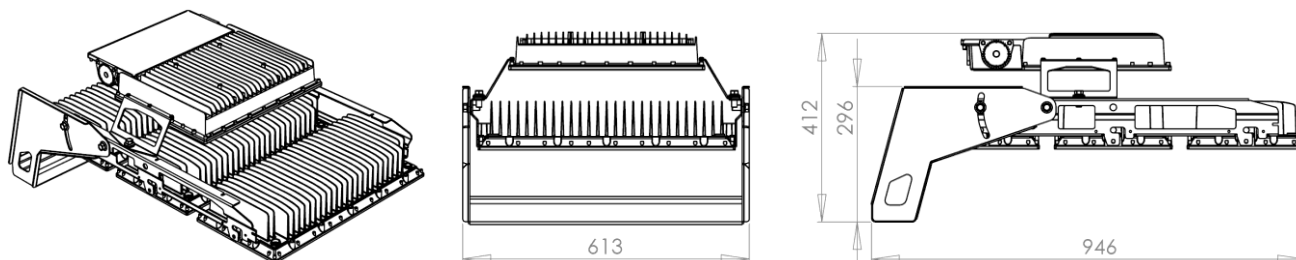


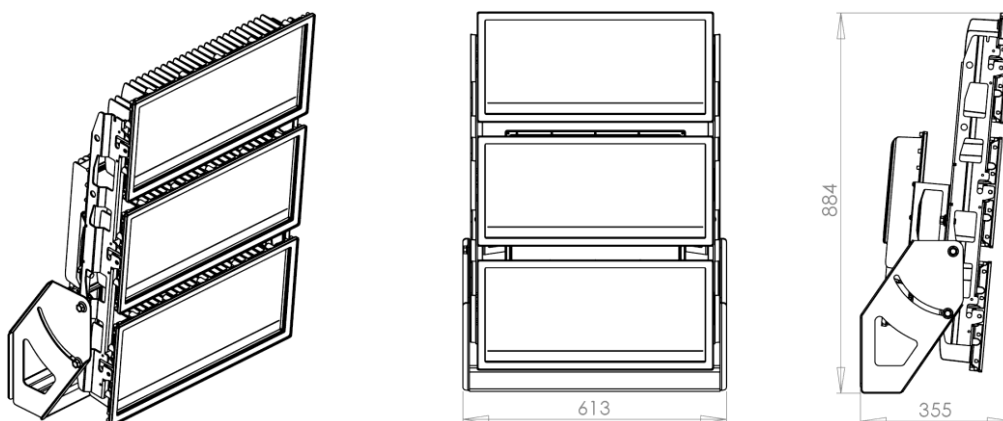
Bubo 2.0 B3 & B2 - Mounting instructions



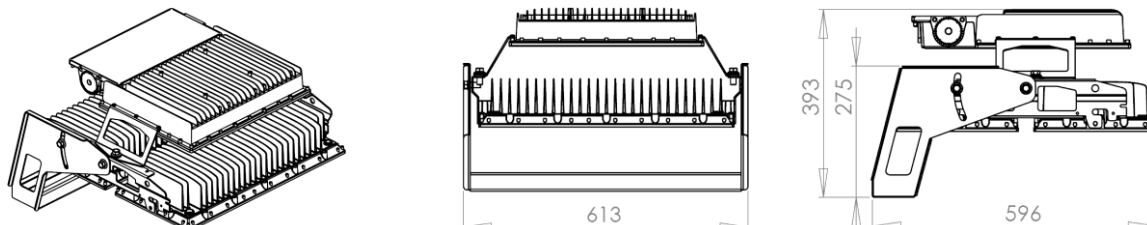
Bubo B3 Area



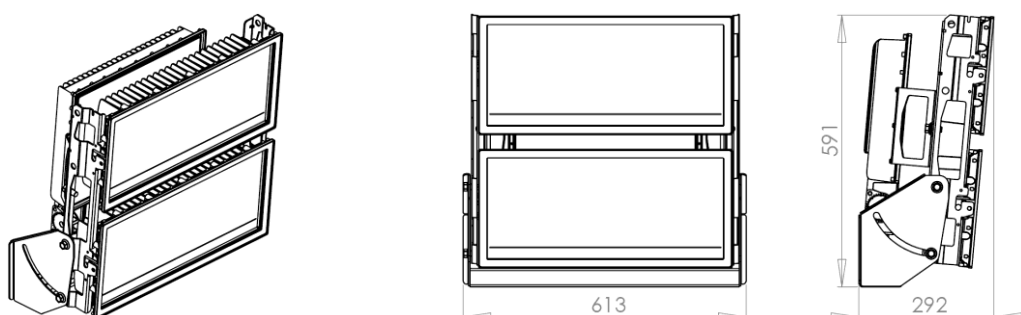
Bubo B3 Stadium



Bubo B2 Area



Bubo B2 Stadium



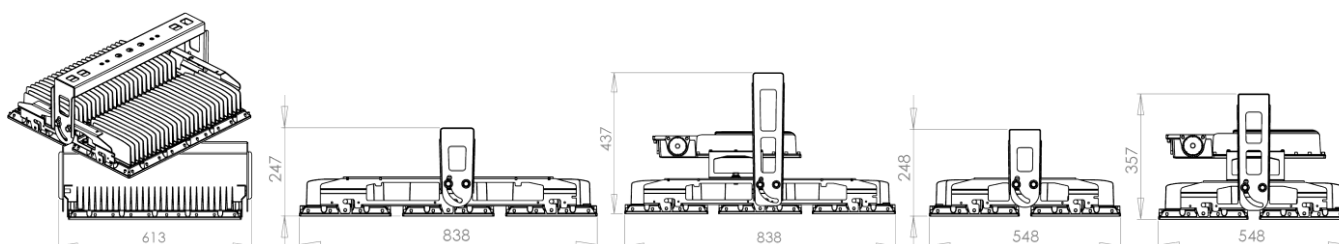
Bubo Pendant

B3 Pendant S

B3 Pendant L

B2 Pendant S

B2 Pendant L



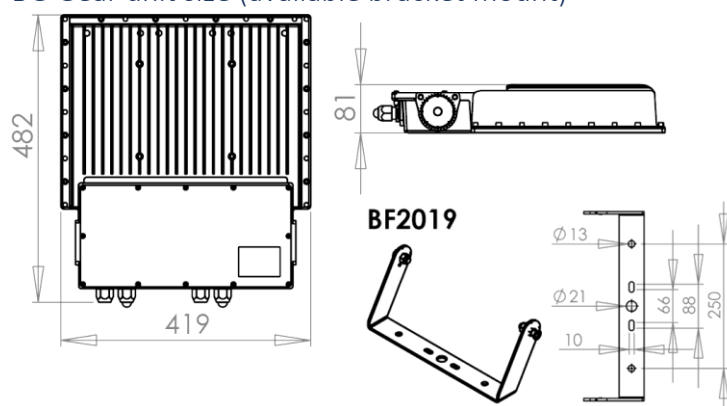
EASYLED

tel. +358 2 737 4420
Meriniitynkatu 11
FI-24100 Salo, Finland

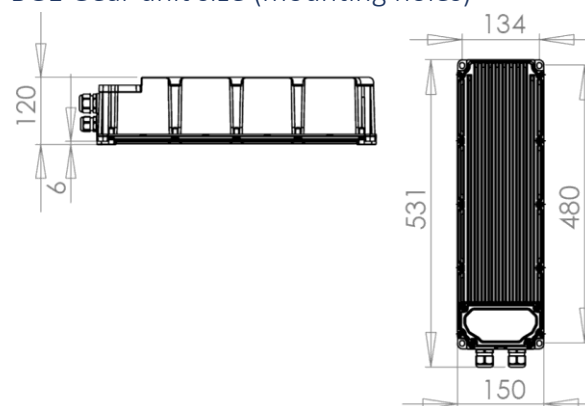
easyled.fi
VAT number
FI20776746

**MISS
NOTHING.**

BG Gear unit size (available bracket mount)



BGE Gear unit size (mounting holes)



Bubo weight [kg]

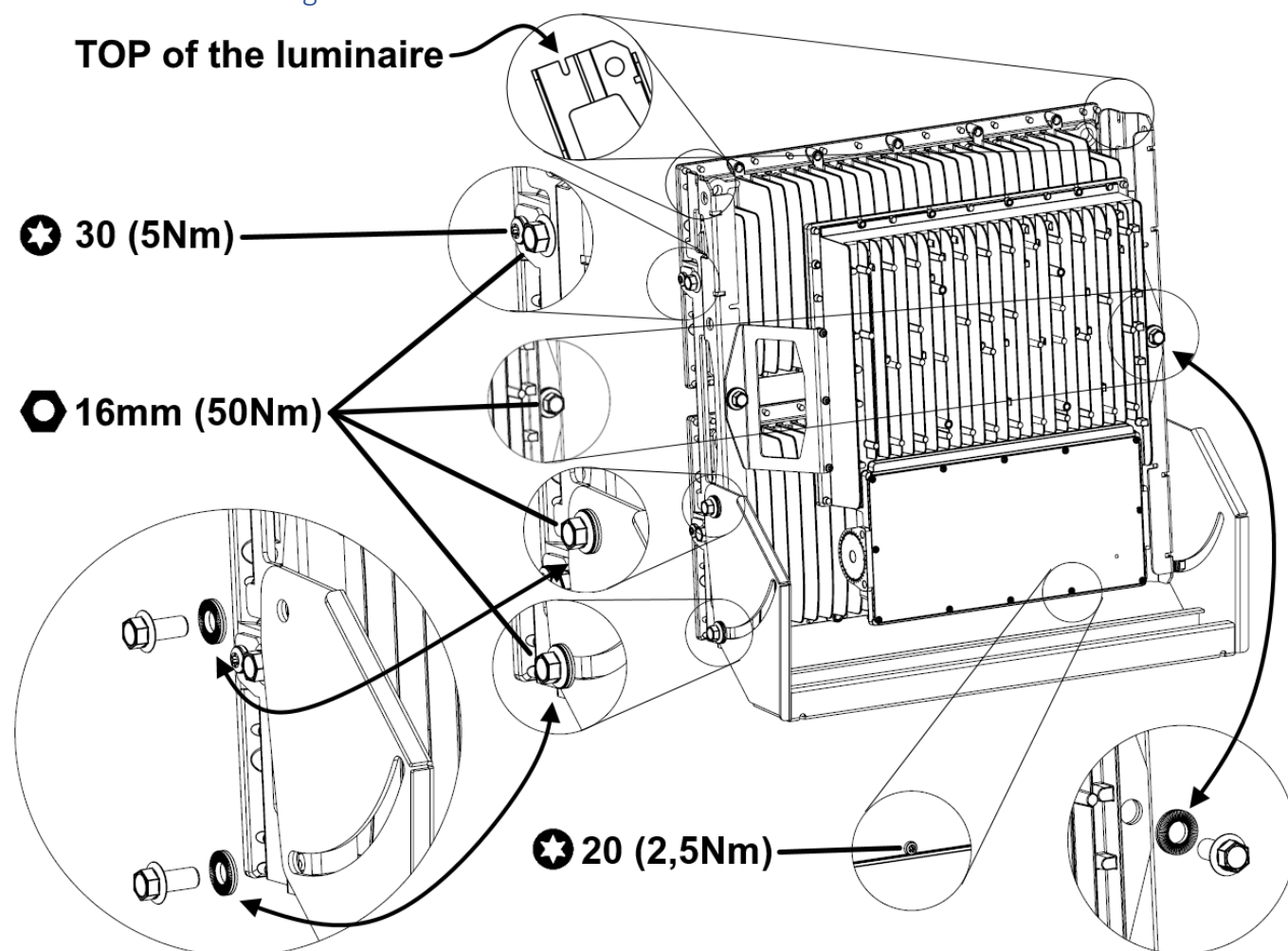
	Luminaire	Bracket			
	Light Engines, Rack & Gear	Area	Stadium	Pendant L	Pendant S
Bubo B3G - 360LED	40	8,2	8,1	6,4	5,6
Bubo B3G - 288LED	41	8,2	8,1	6,4	5,6
Bubo B2G - 240LED	28	5,0	5,1	4,0	3,6
Bubo B2G - 192LED	29	5,0	5,1	4,0	3,6
	Light Engine & Gear	Area	Floodlight	Pendant	
Bubo B1G - 120LED	13,3	2,0	2,1	2,1	
Bubo B1G - 96LED	13,5	2,0	2,1	2,1	

	Luminaire	Drivers	
	Light Engines & Rack	BG unit	BGE unit
Bubo B3 - 360LED	31	8,5	6,1
Bubo B3 - 288LED	30	10,3	6,1
Bubo B2 - 240LED	20	7,6	5,4
Bubo B2 - 192LED	20	8,8	5,4
	Light Engine		
Bubo B1 - 120LED	9,1		
Bubo B1 - 96LED	9,0		

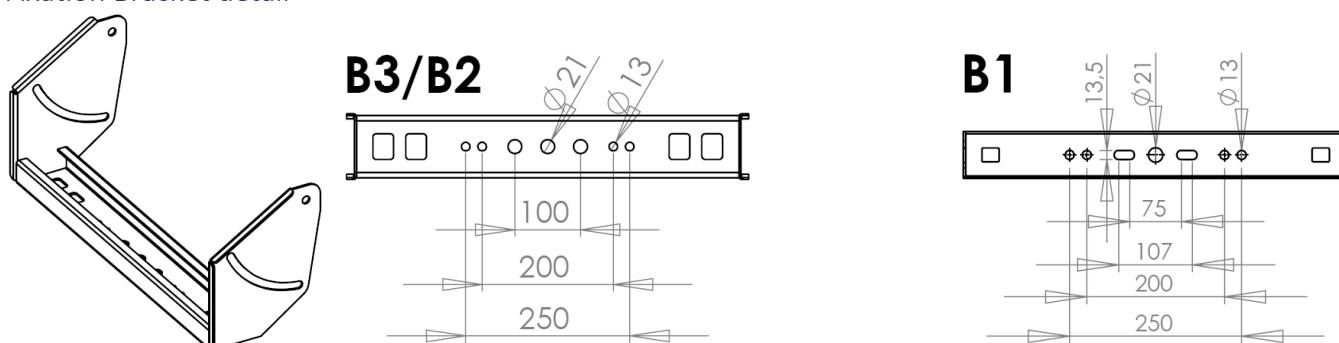
Bubo A_w [m²]

			Installation angle												
			0deg			10deg		25deg		40deg		65deg		85deg	
			Top	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side	Front	Side
Bubo B3	Area	With BG Gear unit	0,54	0,13	0,16	0,22	0,17	0,32	0,17						
		Luminaire only	0,52	0,10	0,12	0,18	0,13	0,32	0,13						
	Stadium	With BG Gear unit						0,34	0,15	0,39	0,15	0,48	0,16	0,50	0,16
		Luminaire only						0,34	0,12	0,39	0,12	0,46	0,12	0,49	0,13
Bubo B2	Area	With BG Gear unit	0,36	0,12	0,11	0,19	0,12	0,25	0,12						
		Luminaire only	0,33	0,09	0,08	0,13	0,08	0,21	0,09						
	Stadium	With BG Gear unit						0,27	0,11	0,31	0,11	0,33	0,12	0,35	0,12
		Luminaire only						0,22	0,07	0,26	0,08	0,30	0,08	0,33	0,09
Bubo B1	Area	With BGS Gear unit	0,19	0,08	0,04	0,10	0,04	0,12	0,04						
		Luminaire only	0,15	0,07	0,03	0,09	0,03	0,11	0,03						
	Flood	With BGS Gear unit	0,19	0,09	0,05	0,10	0,05	0,13	0,05	0,17	0,05	0,20	0,04	0,21	0,04
		Luminaire only	0,15	0,08	0,04	0,10	0,04	0,12	0,04	0,14	0,03	0,16	0,03	0,17	0,03

Installation – Mounting



Fixation Bracket detail



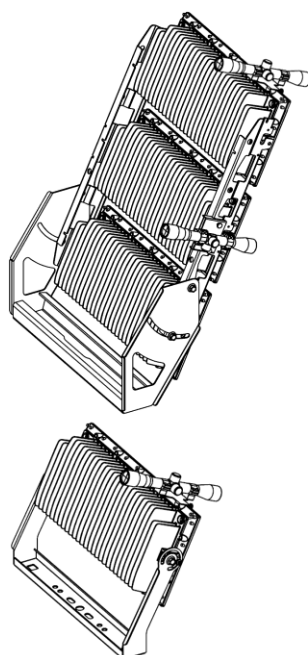
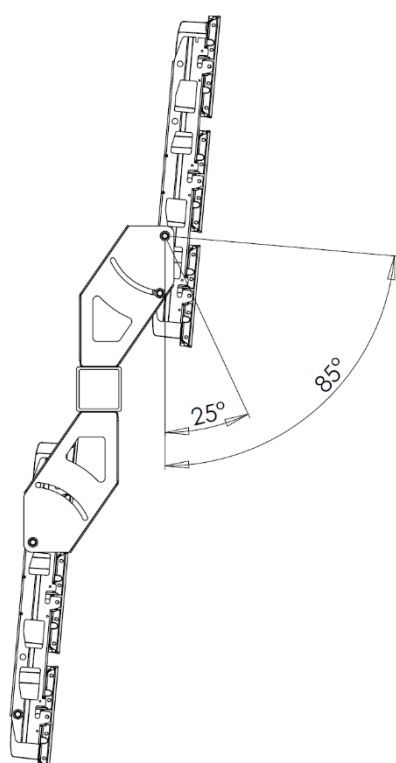
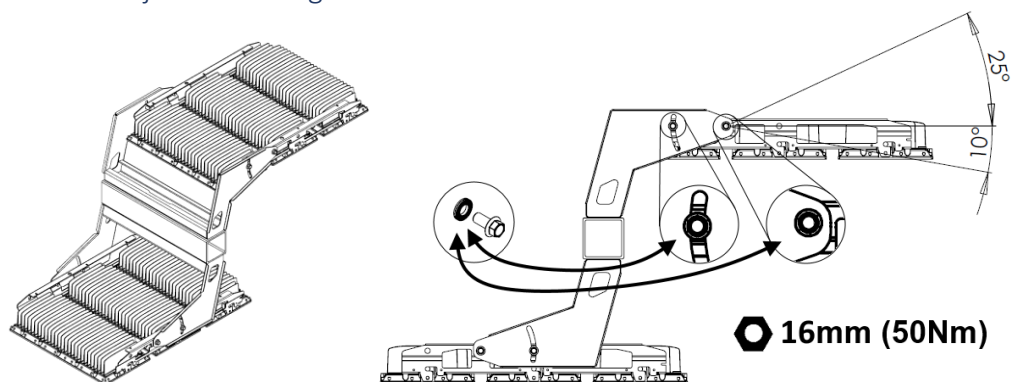
Use M20 bolt and washer – Tighten to **100Nm** (Recommended washer according to DIN9021)
or use 2 pieces M12 bolts with washers – Tighten to **50Nm**.

In case of using only one fixation point and if the luminaire is higher than 3m, the use of a 2nd fixing security system is advised.

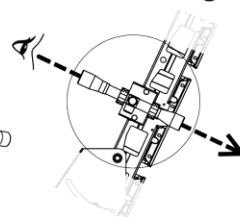
Adjusting luminaire angle

- I. After finding the right alignment
- II. Tighten aim locking bolts
- III. Tighten the main axle bolts

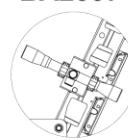
Bracket adjustment range



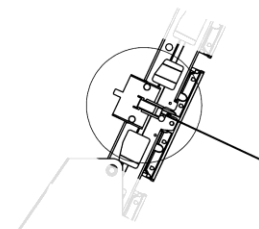
Precision Aiming Device



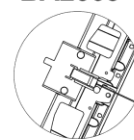
BA2007



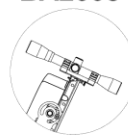
Laser



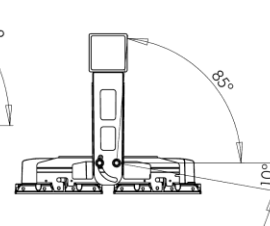
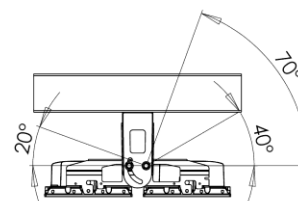
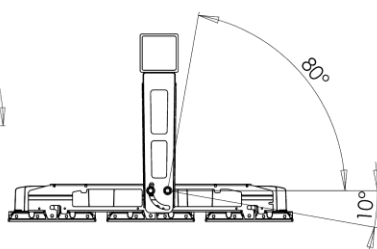
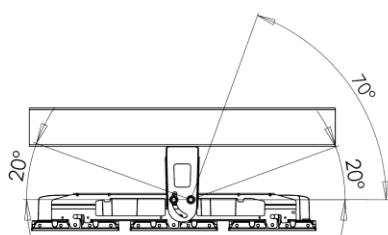
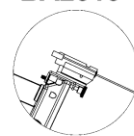
BA2009



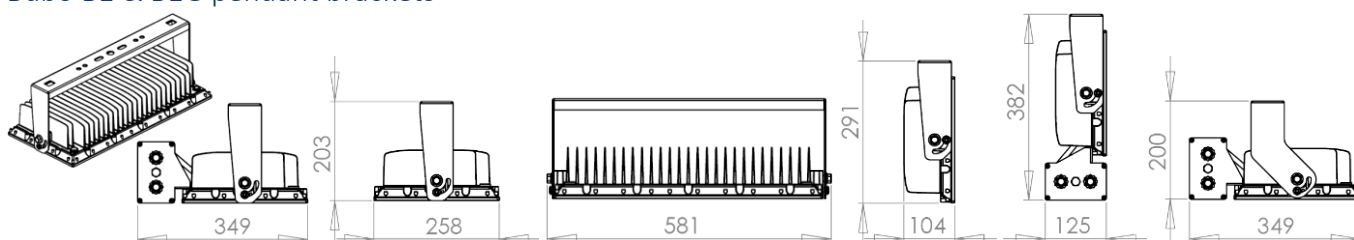
BA2008



BA2010

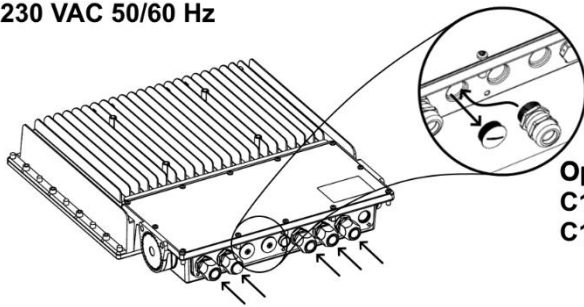


Bubo B1 & B1G pendant brackets



Installation – Electrical connections

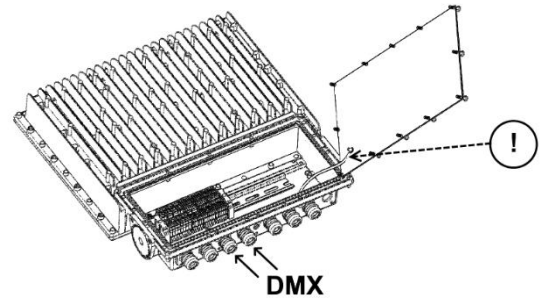
230 VAC 50/60 Hz



Option 7-13mm:
C12888 (M20)
C11729 (M20 metal)

Ø 7-13mm ∩ 5Nm ⚡ 25mm

Metal: Ø 7-13mm ∩ 11Nm ⚡ 24mm



DMX

Ø 6-10mm ∩ 5Nm ⚡ 22mm

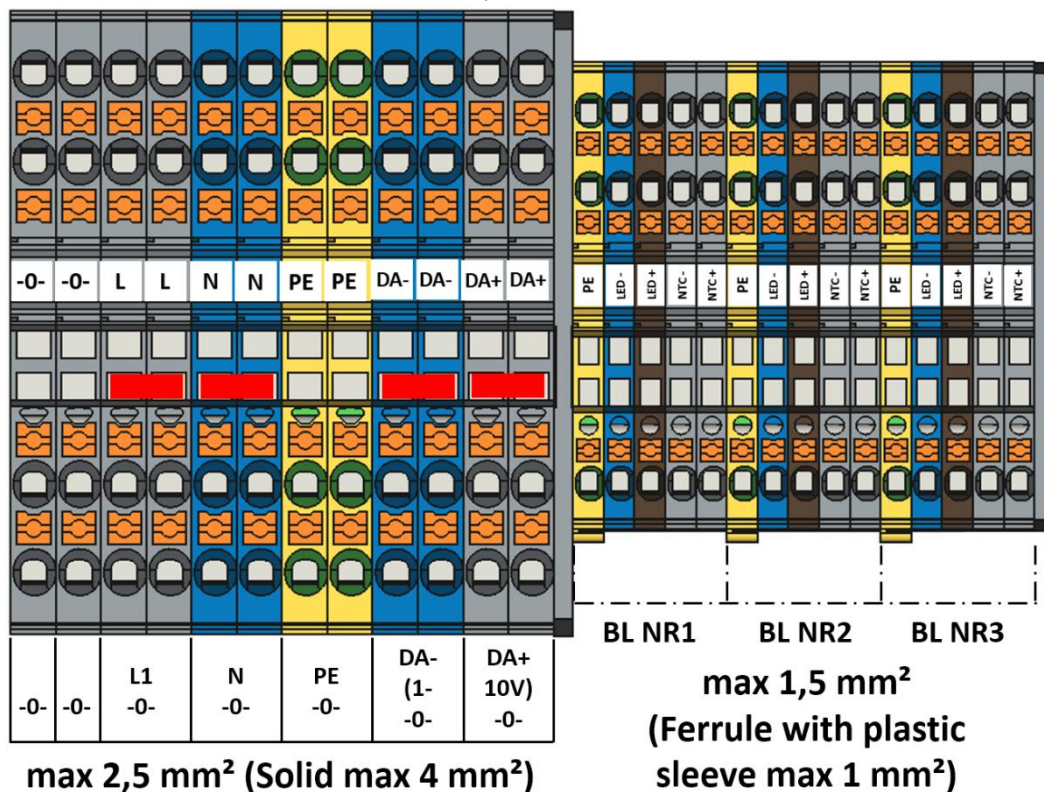
Metal: Ø 6-12mm ∩ 11Nm ⚡ 24mm

BL light unit standard cable wire colors:

	EN		FI	SE	DE
PE	GN-YE	GREEN-YELLOW	KE-VI	GR-GU	GN-GE
LED-	BU	BLUE	SI	BL	BL
LED+	BN	BROWN	RU	BR	BR
NTC-	BK	BLACK	MU	SV	SW
NTC+	WH	WHITE	VA	VT	WS

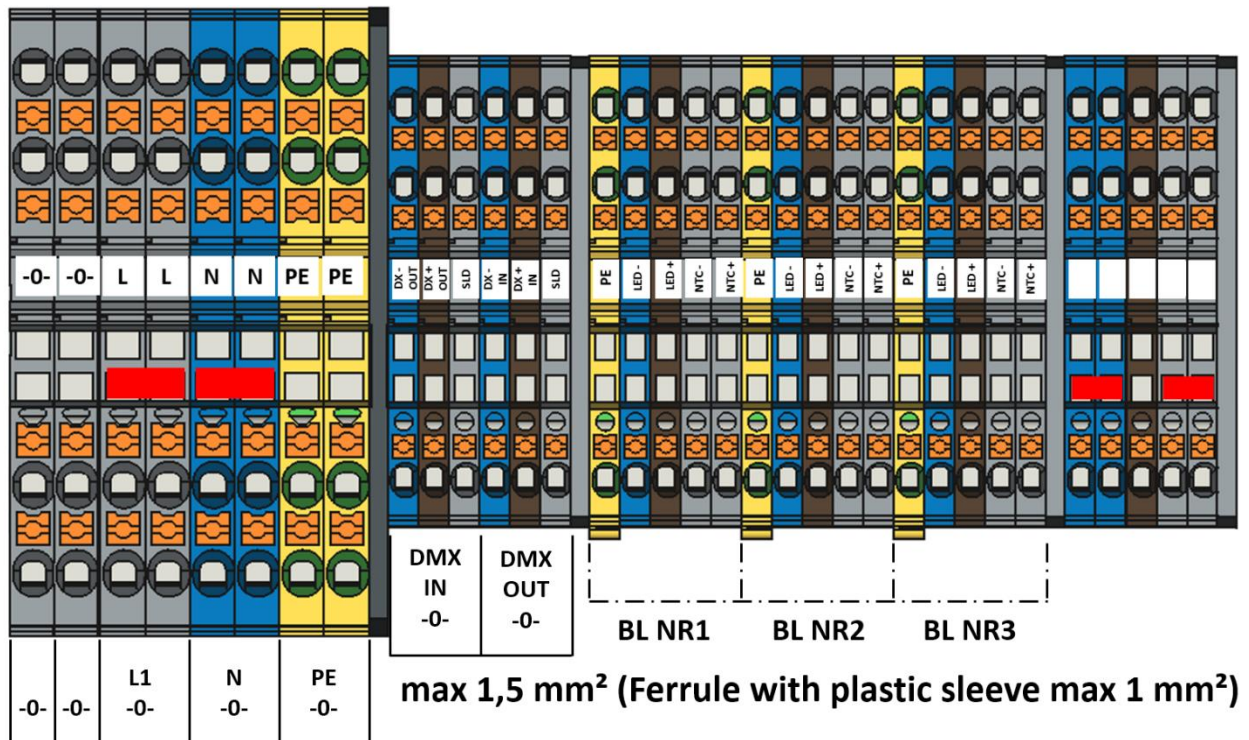
- Make connections according to terminal markings

BG DALI and 1-10V electrical connections – example



- EN: Control circuit must be provided with cable which is insulated according to the mains voltage.
- FI: Ohjauspiirissä on käytettävä verkkojännitteen mukaan eristettyjä johtimia.
- SE: Styrkrets måste ha kabel som är isolerad enligt nätspänningen.
- DE: Der Steuerkreis muss mit einem Kabel versehen sein, die entsprechend der Netzspannung isoliert ist.

BG DMX electrical connections – example



max 2,5 mm² (Solid max 4 mm²)

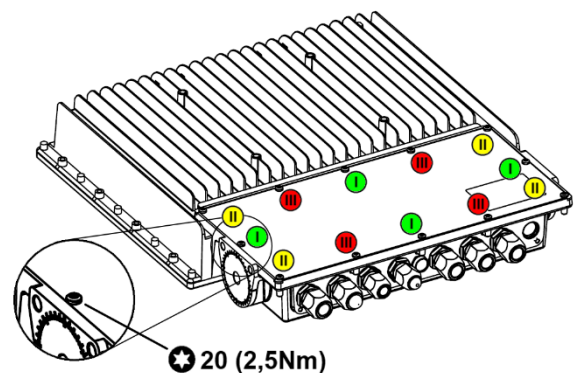
- EN: Luminaire requires 1 address. DMX-out of the last luminaire in the chain be terminated with an 110Ω end resistor.
- FI: Valaisin vie 1 osoitteen. DMX-ketjun viimeisen valaisimen DMX-lähtö on päätettävä 110Ω vastuksella.
- SE: Armaturen kräver 1 adress. DMX-avgång från den sista armaturen i kedjan avslutas med ett 110Ω ändmotstånd.
- DE: Leuchte benötigt 1 Adresse. Der DMX-Ausgang der letzten Leuchte in der Kette wird mit einem 110Ω-Abschlusswiderstand abgeschlossen.

Closing the BG Gear unit

Use correct closing order and appropriate 2,5Nm torque

- Begin tightening screws from the middle of sides
- Tighten corners next
- Tighten the remaining screws

Make sure that the safety wire is not between the housing and the lid and screws for the lid are secured properly.



BGE electrical connections - examples

Bubo DALI



Bubo DMX



Notification regarding cables

- Fasten all cables to luminaire housing or bracket with zip-ties (or equivalent) to prevent movement of loose cables.
- Pay attention to sharp corners to prevent damage to cables

Suitable LED cable lengths

		BG / BGS			BGE		
		LED NTC WIRING		NO NTC	LED NTC WIRING		NO NTC
		Combined	Separate		Combined	Separate	
Bubo B3	360 LED	25 m	100 m	100 m	3 m	25 m	150 m
	288 LED	3 m	10 m	10 m	3 m	25 m	150 m
Bubo B2	240 LED	25 m	100 m	100 m	3 m	25 m	150 m
	192 LED	3 m	10 m	10 m	3 m	25 m	150 m
Bubo B1	120 LED	25 m	100 m	100 m			
	96 LED	3 m	10 m	10 m			

General

- Do not stare at the operating light source. The luminaire should be positioned so that prolonged staring into the luminaire at a closer distance is not expected. The luminaire has a built in light collimator.
- Applicable to RGB PARTY luminaire: In the lighting control standby mode (OFF), there may be a slight glow of the diodes in some installations. This is normal and does not pose a risk of damage to the luminaire or increase power consumption of the installation.
- What is condensation? It appears as small droplets of moisture inside the light. Condensation forms as gaseous moisture turns in to liquid water. It forms in the coolest parts of the luminaire, usually glass. The luminaire is designed to allow moisture to escape, but it takes time and is dependent on usage and ambient environment. Condensation does not cause a problem with normal operation of the luminaire and is not considered to be a defect.
- Any modification on the luminaire will cancel the warranty

BGE SIGNALLING LED INDICATIONS

Period	Pulses	Fault description	Priority
The encoded faults are based on pulses emitted every 4 seconds	1	One or more active CCR module is not working	
	5	Firmware version of one or more CCR module is not compatible with main control board firmware	
	2	One or more output is short-circuited	
	3	One or more output is disconnected from load	
	4	Thermal derating active (output current reduction)	MINIMUM

Circuit breaker design chart

				Type	Number of luminaires per circuit breaker BG/BGS (BGE) Kytkeettävien valaisimien enimmäismäärä BG/BGS (BGE)					
					B10 A	B16 A	C10 A	C16 A	Gg10 A	Gg16 A
Bubo B3	360-	1400	6,7 A	3a (3e)	1 (1)	1 (1)	1 (1)	2 (2)	1 (1)	1 (1)
		1300	6,2 A	3a	1	1	1	2	1	2
		1200	5,7 A	3a (3e)	1 (1)	1 (1)	1 (1)	2 (2)	1 (1)	2 (1)
		1050	5,0 A		1 (1)	2 (1)	2 (1)	3 (2)	1 (1)	2 (1)
	288-	1200	4,7 A	3b (3e)	1 (1)	2 (1)	2 (1)	3 (2)	1 (1)	2 (1)
		1050	4,1 A		1 (1)	2 (1)	2 (1)	3 (2)	1 (1)	2 (1)
		850	3,3 A		1 (1)	2 (1)	2 (1)	3 (2)	1 (1)	2 (1)
Bubo B2	240-	1400	4,5 A	2a (2e)	1 (1)	2 (2)	2 (2)	3 (3)	1 (1)	2 (2)
		1200	3,9 A		1 (1)	2 (2)	2 (2)	3 (3)	2 (1)	3 (2)
		1050	3,4 A		2 (1)	3 (2)	3 (2)	4 (3)	2 (1)	3 (2)
	192-	1200	3,2 A	2b (2e)	2 (1)	3 (2)	3 (2)	4 (3)	2 (1)	3 (2)
		1050	2,7 A		2 (1)	3 (2)	3 (2)	5 (3)	2 (1)	3 (2)
		850	2,2 A		2 (1)	3 (2)	3 (2)	5 (3)	2 (1)	3 (2)
Bubo B1	120-	1400	2,3 A	1a	2	4	4	6	3	5
		1200	1,9 A		3	5	4	7	3	5
		1050	1,7 A		4	6	6	9	4	7
	96-	1200	1,3 A	1b	4	6	6	11	5	8
		1050	1,4 A		4	6	6	11	5	8
		850	1,1 A		4	6	6	11	5	8
BUBO PARTY	RGB	B3 or 3*B1	5,7 A	3e	1	1	1	2	1	1

Type	Gear	Inrush current peak Käynnistysvirtapiikki	Earth leakage current Maavuotovirta
Type 3a	BG	< 12A (pulses greater than 1ms) 45A, t=170µs (10% of Ipeak)	2,0 mA
Type 3b	BG	39A, t=1320µs (50% of Ipeak)	0,5 mA
Type 3e	BGE	40A, t=2500µs	2.3 mA
Type 2a	BG	< 8A (pulses greater than 1ms) 30A, t=170µs (10% of Ipeak)	1,3 mA
Type 2b	BG	26A, t=1320µs (50% of Ipeak)	0,3 mA
Type 2e	BGE	29A, t=2000µs	2.5 mA
Type 1a	BGS	< 4A (pulses greater than 1ms) 15A, t=170µs (10% of Ipeak)	0,6 mA
Type 1b	BGS	13A, t=1320µs (50% of Ipeak)	0,2 mA