

HLM

LED Light Engines with Nichia LEDs



HUBBELL
Lighting Components

Rev 04-30-2019



HLM Module White CCT Options Matrix

E.g. HLM4000LM5000KNF

Series	Flux Class ¹	CCT	Beam Angle	Lens Type
HLM	-	xxxxLM	-	xxxxK
	850LM	2700K	N - Narrow	F - Flat
	1250LM	3000K	M - Medium	D - Dome
	2000LM	3500K	W - Wide	
	3000LM	4000K		
	4000LM	5000K		

Note: Not all module combination options are standard products

HLM Module Amber Options Matrix

E.g. HLM700LM1550KNF

Series	Flux Class ¹	CCT	Beam Angle	Lens Type
HLM	-	700LM	-	1550K
			N - Narrow	F - Flat
			M - Medium	D - Dome
			W - Wide	

HLM Module Warm Dimming CCT Options Matrix

E.g. HLM1250LM3000VDNF

Series	Flux Class ¹	CCT	Beam Angle	Lens Type
HLM	-	xxxxLM	-	xxxxWD
	850LM	2700WD	N - Narrow	F - Flat
	1250LM	3000WD	M - Medium	D - Dome
	2000LM	3500WD	W - Wide	
	3000LM			

Note: Not all module combination options are standard products
Low-end CCT for warm dim modules is 2000K

Beam Angle	Flat Lens	Dome Lens
Narrow	38°	70°
Medium	66°	82°
Wide	82°	98°

Note: See IES files for details



Electrical Specifications

Driver Type	Constant Current
Life	50,000 Hrs 70% Lumen Maintenance
Max Test Point Temp:	70°C
Operating Temp:	-40°C to +60°C Ambient
Storage Temp:	-40°C to +80°C Ambient
Beam Angle	Narrow Medium Wide
CRI	90

Overview

- Constant-Current Circuit
- Color: 1/4 ANSI Binning, 3 Step MacAdam Ellipse
- Five different CCT options
- Three different Beam Angles
- Two different Lens options - Flat and Dome
- Minimum of 90 CRI (R9 >= 50)
- 5 year warranty
- Engineered by Hubbell Lighting Components
- Dimmable
- UV-free light output
- Mercury-free light source
- IP66

Note: Fixture is designed to last 50,000 hrs 70% lumen maintenance at or below max test point temperature. If test point temp higher additional heat sinking will be needed



Electrical Specifications

HLM Electrical Specification White CCT

Flux Class ¹	Rated Current (mA)	Forward Voltage (V)	Board Power (W)	Max. Current (mA)	Nominal Flux (lm) ²			
					2700K	3000K	3500K	4000K
850	1100	11.43	12.57	2400	1080	1110	1159	1200
1250	910	16.72	15.22	2400	1362	1403	1460	1511
2000	1050	25.52	26.80	2400	2331	2401	2500	2587
3000	1050	31.19	32.75	2400	3107	3754	3333	3449
4000	1400	35.83	50.16	2400	4035	4158	4328	4480

HLM Electrical Specification Amber

Flux Class ¹	Rated Current (mA)	Forward Voltage (V)	Board Power (W)	Max. Current (mA)	Wavelength Peak (nm) ²	
					Min.	Max.
700	700	32.6	22.82	1400	585	600

HLM Electrical Specification Warm CCT

Flux Class ^{1,3,4}	Rated Current (mA)	Forward Voltage (V)	Board Power (W)	Max. Current (mA)	Nominal Flux (lm) ²		
					2700K	3000K	3500K
850	1100	11.43	12.57	2400	990	-	-
1250	1050	16.72	17.56	2400	1430	-	-
2000	1050	25.52	26.80	2400	2150	-	-
3000	1190	31.19	37.12	2400	3150	-	-
850	910	11.43	10.40	2400	-	874	-
1250	910	16.72	19.90	2400	-	1311	-
2000	1050	25.52	26.80	2400	-	2220	-
3000	1050	31.19	32.75	2400	-	2960	-
850	910	11.43	10.40	2400	-	-	900
1250	910	16.72	15.22	2400	-	-	1360
2000	1050	25.52	26.80	2400	-	-	2300
3000	1050	31.19	32.75	2400	-	-	3080

Note:

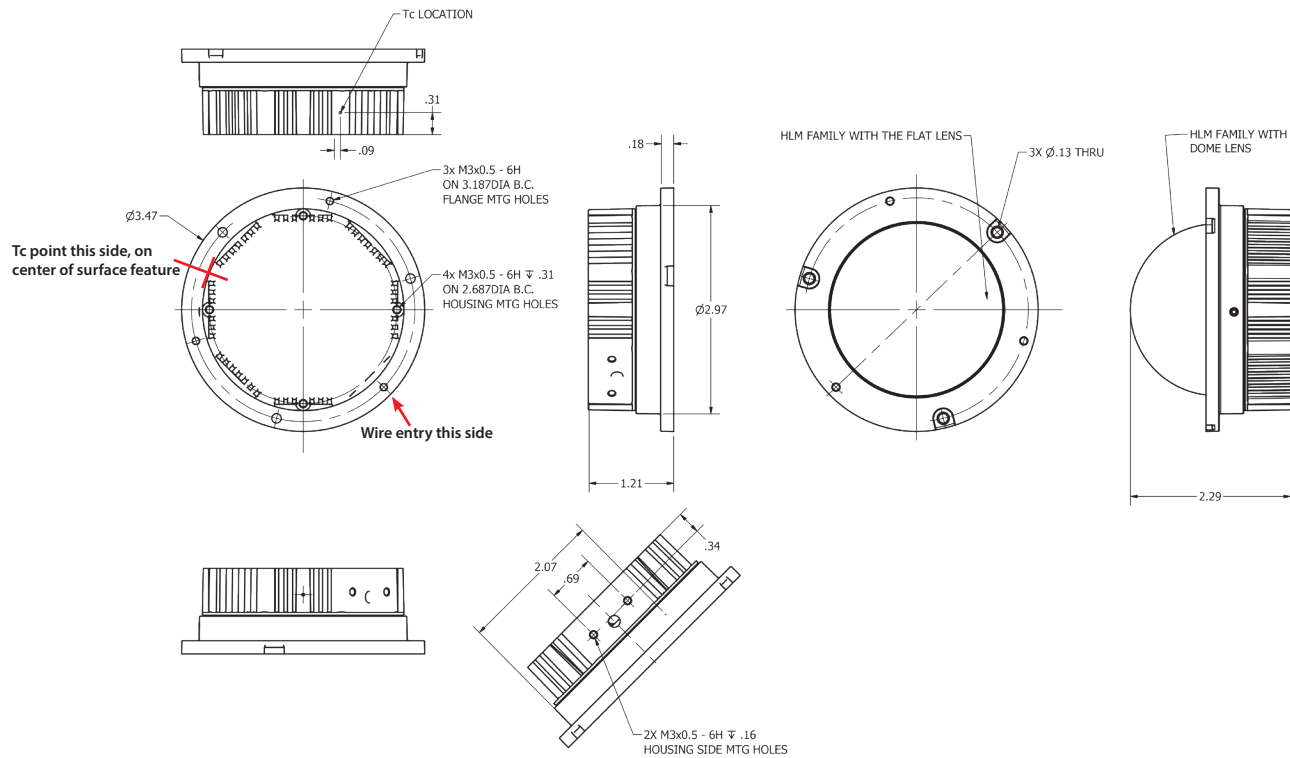
1. Flux class is a group name for LEDs with similar electrical characteristics. Refer to nominal flux listed in table for lumen rating.

2. For Tc point temperatures up to 70°C.

3. Full Power + Highest CCT level shown for warm dimming options.

4. Warm Dimming setting will yield lower power and low CCT values than listed.

Dimensions



Mechanical Specifications

- Ring and the housing made from die cast aluminum
- Chromate coating for corrosion resistance
- High quality lens made from UV resistant, Acrylite Satinice
- Reflectors made from black Lexan with the metalized aluminum coating for better performance

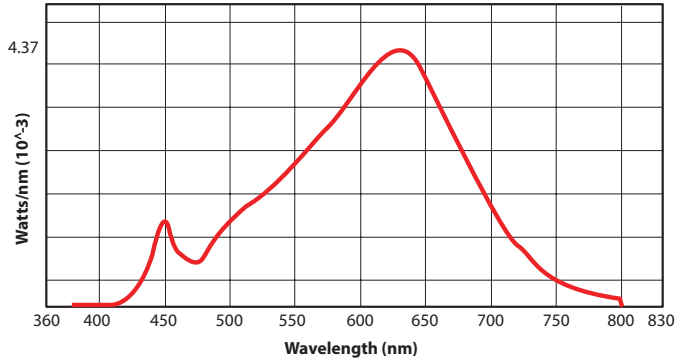
HLM Thermal Guidelines

Flux Output (lumen)	Recommended Surface Area Heat Sink (sq in)	
	Back Plate Mounting	Collar Mount
700	350	450
850	200	300
1250	250	350
2000	400	650
3000	500	900
4000	600	1000

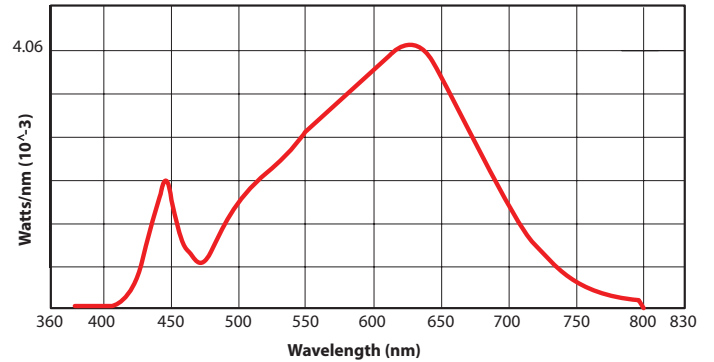
Note: These results are a guideline and should be used for reference only.

CIE Spectrum Curves

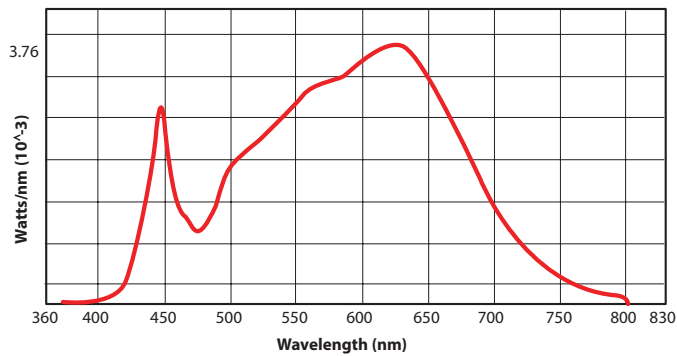
CCT 2700K



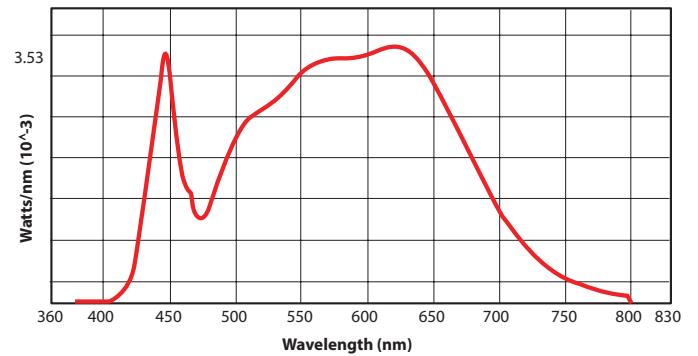
CCT 3000K



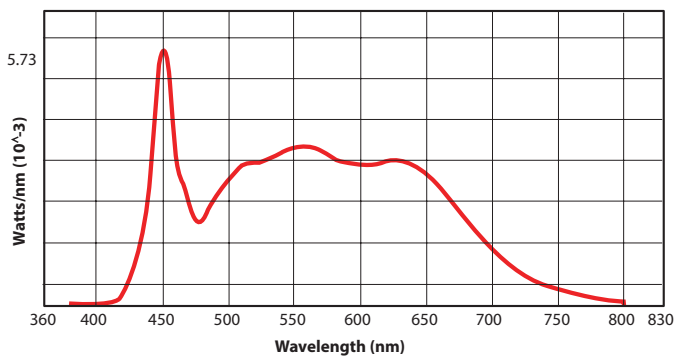
CCT 3500K



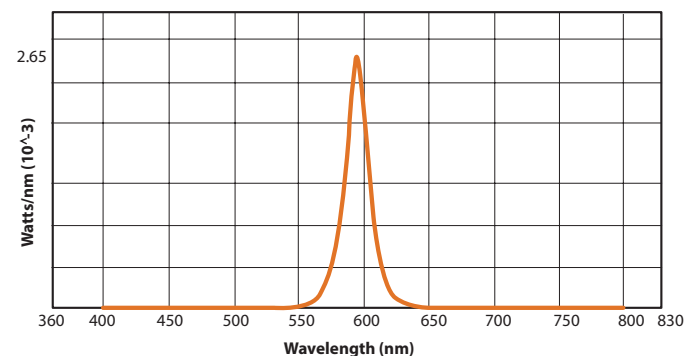
CCT 4000K



CCT 5000K



Amber

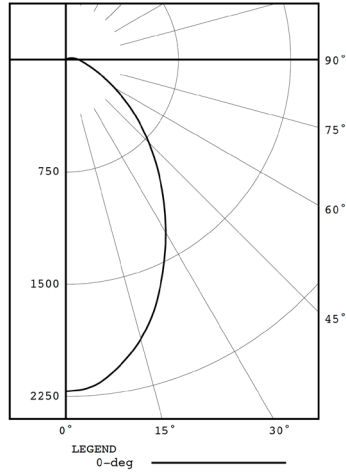




Photometry

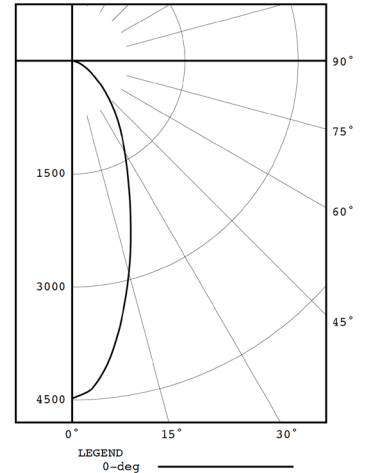
HLM-4000LM-3000K-ND

Deg	Candela	Lumens
0	2215	
5	2184	205
15	1931	541
25	1538	707
35	1135	710
45	783	605
55	490	442
65	280	282
75	162	174
85	103	114
90	85	
95	68	75
105	40	43
115	18	18
125	3	3
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	



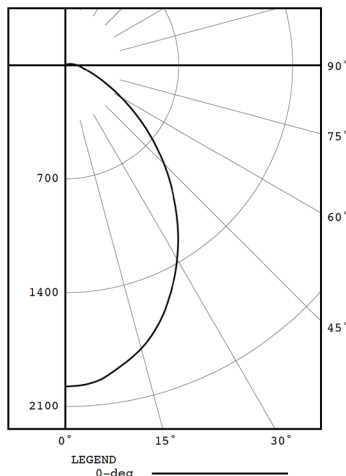
HLM-4000LM-3000K-NF

Deg	Candela	Lumens
0	4479	
5	4222	383
15	2914	809
25	1771	820
35	1115	700
45	671	522
55	365	331
65	182	183
75	75	80
85	11	15
90	0	
95	0	0
105	0	0
115	0	0
125	0	0
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	



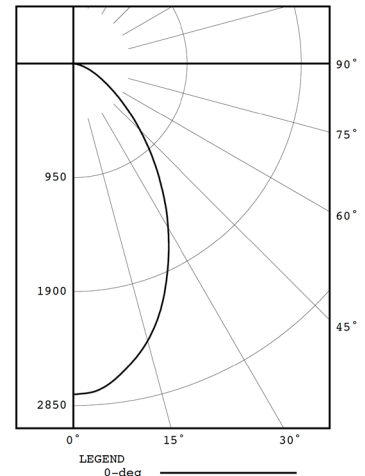
HLM-4000LM-3000K-MD

Deg	Candela	Lumens
0	1977	
5	1960	185
15	1806	507
25	1538	707
35	1208	754
45	859	662
55	536	482
65	292	294
75	156	168
85	93	103
90	75	
95	58	64
105	33	36
115	14	14
125	2	2
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	



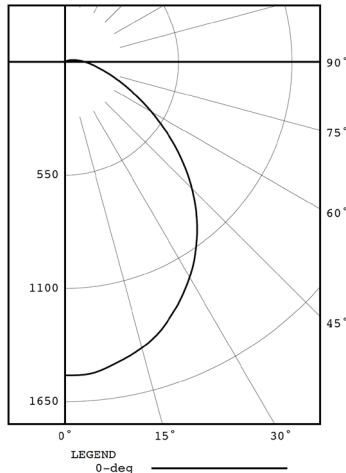
HLM-4000LM-3000K-MF

Deg	Candela	Lumens
0	2758	
5	2718	255
15	2391	668
25	1864	855
35	1294	809
45	786	610
55	420	381
65	205	207
75	83	90
85	12	17
90	1	
95	0	0
105	0	0
115	0	0
125	0	0
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	



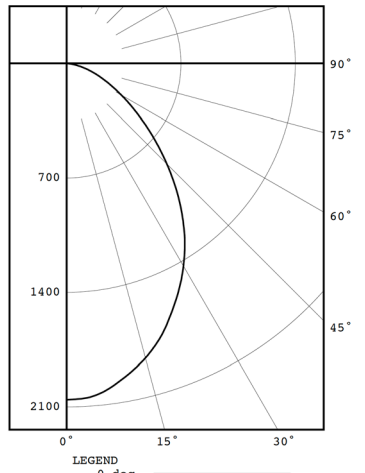
HLM-4000LM-3000K-WD

Deg	Candela	Lumens
0	1522	
5	1517	144
15	1438	405
25	1297	597
35	1105	690
45	869	669
55	606	543
65	375	375
75	219	234
85	126	139
90	96	
95	71	79
105	36	39
115	15	15
125	2	2
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	



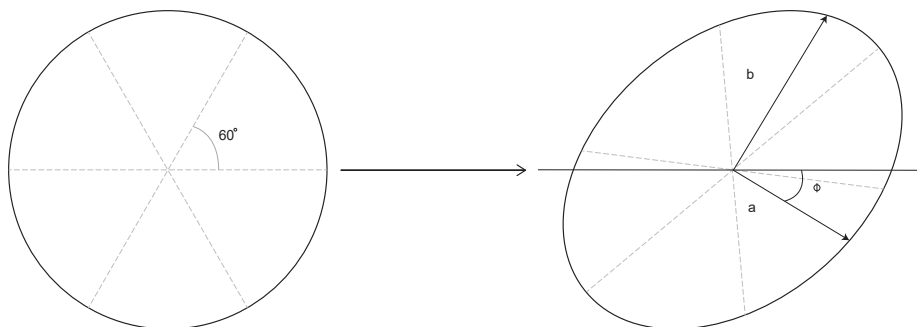
HLM-4000LM-3000K-WF

Deg	Candela	Lumens
0	2056	
5	2037	192
15	1865	524
25	1589	731
35	1256	782
45	868	670
55	522	471
65	279	279
75	118	127
85	18	25
90	0	
95	0	0
105	0	0
115	0	0
125	0	0
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	



CIE Chromacity Coordinates

Definition of the MacAdam ellipse ranks:



Color Temperature (K)	T _{CP}	2700	3000	3500	4000	5000
Center Point	x	0.4578	0.4338	0.4073	0.3818	0.3447
	y	0.4101	0.4030	0.3917	0.3797	0.3553
Minor Axis	a	0.004056	0.004107	0.004098	0.004071	0.003555
Major Axis	b	0.007872	0.008391	0.008796	0.009282	0.008418
Ellipse Rotation Angle	Φ	-36.05	-36.00	-35.47	-35.95	-31.78

A perfect circle is divided into 60 degree sections and then transformed into MacAdam ellipse that is presented on the chromaticity diagram in this document.

Recommended Drivers

HLM Module Lumen Output	IP66 Driver No Dimming 120/277 VAC	IP66 Driver 1-10V 120/277 VAC	IP66 Driver Dimming 120 VAC	IP20 Driver 1-10V 120/277 VAC
850	LED20W-018-C1100	LED20W-018-C1100-D	LED20W120-018-C1100-LT	-
1250	LED20W-22-C0910	LED20W-22-C0910-D	-	S025W-056C1300-C02-UN-D2
2000	LED35W-036-C1050	LED35W-036-C1050-D	-	S040W-056C1500-C02-UN-D2
3000	LED50W-048-C1050	LED50W-048-C1050-D	-	S040W-056C1500-C02-UN-D2
4000	PLED75W-054-C1400	PLED75W-054-C1400-D	-	-
700	LED30W-42-C0700	LED30W-42-C0700-D	-	S025W-056C1300-C02-UN-D2

Note: 700lm Amber only