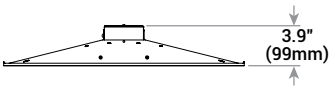
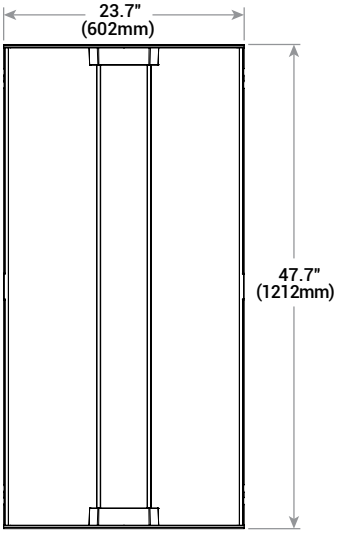
ZR-FD High Efficiency Series

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

Product Description

The ZR-FD High Efficiency Series 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 also provides a matte finished housing for less glare and better light distribution, standard 0 to 10V dimming to 5% and 80+ CRI — all in a package with a price as attractive as it looks.





Performance Summary

Efficacy: 130 LPW

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

Input Power: 30-38 watts

CRI: 80+ CRI

CCT: 3500K, 4000K, 5000K

Input Voltage: 120-277 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*

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

Ordering Information

Example: ZR24M-40L-35K-10V-FD

ZR24M				10V	FD	
Product	**Initial Delivered Lumens**	**CCT**	**Voltage**	**Control**	**CRI**	**Options**
ZR24M	**40L** 30W, 4,000 lumens **50L** 38W, 5,000 lumens	**35K** 3500K - Available with 40L only **40K** 4000K **50K** 5000K - Available with 50L only	**Blank** 120-277 Volt	**10V** 0-10V dimming to 5%	**FD** 80+ CRI	**EB14 Emergency Backup** - 1,400 lumens - Provides 90 minutes of emergency operation

Rev. Date: V7 03/15/2018

US: lighting.cree.com T (800) 236-6800 F (262) 504-5415
Canada: www.cree.com/canada T (800) 473-1234 F (800) 890-7507

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

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%

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?7098214OZ58R34I26620963 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
- DLC Premium qualified. Please refer to www.designlights.org/QPL for most current information

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
50L	38	0.32	0.18	0.16	0.14
50L w/EB14 Option	43	0.36	0.21	0.18	0.16

* 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)[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	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

[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

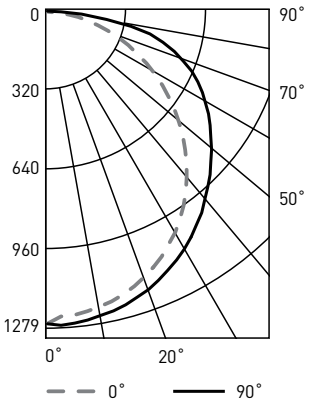
Spacing	Lumens	Wattage	LPW	w/ft²	Average fc
8 x 8	4,000	30	133	0.45	55
8 x 10				0.38	46
10 x 10				0.30	37
10 x 12				0.24	29

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

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				
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	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%

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%

Average Luminance Table (cd/m²)				
	Horizontal Angle			
Vertical 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

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

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