

# CR Series

CR-LE 1' x 4' or 1' x 2' LED Light Engine

## Product Description

The CR-LE LED light engine delivers up to 130 lumens per watt of exceptional 90 CRI light at 4000 lumens. This breakthrough performance is achieved by combining the high efficacy and high-quality light of Cree TrueWhite® Technology with a unique thermal management design. The CR-LE HD option delivers enhanced spectrum 80+ CRI color quality. The CR-LE product family is available in warm, neutral, cool, or daylight color temperatures and has step or 0-10V dimming options. Its compact lightweight design allows the CR-LE to be surface mounted or suspended, making it perfect for use in a variety of applications.

**Applications:** New construction or renovated spaces

## Performance Summary

Available with Cree TrueWhite® Technology
Room-Side Heat Sink
<b>Efficacy:</b> 100-130 LPW
<b>Initial Delivered Lumens:</b> 2,200, 3,200, 4,000, 5,000 lumens
<b>Input Power:</b> 22-50 watts
<b>CRI:</b> 90 CRI (Cree TrueWhite® Technology), 80+ CRI (HD option)
<b>CCT:</b> 3000K, 3500K, 4000K, 5000K
<b>Input Voltage:</b> 120-277 VAC or 347 VAC
<b>Limited Warranty*:</b> 10 years
<b>Controls:</b> Step Level to 50%, 0-10V Dimming to 5%
<b>Mounting:</b> Surface or Suspended

\*See [www.cree.com/lighting/products/warranty](http://www.cree.com/lighting/products/warranty) for warranty terms

CR-LE (1'x4')



CR-LE (1'x2')



**NOTE:** Use of Expanded Junction Box will expand the depth to 6.67" (169mm) and Emergency Backup will expand the depth to 6.30" (160mm). Use of 347V will increase luminaire height by 1.4" (36mm)

## Accessories

Field-Installed			
<b>Surface Mount Kits</b> SMK-LE-L - For use with 1x4 light engines: 22L, 40L, 40LHE and 50L - Must order end caps separately - Not compatible with 347V adaptor kits or EJBCR-5PK SMK-LE-S - For use with 1x2 light engines: 32L - Must order end caps separately - Not compatible with 347V adaptor kits or EJBCR-5PK	<b>End Caps (2-Pack)</b> SMK-LE-EC - Required for all SMK installations <b>Joiner Plate</b> SMK-LE-JP - Optional accessory for continuous row installations	<b>347 Volt Adaptor Kits</b> CR-347V - For use with 10V controls - Not compatible with surface mount kits CR-347V-SD - For use with S controls - Not compatible with surface mount kits	<b>Adjustable Power Feeds with Cable Support Canopy Kits</b> AC5-18/4-72-PD8-JB <b>Adjustable Cable Support Kits</b> AC5-72-PD8-JB <b>Junction Box (5-Pack)</b> EJBCR-5PK - Expanded size junction box for through wiring - Not compatible with surface mount kits

## Ordering Information

Example: CR-LE-32L-30K-S-HD

Product	Initial Delivered Lumens	CCT	Voltage	Control	Options
CR-LE	32L (1x2) 32W, 3,200 lumens – 100 LPW 22L (1x4) <sup>1</sup> 22W, 2,200 lumens – 100 LPW 40L (1x4) 40W, 4,000 lumens – 100 LPW 40LHE (1x4) <sup>1</sup> 30.5W, 4,000 lumens – 130 LPW (30K) 32W, 4,000 lumens – 125 LPW (35K) 33W, 4,000 lumens – 120 LPW (40K) 34.5W, 4,000 lumens – 115 LPW (50K) 50L (1x4) <sup>2</sup> 50W, 5,000 lumens – 100 LPW	30K 3000K 35K 3500K 40K 4000K 50K 5000K	Blank 120-277 Volt 34 <sup>3</sup> 347 Volt	S Step Dimming to 50% 10V 0-10V Dimming to 5%	HD CRI 80+ <sup>4,5</sup> - 32L: 35W, 3,200 lumens – 90 LPW - 40L: 44W, 4,000 lumens – 90 LPW EB14 Emergency Backup <sup>6,7</sup> - 1400 lumens - Not for use with SMK accessories. Use EB14SMK option below EB14SMK Emergency Backup w/Surface Mount Kit <sup>1,4,6,7</sup> - 1400 lumens - Includes surface mount kit. End caps must be ordered separately (see accessory table above)

1. Not available with HD. 2. Not available with HD, EB14, EB14SMK. 3. Integrated option available on 32L & 40L with 10V only. Wattage increases to 33.5W and fixture height increases by 1.4" (36mm) over standard 120-277V fixtures. Other lumen packages require addition of a 347 Volt Adaptor Kit (see accessory table above). 4. Not available with 34 (Voltage). 5. Available on 32L & 40L only. 6. Not available with 50L. 7. Not available with 50K  
 NOTE: Price adder may apply depending on configuration



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## Product Specifications

### CREE TRUEWHITE® TECHNOLOGY OPTION

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

### CREE LED TECHNOLOGY

Cree's total systems approach to product development is a comprehensive engineering philosophy that combines the most advanced LED sources, driver technologies, optics and forms. The result is highly-reliable luminaire solutions for both indoor and outdoor applications that reduce energy use, extend lifetimes, and maximize illumination performance and quality.

### ROOM-SIDE HEAT SINK

An innovative thermal management system designed to maximize cooling effectiveness by integrating a unique room-side heat sink into the diffusing lens. This breakthrough design creates a pleasing architectural aesthetic while conducting heat away from LEDs in a temperature-controlled environment. This enables the LEDs to consistently run cooler, providing significant boosts to lifetime, efficacy, and color consistency.

### CONSTRUCTION & MATERIALS

- Durable 22-gauge steel housing with standard troffer access plate for electrical installation
- One-piece lower reflector finished with a textured high reflectance white polyester powder coating creates a comfortable visual transition from the lens to the ceiling plane
- Individual luminaires may be mounted end to end for a continuous row of illumination

### OPTICAL SYSTEM

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing
- Components work together to optimize distribution, balancing the delivery of high illuminance levels on horizontal surfaces with an ideal amount of light on walls and vertical surfaces. This increases the perception of spaciousness
- Diffusing lens integrated with upward-facing LED strip eliminates direct view of LEDs while lower reflector balances brightness of lens with the ceiling to create a low-glare high angle appearance

### ELECTRICAL SYSTEM

- Integral, high-efficiency driver
- **Power Factor:** = 0.9 nominal
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V or 347V, 50/60Hz
- **Operating Temperature Range:** 0°C - + 35°C (32°F - + 95°F)
- **Total Harmonic Distortion:** < 20%
- **10V Source Current:** 0.25mA

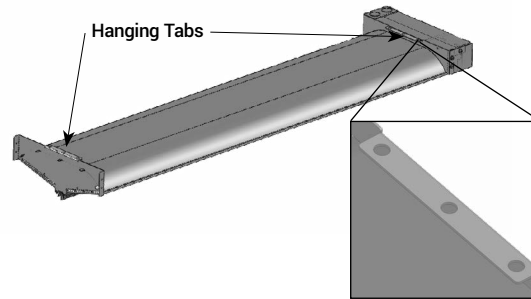
### CONTROLS

- Step dimming to 50%
- Continuous dimming to 5% with 0-10V DC control protocol
- Reference [www.cree.com/Lighting/Products/Indoor/Troffers/CR-Series](http://www.cree.com/Lighting/Products/Indoor/Troffers/CR-Series) for recommended dimming controls and wiring diagrams

### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for Indoor use
- UL924 (EB14 option)
- DLC qualified. Exceptions apply when ordered with 32L initial delivered lumens. Please refer to [www.designlights.org/QPL](http://www.designlights.org/QPL) for most current information
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15 standards for conducted and radiated emissions

## Installation



NOTE: Hanging materials not included. Must be purchased separately

Recommended CR Series Lumen Maintenance Factors (LMF) <sup>1</sup>						
Ambient	Initial Delivered Lumens	Initial LMF	25K hr Projected <sup>2</sup> LMF	50K hr Calculated <sup>3</sup> LMF	75K hr Calculated <sup>3</sup> LMF	100K hr Calculated <sup>3</sup> LMF
0°C (32°F)	22L/32L/40L/50L	1.05	1.04	1.04	1.04	1.04
	40L HE	1.05	1.01	0.98	0.96	0.94
5°C (41°F)	22L/32L/40L/50L	1.04	1.03	1.03	1.03	1.03
	40L HE	1.04	1.00	0.97	0.95	0.93
10°C (50°F)	22L/32L/40L/50L	1.03	1.02	1.02	1.02	1.02
	40L HE	1.03	0.99	0.96	0.94	0.92
15°C (59°F)	22L/32L/40L/50L	1.02	1.01	1.01	1.01	1.01
	40L HE	1.02	0.98	0.95	0.93	0.91
20°C (68°F)	22L/32L/40L/50L	1.01	1.00	1.00	1.00	1.00
	40L HE	1.01	0.97	0.95	0.92	0.90
25°C (77°F)	22L/32L/40L/50L	1.00	0.99	0.99	0.99	0.99
	40L HE	1.00	0.96	0.94	0.91	0.89
30°C (86°F)	22L/32L/40L/50L	0.99	0.98	0.98	0.98	0.98
	40L HE	0.99	0.95	0.93	0.91	0.89
35°C (95°F)	22L/32L/40L/50L	0.98	0.97	0.97	0.97	0.97
	40L HE	0.98	0.94	0.92	0.90	0.88

<sup>1</sup> Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

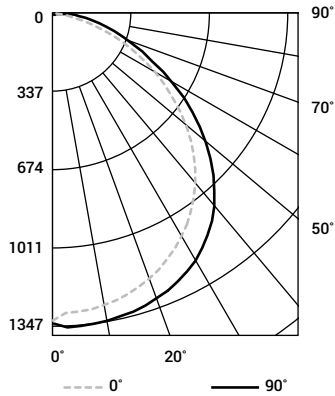
<sup>2</sup> In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

<sup>3</sup> In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

**Photometry**

**CR-LE-40L-30K BASED ON DTC REPORT TEST #: PL00876-001**

Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. IESNA LM-79-08 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%



Average Luminance Table (cd/m <sup>2</sup> )				
Vertical Angle	Horizontal Angle			
	0°	45°	90°	
	45°	4,900	5,061	5,080
	55°	4,399	4,548	4,504
	65°	3,584	3,676	3,650
75°	2,426	2,765	3,007	
85°	870	2,304	2,771	

Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	1119	119	119	119
1	108	104	99	95
2	99	90	83	78
3	90	79	71	65
4	82	70	61	55
5	76	63	54	47
6	70	56	48	41
7	65	51	42	36
8	60	47	38	32
9	56	43	35	29
10	53	39	32	26

Effective Floor Cavity Reflectance: 20%

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,060	N/A	26.9%
0-40	1,758	N/A	44.5%
0-60	3,115	N/A	78.9%
0-90	3,916	N/A	99.2%
0-180	3,947	N/A	100%

**Application Reference**

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft <sup>2</sup>	Average fc
8 x 8	2200L	22W	100	0.35	30
	3200L	32W	100	0.55	44
	4000L	40W	100	0.69	54
	4000LHE	30.5W	125	0.56	54
8 x 10	5000L	50W	100	0.78	68
	2200L	22W	100	0.28	25
	3200L	32W	100	0.44	37
	4000L	40W	100	0.55	45
10 x 10	4000LHE	30.5W	125	0.45	45
	5000L	50W	100	0.62	57
	2200L	22W	100	0.22	21
	3200L	32W	100	0.35	31
10 x 12	4000L	40W	100	0.44	38
	4000LHE	30.5W	125	0.36	38
	5000L	50W	100	0.50	48
	2200L	22W	100	0.19	17
10 x 12	3200L	32W	100	0.29	25
	4000L	40W	100	0.37	30
	4000L HE	30.5W	125	0.30	30
	5000L	50W	100	0.42	38

9' ceiling; 80/50/20 reflectances; 2.5' workplane, open room. LLF: 1.0 Initial Open Space: 50' x 40' x 10'