

ZR High Efficiency Series

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

Product Description

The ZR 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 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 lumens |
| Input Power: 30 watts |
| CRI: 80+ CRI |
| CCT: 3500K, 4000K |
| Input Voltage: 120-277 VAC |
| Limited Warranty*: 10 years |
| Controls: 0-10V dimming to 5% |
| Mounting: Recessed* |

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

* Acceptable for use with standard 9/16 T-Bar or larger when installed per installation instructions. Consult factory for non-standard grid applications

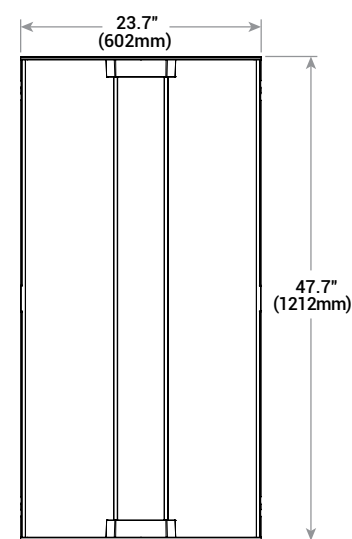
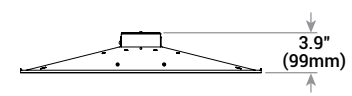
Accessories

| Field-Installed | |
|---|--|
| Drywall Grid Adapter DGA24-WHT | Wireless 0-10V Dimming/Switching Interface with Cree Smartcast® Technology CIF-10V |
| Surface Mount Kit SMK-ZR24 | - For use with luminaires with 10V controls when integral SmartCast isn't available |
| - Not for use with EB14 | Cree SmartCast® Technology Configuration Tool CCT-CWC-1 |
| 6' Flexible Power Whip PW-18/4-06-9T-SS | - One required per project when CIF-10V is selected |

Ordering Information

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

| ZR24M | 40L | | | 10V | FD | |
|---------|------------------------------------|------------------------------|-----------------------|--|---------------|--|
| Product | Initial Delivered Lumens | CCT | Voltage | Control | CRI | Options |
| ZR24M | 40L 30W, 4,000 lumens – 130 LPW | 35K 3500K 40K 4000K | Blank 120-277 volt | 10V 0-10V dimming to 5% | FD 80+ CRI | EB14 Emergency Backup - 1,400 lumens - Available on US versions only - Provides 90 minutes of emergency operation |



Rev. Date: V2 08/29/2016



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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, 50/60Hz
- **Operating Temperature Range:** 0°C - + 35°C (32°F - + 95°F)
- **Total Harmonic Distortion:** <20%
- **10V Source Current:** 0.25mA

CONTROLS

- Continuous dimming to 5% with 0-10V DC control protocol
- For use with Class 2 dimming systems only. Reference 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)
- 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/OPL for most current information

| Electrical Data* | | | | | |
|--------------------------|-----------------------|---------------|------|------|------|
| Initial Delivered Lumens | System Watts 120-277V | Total Current | | | |
| | | 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) ¹ | | | | | |
|--|-------------|-----------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Ambient | Initial LMF | 25K hr Projected ² LMF | 50K hr Calculated ³ LMF | 75K hr Calculated ³ LMF | 100K hr Calculated ³ LMF |
| 0°C (32°F) | 1.04 | 1.04 | 1.03 | 1.03 | 1.03 |
| 5°C (41°F) | 1.03 | 1.03 | 1.02 | 1.02 | 1.02 |
| 10°C (50°F) | 1.02 | 1.02 | 1.01 | 1.01 | 1.01 |
| 15°C (59°F) | 1.02 | 1.02 | 1.01 | 1.01 | 1.01 |
| 20°C (68°F) | 1.01 | 1.01 | 1.00 | 1.00 | 1.00 |
| 25°C (77°F) | 1.00 | 1.00 | 0.99 | 0.99 | 0.99 |
| 30°C (86°F) | 0.99 | 0.99 | 0.98 | 0.98 | 0.98 |
| 35°C (95°F) | 0.98 | 0.98 | 0.97 | 0.97 | 0.97 |

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 (IDUT) 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 (IDUT) i.e. the packaged LED chip

Application Reference

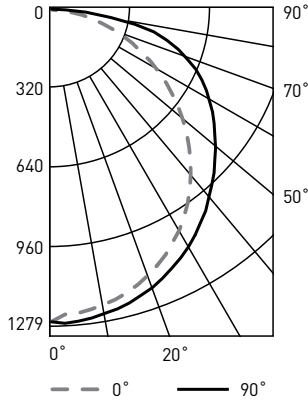
| Open Space | | | | | |
|------------|--------|---------|-----|-------------------|------------|
| Spacing | Lumens | Wattage | LPW | w/ft ² | Average fc |
| 8 x 8 | 4,000 | 30 | 133 | 0.45 | 55 |
| 8 x 10 | | | | 0.38 | 46 |
| 10 x 10 | | | | 0.30 | 37 |
| 10 x 12 | | | | 0.24 | 29 |

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/m ²) | | | |
|--|------------------|--------|--------|
| Vertical Angle | Horizontal Angle | | |
| | 0° | 45° | 90° |
| | 45° | 8,599 | 9,555 |
| 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 lighting.cree.com/products/indoor/troffers/zr-series for detailed photometric data