

RAIL 2 RM2DU (Formerly RM2DI)

LED . PENDANT . DIRECT / INDIRECT . PATTERNS



PART #:	
PREP BY:	DATE:
PROJECT:	
NOTES:	
APPROVAL SIGNATURE:	DATE (DD/MM/YYYY):

PERFORMANCE SUMMARY @ 3500K		MBMB	MBMD	MM
		L3	L3	L3
Lumens (lm) per foot	80 CRI	1252	1272	1404
	90 CRI	1096	1113	1229
Distribution (Up / Down %)		52 / 48	55 / 45	53 / 47
Wattage (W) per foot		12.1		
Efficacy (lm/W)	80 CRI	104	105	116
	90 CRI	91	92	102
L70 Estimate (h)		≥ 60,000 hrs		

See page 2 for the complete Light Level Performance chart.

FEATURES

- Efficacy up to 123 lm/W
- Continuous rows and 90 degree corners available
- Optional Illuminated by BIOS version for Healthy Lighting and Well Building Applications

ORDERING LOGIC

Example Part Number: RM2DU-2L35K-G4x4-MBMB-W-L3L31-PA18-1-DW-90

1	2	3	4	5	6	7	8	9	10	11	12					
<p>RM2DU</p>																
<p>1. SERIES RM2DU</p>	<p>2. COLOR TEMP 2L30K 3000K 2L35K 3500K 2L40K 4000K</p> <p>90 CRI is available under OPTIONS BIOS is available under OPTIONS. See p2 for BIOS Naming Convention Reference</p>		<p>3. PATTERN ¹</p> <p>GA Square GAxB Rectangle UAxBxC U-Shape LAxB L-Shape C Custom Pattern* (A drawing of custom pattern is required on page 3)</p> <p>Replace "A", "B", "C" with length in feet. See minimum lengths below</p> <p>Standard Patterns Minimum Lengths</p> <table border="1"> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>A = 4 ft min. B = 4 ft min.</td> <td>A = 3 ft min. B = 4 ft min. C = 3 ft min.</td> <td>A = 3 ft min. B = 3 ft min.</td> </tr> </table> <p>Custom Patterns* (C) A drawing of custom pattern is required on page 3</p> <p>Select corner:</p> <p><input checked="" type="checkbox"/> Outside 90° <input checked="" type="checkbox"/> Inside 90°</p> <p></p>						A = 4 ft min. B = 4 ft min.	A = 3 ft min. B = 4 ft min. C = 3 ft min.	A = 3 ft min. B = 3 ft min.	<p>4. OPTICS (UP / DOWN)</p> <p>MBMB Meta Blanc / Meta Blanc MBMD Meta Blanc / Drop Lens** MRMB Rise Lens / Meta Blanc** MRMD Rise Lens / Drop Lens** MM Meta Ice / Meta Ice BWMB Batwing ³ / Meta Blanc BWMD Batwing ³ / Drop Lens BWM Batwing ³ / Meta Ice</p> <p>Meta Blanc, Rise & Drop Lens: Opal Diffuse Lens Meta Ice: High-Output Semi Diffuse Lens</p>			<p>5. FINISH</p> <p>SA Satin Aluminum W White B Black C Custom Finish Specify RAL:</p>	
A = 4 ft min. B = 4 ft min.	A = 3 ft min. B = 4 ft min. C = 3 ft min.	A = 3 ft min. B = 3 ft min.														
<p>6. LIGHT LEVEL (LL) / DRIVER</p> <p>CODES: "X" represents Standard Direct Light Level</p> <p>L1LX³ L2LX L3LX</p> <p>Replace "X" with: 1 = Light Level 1 2 = Light Level 2 3 = Light Level 3 4 = Light Level 4</p> <p>L3L2 Indirect Light Level 3 Direct Light Level 2</p> <p>Select Driver below. See Light Level Performance chart on p2.</p>		<p>7. CIRCUITRY</p> <p>1 1 Circuit UD Up / Down Switching EM Emergency / Night Light B Emergency Battery Pack²</p>	<p>8. MOUNTING</p> <p>PAA Pendant Aircraft Cable PTA Pendant Aircraft Cable for T-bar</p> <p>Replace "A" with length (in inches) selected on page 2.</p> <p>Select Aircraft Cable Length, Canopy Finish & Power Cord Color on page 2</p>	<p>9. VOLTAGE</p> <p>1 120V 2 277V 3 347V 4 UNV (120-277V)</p>	<p>10. SENSORS</p> <p>Please see last page for fixture integrated SENSORS and CONTROLS Order Logic codes</p>	<p>11. CONTROLS</p>	<p>12. OPTIONS</p> <p>90 90 CRI, High R9 BS BIOS Static*⁴ BD BIOS Dynamic*⁴ - None (leave space empty)</p>									

* Consult factory. | ** Not available with patterns. | ¹ Pattern record drawings showing mounting locations will be sent out upon order. | ² Not available with BIOS. | ³ Battery operates 4ft direct sections only. | ⁴ BIOS is only available on standard lengths (standard lengths include: 2-12 ft in 1ft increments).

Select Driver: Factory option 0-10V, 1% Dimming **LA2** Lutron A-Series Hi-lume 1% 2-wire LED Driver
 LHE Lutron H-Series Hi-lume 1% EcoSystem LED Driver **L5E** Lutron 5-Series EcoSystem LED Driver

Select Aircraft Cable Length:

Total adjustment range is 6" up & down for each standard length. All other lengths are considered custom unless otherwise stated.

Select:	Imperial (in)	Metric (mm)	Select:	Imperial (in)	Metric (mm)	Select:	Imperial (in)	Metric (mm)
<input type="checkbox"/>	12	305	<input type="checkbox"/>	42	1067	<input type="checkbox"/>	96	2440
<input type="checkbox"/>	18	460	<input type="checkbox"/>	48	1220	<input type="checkbox"/>	120	3050
<input type="checkbox"/>	24	610	<input type="checkbox"/>	54	1372	<input type="checkbox"/>	144	3660
<input type="checkbox"/>	30	760	<input type="checkbox"/>	60	1525	<input type="checkbox"/> Custom Length: _____		
<input type="checkbox"/>	36	915	<input type="checkbox"/>	72	1830			

Select Canopy Finish, Power Cord Color

Canopy	Power Cord
<input type="checkbox"/> White	<input type="checkbox"/> White
<input type="checkbox"/> Black	<input type="checkbox"/> Black
<input type="checkbox"/> Custom Finish RAL: _____	

Light Level Performance

3500K, 80 CRI, 0-10V Dimming (Standard)

Distribution % (Up/Down)	MBMB (UP: Meta Blanc / DOWN: Meta Blanc)			MBMD (UP: Meta Blanc / DOWN: Drop Lens)			MM (UP: Meta Ice / DOWN: Meta Ice)		
	Lumens per foot	Wattage per foot	Efficacy (lm/W)	Lumens per foot	Wattage per foot	Efficacy (lm/W)	Lumens per foot	Wattage per foot	Efficacy (lm/W)
	52 / 48			55 / 45			53 / 47		
L1	736	6.9	107	748	7.0	106	852	6.9	123
L2	920	8.8	104	936	8.9	105	1051	8.8	119
L3	1252	12.1	104	1272	12.1	105	1404	12.1	116
L4	2321	25.0	93	2359	25.0	94	2585	24.2	107

Standard Lumen Adjustment Factor

Color Temp	80 CRI	90 CRI
3000K	0.984	0.880
3500K	1.000	0.875
4000K	1.032	0.879

BIOS 3500K

Distribution % (Up/Down)	MBMB (UP: Meta Blanc / DOWN: Meta Blanc)			MBMD (UP: Meta Blanc / DOWN: Drop Lens)			MM (UP: Meta Ice / DOWN: Meta Ice)			
	Lumens per foot	Wattage per foot	Efficacy (lm/W)	Lumens per foot	Wattage per foot	Efficacy (lm/W)	Lumens per foot	Wattage per foot	Efficacy (lm/W)	
	52 / 48			55 / 45			53 / 47			
Static	L2	1256	18.9	66.6	1322	18.9	70.1	1395	18.9	74.0
	L3	1735	27.6	63.0	1827	27.6	66.3	1928	27.6	70.0
	L4	2078	34.4	60.4	2187	34.4	63.6	2308	34.4	67.1
Dynamic	L2	1130	18.9	59.9	1190	18.9	63.1	1256	18.9	66.6
	L3	1562	27.6	56.7	1644	27.6	59.6	1735	27.6	63.0
	L4	1870	34.4	54.4	1968	34.4	57.2	2078	34.4	60.4
R9	≥ 90									
COI**	< 3.3									
EML or M/P*	0.8									

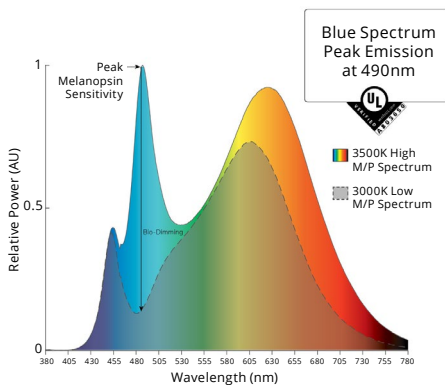
BIOS Lumen Adjustment Factor (LAF)

Color Temp	LAF
3500K	1.00
4000K	1.05

BIOS Naming Convention Reference

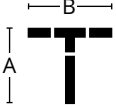
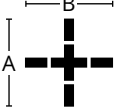
BIOS	Static	
	3500K	35BIOSST
BIOS	4000K	40BIOSST
	Dynamic	
BIOS	3500K	35BIOSDY
	4000K	40BIOSDY

* EML or M/P is a ratio that describes the relative melanopic lux (M) versus the photopic lux (P). BIOS provides the following m/p values: 3000K = 0.7, 3500K = 0.8, 4000K = 0.9. ** COI - Cyanosis Observation Index.



Metalumen's light level performance metrics are subject to manufacturers component tolerances.

PATTERNS

Select Pattern:	<input type="checkbox"/> T-SHAPE (C)	<input type="checkbox"/> CROSS / X-SHAPE (C)
Pattern Configuration		
Indicate Desired Lengths (ft)	A = B =	A = B =
Minimum Lengths	A = 3 ft B = 6 ft	A = 6 ft B = 6 ft

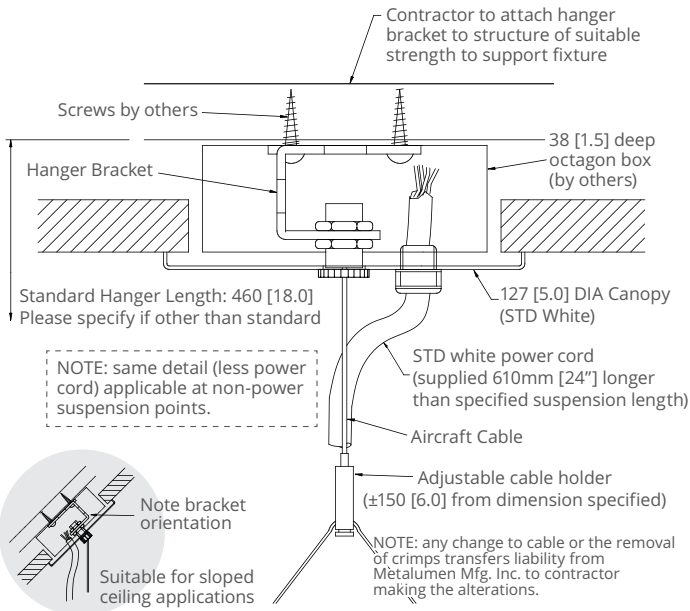
A custom pattern configuration drawing is required in the grid below

Approval drawings will be sent out upon order showing mounting locations.

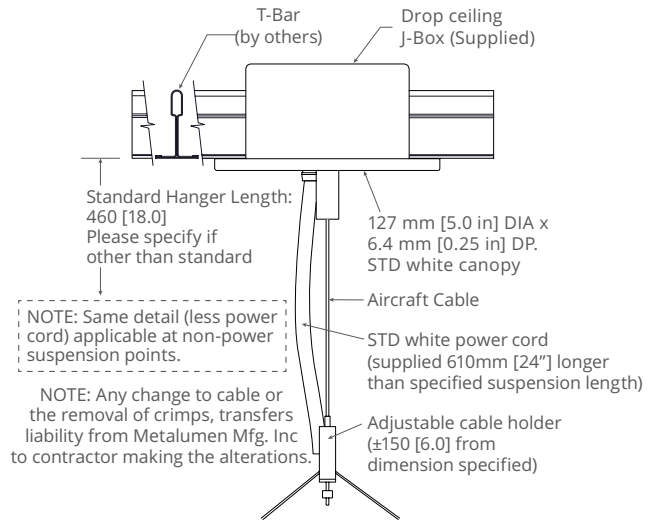


HANGERS

Aircraft Cable & Cord



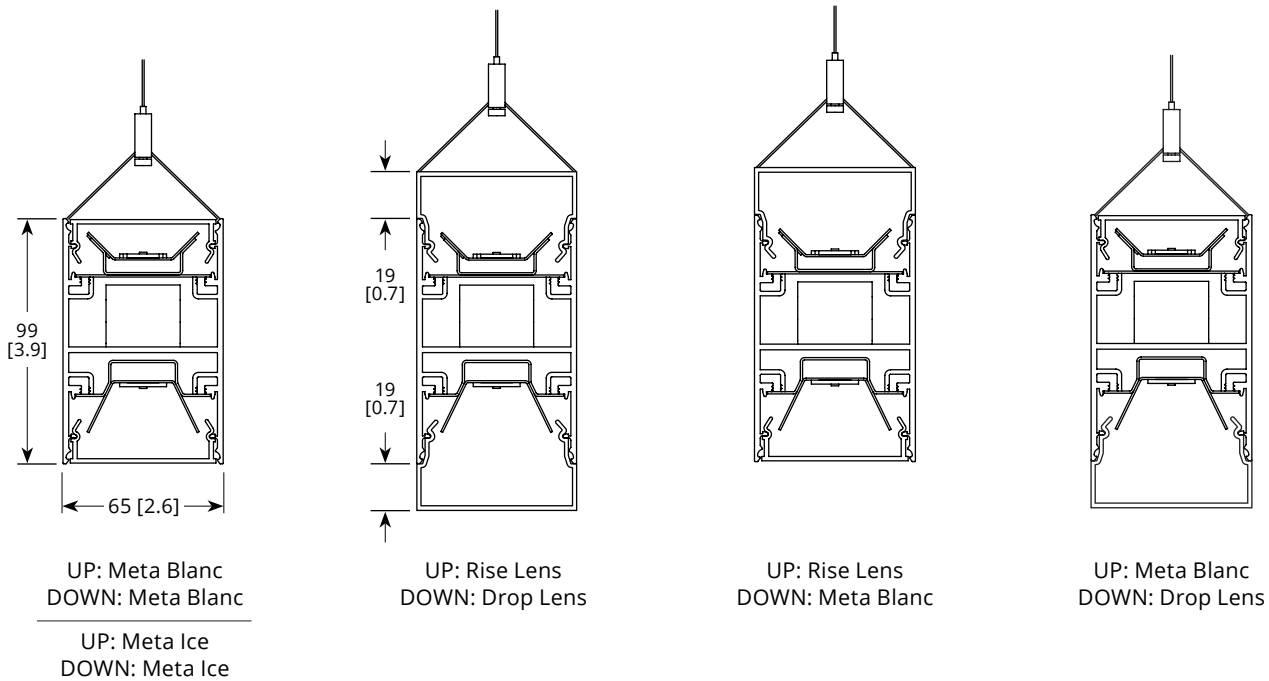
T-Bar Aircraft Cable & Cord



WIRING

Standard Wiring	Emergency Wiring	Emergency Battery Pack Wiring
<ul style="list-style-type: none"> BLACK - LINE WHITE - NEUTRAL GREEN - GROUND RED - CAPPED/SW LEAD VIOLET - DIM(+) GREY - DIM(-) 	<ul style="list-style-type: none"> BLACK - LINE WHITE - NEUTRAL GREEN - GROUND RED - CAP OFF 	<ul style="list-style-type: none"> BLACK - LINE WHITE - NEUTRAL GREEN - GROUND RED - UNSWITCHED HOT

CROSS SECTIONS & DIMENSIONS



SPECIFICATIONS

Due to the Continuous Improvement Policy at Metalumen, we reserve the right to change our specifications without notice.

Housing: Rigid extruded aluminum body, 2.3mm [0.09"] nominal wall thickness. Aluminum end caps.

Optical System: Metalumen luminaires are designed to utilize leading edge LED technology combined with luminaire optimized reflectors and our custom diffusers, resulting in industry leading optical performance.

BIOS LED: BIOS SkyBlue® solutions have a peak wavelength at 490nm to provide an enhanced spectrum with high M/P (melanopic to photopic)

ratios while also providing a low Cyanosis Observation Index (COI), making it ideally suited for Healthcare and Healthy Lighting projects. BIOS® SkyBlue® lighting solutions also contribute to satisfying Circadian Lighting Design Feature for WELL Building Standard v1 and v2.

CRI: 83+ for 3500K, 80 minimum for all CCTs in standard configurations.

Lumen Maintenance: Minimum 50,000h with TM-21 lumen maintenance of 85% @ 25°C ambient temperature (calculated based on

IESNA LM-80-08 LED test data). L70: ≥60,000hrs.

Finish: Satin aluminum, white and black are standard finishes. For custom finish, contact factory.

Mounting: Aircraft cable complete with a Quick-Grip field adjustable suspension system provides for quick and easy on-site alignment.

Electrical: Factory prewired with easy wire quick connect sections.

Drivers: Metalumen offers 0-10V dimming* as a standard on our entire

LED product offering. Dimming range is 1%-100%. Power factor is > 90%. Class 2 rating. Drivers are integral.

Approvals: All components are UL/CSA/QPS recognized or listed. RoHS compliant. This product is cULus listed.

Environment: Suitable for dry or damp locations.

*Standard drivers compatible with passive/sinking dimmers. Please contact Metalumen if active/sourcing dimmer support is required.

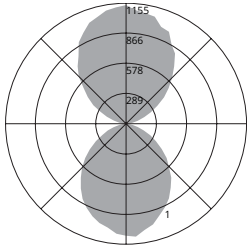
WARRANTY

Metalumen will warrant defective luminaires for 5 years from date of purchase. Warranty is valid if luminaire is installed and used according to specification. If defective, Metalumen will send replacement boards or drivers at no cost along with detailed replacement instructions and instructions on how to return defective components to Metalumen.

PHOTOMETRIC DATA - 3500K, 80 CRI

Optics Up: **Meta Blanc**
 Optics Down: **Meta Blanc**
 IES File: **RM2DU-2L35K-4-MBMB-L3**
 Lumens: **1252/ft** Wattage: **12.1/ft**
 Efficacy: **104**

PHOTOMETRIC CURVE
 52% Up
 48% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	378	7.5
0-30	782	15.6
0-40	1241	24.7
0-60	2024	40.4
0-80	2370	47.3
0-90	2398	47.8
10-90	2299	45.8
20-40	863	17.2
20-50	1297	25.9
40-70	1015	20.2
60-80	347	6.9
70-80	114	2.3
80-90	28	0.6
90-110	147	2.9
90-120	405	8.1
90-130	792	15.8
90-150	1771	35.3
90-180	2616	52.2
110-180	2469	49.2
0-180	5015	100

COEFFICIENTS OF UTILIZATION

Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80			70			50				
	70	50	30	10	70	50	30	10	50	30	10
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	107	107	107	107	98	98	98	98	82	82	82
1	98	94	90	86	90	86	83	80	73	70	68
2	89	82	76	71	82	76	71	66	64	60	57
3	82	72	65	60	75	67	61	56	57	52	48
4	75	64	57	51	69	60	53	48	51	45	41
5	69	57	49	44	63	53	46	41	45	40	36
6	63	52	44	38	58	48	41	36	41	36	31
7	59	47	39	33	54	43	36	32	37	32	28
8	54	42	35	30	50	40	33	28	34	29	25
9	51	39	31	26	47	36	30	25	31	26	22
10	47	36	28	24	44	33	27	23	29	24	20

CANDELA DISTRIBUTION

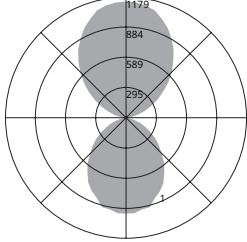
Vertical Angle	Horizontal Angle			
	0	30	60	90
0	1070	1070	1070	1070
10	1030	1043	1022	1027
20	931	950	935	930
30	823	812	798	794
40	673	659	627	624
50	508	491	452	440
60	331	319	298	282
70	180	173	158	147
80	63	58	53	48
90	4	3	4	3
100	60	60	55	51
110	187	184	172	168
120	347	347	337	329
130	531	531	516	518
140	717	722	701	707
150	874	889	880	866
160	986	1016	1025	1010
170	1073	1089	1095	1105
180	1136	1136	1136	1136

LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal Angle		
	0	45	90
45	9541	4598	3605
55	8174	3146	2432
65	6518	1946	1426
75	4336	954	670
85	1936	217	147

Optics Up: **Meta Blanc**
 Optics Down: **Drop Lens**
 IES File: **RM2DU-2L35K-4-MBMD-L3**
 Lumens: **1272/ft** Wattage: **12.1/ft**
 Efficacy: **105**

PHOTOMETRIC CURVE
 55% Up
 45% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	335	6.6
0-30	691	13.6
0-40	1091	21.4
0-60	1805	35.4
0-80	2207	43.3
0-90	2292	45
10-90	2203	43.2
20-40	755	14.8
20-50	1140	22.4
40-70	961	18.9
60-80	402	7.9
70-80	155	3.1
80-90	85	1.7
90-110	242	4.8
90-120	533	10.5
90-130	946	18.6
90-150	1952	38.3
90-180	2804	55
110-180	2562	50.3
0-180	5095	100

COEFFICIENTS OF UTILIZATION

Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80			70			50				
	70	50	30	10	70	50	30	10	50	30	10
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	106	106	106	106	97	97	97	97	81	81	81
1	96	92	88	84	88	84	81	78	70	68	65
2	88	80	74	69	80	74	68	64	61	58	54
3	80	71	63	57	73	65	59	53	54	50	46
4	73	63	55	49	67	58	51	45	48	43	39
5	67	56	48	42	61	51	44	39	43	38	34
6	62	50	42	36	57	46	39	34	39	34	29
7	57	45	37	32	52	42	35	30	35	30	26
8	53	41	33	28	49	38	31	26	32	27	23
9	50	37	30	25	45	35	28	24	30	24	21
10	46	34	27	22	42	32	26	21	27	22	19

CANDELA DISTRIBUTION

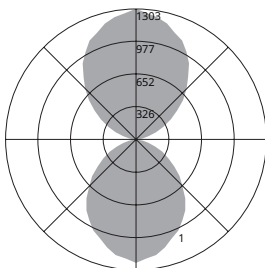
Vertical Angle	Horizontal Angle			
	0	22.5	45	67.5
0	932	932	932	932
10	906	915	924	908
20	829	834	828	813
30	731	722	711	697
40	582	582	567	560
50	424	426	429	434
60	277	292	309	328
70	147	167	200	223
80	50	78	114	130
90	8	33	67	82
100	62	82	108	116
110	193	203	226	224
120	356	365	378	386
130	539	547	555	556
140	719	728	732	733
150	889	890	892	903
160	1025	1009	1011	1021
170	1114	1111	1092	1111
180	1136	1136	1136	1136

LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal Angle		
	0	45	90
45	7978	3639	3026
55	6725	2691	2264
65	5152	1856	1578
75	3288	1211	1056
85	1595	704	665

Optics Up: **Meta Ice**
 Optics Down: **Meta Ice**
 IES File: **RM2DU-2L35K-4-MM-L3**
 Lumens: **1404/ft** Wattage: **12.1/ft**
 Efficacy: **116**

PHOTOMETRIC CURVE
 53% Up
 47% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	426	7.6
0-30	880	15.6
0-40	1392	24.7
0-60	2263	40.2
0-80	2645	47
0-90	2675	47.5
10-90	2562	45.5
20-40	966	17.2
20-50	1450	25.8
40-70	1128	20.1
60-80	381	6.8
70-80	125	2.2
80-90	30	0.5
90-110	165	2.9
90-120	454	8.1
90-130	892	15.9
90-150	1995	35.5
90-180	2951	52.5
110-180	2786	49.5
0-180	5626	100

COEFFICIENTS OF UTILIZATION

Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80			70			50				
	70	50	30	10	70	50	30	10	50	30	10
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	107	107	107	107	98	98	98	98	82	82	82
1	98	93	90	86	90	86	83	80	72	70	68
2	89	82	76	71	82	76	71	66	64	60	57
3	82	72	65	60	75	67	61	56	57	52	48
4	75	64	57	51	69	60	53	48	51	45	41
5	69	57	50	44	63	53	46	41	45	40	36
6	63	52	44	38	58	48	41	36	41	36	31
7	59	47	39	33	54	43	36	32	37	32	28
8	54	42	35	30	50	40	33	28	34	29	25
9	51	39	31	26	47	36	30	25	31	26	22
10	47	36	29	24	44	33	27	23	29	24	20

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle			
	0	22.5	45	67.5
0	1229	1229	1229	1229
10	1167	1153	1198	1137
20	1047	1063	1055	1046
30	928	917	910	886
40	767	750	727	703
50	570	552	529	496
60	374	364	342	315
70	199	199	182	164

SENSORS AND CONTROLS



Metalumen offers intelligent standalone and/or connected luminaires with various integrated sensing and control system* connectivity options. The table below outlines some of the more common combinations and solutions offered. If you do not see the controls solution or the type of sensing technology you require for your project please contact us and we will work with you to try and identify a solution to meet your needs.

*Control system, installation and commissioning provided by others.

Examples:

WattStopper Daylight Sensor Standalone Luminaire: RM4D-1L35K-12-MB-W-L31-PA18-1-DW-90

Occupancy Sensor with Casambi Wireless Bluetooth Mesh Control Capability: RM4D-1L35K-12-MB-W-L31-PA18-1-O-CAB-90

ORDER LOGIC FIELDS		SENSOR FEATURE / BEHAVIOR		LUMINAIRE CONTROL / CONNECTIVITY	DESCRIPTION
11. SENSORS	12. CONTROLS	OCCUPANCY (PIR)	DAYLIGHT HARVESTING		
OF	-		None	Standalone	Factory Sensor - Occupancy Behaviors configured via BLE App
OW	-		None	Standalone (WattStopper)	Wattstopper Standalone Occupancy Sensor
DW	-	None		Standalone (WattStopper)	Wattstopper Standalone Daylight Harvesting Sensor
ODW	-			Standalone (WattStopper)	Wattstopper Standalone Occupancy and Daylight Harvesting Sensors
O	- CAB		None	Casambi Bluetooth Mesh	Casambi Bluetooth Mesh Connectivity with Occupancy Sensing
OD	- CAB			Casambi Bluetooth Mesh	Casambi Bluetooth Mesh Connectivity with Daylight Harvesting and Occupancy Sensing
	- CAB	None	None	Casambi Bluetooth Mesh	Casambi Bluetooth Mesh Connectivity (no sensors)
O	- SLVR		None	Silvair Bluetooth Mesh	Open Standard Bluetooth Mesh Connectivity with Occupancy Sensing
OD	- SLVR			Silvair Bluetooth Mesh	Open Standard Bluetooth Mesh Connectivity with Daylight Harvesting and Occupancy Sensing
	- SLVR	None	None	Silvair Bluetooth Mesh	Open Standard Bluetooth Mesh Connectivity (no sensors)
	- OSRM	None	None	Osram Enceium	Osram Enceium connectivity
OD	- OSRM			Osram Enceium	Osram SensiLum Connectivity for Enceium with Occupancy and Daylight Harvesting
OD	- ENL			Enlighted ONE	Occupancy and Daylight Harvesting Capable Supports EnlightedONE room control as well and upgrade path for Enlighted Connected and Enlighted IoT offering advanced applications, analytics and insights for Space Utilization/Optimization, Asset Tracking, Energy Monitoring, HVAC Integration etc..
	- DALI	None	None	DALI addressable wired Luminaire	Generic DALI addressable luminaire
	- ECOS	None	None	Lutron Ecosystem	Lutron Ecosystem addressable wired luminaire NOTE: See Driver Selection options for specific driver

