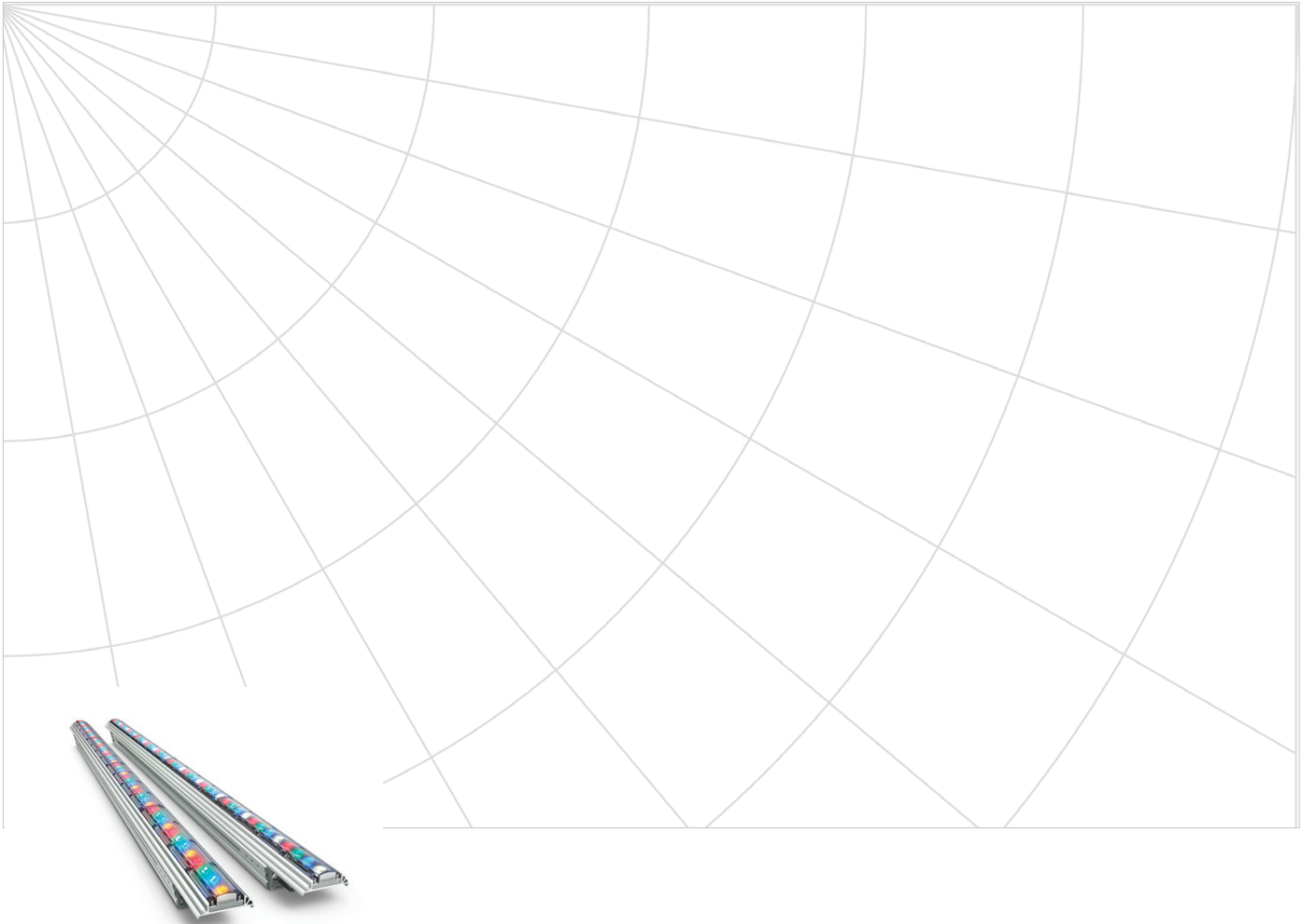




ColorGraz MX4 Powercore

Exterior premium LED wall grazing luminaires with extended color range

ColorGrazе MX4 Powercore

Exterior premium LED wall grazing luminaires with extended color range

The new ColorGrazе MX4 Powercore family extends the range and flexibility of the popular line of high-performance, full-color LED grazing luminaires from Philips Color Kinetics. These intelligent RGBW or RGBA luminaires offer an expanded palette of intensely saturated full-color light output in a variety of beam angles. Low-profile housing, connectorized cabling, a universal power input range, and direct line-voltage operation make ColorGrazе MX4 Powercore luminaires easy to install and operate. Custom lengths, LED channels, beam angles, housing colors, and power consumption levels produce hundreds of possible configurations and light distribution patterns to support virtually any façade or surface illumination application.

- Tailor light output to specific applications — Available in four standard lengths, with standard 9° x 9°, 10° x 60°, 15° x 30°, 30° x 60° and 60° x 30° beam angles. Individually addressable 305 mm (1 ft) segments accommodate fine control of color-changing effects and pre-programmed light shows.
- High-performance illumination and beam quality — ColorGrazе MX4 Powercore delivers well over 500 lumens of color-changing light per foot. Superior beam quality offers striation-free saturation for several feet from luminaire placement with no visible light scalloping between luminaires.
- Flexible color control — Channels of amber or neutral white LEDs seamlessly blend with channels of red, green, and blue LEDs to produce a significantly expanded color palette. In addition to the millions of saturated colors achievable with standard RGB lighting luminaires, ColorGrazе MX4 Powercore RGBW luminaires produce an extended range of subtle pastel colors, while RGBA luminaires create vibrant golds and intense yellows that are more difficult to obtain on standard RGB luminaires.
- Integrates Powercore technology — Powercore technology rapidly, efficiently, and accurately controls power output to luminaires directly from line voltage. The Philips Data Enabler Pro merges line voltage with control and delivers them to the luminaire over a single standard cable, dramatically simplifying installation and lowering total system cost.
- Versatile installation options — Convenient push-and-click connectors let you easily and rapidly install Leader Cables and Jumper Cables. Multiple cable lengths support a variety of layouts. Constant torque locking hinges offer simple and consistent position control from various angles. The low-profile aluminium housing accommodates placement within most architectural niches.
- Superior color consistency and accuracy — Optibin, an advanced binning algorithm, sets a new standard for the color consistency and uniformity of LED sources used in manufacturing. Chromasync technology achieves unprecedented consistency of light performance and color precision across multiple luminaires in an installation, while maximizing intensity and color range.
- Industry-leading controls — Luminaires work seamlessly with the complete Philips line of controllers, including Light System Manager, iPlayer 3, and ColorDial Pro, as well as third-party controllers.
- Universal power input range — Luminaires accept a universal power input range of 100 to 277 VAC for consistent installation anywhere in the world.
- Custom configurations for special applications — Create custom configurations to support special applications by exchanging the LED sources in any channel. Options include white LED color temperatures ranging from 2700 K to 6500 K, Blue, Green, Amber, and Red. 60° x 60° and 90° x 60° beam angles also available. See the ColorGrazе MX4 Powercore Ordering Information specification sheet for complete details.



High performance + easy installation

With flexible mounting options, multiple luminaire length and beam angle options, integrated Powercore technology, and a discreet low-profile housing rated for use in outdoor locations,

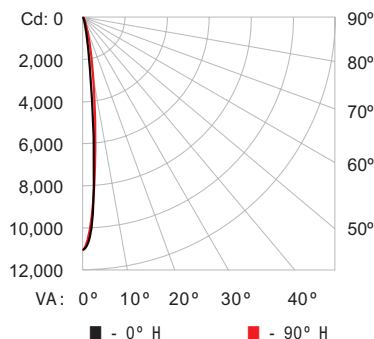
Photometrics/ColorGraz MX4 Powercore, RGBW

Photometric data is based on test results from an independent NIST traceable testing lab. IES data is available at www.philipscolorkinetics.com/support/ies.

305 mm (1 ft), 9° x 9° beam angle

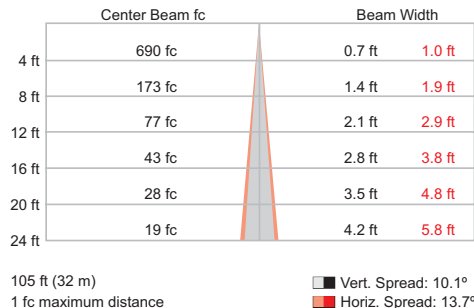
LED	Lumens	Efficacy
RGBW	655	36.3

Polar Candela Distribution



	0	25	45	70	90
0	11041	11041	11041	11041	11041
5	4240	4488	5386	6507	6909
15	272	324	383	430	472
25	39	44	53	52	49
35	13	11	13	15	17
45	5	5	6	7	7
55	3	2	3	4	4
65	2	2	2	2	2
75	1	1	1	1	1
85	1	0	0	0	0
90	0	0	0	0	0

Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

RCC %:	80	70	60	50	40	30	20	10	0
RCR: 0	119 119 119 119	116 116 116 100	111 111 111 106	106 106 106 102	102 102 102 100	100			
1	116 114 112 111	113 112 110 98	108 107 106 104	103 103 103 101	100 100 100 98	96			
2	113 110 107 105	111 108 106 97	105 103 102 102	101 101 100 100	99 99 98 96	95			
3	110 107 104 101	109 105 103 95	103 101 99 101	99 97 97 96	97 96 94 93	93			
4	108 104 101 98	107 103 100 94	101 98 97 99	97 96 97 96	97 96 94 93	93			
5	106 101 98 96	105 101 98 93	99 96 95 98	95 94 96 94	96 94 93 92	92			
6	104 99 96 94	103 99 96 92	97 95 93 96	94 92 95 93	92 91 90 89	89			
7	102 97 94 92	101 97 94 90	96 93 91 95	93 91 93 91	94 92 91 90	90			
8	101 96 93 91	100 95 92 89	95 92 90 94	91 90 93 91	90 88 88 88	88			
9	99 94 91 89	99 94 91 88	93 91 89 93	90 89 92 90	88 88 88 88	88			
10	98 93 90 88	97 93 90 87	92 90 88 92	89 88 91 89	88 88 88 88	88			

Zonal Lumen

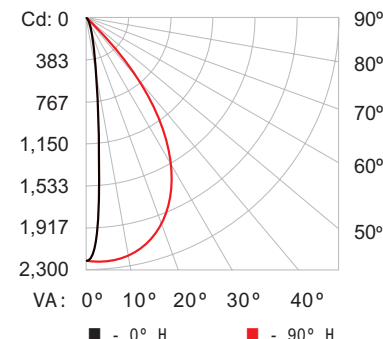
Zone	Lumens	% Fixture
0 - 60	651.5	99.4 %
60 - 90	3.3	0.5 %
0 - 90	654.8	99.9 %

For lux multiply fc by 10.7

305 mm (1 ft), 10° x 60° beam angle

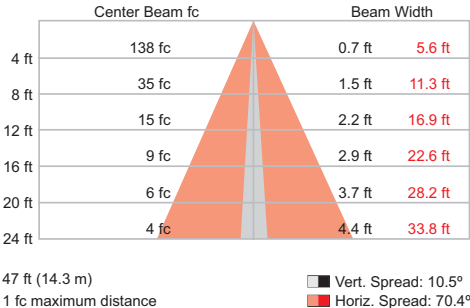
LED	Lumens	Efficacy
RGBW	618	34.9

Polar Candela Distribution



	0	25	45	70	90
0	2210	2210	2210	2210	2210
5	1318	1405	1718	2122	2220
15	152	195	330	1193	2136
25	22	31	80	421	1787
35	8	10	20	161	1104
45	4	5	9	50	390
55	3	3	5	15	79
65	2	2	2	6	25
75	1	1	1	2	9
85	1	1	1	1	1
90	0	0	0	0	0

Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

RCC %:	80	70	60	50	40	30	20	10	0
RCR: 0	119 119 119 119	116 116 116 100	111 111 111 106	106 106 106 102	102 102 102 100	100			
1	114 111 109 107	111 109 107 94	105 103 102 101	100 99 98 97	96 94 93 92	92			
2	108 104 100 97	106 102 99 89	99 96 94 96	94 92 93 91	90 88 88 88	88			
3	103 97 93 89	102 96 92 84	93 90 87 91	88 86 89 86	84 83 83 83	83			
4	99 92 87 83	97 91 86 79	88 84 81 86	83 80 81 85	82 79 78 78	78			
5	94 87 81 77	93 86 81 75	84 80 76 82	78 75 81 77	75 73 73 73	73			
6	90 82 77 73	89 81 76 71	80 75 72 78	74 71 77 74	71 69 69 69	69			
7	86 78 72 69	85 77 72 67	76 71 68 75	71 68 74 70	67 66 66 66	66			
8	83 74 69 65	82 74 68 64	73 68 65 72	67 64 71 67	64 63 63 63	63			
9	80 71 65 62	79 70 65 61	69 65 62 69	64 61 68 64	61 60 60 60	60			
10	77 68 63 59	76 67 62 58	67 62 59 66	62 59 66 62	59 58 58 58	58			

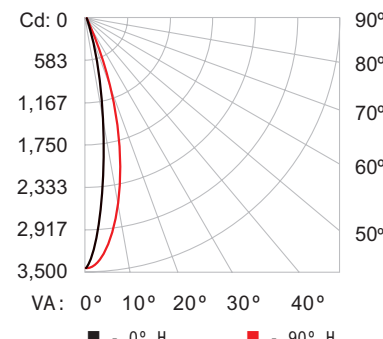
Zonal Lumen

Zone	Lumens	% Fixture
0 - 60	609.5	98.5 %
60 - 90	8.7	1.4 %
0 - 90	618.2	99.9 %

305 mm (1 ft), 15° x 30° beam angle

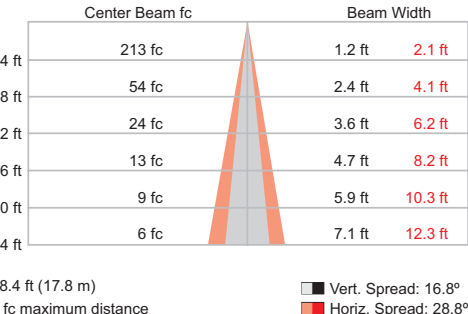
LED	Lumens	Efficacy
RGBW	621	34.4

Polar Candela Distribution



	0	25	45	70	90
0	3403	3403	3403	3403	3403
5	2530	2591	2795	3074	3183
15	435	529	776	1335	1648
25	55	71	119	280	418
35	14	16	23	46	64
45	6	7	9	13	15
55	4	4	5	7	7
65	3	3	3	4	4
75	1	1	1	2	2
85	1	1	0	0	0
90	0	0	0	0	0

Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

RCC %:	80	70	60	50	40	30	20	10	0
RCR: 0	119 119 119 119	116 116 116 100	111 111 111 106	106 106 106 102	102 102 102 100	100			
1	115 113 111 109	113 111 109 97	107 105 104 103	102 102 101 100	99 98 97 96	96			
2	111 107 104 102	109 106 103 94	103 100 99 100	98 97 97 96	95 95 93 93	93			
3	108 103 99 96	106 102 98 91	99 96 94 97	95 93 95 93	92 90 88 87	87			
4	104 99 95 92	103 98 94 88	96 93 90 94	91 89 92 90	88 86 85 85	85			
5	101 95 91 88	100 94 91 85	93 90 87 91	89 86 90 88	85 83 82 82	82			
6	98 92 88 85	97 91 88 83	90 87 84 89	86 84 88 85	83 81 80 80	80			
7	96 89 85 82	95 89 85 81	88 84 82 87	83 81 84 81	79 78 78 78	78			
8	93 87 83 80	92 86 82 79	85 82 79 84	81 79 84 81	77 76 76 76	76			
9	91 84 80 77	90 84 80 77	83 80 77 82	79 77 82 79	75 74 74 74	74			
10	89 82 78 75	88 82 78 75	81 77 75 80	77 75 80 77	73 72 72 72	72			

Zonal Lumen

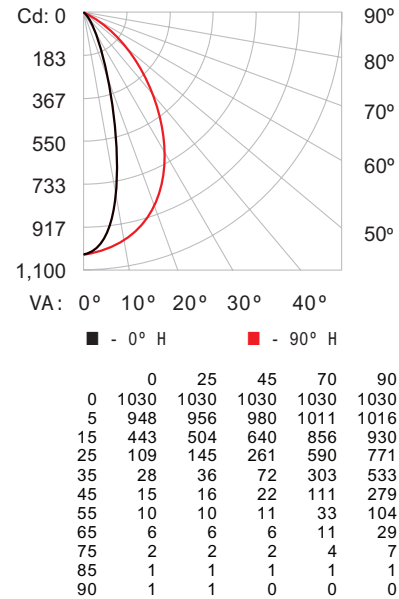
Zone	Lumens	% Fixture
0 - 60	616.6	99.1 %
60 - 90	4.8	0.8 %
0 - 90	621.4	99.9 %

Photometrics/ColorGrazе MX4 Powercore, RGBW, continued

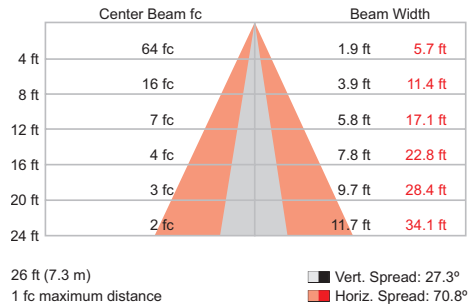
305 mm (1 ft), 30° x 60° beam angle

LED	Lumens	Efficacy
RGBW	627	34.9

Polar Candela Distribution



Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance: 20%												
RCC %:	80	70	60	50	30	20	10	0	80	70	60	50
RW %:	70	50	30	0	70	50	30	0	70	50	30	0
RCR: 0	119	119	119	119	116	116	116	100	111	111	111	106
1	113	110	108	106	111	108	106	93	104	102	101	100
2	107	102	98	95	105	101	97	87	97	94	91	94
3	102	95	90	86	100	94	89	81	91	87	84	89
4	97	89	83	79	95	88	82	75	86	81	77	84
5	92	83	77	73	90	82	77	70	80	76	72	79
6	87	78	72	68	86	77	72	66	76	71	67	74
7	83	74	68	63	82	73	67	62	72	67	63	70
8	79	70	64	60	78	69	63	58	68	63	59	66
9	76	66	60	56	74	65	60	55	65	59	56	63
10	72	63	57	53	71	62	57	52	61	56	53	60

Zonal Lumen

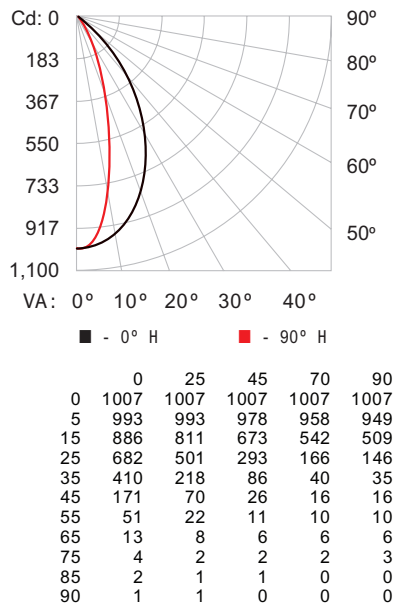
Zone	Lumens	% Fixture
0 - 60	612.7	97.6 %
60 - 90	14.5	2.3 %
0 - 90	627.2	99.9 %

For lux multiply fc by 10.7

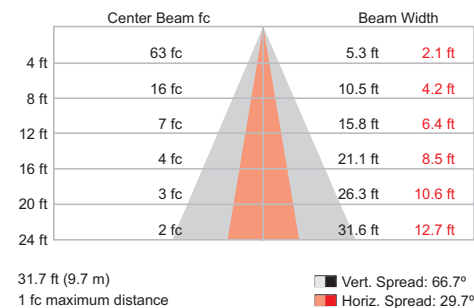
305 mm (1 ft), 60° x 30° beam angle

LED	Lumens	Efficacy
RGBW	634	34.8

Polar Candela Distribution



Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance: 20%												
RCC %:	80	70	60	50	30	20	10	0	80	70	60	50
RW %:	70	50	30	0	70	50	30	0	70	50	30	0
RCR: 0	119	119	119	119	116	116	116	100	111	111	111	106
1	113	110	108	106	111	108	106	94	104	102	101	100
2	108	103	98	95	105	101	97	87	98	94	92	90
3	102	95	90	86	100	94	89	81	91	87	84	89
4	97	89	83	79	95	88	83	76	86	81	77	84
5	92	84	78	73	90	83	77	71	81	76	72	79
6	87	78	72	68	86	78	72	66	76	71	67	74
7	83	74	68	64	82	73	68	62	72	67	63	70
8	79	70	64	60	78	69	64	59	68	63	59	66
9	76	66	60	56	75	66	60	56	65	59	56	63
10	73	63	57	53	71	62	57	53	62	57	53	60

Zonal Lumen

Zone	Lumens	% Fixture
0 - 60	620.5	97.8 %
60 - 90	13.7	2.2 %
0 - 90	634.2	100.0 %

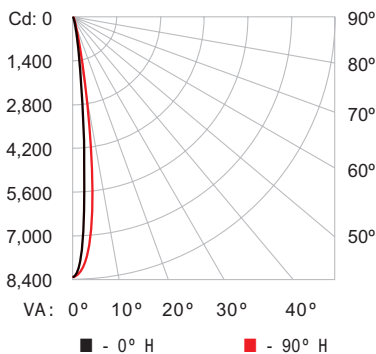
Photometrics/ColorGraz MX4 Powercore, RGBA

Photometric data is based on test results from an independent NIST traceable testing lab. IES data is available at www.philipscolorkinetics.com/support/ies.

305 mm (1 ft), 9° x 9° beam angle

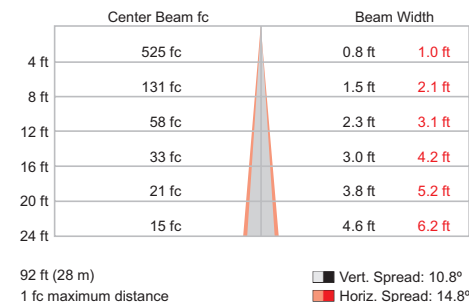
LED	Lumens	Efficacy
RGBA	566	31.2

Polar Candela Distribution



	0	25	45	70	90
0	8396	8396	8396	8396	8396
5	4460	4934	5751	6445	6472
15	427	444	481	522	519
25	47	51	69	72	65
35	13	12	15	17	19
45	5	5	6	7	8
55	3	3	3	4	4
65	2	2	2	2	2
75	1	1	1	1	1
85	1	0	0	0	0
90	0	0	0	0	0

Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance: 20%														
RCC %:	80			70			60			30			10	0
RW %:	0	10	20	30	40	50	60	70	80	90	100	0	10	20
RCR:	0	119	119	119	119	116	116	116	100	111	111	111	111	111
1	116	114	112	111	113	112	110	98	108	107	106	104	102	100
2	113	110	107	105	111	108	106	97	105	103	102	100	98	96
3	110	106	103	101	108	105	102	95	103	100	98	97	95	93
4	108	103	100	98	106	102	100	94	101	98	96	94	92	90
5	106	101	98	95	104	100	97	92	99	96	94	92	90	88
6	104	99	96	93	103	98	95	91	97	94	92	90	88	86
7	102	97	94	92	101	97	94	90	96	93	91	89	87	85
8	100	95	92	90	100	95	92	89	94	92	90	88	86	84
9	99	94	91	89	98	94	91	88	93	90	88	86	84	82
10	97	93	90	88	97	92	89	87	92	89	87	85	83	81

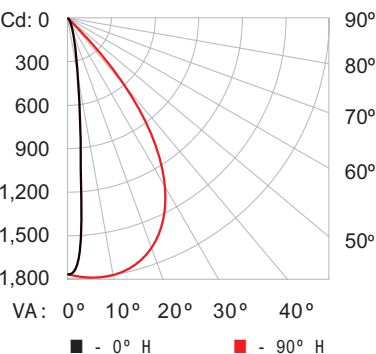
Zonal Lumen

Zone	Lumens	% Fixture
0 - 60	562.4	99.4 %
60 - 90	3.1	0.6 %
0 - 90	565.6	99.9 %

305 mm (1 ft), 10° x 60° beam angle

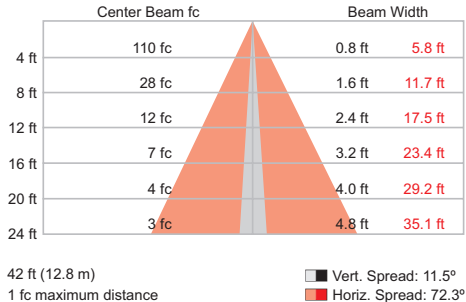
LED	Lumens	Efficacy
RGBA	543	30.1

Polar Candela Distribution



	0	25	45	70	90
0	1766	1766	1766	1766	1766
5	1175	1243	1478	1743	1786
15	158	200	331	1090	1761
25	21	32	85	425	1543
35	7	10	20	171	1028
45	4	5	8	58	395
55	3	3	4	17	87
65	2	2	2	6	26
75	1	1	1	2	9
85	1	1	0	1	1
90	0	0	0	0	0

Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

		Effective Floor Cavity Reflectance:										20%	
RCC %:		80	70	60	50	40	30	20	10	0			
RW %:		70	50	30	0	70	50	30	0	70	50	30	0
RCR:	0	119	119	119	119	116	116	116	100	111	111	111	111
1	114	111	109	106	111	109	107	94	105	103	101	100	98
2	108	104	100	97	106	102	98	89	99	96	93	91	89
3	103	97	92	89	101	96	91	83	93	89	86	84	82
4	98	91	86	82	97	90	85	78	88	84	81	79	77
5	94	86	81	77	92	85	80	74	83	79	76	73	71
6	90	82	76	72	88	81	75	70	79	75	71	69	67
7	86	77	72	68	85	77	71	66	75	71	67	65	63
8	82	74	68	64	81	73	68	63	72	67	64	62	60
9	79	70	65	61	78	70	64	60	69	64	61	59	57
10	76	67	62	58	75	67	62	58	66	61	58	56	54

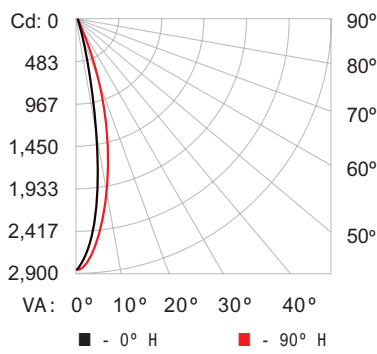
Zonal Lumen

Zone	Lumens	% Fixture
0 - 60	534.7	98.5 %
60 - 90	7.7	1.4 %
0 - 90	542.4	99.9 %

305 mm (1 ft), 15° x 30° beam angle

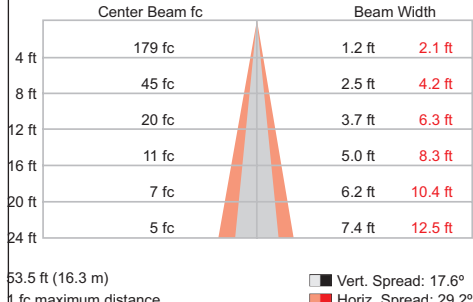
LED	Lumens	Efficacy
RGBA	555	31.0

Polar Candela Distribution



	0	25	45	70	90
0	2863	2863	2863	2863	2863
5	2262	2308	2425	2561	2587
15	480	577	791	1194	1333
25	65	87	145	299	379
35	14	18	29	58	71
45	6	7	10	16	17
55	4	4	5	7	7
65	3	3	3	4	4
75	1	1	1	2	2
85	1	1	0	0	0
90	0	0	0	0	0

Illuminance at Distance



Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reduction: 20%													
RCC %:	80				70				50				20
RW %:	70	50	30	0	70	50	30	0	50	30	20	0	
RCR:	0	119	119	119	119	116	116	116	111	111	111	111	
1	115	113	111	109	112	111	109	97	107	105	104	103	
2	111	107	104	102	109	106	103	93	102	100	98	96	
3	107	103	99	96	106	101	98	90	99	96	94	92	
4	104	98	94	91	102	97	94	87	95	92	90	88	
5	101	95	91	88	99	94	90	85	92	89	86	84	
6	98	92	87	84	97	91	87	82	90	86	84	82	
7	95	89	84	81	94	88	84	80	87	83	81	79	
8	93	86	82	79	92	85	82	78	85	81	78	77	
9	90	83	79	77	89	83	79	76	82	79	76	75	
10	88	81	77	75	87	81	77	74	80	77	74	73	

Zonal Lumen

Zone	Lumens	% Fixture
0 - 60	549.8	99.1 %
60 - 90	4.6	0.8 %
0 - 90	554.3	99.9 %

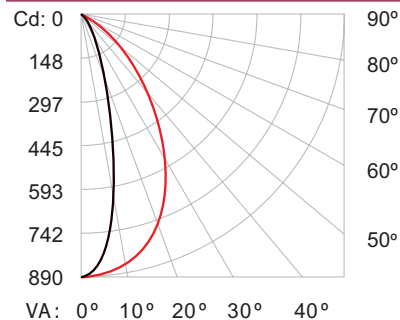
For lux multiply fc by 10.7

Photometrics/ColorGraz MX4 Powercore, RGBA, continued

305 mm (1 ft), 30° x 60° beam angle

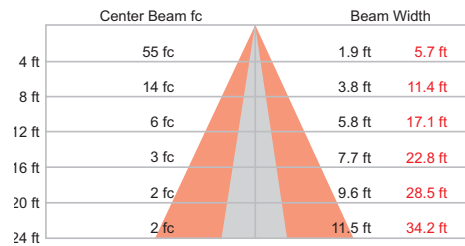
LED	Lumens	Efficacy
RGBA	547	30.1

Polar Candela Distribution



	0° H	10° H	20° H	30° H	40° H
0	887	887	887	887	887
5	806	816	840	872	883
15	394	445	558	743	814
25	110	144	245	521	669
35	29	37	76	279	455
45	13	15	23	109	234
55	9	9	10	34	85
65	6	6	5	11	24
75	3	2	2	4	6
85	1	1	1	1	1
90	1	1	0	0	0

Illuminance at Distance



29.8 ft (9.1 m)
1 fc maximum distance

Vert. Spread: 27.0°
Horiz. Spread: 71.0°

Coefficients Of Utilization - Zonal Cavity Method

RCC %:	80	70	60	50	40	30	20	10	0
RW %:	70	50	30	10	0	0	0	0	0
RCR:	0	119	119	119	119	119	119	119	119
1	113	110	108	105	102	100	97	94	91
2	107	102	98	95	91	87	84	81	78
3	102	95	90	86	82	78	74	71	68
4	96	89	83	79	75	71	67	64	61
5	92	83	77	73	69	65	61	58	55
6	87	78	72	68	64	60	56	53	50
7	83	73	67	63	59	55	51	48	45
8	79	69	63	59	55	51	47	44	41
9	75	65	60	56	52	48	44	41	38
10	72	62	57	53	49	45	41	38	35

Zonal Lumen

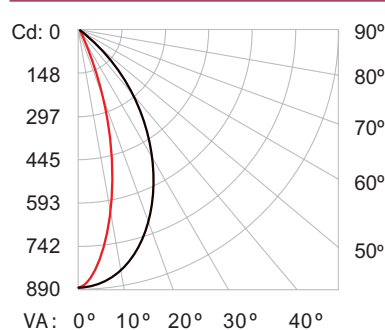
Zone	Lumens	% Fixture
0 - 60	533.2	97.5 %
60 - 90	13.2	2.4 %
0 - 90	546.4	99.9 %

For lux multiply fc by 10.7

305 mm (1 ft), 60° x 30° beam angle

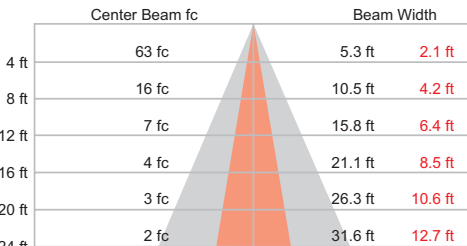
LED	Lumens	Efficacy
RGBA	561	31.0

Polar Candela Distribution



	0° H	10° H	20° H	30° H	40° H
0	886	886	886	886	886
5	875	862	841	816	811
15	794	709	581	463	433
25	631	464	276	159	136
35	395	224	94	43	36
45	177	81	30	17	15
55	57	26	13	10	9
65	15	9	6	6	6
75	4	3	2	2	3
85	2	1	1	0	0
90	1	1	0	0	0

Illuminance at Distance



31.7 ft (9.7 m)
1 fc maximum distance

Vert. Spread: 66.7°
Horiz. Spread: 29.7°

Coefficients Of Utilization - Zonal Cavity Method

		Effective Floor Cavity Reflectance:										20%			
RCC %:		80		70		60		50		30		10		0	
RW %:		70	50	30	10	70	50	30	10	70	50	30	10	0	
RCR:		0	119	119	119	119	119	119	119	106	106	106	102	102	0
1		113	110	108	105	111	108	106	103	104	102	101	99	95	0
2		107	102	98	95	105	101	97	94	92	90	88	86	83	0
3		102	95	90	86	100	94	89	85	81	77	74	71	68	0
4		97	89	83	79	95	88	83	78	74	69	65	62	59	0
5		92	83	78	73	90	82	77	72	68	63	59	56	53	0
6		87	78	72	68	86	78	72	66	62	57	53	50	47	0
7		83	74	68	64	82	73	68	62	57	53	49	46	43	0
8		79	70	64	60	78	69	64	59	54	50	46	43	40	0
9		75	66	60	56	74	65	60	55	50	46	42	39	36	0
10		72	63	57	53	71	62	57	52	47	43	39	36	33	0

Zonal Lumen

Zone	Lumens	% Fixture
0 - 60	548.7	97.7 %
60 - 90	12.3	2.2 %
0 - 90	561.0	99.9 %

Specifications/ColorGrazе MX4 Powercore

Due to continuous improvements and innovations, specifications may change without notice.

Item	Luminaire	Beam Angle	305 mm (1 ft)	610 mm (2 ft)	914 mm (3 ft)	1219 mm (4 ft)
Lumens*	RGBW	9° x 9°	655	1310	1965	2620
		10° x 60°	619	1238	1857	2476
		15° x 30°	622	1244	1866	2488
		30° x 60°	628	1256	1884	2512
		60° x 30°	634	1268	1902	2536
	RGBA	9° x 9°	566	1132	1698	2264
		10° x 60°	543	1086	1629	2172
		15° x 30°	555	1110	1665	2220
		30° x 60°	547	1094	1641	2188
	60° x 30°	561	1122	1683	2244	
Item	Specification	305 mm (1 ft)	610 mm (2 ft)	914 mm (3 ft)	1219 mm (4 ft)	
Output	LED Channels	Red/Green/Blue/4000 K Red/Green/Blue/Amber				
	Lumen Maintenance†	70,000 hours L70 @ 25° C 65,000 hours L70 @ 50° C 75,000 hours L50 @ 25° C 70,000 hours L50 @ 50° C				
Electrical	Input Voltage	100 to 277 VAC, auto-ranging, 50/60 Hz				
	Power Consumption <i>(Max. at full output, steady state)</i>	18.5 W	37 W	55.5 W	74 W	
Control	Interface	Data Enabler Pro (DMX or Ethernet)				
	Control System	Philips Color Kinetics full range of controllers, including Light System Manager; iPlayer 3, and ColorDial Pro, or third-party controllers				
Physical	Dimensions <i>(Height x Width x Depth)</i>	69 x 305 x 71 mm (2.7 x 12 x 2.8 in)	69 x 610 x 71 mm (2.7 x 24 x 2.8 in)	69 x 914 x 71 mm (2.7 x 36 x 2.8 in)	69 x 1219 x 71 mm (2.7 x 48 x 2.8 in)	
	Weight	1 kg (2.1 lb)	2.1 kg (4.6 lb)	3.2 kg (7.1 lb)	4.2 kg (9.3 lb)	
	Housing	Extruded anodized aluminium				
	Lens	Clear polycarbonate				
	Luminaire Connectors	Integral male/female waterproof connectors				
	Mounting	Multi-positional, constant torque locking hinges				
	Temperature	-40 to 50 °C (-40 to 122 °F) Operating -20 to 50 °C (-4 to 122 °F) Startup -40 to 80 °C (-40 to 176 °F) Storage				
	Mechanical Impact	IK10				
	Humidity	0 to 95%, non-condensing				
	Vibration Resistance♣	Complies with ANSI C136.31				
	Luminaire Run Lengths	To calculate luminaire run lengths and total power consumption for your specific installation, download the Configuration Calculator from www.philipscolorkinetics.com/support/install_tool/				
Certification and Safety	Certification	UL/cUL, FCC Class A, CE, PSE, CQC, C-Tick				
	Environment	Dry/Damp/Wet Location, IP66				

* 305 mm (1 ft) lumen output measurements comply with IES LM-79-08 testing procedures. 610 mm (2 ft), 914 mm (3 ft), and 1219 mm (4 ft) measurements are estimated based on the 305 mm (1 ft) measurements.



† L70 = 70% lumen maintenance (when light output drops below 70% of initial output). L50 = 50% lumen maintenance (when light output drops below 50% of initial output). Ambient luminaire temperatures specified. Lumen maintenance calculations are based on lifetime prediction graphs supplied by LED source manufacturers. Calculations for white-light LED luminaires are based on measurements that comply with IES LM-80-08 testing procedures. Refer to www.philipscolorkinetics.com/support/appnotes/lm-80-08.pdf for more information.

♣ ColorGrazе 305 mm (1 ft) and 610 mm (2 ft) luminaire models conform to ANSI C136.31 roadway and area lighting luminaire vibration standards. ColorGrazе 914 mm (3 ft) and 1219 mm (4 ft) luminaires can be customized for conformance. Please contact your Philips Color Kinetics Lighting Sales group for custom configurations.

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Custom Configurations

In addition to the standard configurations listed in this Product Guide, custom configurations are also available with non-standard options. See the ColorGraz MX4 Powercore Ordering Information sheet at www.philipscolorkinetics.com/ls/rgb/colorgraze-mx4-powercore/ for complete details.

Component	Available Non-Standard Options
LED Sources	Any combination of Red, Green, Blue, Royal Blue, Amber, 2700 K, 3000 K, 3500 K, 4000 K, 5700 K, and 6500 K
Housing Color	Choice of any RAL CLASSIC color except white
Beam Angle*	60° x 60°, 90° x 60°
Power Consumption	Factory-set custom power consumption levels

Luminaires and Accessories

ColorGraz MX4 Powercore luminaires are part of a complete system which includes:

- One or more Data Enabler Pro devices
- Any Philips controller, including Light System Manager, iPlayer 3, and ColorDial Pro, or a third-party controller
- Leader Cables to connect the first luminaire in each series to a Data Enabler Pro
- Optional Jumper Cables to add space between luminaires in a series, if necessary
- 3 + ground copper wire to connect Data Enabler Pro devices to a common junction box, if installing luminaires in parallel. Standard 2.05 mm (12 AWG) stranded wire is recommended.

RGBW Luminaires

Item	Beam Angle	Item Number	Philips 12NC
ColorGraz MX4 Powercore RGBW, 305 mm (1 ft)	9° x 9°	423-000001-00	910503704681
	10° x 60°	423-000001-01	910503704682
	15° x 30°	423-000001-02	910503704683
	30° x 60°	423-000001-03	910503704684
	60° x 30°	423-000001-04	910503704685
ColorGraz MX4 Powercore RGBW, 610 mm (2 ft)	9° x 9°	423-000001-05	910503704686
	10° x 60°	423-000001-06	910503704687
	15° x 30°	423-000001-07	910503704688
	30° x 60°	423-000001-08	910503704689
	60° x 30°	423-000001-09	910503704690
ColorGraz MX4 Powercore RGBW, 914 mm (3 ft)	9° x 9°	423-000001-10	910503704691
	10° x 60°	423-000001-11	910503704692
	15° x 30°	423-000001-12	910503704693
	30° x 60°	423-000001-13	910503704694
	60° x 30°	423-000001-14	910503704695
ColorGraz MX4 Powercore RGBW, 1219 mm (4 ft)	9° x 9°	423-000001-15	910503704696
	10° x 60°	423-000001-16	910503704697
	15° x 30°	423-000001-17	910503704698
	30° x 60°	423-000001-18	910503704699
	60° x 30°	423-000001-19	910503704701

Use Item Number when ordering in North America.

RGBA Luminaires

Item	Beam Angle	Item Number	Philips 12NC
ColorGrazе MX4 Powercore RGBA, 305 mm (1 ft)	9° x 9°	423-000002-00	910503704702
	10° x 60°	423-000002-01	910503704703
	15° x 30°	423-000002-02	910503704704
	30° x 60°	423-000002-03	910503704705
	60° x 30°	423-000002-04	910503704706
ColorGrazе MX4 Powercore RGBA, 610 mm (2 ft)	9° x 9°	423-000002-05	910503704707
	10° x 60°	423-000002-06	910503704708
	15° x 30°	423-000002-07	910503704709
	30° x 60°	423-000002-08	910503704710
	60° x 30°	423-000002-09	910503704711
ColorGrazе MX4 Powercore RGBA, 914 mm (3 ft)	9° x 9°	423-000002-10	910503704712
	10° x 60°	423-000002-11	910503704713
	15° x 30°	423-000002-12	910503704714
	30° x 60°	423-000002-13	910503704715
	60° x 30°	423-000002-14	910503704716
ColorGrazе MX4 Powercore RGBA, 1219 mm (4 ft)	9° x 9°	423-000002-15	910503704717
	10° x 60°	423-000002-16	910503704718
	15° x 30°	423-000002-17	910503704719
	30° x 60°	423-000002-18	910503704720
	60° x 30°	423-000002-19	910503704721

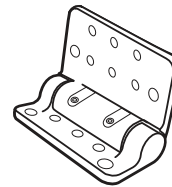
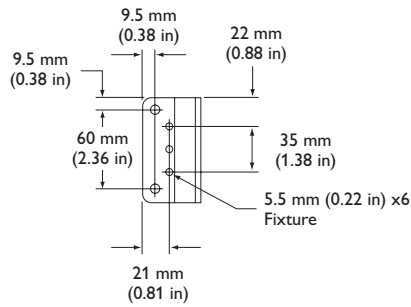
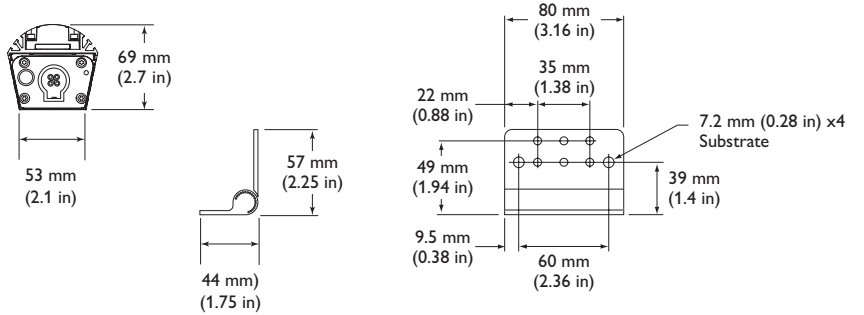
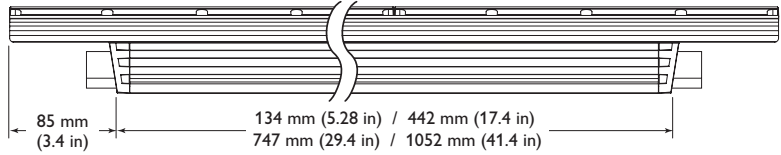
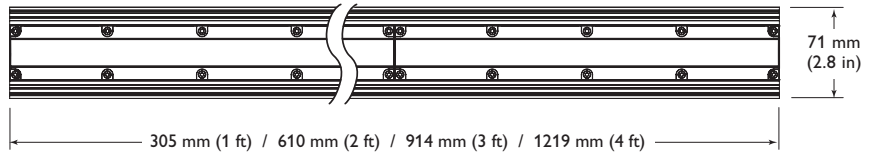
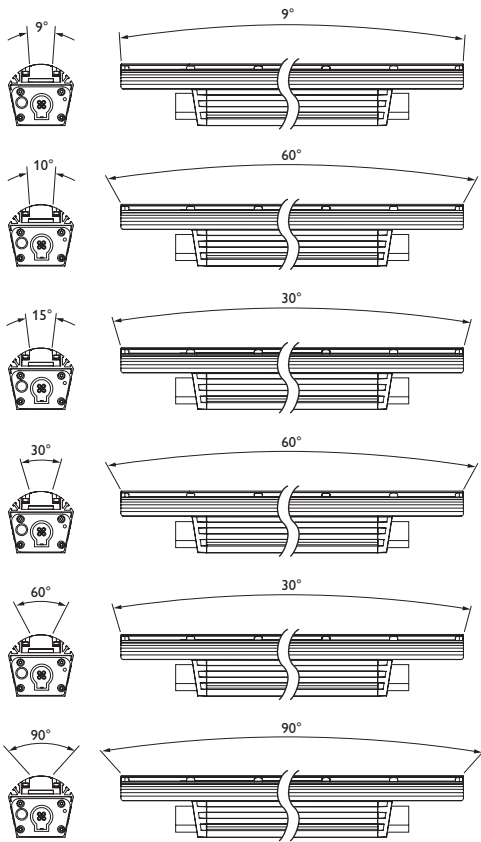
Use Item Number when ordering in North America.

Accessories

Item	Type	Size	Item Number	Philips 12NC
Leader Cable with Terminator	UL/cUL	3 m (10 ft)	108-000055-03	910503704066
		15.2 m (50 ft)	108-000055-00	910503703137
	CE/PSE	3 m (10 ft)	108-000055-07	910503705065
		15.2 m (50 ft)	108-000055-06	910503705064
Jumper Cable	UL/cUL	End-to-End	108-000057-00	910503703139
		305 mm (1 ft)	108-000057-03	910503704076
		1.5 m (5 ft)	108-000057-06	910503704079
		3 m (10 ft)	108-000057-09	910503704082
	CE/PSE	End-to-End	108-000057-01	910503704074
		305 mm (1 ft)	108-000057-04	910503704077
		1.5 m (5 ft)	108-000057-07	910503704080
		3 m (10 ft)	108-000057-10	910503704083
Glare Shield		305 mm (1 ft)	120-000081-00	910503700745
		610 mm (2 ft)	120-000081-01	910503700746
		914 mm (3 ft)	120-000081-02	910503700747
		1219 mm (4 ft)	120-000081-03	910503700748
Additional Terminators		Quantity 10	120-000157-00	910503703142
Additional Hinge		Quantity 1	120-000098-00	910503700772
Data Enabler Pro	3/4 in / 1/2 in NPT (U.S. trade size conduit)		106-000004-00	910503701210
	PG21/PG13 (metric size conduit)		106-000004-01	910503701211

Use Item Number when ordering in North America.

Dimensions



Installation

The ColorGraz MX4 Powercore family extends the range and flexibility of the popular line of high-performance, full-color LED grazing luminaires from Philips Color Kinetics. These intelligent RGBW or RGBA luminaires offer an expanded palette of intensely saturated full-color light output in a variety of beam angles.

Owner/User Responsibilities

It is the responsibility of the contractor, installer, purchaser, owner, and user to install, maintain, and operate ColorGraz MX4 Powercore luminaires in such a manner as to comply with all applicable codes, state and local laws, ordinances, and regulations. Consult with the appropriate electrical inspector to ensure compliance.

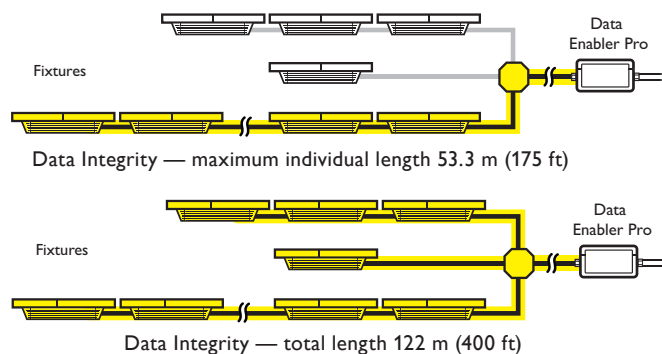
Installing in Damp or Wet Locations

When installing in damp or wet locations, seal all Data Enabler Pro devices and junction boxes with electronics-grade RTV silicone sealant so that water or moisture cannot enter or accumulate in wiring compartments, cables, or other electrical parts. Use suitable outdoor-rated junction boxes when installing in damp or wet locations. Additionally, use gaskets, clamps, and other parts required for installation to comply with all applicable local and national codes.

Prepare for the Installation

1. Refer to the lighting design plan, architectural diagram, or other diagram that shows the physical layout of the installation to identify the locations of all switches, controllers, Data Enabler Pro devices, luminaires, and cables.
2. ColorGraz MX4 Powercore luminaires can be installed in series or in parallel (wired to a common junction box). The maximum number of luminaires each Data Enabler Pro can support depends on specific configuration details such as luminaire length, luminaire spacing, circuit size, line voltage, and leader cable length. For more information, and for help calculating the number of luminaires your specific installation can support, download the Configuration Calculator from www.philipscolorkinetics.com/support/install_tool/, or consult Application Engineering Services at support@colorkinetics.com.

In addition to maximum luminaire run lengths determined by the electrical configuration, each Data Enabler Pro imposes maximum run lengths based on data integrity. To ensure data integrity, maximum individual run lengths should not exceed 53.3 m (175 ft), and the total cable length per Data Enabler Pro should not exceed 122 m (400 ft).



✱ Refer to the ColorGraz MX4 Powercore Installation Instructions for specific warning and caution statements.

✱ Clean the lens with water and mild detergent using a soft cleaning cloth, and wipe dry. Because they will scratch, soften, pit, haze, yellow, mar, or crack the lens, do not use paper towels, abrasive cleaning products, window cleaners, or cleaning solutions containing chemicals such as ammonia, sodium hydroxide, and isopropyl alcohol.

Start the Installation

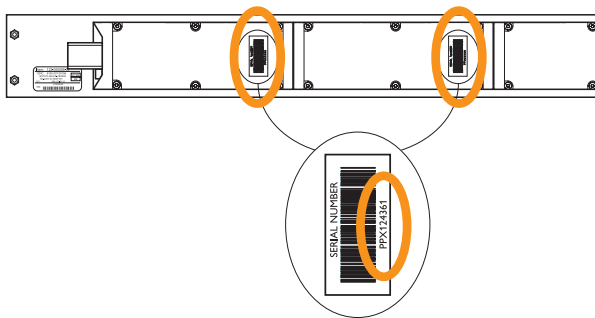
1. Install all Data Enabler Pro devices, including any interfaces with controllers. Data Enabler Pro devices and external controllers send power and control signals to luminaires over Leader Cables. Jumper Cables are required to connect luminaires together in series.
2. Verify that all additional supporting equipment (switches, controllers) is in place.
3. Ensure that all additional parts and tools are available, including:
 - The included mounting hinges and hardware
 - 2 mm, 2.5 mm, and 4 mm hex key wrenches
 - 5 mm (1/4 in) socket cap fasteners, anchors, or screws for surface mounting
 - 3 + ground copper wire, as needed. Standard 12 AWG (2.05 mm) stranded wire is recommended.
 - Junction boxes, as needed, rated for your application. (Refer to the manufacturer's literature for additional items required for mounting or sealing.)
 - Electronics-grade room temperature vulcanizing (RTV) silicone sealant, as needed

* Refer to the Data Enabler Pro Installation Instructions or Product Guide for guidelines on configuring and positioning the Data Enabler Pro in relation to the controller.

Unpack and Prepare Luminaires

1. Carefully inspect the box containing ColorGraze MX4 Powercore and the contents for any damage that may have occurred in transit.
2. ColorGraze MX4 Powercore luminaires are addressable in 305 mm (1 ft) segments. This feature allows playback controllers to send unique light output data to each segment of each luminaire within your installation.

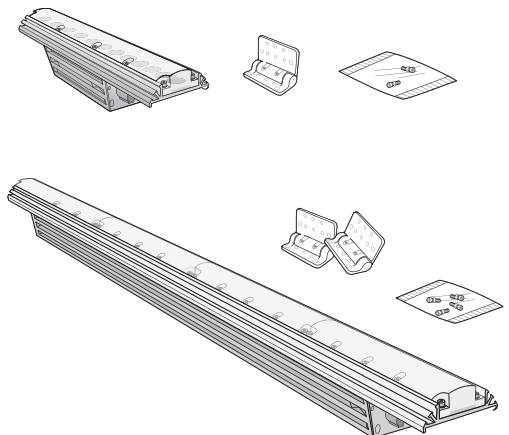
Each luminaire segment, or LED node, comes pre-programmed with a unique serial number. Each luminaire has from one to four serial numbers, depending on its length. As you unpack the luminaires, record the serial numbers in a layout grid (typically a spreadsheet or list) for easy reference and light addressing.



3. Assign each luminaire to a position in the lighting design plan.
4. To streamline installation and aid in light address programming, you can affix a weatherproof label identifying the order or placement in the installation to an inconspicuous location on each luminaire's housing.

Included in the box

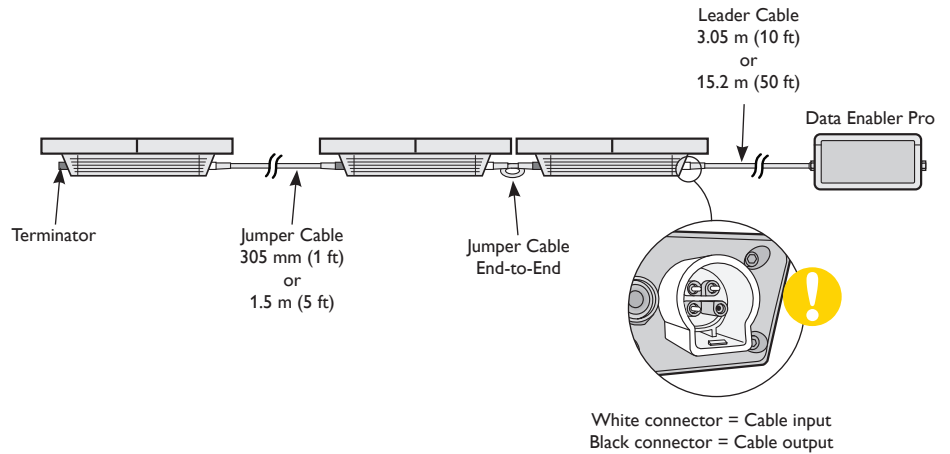
ColorGraze MX4 Powercore luminaire
(1) or (2) Mounting hinges
(2) or (4) M5, 15 mm stainless steel hex bolts for hinge installation
Installation Instructions



Mount and Connect Luminaires

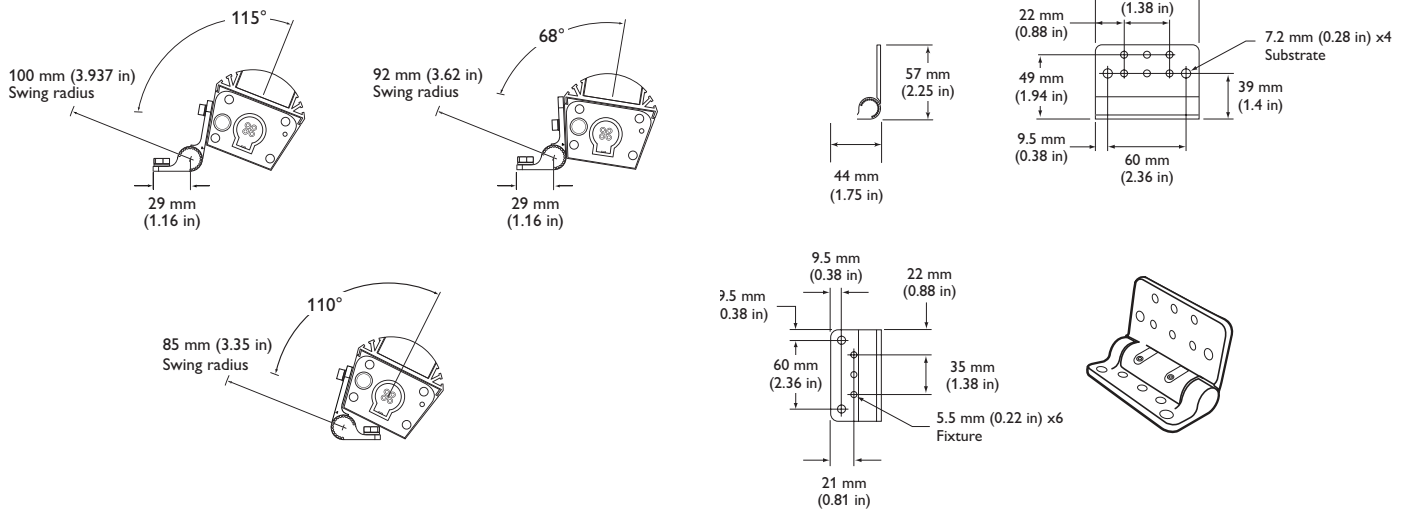
Make sure the power is OFF before mounting and connecting ColorGraz MX4 Powercore luminaires.

ColorGraz MX4 Powercore luminaires offer bulkhead connectors that accept the ColorGraz MX4 Powercore pre-configured Leader and Jumper Cables. Because they have a male connector on one end of the luminaire and a female connector on the other end, ColorGraz MX4 Powercore luminaires are directional, and must all be oriented in the same direction.



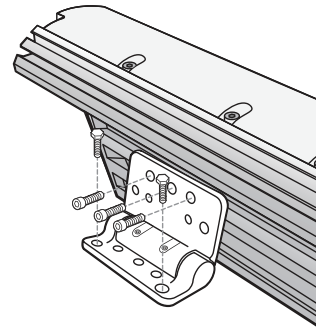
Mount Luminaires

- Using the included 4 mm hex hardware, attach two hinges to each luminaire. There are three possible methods for attaching hinges to the luminaires, each method offering differing degrees of swing radius and space-efficiency. Select the method most suitable for your application.



- If installing ColorGraz MX4 Powercore luminaires in parallel, mount junction boxes in accordance with the lighting design plan.
- When installing a linear series of ColorGraz MX4 Powercore luminaires, make sure that all luminaires are oriented in the same direction. The white connectors are for cable inputs, and the black connectors are for cable outputs. The Leader Cable connects to the male bulkhead connector on the first luminaire in each series.

4. Rotate the luminaire hinge assemblies into the desired positions. For consistent position control, use the indicators on the side of each hinge knuckle for reference. Use a 2 mm hex key wrench to loosen the set screws, as needed.
5. To accommodate installation from various angles, each hinge has four set screws designed to lock the hinge position. All four, or only two, of the set screws may be used, depending on the mounting method and swing radius you select for the hinge. For example, if the hinge leaves are to be fully closed, the interior set screws may not be accessible.



Do not lock the hinges' positions at this time; the hinges have a built-in constant torque feature that allows temporary positioning. For optimal light output performance, aim and lock the hinges following installation.

Make Cable Connections

1. Connect Leader Cables:

- If installing luminaires in series, run a 3 m (10 ft) or 15.2 m (50 ft) Leader Cable from a Data Enabler Pro device to the input side of the first luminaire in the series. Push the Leader Cable into the connector to lock it into place.
- If installing luminaires in parallel, run 3 + ground copper wire from a Data Enabler Pro device to a common junction box.

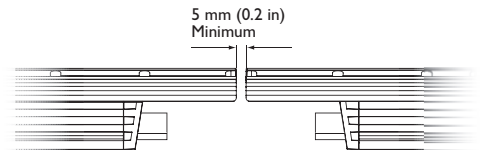
Run Leader Cables from the common junction box to the input side of the first luminaire in each series. Push the Leader Cables into the connectors to lock them into place.

Within the common junction box, use wire nuts to connect line, neutral, ground, and data wires. Tuck wire connections into the junction box.

Secure all junction box covers. If installing in a damp or wet location, seal all junction boxes and points of entry with contractor-grade RTV silicone sealant. Use gaskets, clamps, and other parts and fittings required to comply with local outdoor wiring codes.

2. Connect all Jumper Cables between luminaires. Push the cable ends into the connectors to lock them into place.
3. Insert a terminator into the output side of the last luminaire in each series. (Terminators are provided with the ColorGraze MX4 Powercore Leader Cables.)

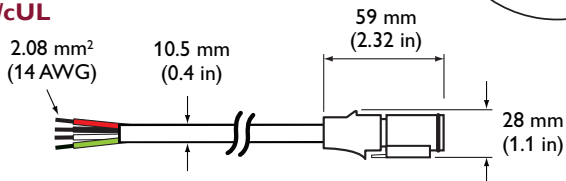
Minimum distance between luminaires



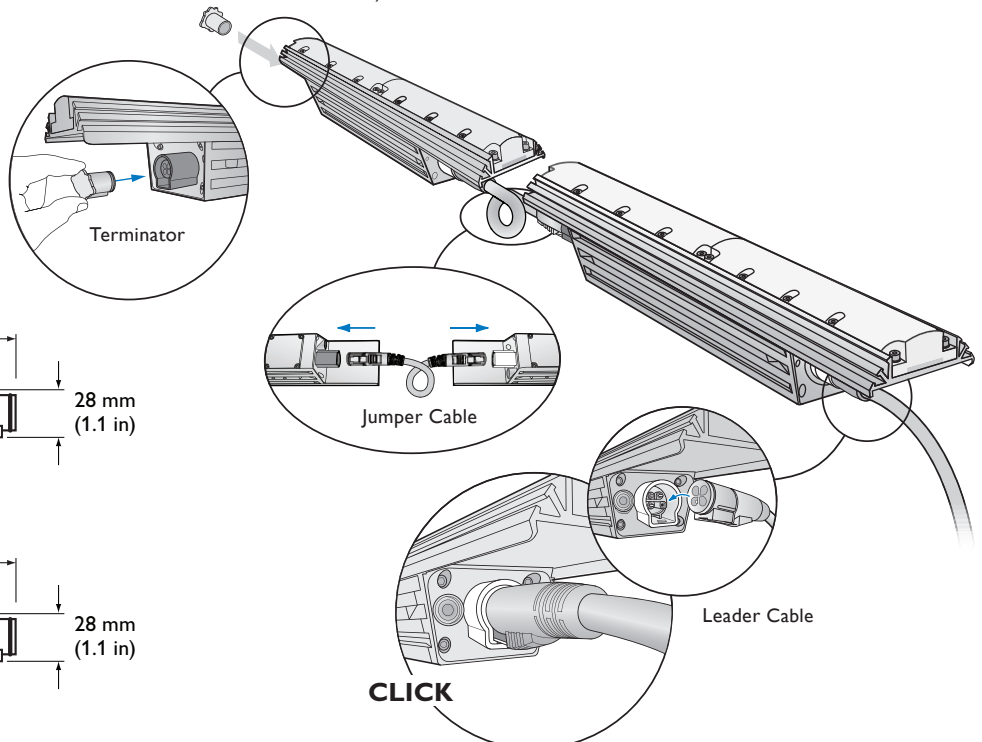
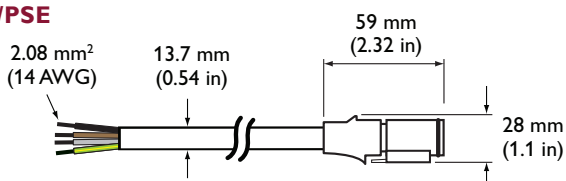
***** Be sure to position luminaires close enough together so that Leader Cables and Jumper Cables are not stretched or taut when installed.

Leader Cable Connector Dimensions

UL/cUL



CE/PSE

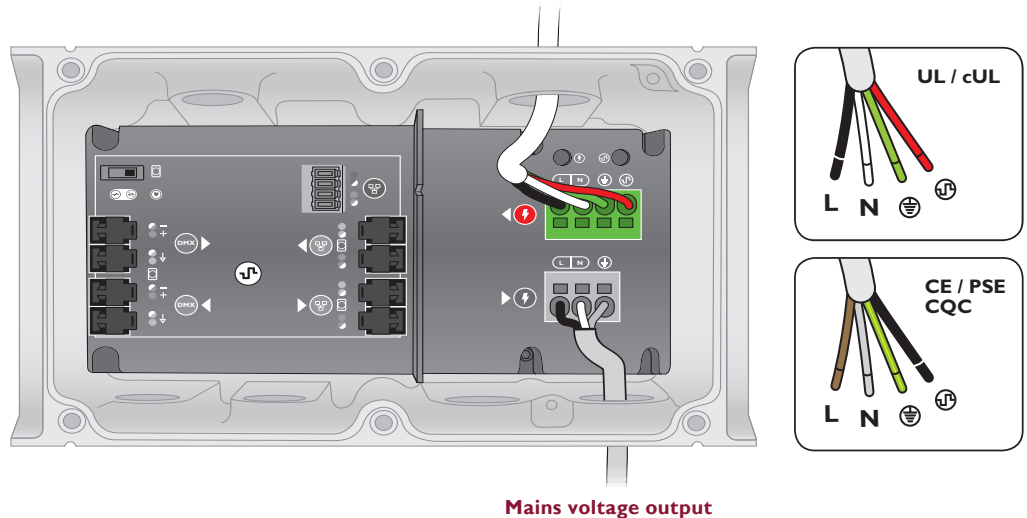


Make Power Connections

Once you've made all luminaire and junction box connections, connect the flying leads from a Leader Cable or 3 + ground wire from a common junction box to the 4-wire PC terminal connector block inside the Data Enabler Pro Housing.

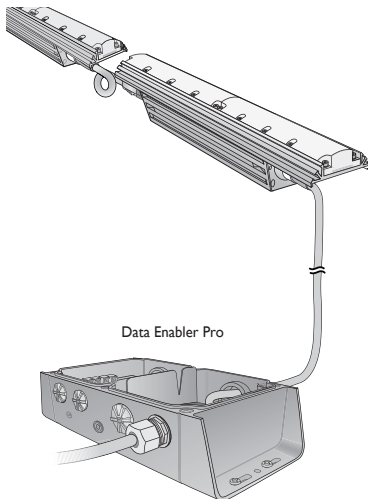
Address and Configure the Luminaires

Power/data output to luminaires



Mains voltage output

* Refer to the Data Enabler Pro Product Guide for comprehensive installation and configuration instructions. You can view or download the guide from www.philipscolorkinetics.com/ls/pds/dataenablerpro



Make sure the power is ON before addressing and configuring luminaires.

To allow a fine level of control, ColorGraze MX4 Powercore luminaires are addressable in 305 mm (1 ft) segments, or *nodes*. ColorGraze MX4 Powercore luminaires have one, two, three, or four nodes, depending on luminaire length, each identified by a unique serial number.

ColorGraze MX4 Powercore luminaires operate in 8-bit mode by default. You can configure ColorGraze MX4 Powercore to operate in 16-bit mode, which increases luminaire resolution for smoother dimming and more precise color control.

In 8-bit mode, luminaire nodes use one DMX address per LED channel (red, green, blue and white or amber). In 16-bit mode, luminaire nodes use two DMX addresses per LED channel. The first DMX address corresponds to the “coarse” data for that channel, and the second corresponds to the “fine” data. By using double the number of DMX addresses, 16-bit mode increases luminaire resolution from 256 dimming steps to 65,536 (256 x 256) dimming steps.

DMX Channel Assignments

	1		2		3		4	
8-Bit Mode	Red		Green		Blue		White or Amber	
16-Bit Mode	1	2	3	4	5	6	7	8
	Red Coarse	Red Fine	Green Coarse	Green Fine	Blue Coarse	Blue Fine	White or Amber Coarse	White or Amber Fine

* You can address luminaires and switch between 8-bit mode and 16-bit mode using QuickPlay Pro. You can download QuickPlay Pro from www.philipscolorkinetics.com/support/addressing/

Each 305 mm (1 ft) ColorGraze MX4 Powercore node comes factory-addressed with a starting DMX address of 1. For lighting designs where luminaire nodes work in unison, all nodes can be assigned the same DMX addresses. Changes to the default addresses are not necessary, but if nodes were previously readdressed for use in other installations, you must reset them. For light show designs that show different colors on different nodes simultaneously, you must assign unique DMX addresses to your nodes and sort them in a useful order.

- In Ethernet installations, you can address and configure luminaire nodes using QuickPlay Pro with a computer connected to your lighting installation's network. QuickPlay Pro can automatically discover all luminaire nodes, controllers, and Data Enabler Pro devices for quick configuration.
- In DMX installations, you can address and configure luminaire nodes using QuickPlay Pro with iPlayer 3 or SmartJack Pro. You can manually enter luminaire node serial numbers, or you can import a spreadsheet listing each luminaire node's serial number and starting DMX address.

For details on addressing and configuring luminaires, controllers, and power/data supplies with QuickPlay Pro, refer to the *Addressing and Configuration Guide*, which you can view or download at www.philipscolorkinetics.com/support/addressing.

Setting Luminaire Dimming Curves

Dimming curves describe how slowly or quickly a luminaire dims at different levels of input. For finer control, ColorGraz MX4 Powercore offers three different dimming curves for use in different situations and applications:

- **Normal**
The non-linear (gamma) dimming curve used in most Philips Color Kinetics LED lighting luminaires. ColorGraz MX4 Powercore luminaires use the normal dimming curve by default.
- **Linear**
A dimming curve with a linear relationship between power input and DMX output.
- **Tungsten**
A non-linear dimming curve that emulates the dimming curve of incandescent lamps on a DMX dimmer. This curve offers the most control at low intensities.

Setting LED Transition Speed

Normally, LEDs react to DMX or other control data instantaneously. In some cases, you may want to slow down the reaction speed to achieve smoother transitions when the intensity of different LED channels changes. ColorGraz MX4 Powercore offers five levels of decreasing LED transition speed, from Fast (instant snap changes) to Delay-4 (slowest transition speed).

Chromasync: Maximizing Luminaire-to-Luminaire Consistency

Optibin, our advanced binning algorithm, sets an industry-leading standard for the color consistency and uniformity of LED sources used in manufacturing. Chromasync technology enhances the performance of Optibin by maximizing luminaire-to-luminaire color consistency within an installation. By using active measurements of each luminaire's color range taken during manufacturing, Chromasync achieves a common gamut for all ColorGraz MX4 Powercore luminaires, regardless of LED sources used or date of manufacture.

Chromasync is especially valuable in lighting designs that feature combinations of two or more saturated colors (RGB white, yellow, cyan, and so on). In the case of RGB white, for example, Chromasync can reduce color variations across ColorGraz MX4 Powercore luminaires from 10 or more MacAdam ellipse steps to as little as four MacAdam ellipse steps.

While Chromasync does not calibrate colors with an external reference or standard, it accelerates commissioning of systems by eliminating the need for tedious fine-tuning of individual luminaires.

✳ You can download QuickPlay Pro from www.philipscolorkinetics.com/support/addressing.

✳ You will need the layout grid that you created when you recorded the serial numbers of the light luminaires in your installation.

✳ Note that Chromasync achieves a common gamut at the expense of some intensity of output — from a negligible loss to 10% or more, depending on color.

Chromasync technology supports three basic data operation modes for use with ColorGraze MX4 Powercore: 4-to-4, 3-to-4, and 3-to-3.

- **4-to-4 Configuration**

The 4-to-4 configuration works with newer controllers that deliver four channels of control data to four-channel LED luminaires. This is the default configuration for MX4 LED luminaires.

- **3-to-4 Configuration**

The 3-to-4 configuration works with controllers that employ three output data channels. ColorGraze MX4 Powercore maps three channels of control data to all four LED channels.

- **3-to-3 Configuration**

The 3-to-3 configuration allows legacy RGB light shows to be carried over to four-channel light luminaires; however, the fourth channel (White or Amber) is ignored. Therefore, this configuration does not utilize the full color palette available on the ColorGraze MX4 Powercore.

Aim and Lock the Luminaires

Make sure power is ON before aiming luminaires.

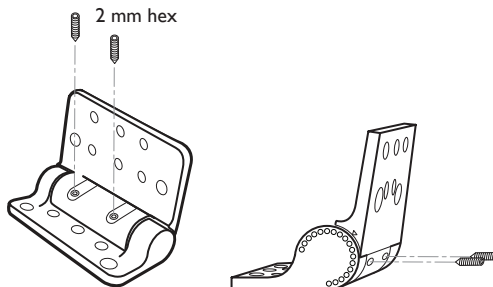
Rotate the luminaires to achieve the optimal angle for light output. For consistent position control, use the indicators on the side of each hinge knuckle as reference.

For fine horizontal adjustment, you can change the position of the hinge mounting block located on the side of each luminaire. Loosen the set screw with a 2.5 mm hex key, slide the mounting block to the desired position, then tighten the set screw.

Once satisfied with luminaire angles and positioning, use a 2 mm hex key wrench to tighten the hinge position set screws and lock each hinge.

⚠ Do not look directly into a luminaire when aiming and locking.

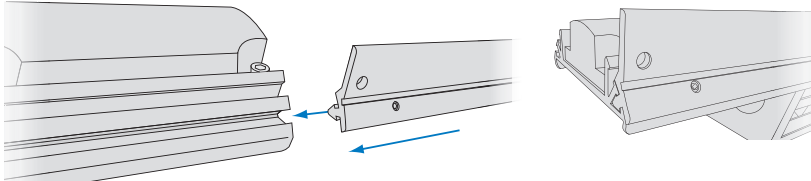
⚠ The hinge position set screws have factory applied thread lock. Confirm the luminaire angle and positioning before locking each hinge.



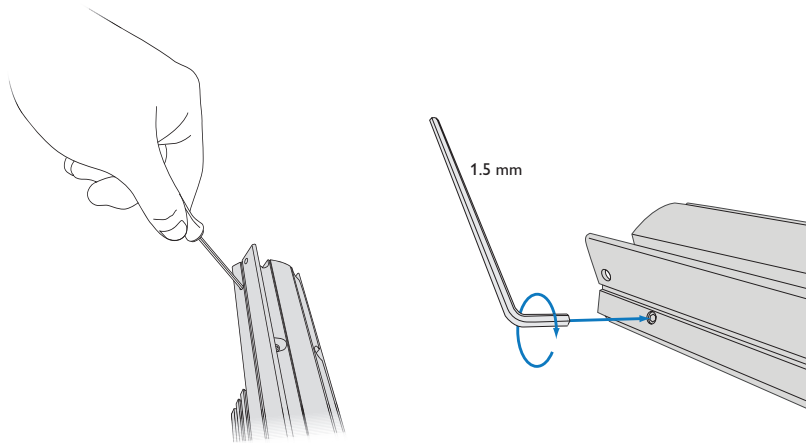
Attach Glare Shields (Optional)

Glare Shields, in 305 mm (1 ft), 610 mm (2 ft), 914 mm (3 ft), and 1.2 m (4 ft) lengths, can be inserted in the grooves in the ColorGraz MX4 Powercore housing. Glare Shields block unwanted spill light, and can shield the light sources from being directly visible in certain mounting situations.

1. Insert the Glare Shield's triangular tab in the outer groove on the side of the ColorGraz MX4 Powercore housing.
2. Using a hex wrench, tighten the locking screws to hold the Glare Shield in place.



3. (Optional) Attach a tether to the knockout in the Glare Shield, and affix the tether to a secure anchor point.
4. Using a small screwdriver, hand-tighten all set screws. Using a 1.5 mm hex wrench, torque the set screws to approximately 4 kgf/cm (3.5 in-lbs) to hold the Glare Shield in place.



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