later than three(3) months after delivery EXW (Incoterms 2010).

Dimensions: 360 x 150 x 71 mm

Luminaire input power: 4.3 W

Weight: 1.05 kg

Luminaire data

Absolute Photometry

Luminaire efficacy : 17.89 lm/W
Classification : A31 ↓96.4% ↑3.6%
CIE Flux Codes : 39 67 89 96 100
UGR 4H 8H : 16.3 / 18.9
Power : 4.3 W
Luminous flux : 76.9 lm

Dimensions : 360 mm x 150 mm x 71 mm

Equipped with

Quantity : 1
Designation : VYSO_DOP
Colour : 6000
Colour reproduction : 90

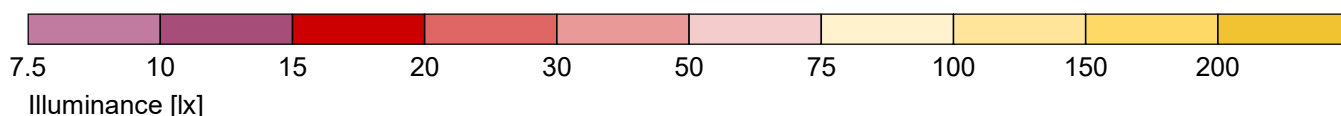
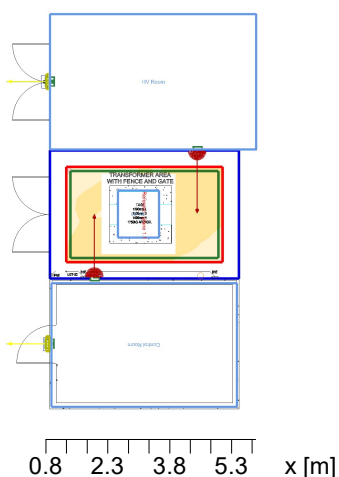
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2 Auxillary Transformer

2.1 Summary, Auxillary Transformer

2.1.1 Result overview, Evaluation area 1



General

Calculation algorithm used
 Maintenance factor

Average indirect fraction
 0.80

Total luminous flux

5820.00 lm

Total power

50.0 W

Total power per area (14.20 m²)

3.52 W/m² (3.51 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

Horizontal
 Em 100 lx
 Emin 80 lx
 Emin/Em (Uo) 0.79
 Emin/Emax (Ud) 0.67
 Position 0.00 m

Major surfaces

Em

Uo

Type No.\Make

1	2 x	Thorn	
		Order No.	: 96666262
		Luminaire name	: PIAZZA II LED 2700-840 HF E3 ANT [STD]
		Equipment	: 1 x TL_PIA2 25 W / 2910 lm
		Emergency	: 540 lm (18.6 %)

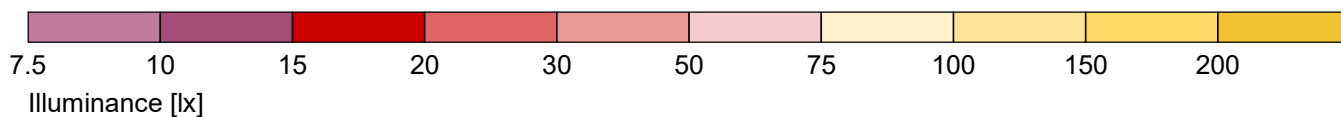
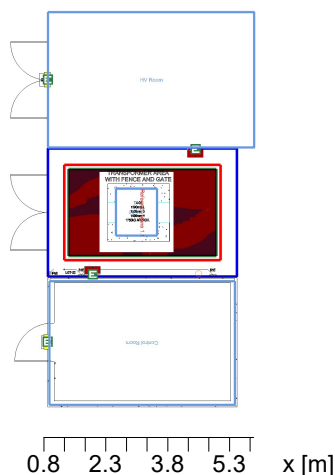
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2 Auxillary Transformer

2.2 Summary, Auxillary Transformer

2.2.1.1 Result overview (emergency lighting)



General

Calculation algorithm used : Direct component
 Maintenance factor : 0.8
 Height (phot centre) : 1.65 m
 Maximum I : 210 cd < 500 cd

Anti panic area:

No.	Emin [lx]	Surface Emax [lx]	Ud
Anti panic area 1.1			
Calculation field: 2.1m x 3.58m (4 x 7 pts), Height = 0.00m			
1	9.56 lx	19.34 lx	1: 2.02
	>= 0.5 lx		< 1 : 40



Type No. Make

1 2 x		Thorn	
		Order No.	: 96666262
		Luminaire name	: PIAZZA II LED 2700-840 HF E3 ANT [STD]
		Equipment	: 1 x TL_PIA2 25 W / 2910 lm
		Emergency	: 540 lm (18.6 %)

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2 Auxillary Transformer

2.2 Summary, Auxillary Transformer

2.2.1.1 Result overview (emergency lighting)

2	2 x	Order No.	: 96635564	-- Emergency Lighting --
		Luminaire name	: Voyager SOLID L MS E3BC WH	
		Equipment	: 1 x VYSO_DOP 2 W / 77 lm (0%)	
		Emergency	: 77 lm (100.0 %)	

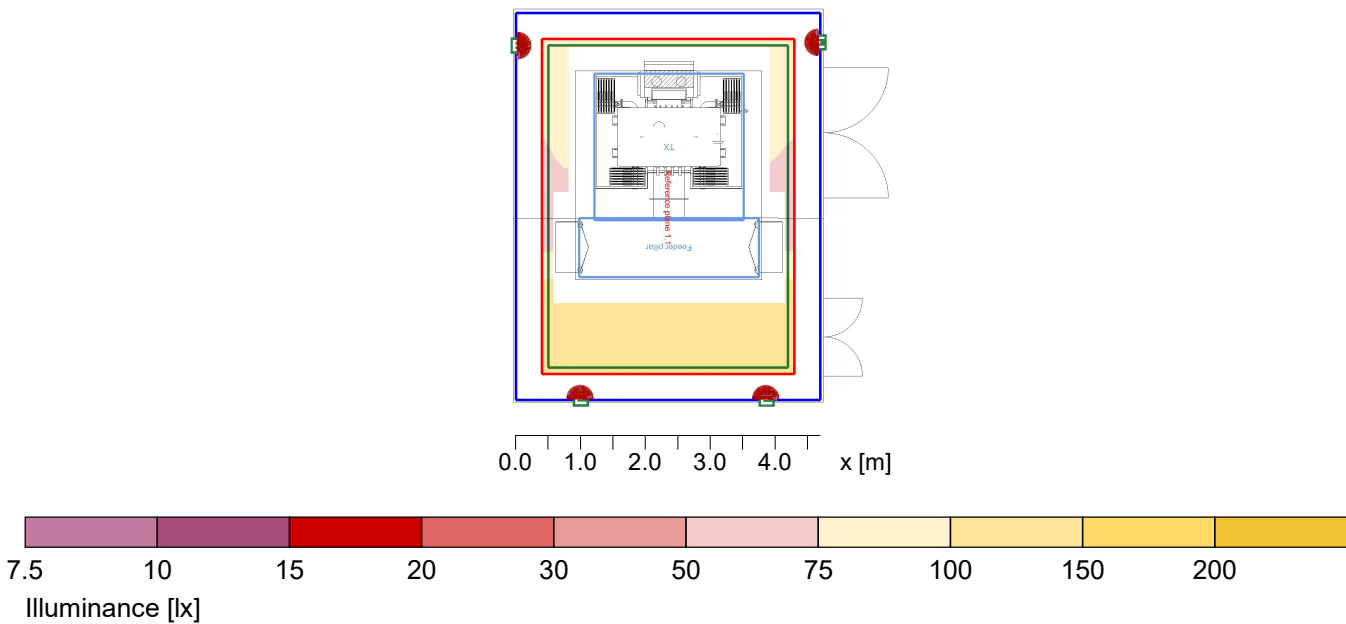
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3 Solar Substation

3.1 Summary, Solar Substation

3.1.1 Result overview, Evaluation area 1



General

Calculation algorithm used	Average indirect fraction
Height (phot centre)	1.85 m
Maintenance factor	0.80
Total luminous flux	11640.00 lm
Total power	100.0 W
Total power per area (27.92 m²)	3.58 W/m² (3.53 W/m²/100lx)

Evaluation area 1

Reference plane 1.1

	Horizontal
Em	101 lx
Emin	62 lx
Emin/Em (Uo)	0.62
Emin/Emax (Ud)	0.51
Position	0.00 m

Major surfaces	Em	Uo
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Type No. \Make

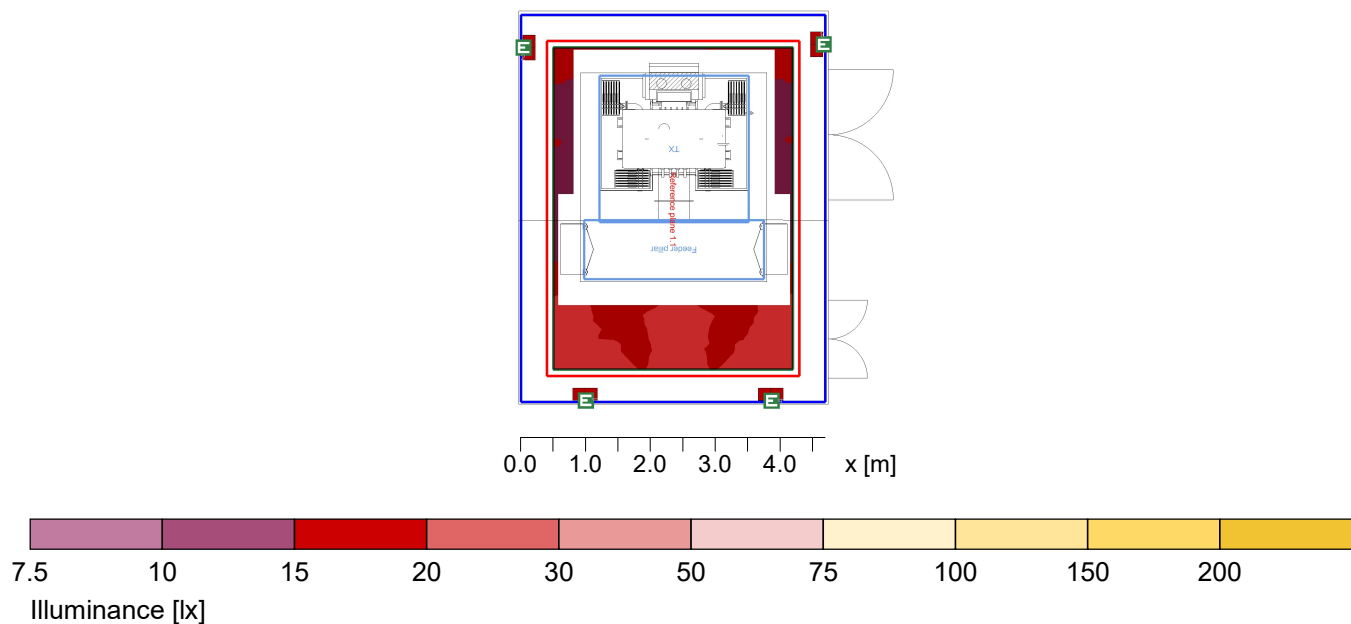
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3 Solar Substation

3.2 Summary, Solar Substation

3.2.1.1 Result overview (emergency lighting)

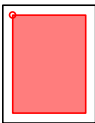


General

Calculation algorithm used : Direct component
 Maintenance factor : 0.8
 Height (phot centre) : 1.85 m
 Maximum I : 210 cd < 500 cd

Anti panic area:

No.	Surface Emin [lx]	Emax [lx]	Ud
Anti panic area 1.1			
Calculation field: 4.95m x 3.69m (8 x 6 pts), Height = 0.00m			
1	10.02 lx >= 0.5 lx	25.05 lx	1: 2.50 < 1 : 40



Type No. \ Make

1 4 x		Thorn	
		Order No.	: 96666262
		Luminaire name	: PIAZZA II LED 2700-840 HF E3 ANT [STD]
		Equipment	: 1 x TL_PIA2 25 W / 2910 lm
		Emergency	: 540 lm (18.6 %)