

# ZR-FD High Efficiency Series with Cree SmartCast® Technology

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

## Product Description

The ZR-FD High Efficiency Series with SmartCast® Technology is a commercial spec-grade LED troffer delivering superior energy efficiency of up to 130 lumens per watt for maximum energy savings. But stellar lumen-per-watt performance is just the beginning: the ZR-FD High Efficiency Series with SmartCast® Technology also provides a matte finished housing for less glare and better light distribution, standard dimming to 5% and 80+ CRI — all in a package with a price as attractive as it looks. Cree SmartCast® Technology products incorporate integrated ambient and occupancy sensing and wireless communication to achieve energy savings and extended product life, resulting in lower electricity bills, reduced maintenance and an improved total cost of ownership over traditional lighting control systems.

## Performance Summary

<b>Efficacy:</b> 130 LPW
<b>Initial Delivered Lumens:</b> 4,000 lumens
<b>Input Power:</b> 30 watts
<b>CRI:</b> 80+ CRI
<b>CCT:</b> 3500K, 4000K
<b>Input Voltage:</b> 120-277 VAC
<b>Limited Warranty*:</b> 10 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> Cree SmartCast® Technology
<b>Mounting:</b> Recessed*

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

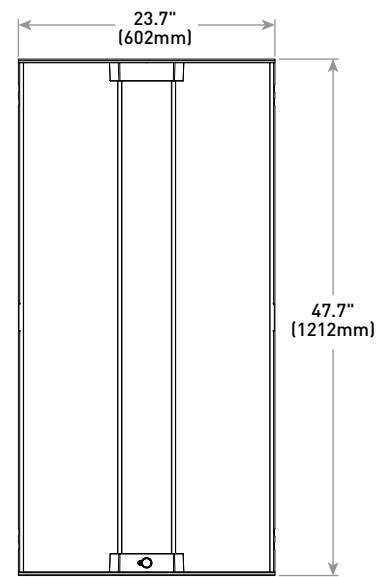
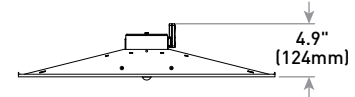
\* Not intended for use with 9/16" T-Bar grids unless used with a 9/16" accessory clip like "Armstrong® LFC- Fixture Clip" which can be purchased through distribution. Consult factory for non-standard grid applications.

## Accessories

Field-Installed	
<b>Drywall Grid Adapter</b> <a href="#">DGA24-WHT</a>	<b>Cree SmartCast® Technology Face Plates†</b> CFP-1-WH - Matching Cree face plate, 1-gang, white CFP-2-WH - Matching Cree face plate, 2-gang, white CFP-3-WH - Matching Cree face plate, 3-gang, white
<b>6' Flexible Power Whip</b> <a href="#">PW-18/4-06-9T/SS</a>	<b>Cree SmartCast® Technology Wireless Dimmer†</b> CWD-CWC-WH
<b>Cree SmartCast® Technology Configuration Tool</b> <a href="#">CCT-CWC-1</a> - One required per project when CMA control is selected	<b>Cree SmartCast® Technology Wireless Switch†</b> CWS-CWC-WH

† Refer to the [Wireless Dimmer Smartcast Control spec sheet](#) for more details

**NOTE:** Not compatible with SMK surface mount kits



## Ordering Information

Example: ZR24M-40L-35K-CMA-FD

ZR24M	40L			CMA	FD	
Product	Initial Delivered Lumens	CCT	Voltage	Control	CRI	Options
ZR24M	40L 30W, 4,000 lumens	35K 3500K 40K 4000K	Blank 120-277 Volt	<b>CMA Cree SmartCast® Technology</b> - Integral motion and ambient sensors and wireless communication	FD 80+ CRI	<b>EB14 Emergency Backup</b> - 1,400 lumens - Available on US versions only - Provides 90 minutes of emergency operation



US: [lighting.cree.com](http://lighting.cree.com)



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**CREE**  
SMARTCAST® TECHNOLOGY

Rev. Date: V1 03/22/2017

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## Product Specifications

### CREE SMARTCAST® TECHNOLOGY

Cree SmartCast® Technology is the most intuitive and easiest to install intelligent light solution on the market. SmartCast Technology delivers up to 70% energy savings at up to half the cost of other solutions. Luminaires combine best-in-class light with onboard sensors and intelligence to deliver a better light experience. Extreme energy productivity, code compliance and a better light experience without any extra design, installation or setup work.

### CONSTRUCTION & MATERIALS

- Durable 22 ga. cold rolled steel housing provides strength and uniformity
- Ultra-thin 4.9" (125mm) 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

### 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, 60Hz
- **Operating Temperature Range:** 0°C - + 35°C [32°F - + 95°F]
- **Total Harmonic Distortion:** <20%
- **Dimming:** 5%-100%

### 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
- DLC Premium qualified. Please refer to [www.designlights.org/QPL](http://www.designlights.org/QPL) for most current information

## Cree SmartCast® Technology

### INTEGRAL MOTION SENSOR

- Passive infrared (PIR)
- **Coverage area:** 100 sq. ft. (30.5m<sup>2</sup>) at 10 ft. (3.0m) mounting height
- Not intended to be mounted higher than 12 ft. (3.7m)
- **Operation:**
  - Grouped with a wall control: Luminaire will operate in vacancy mode (manual-on/auto-off)
  - Not grouped with a wall control: Luminaire will operate in occupancy mode (auto-on/auto-off)
- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool

### AMBIENT LIGHT SENSOR

- Sensor response matches response of human eye
- Not intended to be mounted higher than 12 ft. (3.7m)
- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool
- Daylight harvesting calibration performed automatically during OneButton™ Setup

### INTEGRAL WIRELESS COMMUNICATION

- 2.4GHz wireless mesh technology with AES 128-bit encryption
- Self assigns to quietest channel during OneButton™ Setup
- **Range:**
  - 30 ft. (9.1m) in typical commercial applications
  - 300 ft. (91.4m) open air without obstructions
- **Network:** 250 devices max.
- **Space:** 100 devices max. per group
- FCC certified
- IC certified

### LUMINAIRE

- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool
- 10 year power fail memory of settings

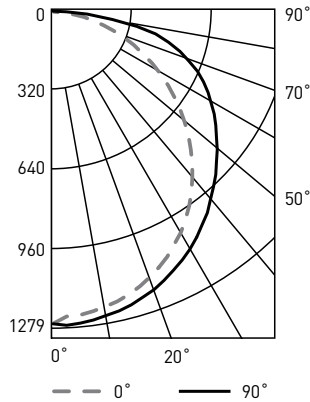
### DEPLOYMENT

- Please refer to the SmartCast® Deployment Guide at <https://www.creelink.com/exLink.asp?236135640H88E44139771048>

**Photometry**

**ZR24M-40L-35K-10V-FD BASED ON CREE REPORT TEST #: PL08597-001A**

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	107	102	97	93
2	97	88	80	74
3	88	77	68	61
4	80	68	58	51
5	74	60	51	44
6	68	54	45	38
7	63	49	40	33
8	58	45	36	30
9	55	41	32	27
10	51	38	30	24

Effective Floor Cavity Reflectance: 20%

Average Luminance Table (cd/m²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	8,599	9,555	10,144
55°	8,049	9,722	10,786
65°	7,337	10,403	12,237
75°	6,282	11,927	14,461
85°	4,863	12,944	12,467

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	985	N/A	24.6%
0-40	1,620	N/A	40.4%
0-60	2,928	N/A	73.0%
0-90	4,010	N/A	100%
0-180	4,010	N/A	100%

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

Electrical Data*					
Initial Delivered Lumens	System Watts 120-277V	Total Current (A)			
		120V	208V	240V	277V
40L	30	0.25	0.16	0.14	0.12
40L w/EB14 Option	33	0.28	0.18	0.15	0.13

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

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 Calculated <sup>3</sup> LMF	100K hr Calculated <sup>3</sup> 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

<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/ft²	Average fc
8 x 8	4,000	30	133	0.45	55
8 x 10				0.38	46
10 x 10				0.30	37
10 x 12				0.24	29

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

