

# CR Series

CR14™, CR22™, and CR24™ Architectural LED Troffer - Version B

Rev. Date: V3 02/21/2023

## Product Description

The CR Series architectural LED troffers deliver up to 137 lumens per watt of exceptional, indirect lighting, 90 CRI light from 2,030 to 5,070 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 CR Series perfect for use in commercial new construction or renovated spaces. The CR Series product family is available with 0-10V dimming to 1%. The CR Series product family is available in warm, neutral, cool, or daylight color temperatures.

## Performance Summary

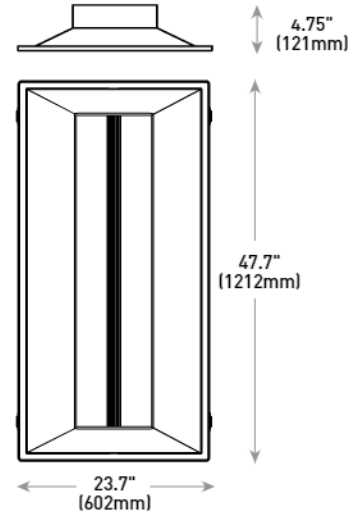
Utilizes Cree TrueWhite™ Technology
Room-Side Heat Sink
<b>Efficacy:</b> Up to 137 LPW
<b>Initial Delivered Lumen:</b> 2,030 - 5,070 lumens
<b>Input Power:</b> 1 - 36 watts
CRI: 90 CRI
CCT: 3000K, 3500K, 4000K, 5000K
<b>Input Voltage:</b> 120-277 VAC
<b>Limited Warranty:</b> 10 years on luminaire; 1 year for luminaire accessories
<b>Controls:</b> 0-10V Dimming to 1%
<b>Mounting:</b> Recessed*; surface or suspended w/surface mount kit accessory
Assembled in the USA by Cree Lighting from US and imported parts

\* See <http://creelighting.com/warranty> for warranty terms  
 \* Acceptable for use with standard 9, 16, 1-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications

## Accessories

Field-Installed		
<b>Adjustable Power Feeds with Cable Support Carriers</b> AC5-72-PD0 JB - Requires use of surface mount kit <b>Adjustable Cable Support Kits</b> AC5-72-PD0 JB - Requires use of surface mount kit <b>1-Bar Clip for Recessed Douglas® Grid</b> CR-1-C - makes the CR troffers compatible with Armstrong XL, USG Dux, 1/2" or U/L 1-5/8" Grids - Allows fixture to hang 1/2" below grid to be flush with ceiling tiles - One required per luminaire - Includes 4 clips and 8 screws	<b>Driver Grid Adapter</b> <a href="#">DGA14-WHT</a> (1x4) <a href="#">DGA24-WHT</a> (2x2) <a href="#">DGA24-WHT</a> (2x4)	<b>Junction Box (5-Pack)</b> <a href="#">EJBCR-5PK</a> - Expanded size junction box for through wiring - Not compatible with CMA control or surface mount kits <b>6' Flexible Power Whip</b> <a href="#">FW-1 W4-06-3T,SS</a> - For use in step dimming and non-dimming applications only <b>Surface Mount Kit</b> <a href="#">SMK-CR14</a> (1x4) <a href="#">SMK-CR22</a> (2x2) <a href="#">SMK-CR24</a> (2x4) - Not compatible with EJBCR-5PK

CR14



**NOTE:** Use of Expanded Junction Box will expand the depth to 6.7" (170mm) and Emergency Backup will expand the depth to 6.4" (163mm).

Refer to page 5 for additional sizes

## Ordering Information

Example: CR24-B-40L-940-UN-V-10V1

CR	B	Version	Lumen Package	CRI/CCT	UN*	10v†
Product	Size	Version	Lumen Package	CRI/CCT	Voltage	Control
CR	14 1x4	B	22L 2,000 Lumens	930 90 CR., 3000K	UNV Universal 120-277V	10V1 0-10V Dimming to 1%
	24 2x4		31L 3,100 Lumens	935 90 CR., 3500K		
	22 2x2		40L 4,000 Lumens	940 90 CR., 4000K		
			50L 5,000 Lumens	950 90 CR., 5000K		
			20L 2,000 Lumens			
			32L 3,200 Lumens			



US: [creelighting.com](http://creelighting.com) (800) 236-6800  
 Canada: [creelighting-canada.com](http://creelighting-canada.com) (800) 473-1334

**CREE LIGHTING**

**Product Specifications**

**CREE TRUEWHITE® TECHNOLOGY**

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an excusive combination of 94+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy - a true no-compromise solution

**CREE LIGHT-TO-LED TECHNOLOGY**

Cree Lighting'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 luminaires 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

Not for installation within 3" (76mm) of insulation

- Includes t-bar clips and holes for mounting support wires (by others)
- May be surface mounted or suspended w/surface mount kit accessory
- 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:** > 90% at full load and 120-240V for 20L, 22L, 31L and 22L
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V, 50/60Hz
- **Operating Temperature Range:** 0°C - +35°C (32°F - +95°F)
- **Total Harmonic Distortion:** < 20% at full load
- **10V Source Current:** 0.2mA

**CONTROLS**

- Continuous dimming to 1% with 0-10V DALI control protocol. For use with Class 1 or Class 2 dimming systems
- Reference <https://creeviden.net/s/nfqgmfchn/0-10v-step-and-ies-10v-0-5-optics-spec-sheet-0-flex-ir-trig-0-5-ls-ur-st-l-us-ws-cu-ku> for recommended dimming controls and wiring diagrams

**REGULATORY & VOLUNTARY QUALIFICATIONS**

- cULus Listed
- Suitable for damp locations and plenum use
- Designed for indoor use only
- Thermally protected Type NON-IC in accordance with Article 410 of the NEC and UL 1598
- Requires minimum 90°C supply conductors
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Assembled in the USA by Cree Lighting from US and imported parts
- Meets Buy American requirements within ARRA
- DLC Premium qualified versions available. Exceptions apply for CR24 w/22L lumen package, CR22 w/20L and CR14 w/22L lumen packages are qualified from 120-240V only. Please refer to <https://qcl.desi-nights.org/sol-d-state-lighting> for most current information

**⚠️ CANCER RESIDUALS WARNING:** Cancer and Reproductive Harm - [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

Ambient	Initial Lumen	25K hr Reported LMF	50K hr Reported LMF	75K hr Estimated LMF	100K hr Estimated LMF
0°C (32°F)	1.04	1.00	0.99	0.97	0.95
5°C (41°F)	1.03	1.00	0.98	0.96	0.94
10°C (50°F)	1.02	0.99	0.97	0.95	0.93
15°C (59°F)	1.02	0.99	0.96	0.95	0.93
20°C (68°F)	1.01	0.99	0.95	0.94	0.92
25°C (77°F)	1.00	0.97	0.95	0.94	0.91
30°C (86°F)	0.99	0.96	0.94	0.93	0.91
35°C (95°F)	0.98	0.95	0.93	0.91	0.90

<sup>1</sup> Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (L.A.F) have been applied to all lumen maintenance factors.  
<sup>2</sup> In accordance with IES TM-21, reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.  
<sup>3</sup> Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

Product/Size	Lumen Package	Initial Delivered Lumens	Efficacy	System Watts 120-277V	Current (A)			
					120V	208V	240V	277V
CR14/CR14	20L	2,750	132	17	0.16	0.09	0.08	0.07
	31L	3,140	137	23	0.22	0.12	0.11	0.09
	40L	4,040	135	30	0.28	0.16	0.14	0.12
	50L	5,070	133	38	0.33	0.20	0.17	0.15
CR22	20L	2,030	127	16	0.16	0.09	0.08	0.07
	31L	3,190	128	25	0.23	0.13	0.11	0.10

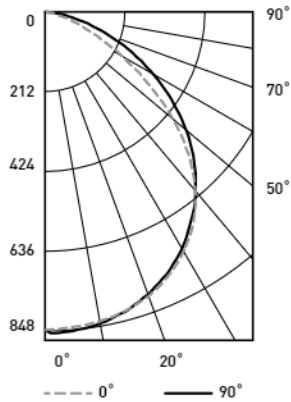
\* Lumen and electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%.



**Photometry**

**CR14-B-22L-930-UNV-10V1 BASED ON RESTL TEST REPORT #: PL1711-001A**

Luminaire photometry has been conducted in accordance with IES LM-79. IES LM-79 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100 %.



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
R <sub>l</sub> %:	70	50	30	10
RCR: 0	119	119	119	119
1	110	101	102	98
2	101	93	87	82
3	92	82	75	69
4	85	73	65	59
5	78	66	57	51
6	72	59	51	45
7	67	54	45	40
8	62	49	41	35
9	58	45	37	32
10	55	42	34	29

Effective Floor Cavity Reflectance: 20%

Reference <http://creelighting.com/products/indoor/troffers/cr-series> for detailed photometric data

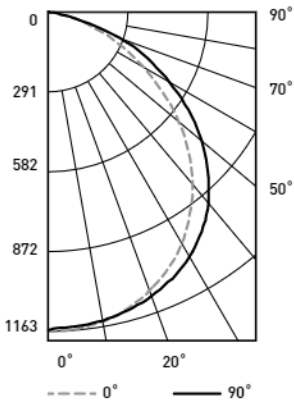
Average Luminance Table (cd/m <sup>2</sup> )			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	2,170	2,176	2,099
55°	1,978	1,887	1,620
65°	1,663	1,343	1,005
75°	1,240	715	552
85°	651	369	428

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	661	N/A	30.4%
0-40	1,086	N/A	49.9%
0-60	1,858	N/A	85.5%
0-90	2,174	N/A	100%
0-180	2,174	N/A	100%

**Photometry**

**CR22-B-32L-930-UNV-10V1 BASED ON RESTL TEST REPORT #: PL16975-001B**

Luminaire photometry has been conducted in accordance with IES LM-79. IES LM-79 specifies the entire luminaire as the source resulting in a luminaire efficiency of 100%.



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
R <sub>l</sub> %:	70	50	30	10
RCR: 0	119	119	119	119
1	110	105	101	98
2	100	92	86	81
3	92	81	74	67
4	84	72	64	57
5	77	65	56	49
6	71	58	50	43
7	66	53	44	38
8	62	48	40	34
9	58	44	36	31
10	54	41	33	28

Effective Floor Cavity Reflectance: 20%

Reference <http://creelighting.com/products/indoor/troffers/cr-series> for detailed photometric data

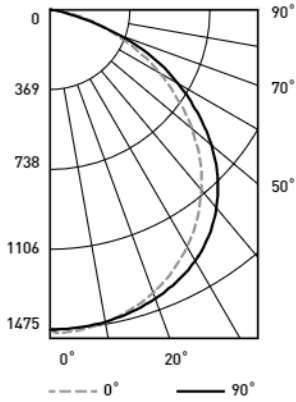
Average Luminance Table (cd/m <sup>2</sup> )			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	2,810	3,053	3,195
55°	2,441	2,829	2,986
65°	1,929	2,360	2,604
75°	1,253	1,663	1,420
85°	286	164	136

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	910	N/A	29.0%
0-40	1,497	N/A	47.7%
0-60	2,616	N/A	83.4%
0-90	3,138	N/A	100%
0-180	3,138	N/A	100%

**Photometry**

**CR24-B-40L-930-UNV-10V1 BASED ON RESTL TEST REPORT #: PL16995-001B**

Luminaire photometry has been conducted in accordance with IES LM-79. IES LM-79 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	110	105	101	97
2	100	92	85	80
3	91	81	73	67
4	83	72	63	56
5	77	64	55	49
6	71	58	49	42
7	66	52	43	37
8	61	47	39	33
9	57	44	35	30
10	53	40	32	27

Effective Floor Cavity Reflectance: 20%

Reference <http://creelighting.com/products/indoor/troffers/cr-series> for detailed photometric data

Average Luminance Table (cd/m²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	1,869	1,999	2,090
55°	1,696	1,879	1,957
65°	1,405	1,639	1,687
75°	973	1,165	824
85°	300	73	79

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,158	N/A	27.8%
0-40	1,920	N/A	46.1%
0-60	3,422	N/A	82.2%
0-90	4,162	N/A	100%
0-180	4,162	N/A	100%

**Application Reference**

1x4 x 2x4 Application Reference

Open Space						
Spacing	Lumen Package	Initial Delivered Lumens	Wattage	LPW	w/ft²	Average fc
8 x 8	22L	2,250	17	132	0.26	32
	31L	3,140	23	137	0.35	45
	40L	4,040	30	135	0.45	58
	50L	5,070	38	133	0.57	73
8 x 10	22L	2,250	17	132	0.21	27
	31L	3,140	23	137	0.29	37
	40L	4,040	30	135	0.38	48
	50L	5,070	38	133	0.48	60
10 x 10	22L	2,250	17	132	0.17	21
	31L	3,140	23	137	0.23	30
	40L	4,040	30	135	0.30	39
	50L	5,070	38	133	0.38	48
10 x 12	22L	2,250	17	132	0.14	17
	31L	3,140	23	137	0.18	24
	40L	4,040	30	135	0.24	31
	50L	5,070	38	133	0.30	39

10' ceiling: 80/50/20 reflectances; 2.5' work plane, open room. LLF: 1.0 initial

Open Space: 10' x 40' x 10

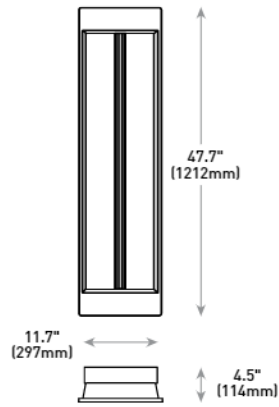
2x2 Application Reference

Open Space							
Spacing	Lumen Package	Initial Delivered Lumens	Wattage	LPW	w/ft²	Average fc	
8 x 8	20L	2,030	16	127	0.24	29	
	32L	3,190	25	128	0.38	46	
8 x 10	20L	2,030	16	127	0.20	24	
	32L	3,190	25	128	0.31	38	
10 x 10	20L	2,030	16	127	0.16	19	
	32L	3,190	25	128	0.25	31	
10 x 12	20L	2,030	16	127	0.13	13	
	32L	3,190	25	128	0.20	25	

10' ceiling: 80/50/20 reflectances; 2.5' workplane, open room. LLF: 1.0 Initial

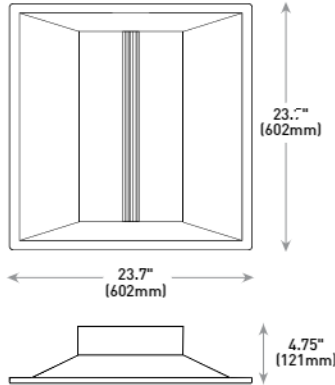
Open Space: 50' x 40' x 10

CR14



**NOTE:** Use of Expanded Junction Box will expand the depth to 6.5" (164mm)

CR22



**NOTE:** Use of Expanded Junction Box will expand the depth to 6.7" (170mm)