

# CR Series

CR24™ 2' x 4' Architectural LED Troffer

## Product Description

The CR24™ architectural LED troffer 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. Its design makes the CR24 perfect for use in commercial new construction or renovated spaces. The CR24 product family is available in warm, neutral, cool, or daylight color temperatures and has step, 0-10V, or Lutron EcoSystem® Enabled dimming options.

## Performance Summary

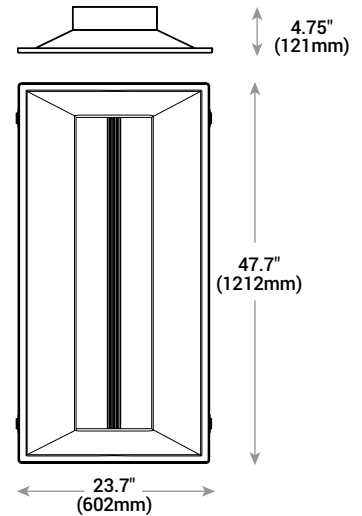
Utilizes Cree TrueWhite® Technology (90 CRI)
Room-Side Heat Sink
<b>Efficacy:</b> 90-130 LPW
<b>Initial Delivered Lumens:</b> 2,200, 3,100, 4,000, 5,000 lumens
<b>Input Power:</b> 22-50 watts
<b>CRI:</b> 90 CRI (Cree TrueWhite® Technology), 80+ CRI
<b>CCT:</b> 3000K, 3500K, 4000K, 5000K
<b>Input Voltage:</b> 120-277 VAC or 347 VAC*
<b>Limited Warranty†:</b> 10 years
<b>Controls:</b> Step Level to 50%, 0-10V Dimming or Lutron EcoSystem Enabled to 5% <sup>1</sup>
<b>Mounting:</b> Recessed*

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

\* Acceptable for use with standard 9/16 T-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications

## Accessories

Field-Installed		
<b>Adjustable Cable</b> ACS 72 PD8 JB ACS 18/4 72 PD8 JB	<b>Junction Box</b> EJBCR 5PK - Expanded size junction box for through wiring (5 pack)	<b>347 Volt</b> CR 347V <b>Step Dimming to 50%</b> CR 347V SD
<b>Chicago Plenum Field Kit</b> CPLCR <b>Chicago Plenum Field Kit-Emergency</b> CPLCR EM	<b>Power Whip</b> PW 18/4 06 9T/SS CR	<b>Surface Mount Kit</b> SMK CR24



NOTE: Use of Expanded Junction Box will expand the depth to 6.67" and Emergency Backup will expand the depth to 6.30". Use of 347V will increase fixture height by 1.4"

## Ordering Information

Example: CR24-40L-40K-10V

CR24	Product	Initial Delivered Lumens	CCT	Voltage	Control	Options
CR24	22L <sup>1</sup> 22W, 2200 lumens – 100 LPW - Only available in 35K or 40K options 31L <sup>1</sup> 34W 3100 lumens – 90 LPW 40L 40W 4000 lumens – 100 LPW 40LHE <sup>1</sup> 30.5W 4000 lumens – 130 LPW (30K) 32W 4000 lumens – 125 LPW (35K) 33W 4000 lumens – 120 LPW (40K) 34.5W 4000 lumens – 115 LPW (50K) 50L <sup>2</sup> 50W 5000 lumens – 100 LPW	30K 3000K 35K 3500K 40K 4000K 50K 5000K	Blank 120-277 Volt 34V 347 Volt - Integrated option available on 40L only. Other types require addition of a 347 accessory kit (see table above)	S Step Dimming to 50% 10V 0-10V Dimming to 5% LES <sup>3</sup> Lutron EcoSystem® Enabled to 5%	HD CRI 80+ (44W 4000 lumens - 90 LPW) - Available only with 40L EB14 <sup>4,5</sup> Emergency Backup - 1400 lumens - Not for use with SMK Kits. Use EB14SMK EB14SMK <sup>4,5</sup> Emergency Backup with surface mount kit - 1400 lumens - Includes surface mount kit accessory (SMK-CR14)	

1. Not available with HD 2. Not available with HD, EB14, EB14SMK 3. Not available in the following options: 22L: 30K or 50K; 31L: All Colors; 40LHE: All Colors 4. Not available in 50L 5. Not available in LES types except 40L LES type  
NOTE: Price adder may apply depending on configuration

Rev. Date: V4 10/28/2015



## Product Specifications

### CREE TRUEWHITE® TECHNOLOGY

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
- Includes t-bar clips and holes for mounting support wires enable recessed or suspended installation
- 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%

### CONTROLS

- Step dimming to 50%\*
- Continuous dimming to 5% with 0-10V DC control protocol\*
- Lutron EcoSystem® Enabled option allows seamless integration with Lutron EcoSystem controls\*

### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for indoor use
- UL924 (EB14 option)
- DLC qualified. 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

\* Reference [www.cree.com/lighting](http://www.cree.com/lighting) for recommended dimming controls and wiring diagrams

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 Projected <sup>2</sup> LMF	75K hr Calculated <sup>3</sup> LMF	100K hr Calculated <sup>3</sup> LMF
0°C (41°F)	22L, 31L, 40L, and 50L	1.05	1.04	1.04	1.04	1.04
	40LHE	1.05	1.01	0.98	0.96	0.94
5°C (41°F)	22L, 31L, 40L, and 50L	1.04	1.03	1.03	1.03	1.03
	40LHE	1.04	1.00	0.97	0.95	0.93
10°C (50°F)	22L, 31L, 40L, and 50L	1.03	1.02	1.02	1.02	1.02
	40LHE	1.03	0.99	0.96	0.94	0.92
15°C (59°F)	22L, 31L, 40L, and 50L	1.02	1.01	1.01	1.01	1.01
	40LHE	1.02	0.98	0.95	0.93	0.91
20°C (68°F)	22L, 31L, 40L, and 50L	1.01	1.00	1.00	1.00	1.00
	40LHE	1.01	0.97	0.95	0.92	0.90
25°C (77°F)	22L, 31L, 40L, and 50L	1.00	0.99	0.99	0.99	0.99
	40LHE	1.00	0.96	0.94	0.91	0.89
30°C (86°F)	22L, 31L, 40L, and 50L	0.99	0.98	0.98	0.98	0.98
	40LHE	0.99	0.95	0.93	0.91	0.89
35°C (95°F)	22L, 31L, 40L, and 50L	0.98	0.97	0.97	0.97	0.97
	40LHE	0.98	0.94	0.92	0.90	0.88
40°C (104°F)	22L, 31L, 40L, and 50L	0.97	0.96	0.96	0.96	0.96
	40LHE	0.97	0.93	0.91	0.89	0.87

<sup>1</sup> Lumen maintenance values at 25°C (77°F) 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)

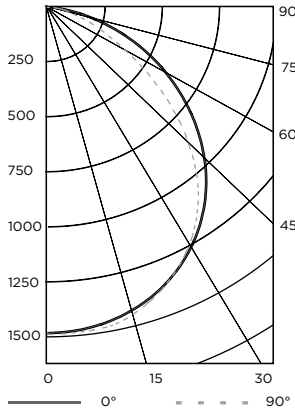
<sup>3</sup> In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip)

CR24™ 2' x 4' Architectural LED Troffer

**Photometry**

**CR24-40L-30K BASED ON LTL REPORT TEST #: 24421**

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%.



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	109	105	101	97
2	100	92	85	79
3	91	80	72	66
4	83	71	63	56
5	76	64	55	48
6	71	57	48	42
7	65	52	43	37
8	61	47	39	33
9	57	43	35	30
10	53	40	32	27

Effective Floor Cavity Reflectance: 20%

Reference [www.cree.com/Lighting/Products/Indoor/Troffers/CR-Series](http://www.cree.com/Lighting/Products/Indoor/Troffers/CR-Series) for detailed photometric data

Average Luminance Table (cd/m²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	1,976	2,116	2,152
55°	1,807	2,018	2,074
65°	1,553	1,889	1,879
75°	1,149	2,348	1,119
85°	424	62	62

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,115	27.9%	27.9%
0-40	1,835	45.9%	45.9%
0-60	3,245	81.1%	81.1%
0-90	4,000	100%	100%
0-180	4,000	100%	100%

**Application Reference**

Based on CR22-40L-30K Luminaire

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average fc
8 x 8	2200L	22W	100	0.35	30
	4000L	40W	100	0.69	54
	4000L	30.5W	125	0.56	54
	5000L	50W	100	0.78	68
8 x 10	2200L	22W	100	0.28	25
	4000L	40W	100	0.55	45
	4000L	30.5W	125	0.45	45
	5000L	50W	100	0.62	57
10 x 10	2200L	22W	100	0.22	21
	4000L	40W	100	0.44	38
	4000L	30.5W	125	0.36	38
	5000L	50W	100	0.50	48
10 x 12	2200L	22W	100	0.19	17
	4000L	40W	100	0.37	30
	4000L	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'

