

CALUMMA™ M MC

Featuring an optical design using 7 high efficacy multi-chip LEDs and available with optional LED colour variants and various beam angles, the medium-sized Calumma M MC luminaire creates powerful and beautiful light output for a spot, accent or flood lighting solution. Its durable housing is built to withstand any exterior conditions, and its special finish for harsh and marine environments provides an exceptional outdoor LED luminaire in an elegant design. Additionally, Calumma M MC can be connected in long In/Out daisy-chains via an E-Box and hybrid Plug & Play connections for almost effortless installation. Complemented by wide range of accessories and control protocols, this luminaire is an effective and versatile unit to get the most out of architectural lighting applications.



KEY FEATURES

Lumen output & Light source

Luminaire with seven high-power, multi-chip LEDs provides up to 2328 lumen output. Multiple LED colour variants. No light spills. Perfectly homogenised light output with efficacy up to 35 lm/w.

Design & Durability

Compact, durable and stylish housing made of high-pressure die cast aluminium. IP67 and IK10 certification; suitable for marine applications (Harsh Environment Finish required) and traffic applications. Supported with a 5 year warranty.

Flexibility

Exceptional outdoor or indoor LED luminaire with a wide range of accessories, custom colour finishes, multiple light output variants and beam angles.

Connectivity

Utilising the innovative E-Box series of power and data interfaces, Calumma M MC can communicate via numerous wired, wireless, and Ethernet based control protocols. Various wiring topologies are supported using hybrid power / data cables with Plug & Play connectors or standard connection options.

COLOURS

* UPON REQUEST



COLOUR TEMPERATURE

* UPON REQUEST

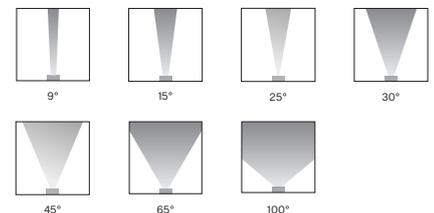


CONTROL & PROTOCOLS

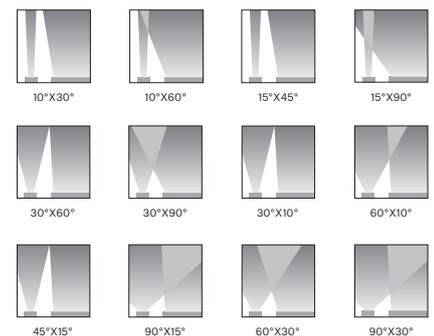


OPTIC OPTIONS

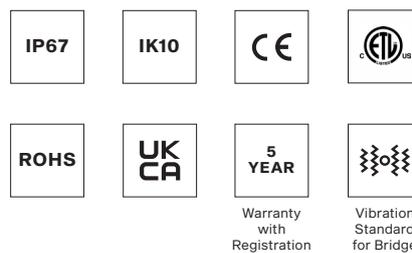
SYMMETRICAL



BI-SYMMETRICAL



STANDARD & SPECIFICATION



FINISH OPTIONS

* CLOSEST RAL TONE

* HE = Harsh Environment



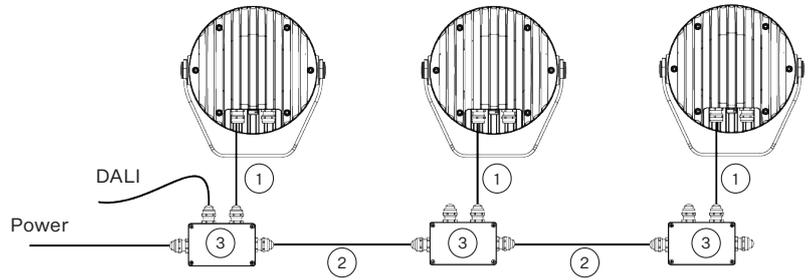
SPECIFICATION

ELECTRICAL	Input Voltage	120–277 V AC 50/60 Hz (US)		
	Typical Power Consumption	65 W +/-10 %		
OPTICAL	Light Source	High Power Multichip LEDs		
	Colour Variants	RGBW (W - 6500 K) RGBA PW (W - 3000 K)		
		Other Variants On Request (TW 3000 - 6500 K)		
	Beam Angle	9° 15° 25° 30° 45° 65° 100°		
		10°x30° 30°x10° 10°x60° 60°x10° 15°x45° 45°x15° 15°x90° 90°x15° 30°x60° 60°x30° 30°x90° 90°x30°		
Lumen Output Delivered	2328 lm (@9° RGBW)			
Projected Lumen Maintenance	L90B10 >90.000 hrs, Ta = 25°C / 77°F			
CONTROL	Interface Protocol	Via E-box range, DMX/RDM, wireless DMX, DALI 2		
	E-box control protocol	USITT DMX512+RDM, ArtNet, MA Net, MA Net2, sACN, Kling-Net		
	DALI 2 Device Type	DT 8		
	Wireless DMX (Option)	Lumen Radio CRMX Technology		
	Control System	Third Party DMX Controllers		
	Operating Modes	DMX, Stand-alone		
	Settings / Addressing	E-box, RDM communicator		
	Power Supply	Integrated		
PHYSICAL	Width x Height x Depth Weight	264 x 278 x 106 mm (10.4 x 10.94 x 4.17 in.) 5.77 kg (12.72 lbs)		
	Housing	High Pressure Die-Cast Aluminium Body Tempered Glass		
	Finish Options	Standard Colour	Graphite Black RAL 9011 Grey Aluminium RAL 9007 Pure White RAL 9010 Sandstone RAL 1014	
		Standard Colour Harsh Environment	Graphite Black RAL 9011 Grey Aluminium RAL 9007 Pure White RAL 9010 Sandstone RAL 1014	
		Cost Option	Custom RAL	
	Cables / Connections	IN/OUT (for E- Box version): - 0,5 m cables with hybrid connectors - Jumper cables	IN (for DMX, DALI): - 1 m cable with bare end - Other cable length - custom - Junction box - optional	
	Mounting Method	Yoke or Yoke for Pole Adaptor		
Adjustability	+180° / -180°			
Protection Factor	IP67 / Suitable For Wet Locations			
IK Rating	IK10			
Cooling System	Convection			
Operating Ambient Temperature	-20°C / +50°C (-4°F / +122°F)			
CERTIFICATION	Listings	ETL / cETL, CE, RoHS, UKCA		
ACCESSORIES	Not Included Items			
	Junction Box for Calumma S-XL/Eminere (CE or US)			
	Optical Demo Set for Calumma M (for demo purposes)			
	Outdoor Foil Holder for Calumma M „OFH“ version only (for permanent installation)			
	Optical Foil Set for Outdoor Foil Holder Calumma M			
	Land Spike for Calumma M			
	Top Hat Calumma M			
	Half Top Hat Calumma M			
	Re-enterable Electrical Insulating Resin			
	Floor Stand for Calumma S, M			
Pole Adaptor (ø 102 mm) (Yoke for Pole Adaptor Required)				

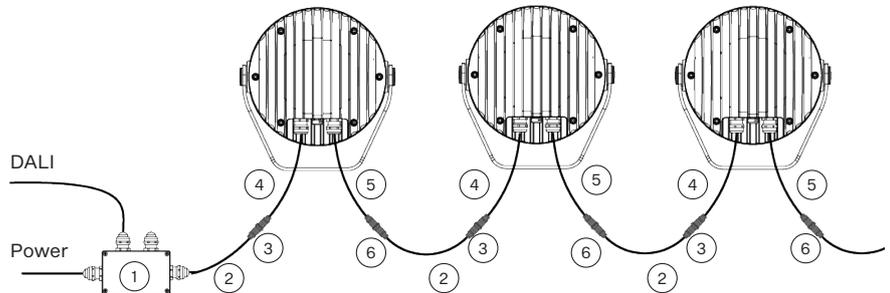
CONTROL AND CONNECTION OPTIONS - CE

DALI

- 1) Hybrid Cable (13053693) Standard 1 m with bare-end, black or on request Hybrid cable (13053697), 1 m with bare-end, white
- 2) Hybrid Cable (13053693) Standard 1 m with bare-end, black or on request Hybrid cable (13053697), 1 m with bare-end, white or Scope of Others
- 3) Junction Box



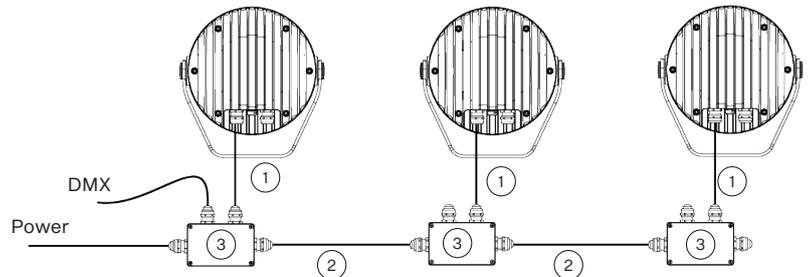
- 1) Junction Box
- 2) Hybrid Cable (13053693) Standard 1 m with bare-end, black or on request Hybrid Cable (13053697), 1 m with bare-end, white
- 3) Field Installable Connector FF DC-05 (13053971)
- 4) Hybrid Cable (13053693), black, Standard 0.5 m with Field Installable Connector MM DC-05 (13053972), black or on request Hybrid Cable (13053697), white, 0.5 m with Field Installable Connector MM DC-05 (13053972), black
- 5) Hybrid Cable (13053693), black, Standard 0.5 m with Field Installable Connector FF DC-05 (13053971), black or on request Hybrid Cable (13053697), white, 0.5 m with Field Installable Connector FF DC-05 (13053971), black
- 6) Field Installable Connector MM DC-05 (13053972)



Note: The last unplugged connector must be fitted with a Waterproof Cap to protect the IP rating.

DMX

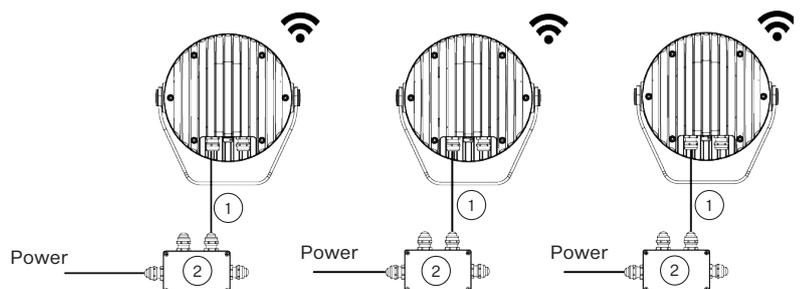
- 1) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), Standard 1 m with bare-end, black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white
- 2) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white or Scope of Others
- 3) Junction Box



WIRELESS DMX

- 1) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), Standard 1 m with bare-end, black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white
- 2) Junction Box

Note: This type of connection is available for M, L, XL versions.

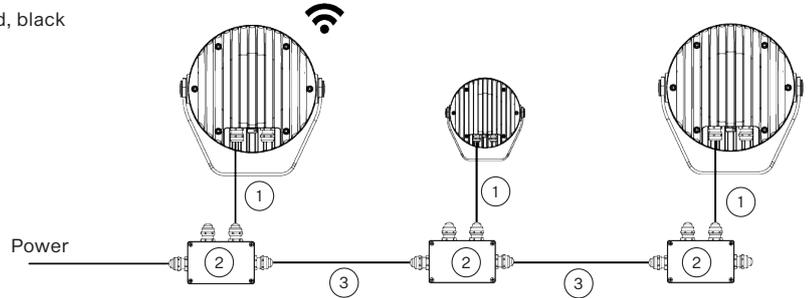


CONTROL AND CONNECTION OPTIONS - CE

WIRELESS DMX

- 1) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), Standard 1 m bare-end, black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white
- 2) Junction Box
- 3) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white or Scope of Others

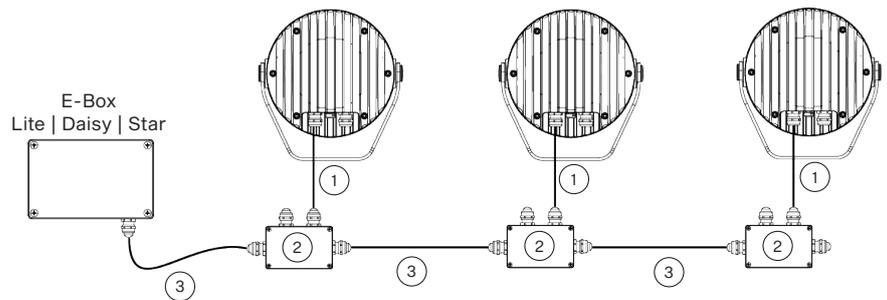
Note: This type of connection must have M, L or XL versions as the first luminaire. Next luminaires in a row could be chosen from S, M, L or XL versions.



DMX or ETHERNET via E-BOX

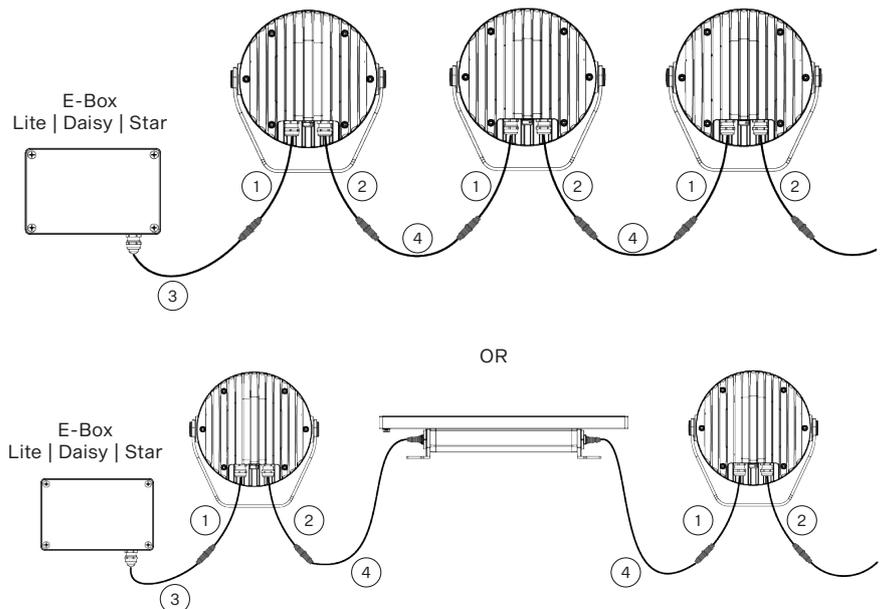
- 1) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), Standard 1 m with bare-end, black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white
- 2) Junction Box
- 3) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white or Scope of Others

Note: This type of connection is available for S, M, L, and XL versions. E-Box has to be in Pass Through mode only.



- 1) Leader Cable MM (13053493) Standard 0.5 m with Hybrid Connector
- 2) Leader Cable MF (13053494) Standard 0.5 m with Hybrid Connector
- 3) Leader Cable FF 2 m (13053438)
Leader Cable FF 5 m (13053440)
Leader Cable FF 10 m (13053436)
Leader Cable FF 25 m (13053437)
Leader Cable FF 50 m (13053439)
- 4) Jumper Cable FF/FM 0.25 m (13053422)
Jumper Cable FF/FM 0.5 m (13053423)
Jumper Cable FF/FM 1 m (13053425)
Jumper Cable FF/FM 2 m (13053427)
Jumper Cable FF/FM 3 m (13053428)
Jumper Cable FF/FM 5 m (13053430)
Jumper Cable FF/FM 10 m (13053424)

Note: With this type of connection is possible to connect Calumma (M, L, XL) and Eminere (Eminere, Eminere Side) luminaires in a row.

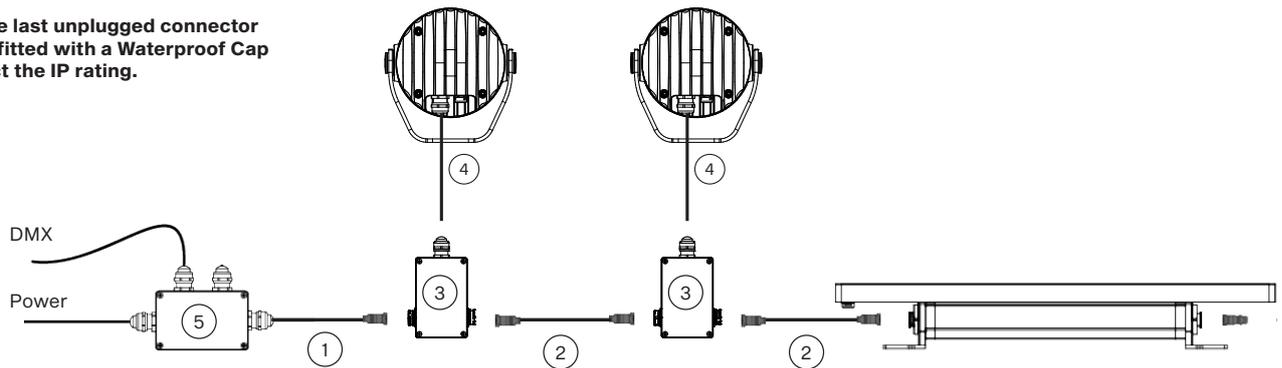


CONTROL AND CONNECTION OPTIONS - CE

DMX WITH JUNCTION BOX FOR CALUMMA M / EMINERE (CE)

- 1) Leader Cables FF - 2 | 5 | 10 | 25 | 50 m
- 2) Jumper Cables FF/FM - 0.25 | 0.5 | 1 | 2 | 3 | 5 | 10 m
- 3) Junction Box for Calumma S-XL / Eminere CE (10981268 for RAL9011)
- 4) Flamar 3x16 AWG + 1x(2x24 AWG) - (13051508), Standard 1 m with bare-end, black or HYB-5731ZH LSZH (13053694), Hybrid Cable, white
- 5) Junction Box

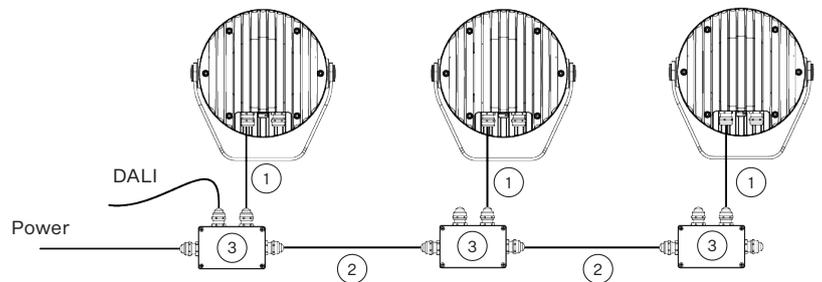
Note: The last unplugged connector must be fitted with a Waterproof Cap to protect the IP rating.



CONTROL AND CONNECTION OPTIONS - US

DALI

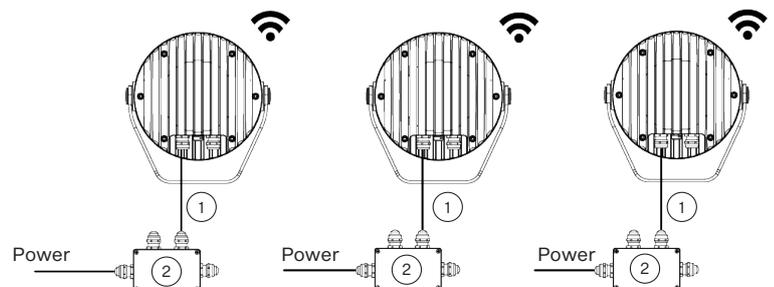
- 1) SJTW 5x14 AWG (13053693), Standard 1 m with bare-end, black or Cable SJTW 5x14 AWG (13053697), white
- 2) SJTW 5x14 AWG (13053693), black or Cable SJTW 5x14 AWG (13053697), white or Scope of Others
- 3) Junction Box



WIRELESS DMX

- 1) SJTW 6x14 AWG (13053480), Standard 1 m with bare-end, black or Cable SJTW 6x14 AWG (13053695), white
- 2) Junction Box

Note: This type of connection is available for M, L, XL versions

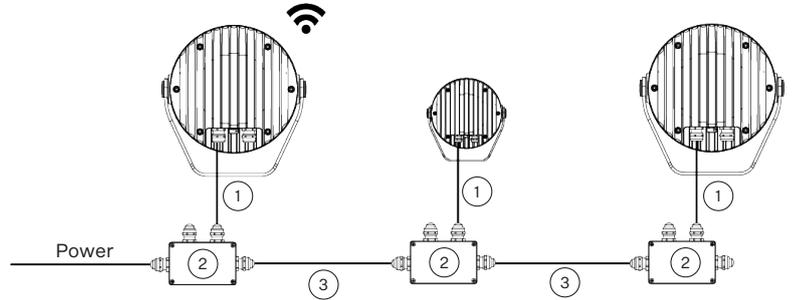


CONTROL AND CONNECTION OPTIONS - US

WIRELESS DMX

- 1) SJTW 6x14 AWG (13053480), Standard 1 m with bare-end, black or Cable SJTW 6x14 AWG (13053695), white
- 2) Junction Box
- 3) SJTW 6x14 AWG (13053480), black or Cable SJTW 6x14 AWG (13053695), white or Scope of Others

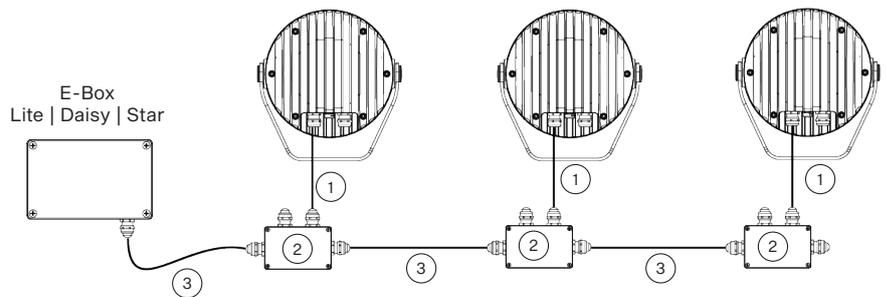
Note: This type of connection must have M, L or XL versions as the first luminaire. Next luminaires in a row could be chosen from S, M, L or XL versions.



DMX or ETHERNET via E-BOX

- 1) SJTW 6x14 AWG (13053480) Standard 1 m with bare-end, black or Cable SJTW 6x14 AWG (13053695), white
- 2) Junction Box
- 3) SJTW 6x14 AWG (13053480), black or Cable SJTW 6x14 AWG (13053695), white or Scope of Others

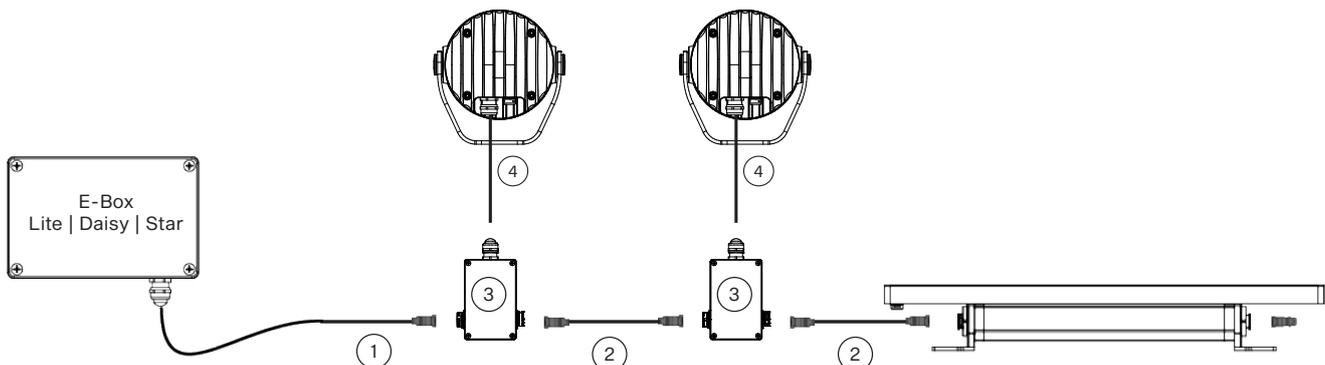
Note: This type of connection is available for S, M, L, and XL versions. E-Box has to be in Pass Through mode only.



DMX WITH JUNCTION BOX FOR CALUMMA M / EMINERE (US)

- 1) Leader Cables FF - 2 | 5 | 10 | 25 | 50 m
- 2) Jumper Cables FF/FM - 0.25 | 0.5 | 1 | 2 | 3 | 5 | 10 m
- 3) Junction Box for Calumma S-XL / Eminere US (10981269 for RAL9011)
- 4) SJTW 6x14 AWG (13053480) Standard 1 m with bare-end, black or Cable SJTW 6x14 AWG (13053695), white

Note: The last unplugged connector must be fitted with a Waterproof Cap to protect the IP rating.



CONNECTIVITY

Following table shows maximum connected Calummas M MC in a row with respect of cable length.

STANDARD MODE	Cable length (m)	Voltage (V)			
		120	190	230	277
CALUMMA M MC	10	28	44	54	65
	20	28	44	54	65
	30	20	44	54	65
	50	12	30	43	63
	70	8	21	31	45
	100	6	15	22	32
	200	3	7	11	16
	500	1	3	4	6

PASS-THROUGH MODE	Cable length (m)	Voltage (V)			
		120	190	230	277
CALUMMA M MC	10	28	32	32	32
	20	28	32	32	32
	30	20	32	32	32
	50	12	30	32	32
	70	8	21	31	32
	100	6	15	22	32

PROJECTED AREA

	Front (rear) - m ²	Front (rear) ft ²	Side - m ²	Side - ft ²	Top - m ²	Top - ft ²
Calumma M	0.047	0.500	0.026	0.280	0.024	0.258
with Top Hat	0.047	0.500	0.054	0.581	0.052	0.559
with Half Top Hat	0.047	0.500	0.037	0.398	0.052	0.559

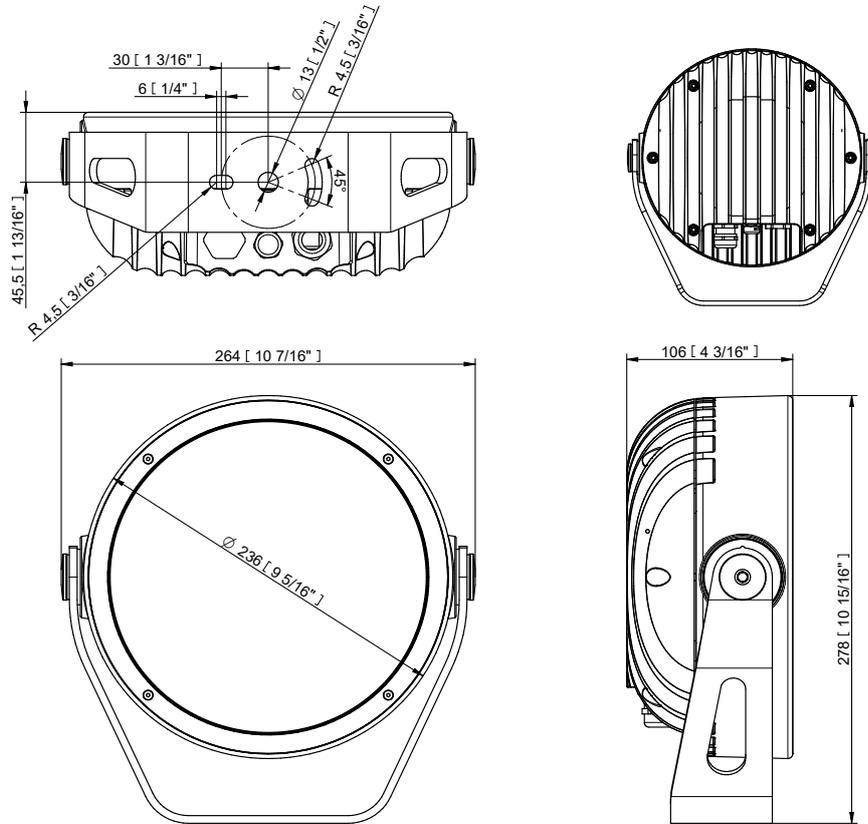
BOOSTER BOX POSITIONS

Cable length (m)	Max. number of Calummas M MC= 191 (in Standard mode)			
	120 V	190 V	230 V	277 V
10 m	28	-	-	-
20 m	28, 56	44	54	65
30 m	20, 40, 60, 80, 100	44, 88	54, 108	65
50 m	12, 24, 48, 56, 64, 76, 88, 100..	30, 60, 90, 120, 150, 180	43, 86, 129, 172	63, 126
70 m	8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96....	21, 42, 63, 84, 105, 126...	31, 62, 93, 124, 155, 176...	45, 90, 135, 180, 225...
100 m	6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96, 102....	15, 30, 45, 60, 75, 90, 105, 120, 135...	22, 44, 66, 88, 110, 132, 154...	32, 64, 96, 128, 160, 192
200 m	3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, 72, 75, 78, 81...	7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98, 105...	11, 22, 33, 44, 55, 66, 77, 88, 99, 110...	16, 32, 48, 64, 80, 96, 112, 128, 144...
500 m	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11...	3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66...	4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80....	6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96...

NOTE: For more detail see the User manual.

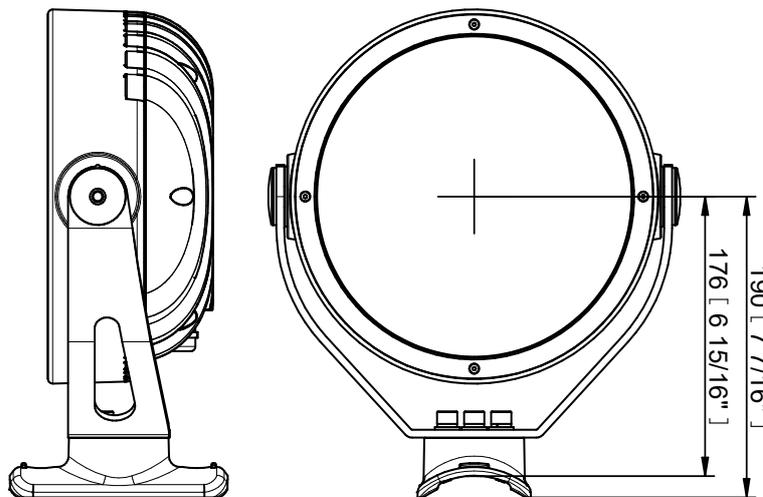
DIMENSIONS

Standard Yoke



Yoke for Pole Adaptor (with Pole Adaptor / PA)

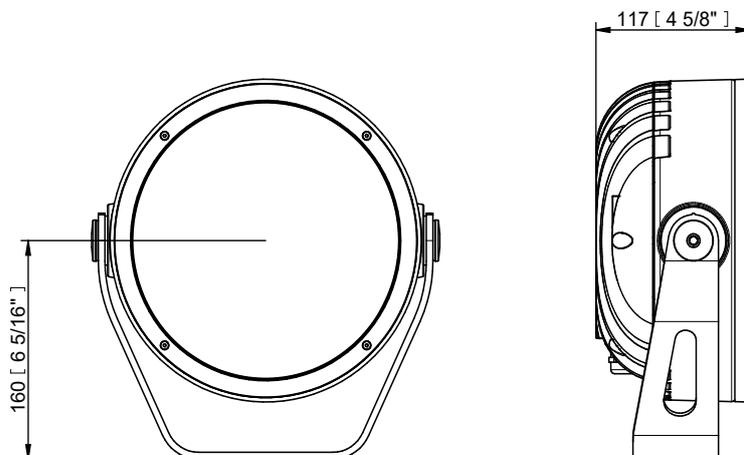
Example of ordering code: Calumma M SC RGBCW 15° PA



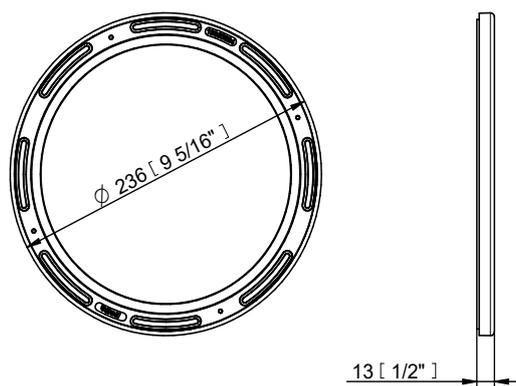
ACCESSORIES

Outdoor Foil Holder for Calumma M „OFH“ version only (for permanent installation)

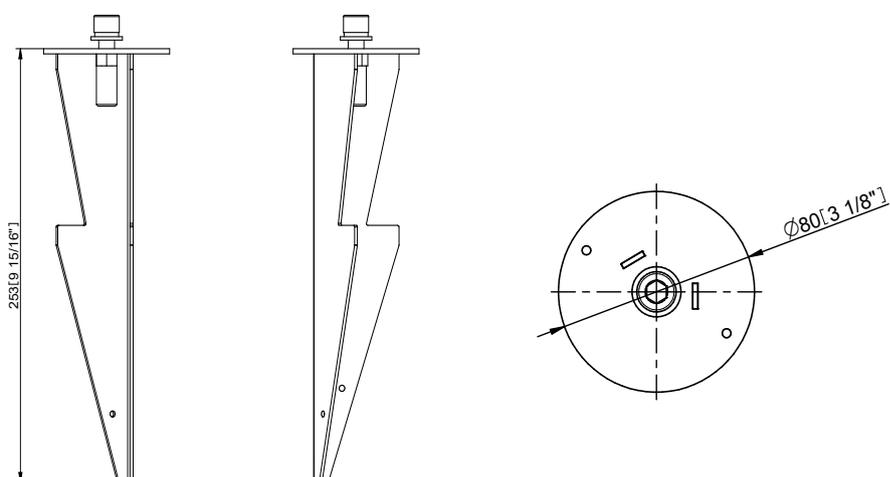
Example of ordering code: Calumma M SC CE RGBCW 10° RAL9007 OFH



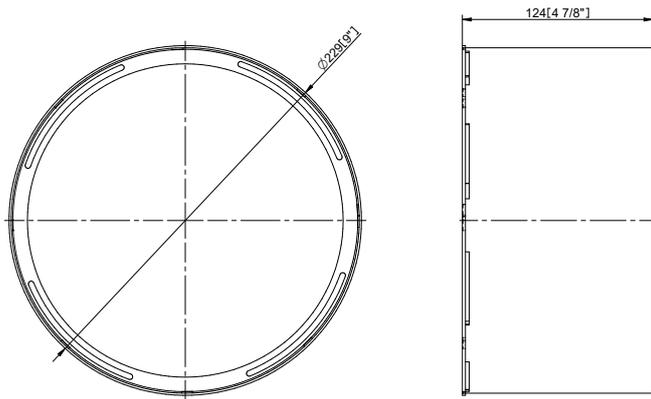
Outdoor Foil Holder for Calumma M



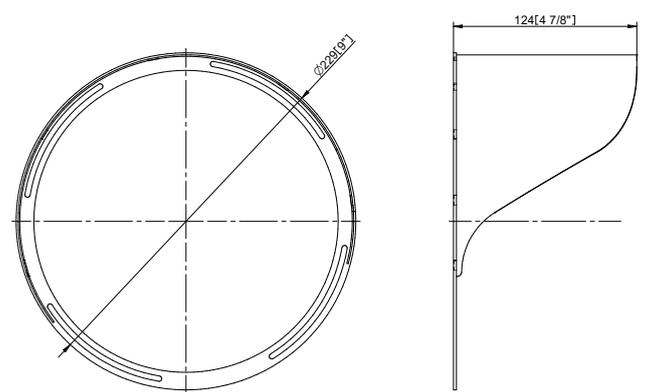
Land Spike for Calumma (S, M, L, XL)



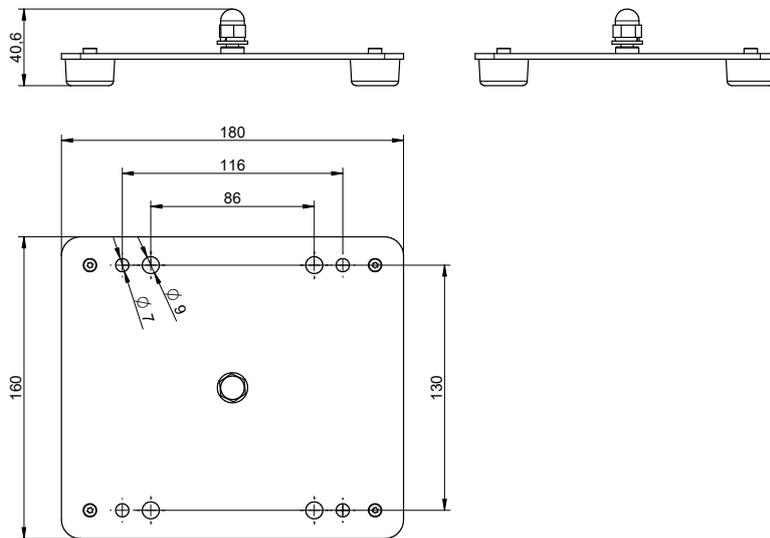
Top Hat



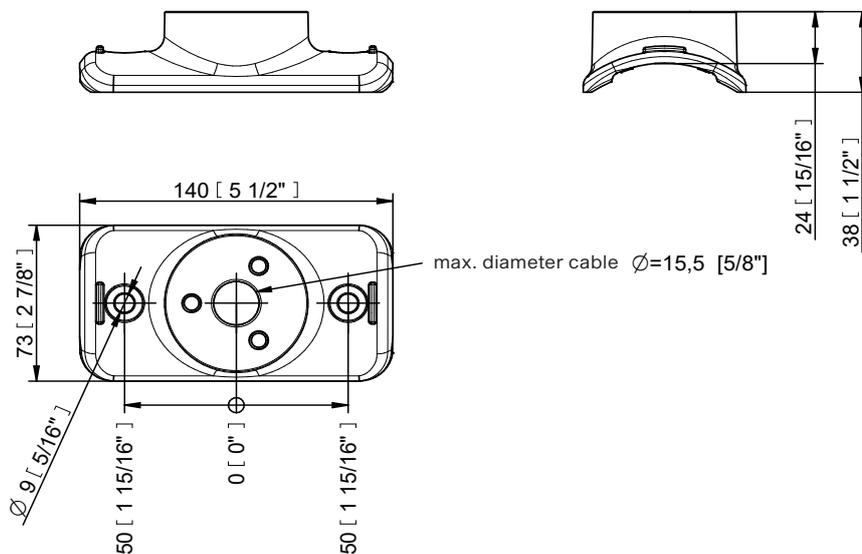
Half Top Hat



Floor Stand



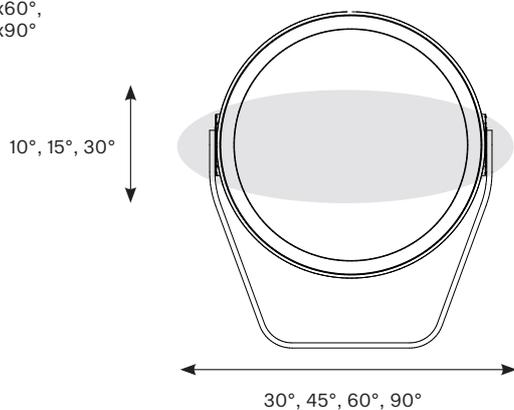
Pole Adaptor (ø 102mm)



BI-SYMMETRICAL BEAM ANGLES

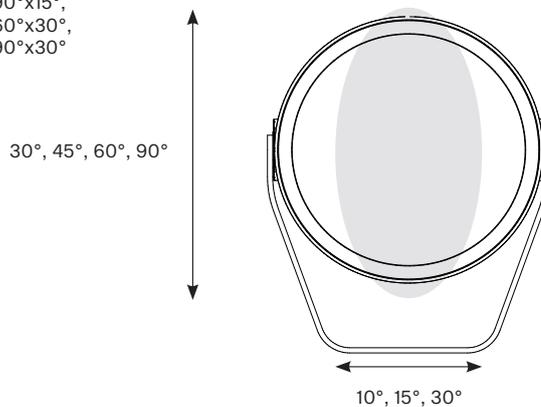
Bi-symmetrical:

10°x30°,
10°x60°,
15°x45°,
15°x90°,
30°x60°,
30°x90°



Bi-symmetrical:

30°x10°,
60°x10°,
45°x15°,
90°x15°,
60°x30°,
90°x30°



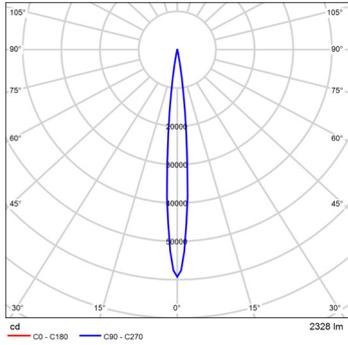
PHOTOMETRIC OVERVIEW

Lumen Output (lm)

	RGBCW (W 6500 K)	RGBA	WW (W 3000 K)
9°	2328	1996	1985
15°	1980	1698	1688
25°	1981	1699	1689
30°	1949	1670	1661
45°	1975	1694	1684
65°	1977	1696	1686
100°	1954	1676	1666
10°x30°, 30°x10°	1871	1605	1595
10°x60°, 60°x10°	2080	1784	1774
15°x45°, 45°x15°	2122	1819	1809
30°x60°, 60°x30°	1964	1685	1676
30°x90°, 90°x30°	2123	1821	1810
15°x90°, 90°x15°	2108	1808	1798

PHOTOMETRIC DATA

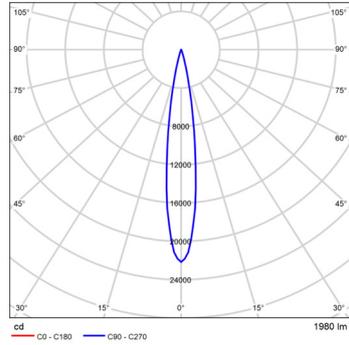
Calumma M MC RGBW 6500K 9dg



Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	0.09	237030 E(C0) 5.0° 117865	
1.0	0.17	59257 E(C0) 5.0° 29471	
1.5	0.26	26337 E(C0) 5.0° 13098	
2.0	0.35	14814 E(C0) 5.0° 7368	
2.5	0.44	9481 E(C0) 5.0° 4715	
3.0	0.52	6584 E(C0) 5.0° 3275	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 10.0°) — C90 - C270

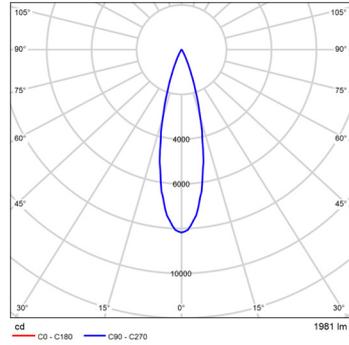
Calumma M MC RGBW 6500K 15dg



Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	0.13	8860 E(C0) 7.6° 4312	
1.0	0.27	22150 E(C0) 7.6° 10788	
1.5	0.40	9844 E(C0) 7.6° 4795	
2.0	0.53	5538 E(C0) 7.6° 2697	
2.5	0.67	3544 E(C0) 7.6° 1728	
3.0	0.80	2461 E(C0) 7.6° 1199	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 15.2°) — C90 - C270

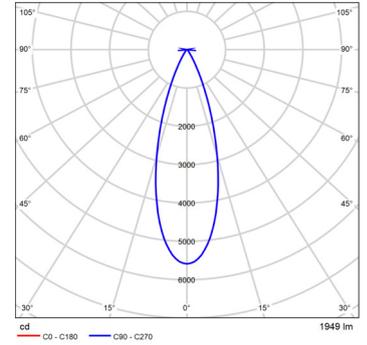
Calumma M MC RGBW 6500K 25dg



Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	0.23	32713 E(C0) 13.0° 15264	
1.0	0.46	8178 E(C0) 13.0° 3951	
1.5	0.69	3635 E(C0) 13.0° 1689	
2.0	0.92	2043 E(C0) 13.0° 950	
2.5	1.2	1309 E(C0) 13.0° 608	
3.0	1.4	899 E(C0) 13.0° 422	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 26.0°) — C90 - C270

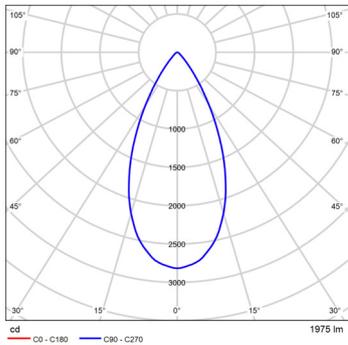
Calumma M MC RGBW 6500K 30dg



Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	0.29	22341 E(C0) 16.0° 10923	
1.0	0.57	5585 E(C0) 16.0° 2591	
1.5	0.86	2482 E(C0) 16.0° 1111	
2.0	1.1	1396 E(C0) 16.0° 625	
2.5	1.4	884 E(C0) 16.0° 400	
3.0	1.7	621 E(C0) 16.0° 278	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 32.0°) — C90 - C270

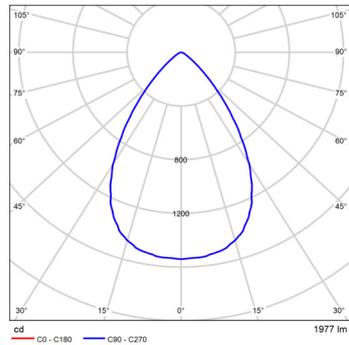
Calumma M MC RGBW 6500K 45dg



Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	0.45	11266 E(C0) 24.4° 4262	
1.0	0.91	2816 E(C0) 24.4° 1065	
1.5	1.4	1252 E(C0) 24.4° 474	
2.0	1.8	704 E(C0) 24.4° 266	
2.5	2.3	451 E(C0) 24.4° 170	
3.0	2.7	313 E(C0) 24.4° 118	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 48.8°) — C90 - C270

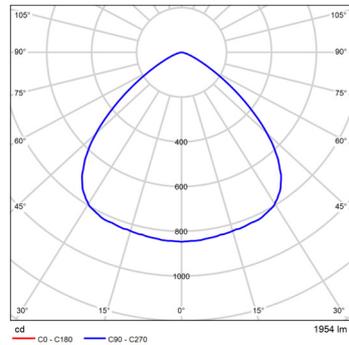
Calumma M MC RGBW 6500K 65dg



Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	0.70	6163 E(C0) 34.9° 1710	
1.0	1.4	1541 E(C0) 34.9° 428	
1.5	2.1	685 E(C0) 34.9° 190	
2.0	2.8	385 E(C0) 34.9° 107	
2.5	3.5	247 E(C0) 34.9° 88	
3.0	4.2	171 E(C0) 34.9° 48	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 69.8°) — C90 - C270

Calumma M MC RGBW 6500K 100dg

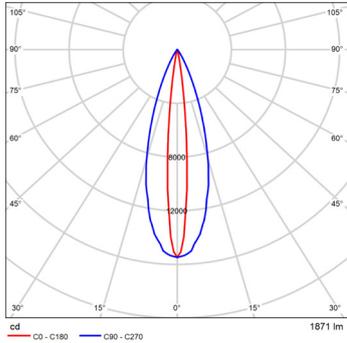


Distance [m]	Cone diameter [m]	E ₀ ^(°) E _(C0)	E ₀ ^(°) E _(C270)
0.50	1.2	3389 E(C0) 49.7° 461	
1.0	2.4	847 E(C0) 49.7° 115	
1.5	3.5	377 E(C0) 49.7° 51	
2.0	4.7	212 E(C0) 49.7° 29	
2.5	5.9	136 E(C0) 49.7° 18	
3.0	7.1	94 E(C0) 49.7° 13	

Distance [m] Cone diameter [m] Illuminance [lx]
— C0 - C180 (Beam angle: 99.4°) — C90 - C270

PHOTOMETRIC DATA

Calumma M MC RGBW 6500K
10x30dg

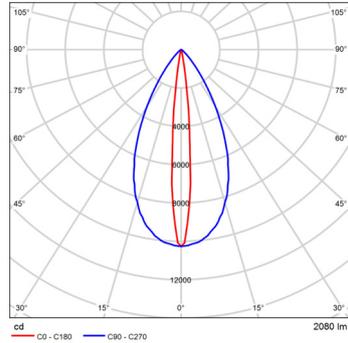


Distance [m]	Cone diameter [m]	E(I) ⁰	E(I) ^{C90}	E(I) ^{C180}
0.50	0.755 0.09	6194	18.4° 2148	5.2° 3189
1.0	1.51 0.18	15478	16.4° 887	5.2° 772
1.5	2.265 0.27	6879	16.4° 2061	5.2° 344
2.0	3.02 0.36	3870	16.4° 1722	5.2° 1943
2.5	3.775 0.46	2477	16.4° 1102	5.2° 1244
3.0	4.53 0.55	1720	16.4° 785	5.2° 864

Distance [m] Cone diameter [m] Illuminance [lx]

— C0 - C180 (Beam angle: 10.4°) — C90 - C270 (Beam angle: 32.8°)

Calumma M MC RGBW 6500K
10x60dg

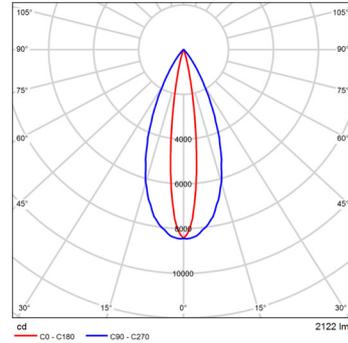


Distance [m]	Cone diameter [m]	E(I) ⁰	E(I) ^{C90}	E(I) ^{C180}
0.50	1.04 0.09	41035	25.9° 1512	5.0° 2026
1.0	2.08 0.17	10289	25.9° 3753	5.0° 5197
1.5	3.12 0.26	4599	25.9° 1668	5.0° 2279
2.0	4.16 0.35	2965	25.9° 938	5.0° 1382
2.5	5.2 0.44	1841	25.9° 600	5.0° 920
3.0	6.24 0.52	1140	25.9° 417	5.0° 570

Distance [m] Cone diameter [m] Illuminance [lx]

— C0 - C180 (Beam angle: 10.0°) — C90 - C270 (Beam angle: 51.8°)

Calumma M MC RGBW 6500K
15x45dg

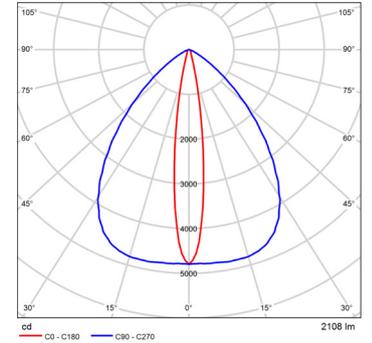


Distance [m]	Cone diameter [m]	E(I) ⁰	E(I) ^{C90}	E(I) ^{C180}
0.50	1.065 0.14	33783	22.0° 1389	7.7° 1458
1.0	2.13 0.27	8438	22.0° 3389	7.7° 4114
1.5	3.195 0.41	3790	22.0° 1506	7.7° 1629
2.0	4.26 0.54	2110	22.0° 847	7.7° 1029
2.5	5.325 0.68	1360	22.0° 542	7.7° 658
3.0	6.39 0.81	939	22.0° 377	7.7° 457

Distance [m] Cone diameter [m] Illuminance [lx]

— C0 - C180 (Beam angle: 15.4°) — C90 - C270 (Beam angle: 44.0°)

Calumma M MC RGBW 6500K
15x90dg

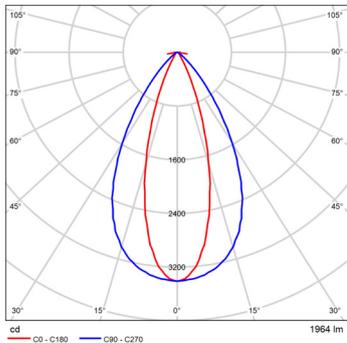


Distance [m]	Cone diameter [m]	E(I) ⁰	E(I) ^{C90}	E(I) ^{C180}
0.50	1.065 0.13	19177	41.2° 4125	7.6° 5840
1.0	2.13 0.27	4794	41.2° 1031	7.6° 2383
1.5	3.195 0.40	2131	41.2° 589	7.6° 1050
2.0	4.26 0.53	1199	41.2° 288	7.6° 591
2.5	5.325 0.67	767	41.2° 185	7.6° 378
3.0	6.39 0.80	533	41.2° 115	7.6° 263

Distance [m] Cone diameter [m] Illuminance [lx]

— C0 - C180 (Beam angle: 15.2°) — C90 - C270 (Beam angle: 82.4°)

Calumma M MC RGBW 6500K
30x60dg

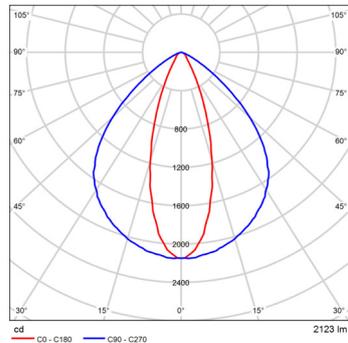


Distance [m]	Cone diameter [m]	E(I) ⁰	E(I) ^{C90}	E(I) ^{C180}
0.50	0.97 0.28	13644	29.8° 4486	15.7° 6091
1.0	1.94 0.56	3411	29.8° 1122	15.7° 1523
1.5	2.91 0.84	1516	29.8° 498	15.7° 677
2.0	3.88 1.1	853	29.8° 290	15.7° 381
2.5	4.85 1.4	546	29.8° 179	15.7° 244
3.0	5.82 1.7	379	29.8° 125	15.7° 169

Distance [m] Cone diameter [m] Illuminance [lx]

— C0 - C180 (Beam angle: 31.4°) — C90 - C270 (Beam angle: 59.8°)

Calumma M MC RGBW 6500K
30x90dg



Distance [m]	Cone diameter [m]	E(I) ⁰	E(I) ^{C90}	E(I) ^{C180}
0.50	1.515 0.30	8589	44.8° 1540	18.8° 2773
1.0	3.03 0.60	2147	44.8° 385	18.8° 643
1.5	4.545 0.91	964	44.8° 171	18.8° 419
2.0	6.06 1.2	597	44.8° 96	18.8° 236
2.5	7.575 1.5	344	44.8° 62	18.8° 151
3.0	9.09 1.8	239	44.8° 42	18.8° 105

Distance [m] Cone diameter [m] Illuminance [lx]

— C0 - C180 (Beam angle: 15.2°) — C90 - C270 (Beam angle: 69.8°)