# **ZR Series**

7R24™ 2' x 4' L FD Troffer

# **Product Description**

The ZR24™ LED troffer delivers up to 5000 lumens of superior 90 CRI light quality and is perfect for both new construction and renovation. Powered by Cree TrueWhite® Technology, the slim and lightweight ZR24™ LED troffer boasts an efficacious 90-111 LPW performance along with 0-10V dimming to meet local energy  $codes.\ The\ ZR24^{\intercal M}\ LED\ troffer\ embodies\ a\ breakthrough\ in\ balancing\ energy\ savings,\ visual\ comfort\ and$ initial cost.

## **Performance Summary**

Utilizes Cree TrueWhite® Technology (90 CRI) or available in 80 CRI (FD)

Efficacy: 90-111 LPW

Initial Delivered Lumens: 4,000 or 5,000 lumens

Input Power: 44-45 watts

CRI: 90 CRI (Cree TrueWhite® Technology), 80+ CRI (FD)

**CCT:** 3500K, 4000K, 5000K

Input Voltage: 120-277 VAC or 347 VAC Limited Warranty\*: 10 years on luminaire

Limited Warranty Emergency Back Up (EB) Battery: 1 Year on Battery Back Up. Test regularly in

accordance with local codes

Controls: 0-10V dimming to 5%

Mounting: Recessed\*

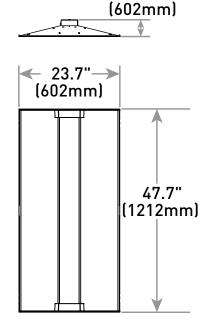
#### **Accessories**

Field-Installed **Drywall Grid Adapter** Wireless 0-10V Dimming/Switching Interface with Cree Smartcast® Technology 6A24-WH7 Surface Mount Kit - For use with luminaires with 10V controls when integral SmartCast isn't available SMK-ZR24 Cree SmartCast® Technology Configuration Tool - Not for use with EB14 or SmartCast® Technology - One required per project when CIF-10V is selected 6' Flexible Power Whip Chicago Plenum Field Kit PW-18/4-06-9T/SS

- Fits all ZR types to be installed in the field



3.9"



# **Ordering Information**

Example: ZR24-40L-35K-10V

ZR24				10V	
Product	Initial Delivered Lumens	сст	Voltage	Control	Options
ZR24	40L 44W, 4,000 Lumens 50L 45W, 5,000 Lumens - Available with FD option only	35K 3500K - Available with 40L only 40K 4000K 50K 5000K - Available with 50L only	Blank 120-277 Volt 34 347 Volt - Available with 40L only	10V 0-10V dimming to 5%	EB14 Emergency Backup - 1,400 Lumens - Available on US versions only - Provides 90 minutes of emergency operation  FD - Must order when 50L is selected - 80 CRI









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<sup>\*</sup>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.

# **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.

#### **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
- · Luminaire is pre-painted for enhanced smooth 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

#### **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**

- Cree born components including highly efficacious Cree® LED chips along with an integral high-efficiency Cree® driver
- Power Factor: = 0.9 nominal
- Input Power: Stays constant over life Input Voltage: 120-277V or 347V, 60Hz
- Operating Temperature Range: 0°C + 35°C (32°F + 95°F)
- Total Harmonic Distortion: <20%</li>

# 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 relay or FET-based outputs, or lighting controls with neutral connection
- Reference www.creelink.com/exLink.asp?70982140Z58R34I26620963 for recommended dimming controls and wiring diagrams

# **REGULATORY & VOLUNTARY QUALIFICATIONS**

cULus Listed

US: lighting.cree.com

- Suitable for damp locations
- · Designed for indoor use
- UL924 (EB option). Maximum mounting height: 15.0' (4.6m)
- DLC qualified. Please refer to www.designlights.org/QPL for most current information
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions

Electrical Data*						
Initial	System	Total Current (A)				
Delivered Lumens	Watts 120-347V	120V	208V	240V	277V	347V
40L	44	0.38	0.26	0.23	0.17	0.14
40L w/EB14 Option	46	0.38	0.27	0.24	0.17	N/A
50L	45	0.38	0.27	0.23	0.17	N/A
50L w/EB14 Option	48	0.41	0.28	0.25	0.19	N/A

<sup>\*</sup> Electrical data at  $25^{\circ}$ C (77°F). Actual wattage may differ by +/- 10% when operating between 120-347V +/- 10%

Recommend	Recommended ZR 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 Calculated³ LMF	100K hr Calculated³ LMF			
0°C (32°F)	1.04	1.04	1.04	1.04	1.04			
5°C (41°F)	1.03	1.03	1.03	1.03	1.03			
10°C (50°F)	1.02	1.02	1.02	1.02	1.02			
15°C (59°F)	1.02	1.02	1.02	1.02	1.02			
20°C (68°F)	1.01	1.01	1.01	1.01	1.01			
25°C (77°F)	1.00	1.00	1.00	1.00	1.00			
30°C (86°F)	0.99	0.99	0.99	0.99	0.99			
35°C (95°F)	0.98	0.98	0.98	0.98	0.98			

Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing 2 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)

# **Application Reference**

Open Space						
Spacing	Initial Delivered Lumens	Lumens	Wattage	LPW	w/ft²	Average fc
8 x 8	40L	4,000	44	91	0.66	56
8 X 8	50L	5,000	45	111	0.68	69
8 x 10	40L	4,000	44	91	0.55	46
8 X 10	50L	5,000	45	111	0.56	57
10 10	40L	4,000	44	91	0.44	37
10 x 10	50L	5,000	45	111	0.45	46
10 x 12	40L	4,000	44	91	0.35	30
10 x 12	50L	5,000	45	111	0.36	37

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

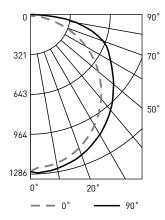
Canada: www.cree.com/canada

an 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**

#### ZR24-40L-40K BASED ON DTC REPORT TEST #: 14938-G

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	107	102	97	93		
2	97	88	80	74		
3	88	76	68	61		
4	80	67	58	51		
5	73	60	50	43		
6	68	54	44	38		
7	63	49	40	33		
8	58	44	36	29		
9	55	41	32	26		
10	51	37	29	24		

Effective	Floor	Cavity	Reflectance: 20%

Zonal Lumen Summary						
Zone	Lumens	% Lamp	Luminaire			
0-30	990	N/A	24.4%			
0-40	1,628	N/A	40.1%			
0-60	2,949	N/A	72.6%			
0-90	4,064	N/A	100%			
0-180	4,064	N/A	100%			

Average Luminance Table (cd/m²)							
	Horizontal Angle						
		0°	45°	90°			
Vertical Angle	45°	1,642	1,772	1,899			
	55°	1,580	1,788	2014			
	65°	1,480	1,885	2,341			
	75°	1,276	2,240	2,819			
	85°	952	2,498	3,203			

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

