

Cree® LMH2 2000-lm and 3000-lm LED Modules with TrueWhite® Technology

Cree LED modules provide lighting designers and manufacturers with simple, easy-to-adopt LED lighting solutions that reduce luminaire development time and speed time-to-market. The Cree LMH2 2000-lm and 3000-lm LED modules are the ideal choice for enabling rapid luminaire development where bright, beautiful, long-life lighting is required. The LMH series of modules incorporates Cree’s award-winning TrueWhite LED technology into a system of driver electronics, optics and primary thermal management for use in residential and commercial lighting applications. This versatile LED lighting module jump-starts the design process for recessed downlights, wall sconces or pendant lights in demanding end markets such as retail, museums, hospitality and restaurants.

BENEFITS FOR LUMINAIRE DESIGNERS

- Faster time-to-market and lower system cost with concurrently designed and tested optics, driver electronics, and primary thermal management
- Design flexibility provided by separated light source and power supply with broad selection of mounting and wiring options
- Wide variety of design applications enabled with 2700 K, 3000 K, 3500 K and 4000 K CCT
- Industry-leading 5-year limited system warranty backed by patented, reliable Cree LED technology
- Rapid regulatory approval and voluntary qualification of final luminaire enabled by:
 - UL approval (light source)
 - LED LM-80 data for US ENERGY STAR

BENEFITS FOR END USERS

- Vibrant color rendering showcases the full beauty of people, rooms, and merchandise with ≥ 90 CRI
- Significant energy savings over traditional lighting sources through superior efficacy of 80 lm/W at steady-state
- Proprietary optics provide a uniform, visually comfortable appearance whether the module is powered on or off
- Designed to last 50,000 hours at L_{70}
- Consistent light quality over time and temperature delivered by built-in optical and thermal management system
- Specification grade dimmability down to 10% of rated light output
- No UV or mercury, RoHS compliance

FEATURES

- Industry-leading module efficacy (light source + driver) at 80 lm/W at steady-state
- Members of an extended family of modules with identical light source form factor
- One heat sink (optional) for all lumen values

Light Source with Flat Lens



Light Source with Dome Lens



230 V Driver (DALI + Touch dimming)



120-277 V Driver (0/1-10 V dimming)



CHARACTERISTICS

Cree TrueWhite technology is a revolutionary way of generating white light with LEDs. It delivers high efficacy with beautiful light characteristics and color accuracy, while maintaining color consistency over the life of the product.

LMH2 Light Source	Luminous Flux (lm) ^{1,2,4}	CCT (K)	CRI	Light Source Efficacy (lm/W) ^{1,2}	LMD300 230 V DALI + Touch		LMD300 120-277 V 0/1-10 V	
					Average Input Power (W) ¹	System Efficacy with Driver (lm/W) ^{1,2,3}	Average Input Power (W) ¹	System Efficacy with Driver (lm/W) ^{1,2,3}
2000	4000	≥ 90	≥ 90	95	25	80	25.5	78.5
	3500							
	3000							
	2700							
3000	4000	≥ 90	≥ 90	95	37.5	80	37.5	80
	3500							
	3000							
	2700							

LMD300 Driver	Input Voltage (V) ¹	Max. Rated Input Power (W) ¹	Frequency (Hz)	Power Factor		Dimming
				2000 lm ¹	3000 lm ¹	
	220-240	40	50/60	.95	.98	DALI + Touch
	120-277	40	50/60	.96	.98	0/1-10 V

- ±10% variance
- Measured at steady state, T_c = 55 °C
- Includes LMD300 driver losses
- Dome lens may increase luminous flux by up to 5%.

The operating temperature at the case temperature (T_c) point is 0-70 °C.

ORDER CODES

LMH2 Light Sources	Luminous Flux (lm)	CCT (K)	Order Code - Flat Lens	Order Code - Dome Lens
			2000	4000
	3500	LMH020-2000-35G9-00000TW	LMH020-2000-35G9-00001TW	
	3000	LMH020-2000-30G9-00000TW	LMH020-2000-30G9-00001TW	
	2700	LMH020-2000-27G9-00000TW	LMH020-2000-27G9-00001TW	
3000	4000	LMH020-3000-40G9-00000TW	LMH020-3000-40G9-00001TW	
	3500	LMH020-3000-35G9-00000TW	LMH020-3000-35G9-00001TW	
	3000	LMH020-3000-30G9-00000TW	LMH020-3000-30G9-00001TW	
	2700	LMH020-3000-27G9-00000TW	LMH020-3000-27G9-00001TW	

LMD300 Drivers	Input Voltage (V)	Dimming	Order Code
	220-240	DALI + Touch	LMD300-0040-C900-2020000
	120-277	0/1-10 V	LMD300-0040-C900-7030000

Note: The heat sink is designed to work with all LMH2 lumen levels.

Optional Heat Sink Order Code
LMH020-HS00-0000-0000001

Optional Conduit Cover for Use with 230 V (DALI + Touch) Driver Order Code
LMD300-CA00-0000-0000001

CHROMATICITY

The Cree LMH2 LED module provides high color consistency, within a 3-step MacAdams ellipse around the specified color temperature. Individual LEDs are tested and matched to meet our designed chromaticity specification.

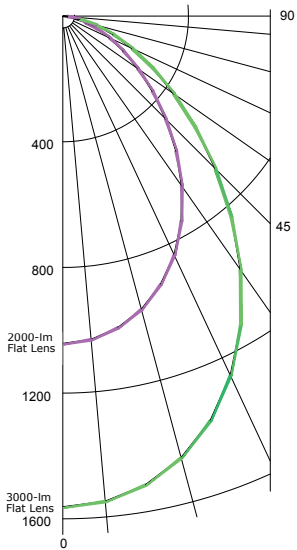
Secondary optics can be added to the module but will reduce light output and may also alter the color characteristics of the final luminaire design.

THERMAL MANAGEMENT GUIDELINES

The Cree LMH2 LED module is designed to perform in a variety of environments without the need for active cooling. To achieve lifetime and performance estimates, and to maintain the warranty, the final luminaire design cannot allow the Tc point shown in the light source diagrams below to exceed 70 °C for the light source or power supply when the luminaire is at thermal equilibrium. Follow the mechanical and thermal design guidelines listed in the "Cree LMH2 LED Module Design Guide" to ensure proper thermal management. An optional heat sink is available.

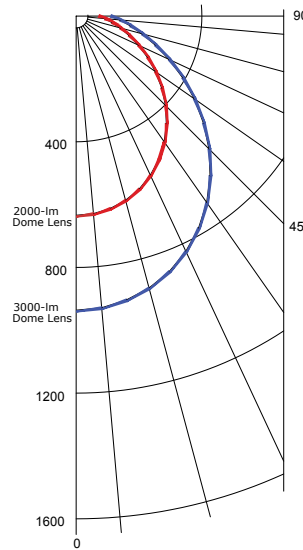
PHOTOMETRY

With Flat Lens



Intensity (Candlepower)		
Angle	2000	3000
0°	1043	1563
5°	1034	1551
15°	967	1456
25°	840	1263
35°	661	987
45°	464	688
55°	293	433
65°	166	245
75°	73	110
85°	11	17
90°	0	0

With Dome Lens



Intensity (Candlepower)		
Angle	2000	3000
0°	635	937
5°	633	933
15°	608	897
25°	560	827
35°	490	726
45°	404	600
55°	310	461
65°	221	329
75°	147	220
85°	94	142
90°	74	112

Zonal Lumens - 2000

Zone	Lumens	%
0-30°	755	37
0-40°	1168	57
0-60°	1790	87
0-90°	2049	100
0-180°	2049	100

Zonal Lumens - 3000

Zone	Lumens	%
0-30°	1136	37
0-40°	1752	57
0-60°	2673	87
0-90°	3058	100
0-180°	3058	100

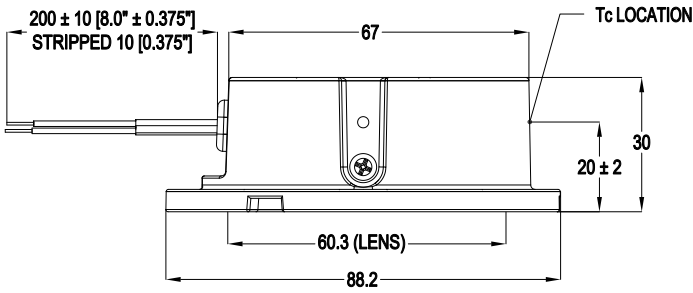
Zonal Lumens - 2000

Zone	Lumens	%
0-30°	490	25
0-40°	796	40
0-60°	1386	70
0-90°	1866	94
0-180°	1983	100

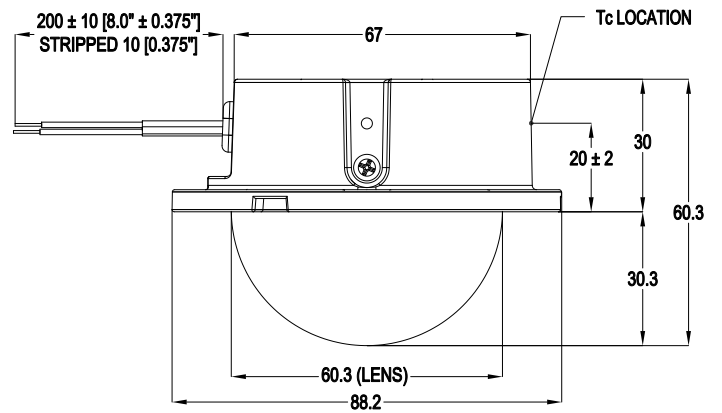
Zonal Lumens - 3000

Zone	Lumens	%
0-30°	723	25
0-40°	1177	40
0-60°	2053	70
0-90°	2769	94
0-180°	2948	100

Light Source with Flat Lens

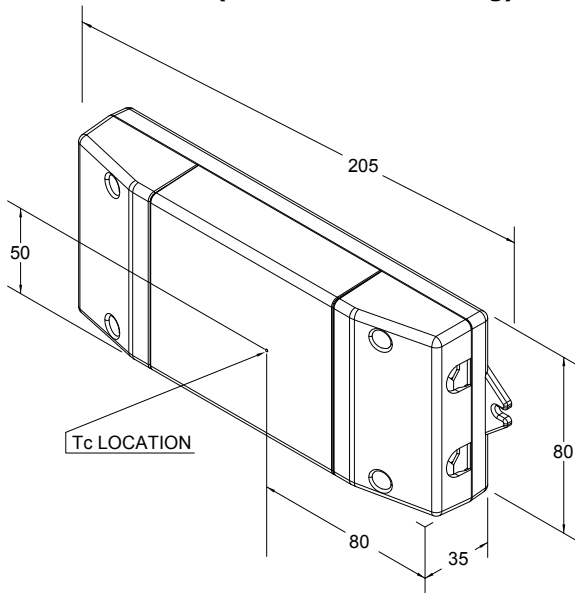


Light Source with Dome Lens

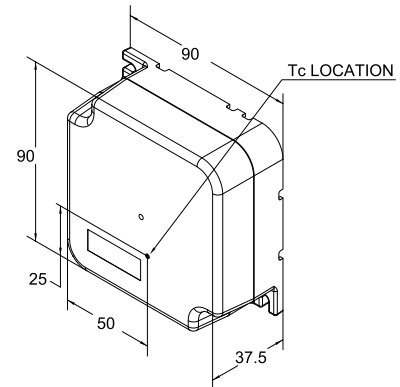


units: mm

230 V Driver (DALI + Touch dimming)



120-277 V Driver (0/1-10 V dimming)



Optional Heat Sink

