

ZR24RK Series Retrofit Kit with Cree SmartCast® Technology

ZR24RK 2' x 4' LED Troffer Retrofit Kit with Matte Finish

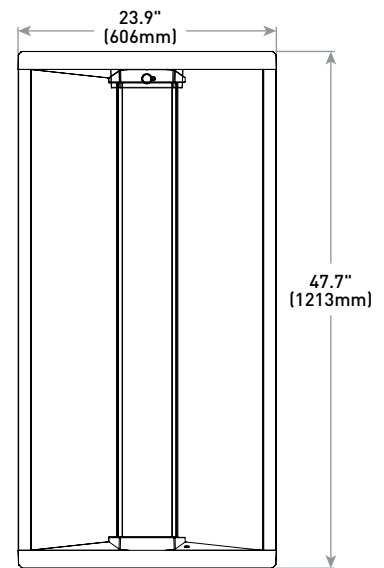
Product Description

The ZR-RK Series delivers superior energy efficiency of up to 132 lumens per watt, at 80+ CRI, for maximum energy savings and even more with Cree's revolutionary Smartcast® Technology. While some LED retrofit products replace only the source and leave the fluorescent optic and aesthetic unchanged, the ZR-RK retrofit completes the transformation: the old housing is concealed beneath an appealing new look and LED-optimized optic, while leaving the plenum undisturbed. Optimized for installation in under four minutes, the ZR-RK retrofit delivers maximum improvement for minimum effort. The ZR-RK retrofit is compatible with most existing 2'x4' and 2'x2' recessed troffers with a minimum housing depth of 3 inches. The ZR-RK retrofit features a matte finished housing for less glare and better light distribution, along with Cree's energy saving SmartCast® technology which enables occupancy sensing, daylight harvesting, and dimming to 5%- all in a package with price as attractive as it looks.

Performance Summary

Efficacy: Up to 132 LPW
Initial Delivered Lumens: 4,000 or 5,000 lumens
Input Power: 32-40 watts
CRI: 80+ CRI
CCT: 3000K (40L), 3500K, 4000K
Input Voltage: 120-277 VAC
Limited Warranty¹: 5 years on luminaire
Limited Warranty Emergency Back Up (EB) Battery: 1 Year on Battery Back Up. Test regularly in accordance with local codes
Controls: Cree SmartCast® Technology
Mounting: Existing Fluorescent Prismatic and Parabolic Troffer Pans Using NEMA® 9/16" or 15/16" T-Bar Ceiling Grid*

* 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



Ordering Information

Example: ZR24RK-40L-35K-CMA-FD

ZR24RK				10V	FD	
Product	Lumen Package*	CCT	Voltage	Control	CRI	Options
ZR24RK	40L 32W, 4,000 lumens 50L 40W, 5,000 lumens	30K 3000K - Available with 40L only 35K 3500K 40K 4000K	Blank 120-277 Volt	CMA Cree SmartCast® Technology - Integral motion and ambient sensors and wireless communication	FD 80+ CRI	EB Emergency Backup - 1,000 lumens - Provides 90 minutes of emergency operation

* Refer to Electrical Data & Initial Delivered Lumens table for lumen values



Rev. Date: V1 10/26/2017

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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 frame provides strength and uniformity
- Frame is post-painted for enhanced smooth matte finish
- End caps are UV stabilized polycarbonate
- Fits into existing fluorescent prismatic and parabolic troffer pans using NEMA® 9/16" or 15/16" T-Bar ceiling grid
- 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 at full load
- **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%; < 30% (EB option)

REGULATORY & VOLUNTARY QUALIFICATIONS

- UL1598C (Retrofit Kit)
- This product is cULus Classified for use in existing 2x4 recessed troffers using NEMA® 9/16" or 15/16" T-Bar ceiling grid. 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
- Suitable for damp locations
- Designed for indoor use
- Products with the -EB suffix are provided with a factory-installed emergency lighting LED battery pack and are eligible to serve as part of a facility's emergency lighting system in accordance with ANSI/NFPA 101 and Article 700 of ANSI/NFPA 70. 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 <https://www.designlights.org/search/> for most current information

Cree SmartCast® Technology

INTEGRAL MOTION SENSOR

- Passive infrared (PIR)
- **Coverage area:** 100 sq. ft. (30.5m²) 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>

KIT CONTAINS THE FOLLOWING PARTS:

Main Assembly



End Cap



Side Panel



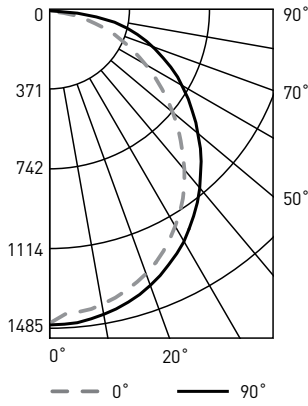
Lens



Photometry

ZR24RK-40L-30K-10V-FD BASED ON CESTL REPORT TEST #: PL10258-001A

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				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	108	103	99	94
2	98	89	82	76
3	89	78	70	63
4	82	69	60	54
5	75	62	53	46
6	69	56	47	40
7	64	51	42	36
8	60	46	38	32
9	56	42	34	29
10	52	39	31	26

Average Luminance Table (cd/m ²)				
Vertical Angle	Horizontal Angle			
	0°	45°	90°	
45°	8,579	9,332	9,914	
55°	7,809	8,943	9,940	
65°	6,883	8,792	10,336	
75°	5,777	9,036	11,451	
85°	4,416	9,541	10,088	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,131	N/A	27.0%
0-40	1,839	N/A	43.9%
0-60	3,212	N/A	76.6%
0-90	4,193	N/A	100%
0-180	4,193	N/A	100%

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

Effective Floor Cavity Reflectance: 20%

Electrical Data & Initial Delivered Lumens*								
Lumen Package	CCT	Initial Delivered Lumens	System Watts 120-277V	Efficacy (LPW)	Total Current (A)			
					120V	208V	240V	277V
40L	30K	3,913	32	122	0.27	0.15	0.13	0.12
	35K	4,100		128				
	40K	4,224		132				
40L w/EB	30K	3,913	36	109	0.31	0.17	0.15	0.14
	35K	4,100		114				
	40K	4,224		117				
50L	35K	5,050	40	126	0.35	0.19	0.17	0.15
	40K	5,203		130				
50L w/EB	35K	5,050	45	112	0.38	0.22	0.19	0.17
	40K	5,203		116				

* Data provided at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%. Actual production yield may vary between -10 and +10% of initial delivered lumens

Recommended ZR-RK Series Lumen Maintenance Factors (LMF) ¹						
Ambient	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Calculated ³ LMF	100K hr Calculated ³ LMF	
0°C (32°F)	1.04	0.99	0.92	0.85	0.79	
5°C (41°F)	1.03	0.98	0.91	0.85	0.79	
10°C (50°F)	1.02	0.97	0.90	0.84	0.78	
15°C (59°F)	1.01	0.96	0.89	0.83	0.77	
20°C (68°F)	1.01	0.96	0.89	0.83	0.77	
25°C (77°F)	1.00	0.95	0.88	0.82	0.76	
30°C (86°F)	0.99	0.94	0.88	0.81	0.76	
35°C (95°F)	0.99	0.94	0.88	0.81	0.76	

¹ 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)
³ 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 ²	Average fc
8 x 8	4,100	32	128	0.48	58
8 x 10				0.40	49
10 x 10				0.32	39
10 x 12				0.26	31

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

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