

# ZR-C Commercial Series

ZR24™ 2' x 4' Commercial Series LED Troffer with Matte Finish

## Product Description

The ZR-C Commercial Series is a commercial spec-grade LED troffer delivering superior energy efficiency of up to 125 lumens per watt for maximum energy savings. The ZR-C delivers a visually comforting aesthetic with better light distribution enhanced with a soft matte finish housing. The ZR-C Commercial Series comes standard with 80+ CRI color quality, 0-10V dimming down to 5% standard, and a new unique snap and lock room-side removable lens, making it the perfect combination of affordability and performance.

## Performance Summary

<b>Efficacy:</b> 125 LPW
<b>Initial Delivered Lumens:</b> 4,000 lumens
<b>Input Power:</b> 32 watts
<b>CRI:</b> 80+ CRI
<b>CCT:</b> 3000K, 3500K, 4000K, 5000K
<b>Input Voltage:</b> 120-277 VAC
<b>Limited Warranty*:</b> 5 years on luminaire
<b>Limited Warranty Emergency Back Up (EB) Battery:</b> 1 Year on Battery Back Up. Test regularly in accordance with local codes
<b>Controls:</b> 0-10V dimming to 5%
<b>Mounting:</b> Recessed*
Room-side accessible snap and lock removable lens

\* See <http://lighting.cree.com/warranty> for warranty terms

\* Not intended for use with 9/16" T-Bar grids unless used with a 9/16" accessory clip like "Armstrong® LFC - Fixture Clip" which can be purchased through distribution. Consult factory for non-standard grid applications.

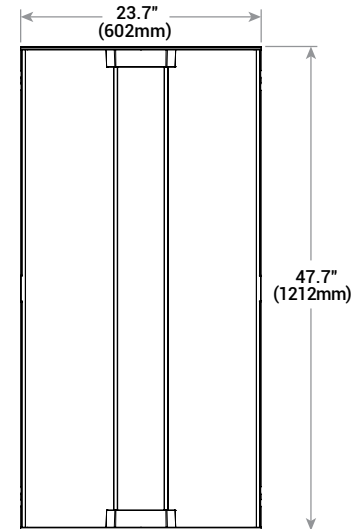
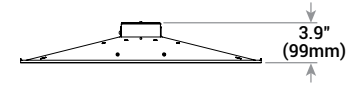
## Accessories

Field-Installed	
<b>Drywall Grid Adapter</b> <a href="#">DGA24-WHT</a>	<b>Wireless 0-10V Dimming/Switching Interface with Cree Smartcast® Technology</b> <a href="#">CIF-10V-CWC-SNSR</a>
<b>Surface Mount Kit</b> <a href="#">SMK-ZR24</a>	- For use with luminaires with 10V controls when integral SmartCast isn't available
- Not for use with EB14 or SmartCast® Technology	<b>Cree SmartCast® Technology Configuration Tool</b> <a href="#">CCT-CWC-1</a>
<b>6' Flexible Power Whip</b> <a href="#">PW-18/4-06-9T/SS</a>	- One required per project when CIF-10V is selected
- For use in non-dimming applications only	<b>Chicago Plenum Field Kit</b> CPLZR
	- Fits all ZR types to be installed in the field

## Ordering Information

Example: ZR24C-40L-35K-10V-FD

ZR24C				10V	FD	
Product	Initial Delivered Lumens	CCT	Voltage	Control	CRI	Options
ZR24C	40L 32W, 4,000 lumens	30K 3000K 35K 3500K 40K 4000K 50K 5000K	Blank 120-277 Volt	10V <a href="#">0-10V</a> dimming to 5%	FD 80+ CRI	<b>EB14 Emergency Backup</b> - 1,400 lumens - Provides 90 minutes of emergency operation



Rev. Date: V1 04/06/2017



## Product Specifications

### CONSTRUCTION & MATERIALS

- Durable 22 ga. cold rolled steel housing provides strength and uniformity
- Ultra-thin 3.9" (99mm) luminaire height and lightweight design effectively target a broad range of plenum spaces and allow for easy installations
- Luminaire is pre-painted for enhanced smooth matte finish
- Includes t-bar clips and holes for mounting support wires (by others)
- Luminaire sides and ends are hemmed in for safe, easy handling
- Includes lens gasket to prevent ingress of insects
- Not for installation within 3" (76mm) of insulation
- Removable lens for easy maintenance and cleaning
- Magnetic lens to prevent dust and bug intrusion

### OPTICAL SYSTEM

- Unique luminaire design creates perfect balance of both horizontal and vertical illumination
- Optimized smooth acrylic lens eliminates pixelation and delivers a low-glare, diffused light distribution

### ELECTRICAL SYSTEM

- **Power Factor:** = 0.9 nominal
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V, 60Hz
- **Operating Temperature Range:** 0°C - + 35°C (32°F - + 95°F)
- **Total Harmonic Distortion:** < 20%; < 22% (EB14)

### CONTROLS

- Continuous dimming to 5% with 0-10V DC control protocol
- **10V Source Current:** 0.25mA
- For use with Class 2 dimming systems only
- Use only lighting controls with neutral connection or controls intended for use with LED fixtures
- Reference [www.creelink.com/exLink.asp?70982140Z58R34I26620963](http://www.creelink.com/exLink.asp?70982140Z58R34I26620963) for recommended dimming controls and wiring diagrams

### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for damp locations
- Designed for indoor use
- UL924 (EB option). Maximum mounting height: 15.0' (4.6m)
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions

Electrical Data*					
Initial Delivered Lumens	System Watts 120-277V	Total Current (A)			
		120V	208V	240V	277V
40L	32	0.25	0.16	0.14	0.12
40L w/EB14 Option	34	0.30	0.18	0.16	0.14

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

Recommended ZR-C Series Lumen Maintenance Factors (LMF) <sup>1</sup>					
Ambient	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 (32°F)	1.04	0.98	0.90	0.83	0.77
5°C (41°F)	1.03	0.97	0.89	0.82	0.76
10°C (50°F)	1.02	0.96	0.89	0.82	0.75
15°C (59°F)	1.01	0.95	0.88	0.81	0.74
20°C (68°F)	1.01	0.95	0.88	0.81	0.74
25°C (77°F)	1.00	0.94	0.87	0.80	0.74
30°C (86°F)	0.99	0.93	0.86	0.79	0.73
35°C (95°F)	0.99	0.93	0.86	0.79	0.73

<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)

## Application Reference

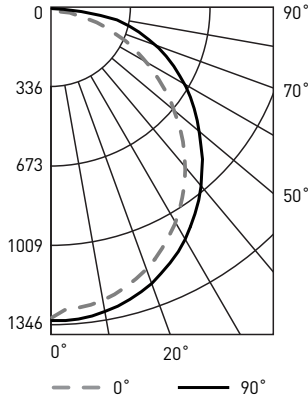
Open Space					
Spacing	Lumens	Wattage	LPW	w/ft <sup>2</sup>	Average fc
8 x 8	4,000	32	125	0.48	57
8 x 10				0.40	47
10 x 10				0.32	38
10 x 12				0.26	30

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

**Photometry**

**ZR24C-40L-30K-10V-FD BASED ON CESTL REPORT TEST #: PL10456-001A**

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				
<b>RC %:</b>	80			
<b>RW %:</b>	70	50	30	10
<b>RCR: 0</b>	119	119	119	119
1	108	103	98	94
2	98	89	82	76
3	89	78	70	63
4	81	69	60	53
5	75	62	53	46
6	69	56	46	40
7	64	50	41	35
8	60	46	37	31
9	56	42	34	28
10	52	39	31	26

Effective Floor Cavity Reflectance: 20%

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,028	N/A	26.6%
0-40	1,676	N/A	43.4%
0-60	2,940	N/A	76.1%
0-90	3,864	N/A	100%
0-180	3,864	N/A	100%

Average Luminance Table (cd/m <sup>2</sup> )				
		Horizontal Angle		
		0°	45°	90°
Vertical Angle	45°	7,658	8,232	8,658
	55°	7,051	7,940	8,712
	65°	6,324	7,911	9,175
	75°	5,218	8,331	10,039
	85°	3,574	9,654	9,878

Reference <http://lighting.cree.com/products/indoor/troffers/zr-series> for detailed photometric data

