

ZRRK Series

ZRRK™ LED Retrofit Troffer Kit

Rev. Date: V9 07/12/2024

Product Description

The ZRRK™ LED Retrofit Troffer Kit provides energy productivity and code compliance – all with installation that's so intuitive and simple. The ZRRK Series delivers from 2,030 to 8,300 lumens and 85 CRI quality light and is perfect for both retrofit and renovation. Available with 0-10V dimming or SmartCast Technology, which incorporates integrated ambient and occupancy sensing and wireless communication resulting in lower electricity bills, reduced maintenance and an improved total cost of ownership over traditional lighting control systems. The ZRRK™ LED Retrofit Troffer Kit installs into most existing fluorescent troffers, with a 3 part doorkit design that snaps and locks into place for quick and easy upgrading.

Performance Summary

Efficacy: Up to 141 LPW

Initial Delivered Lumens: 2,030 to 8,300

Input Power: 15W-60W

CRI: 85 CRI*

CCT: 3000K, 3500K, 4000K, 5000K

Input Voltage: 120-277 VAC, 347VAC

Limited Warranty†: 5 years for retrofit kit; 5 years for SmartCast® controls; up to 5 years for SmartCast® accessories

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

Controls: 0-10V, SmartCast Wireless

Mounting: Existing Fluorescent Prismatic and Parabolic Troffer Pans Using NEMA® 9/16" or 15/16" T-Bar Ceiling Grid**

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

* CRI can vary +/-5% depending on CCT.

** Consult factory for non-standard grid applications.

Accessories

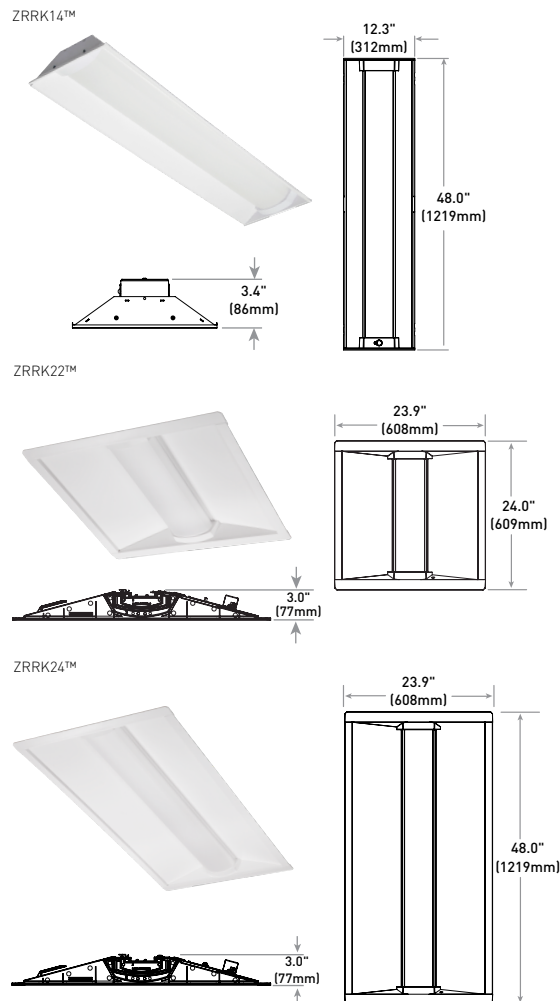
Field-Installed		
SmartCast® Technology Configuration Tool CCT-CWC-1 - One required per project when SC1 control is selected	SmartCast® Technology Wireless Dimmer CSC-CWD-UNVN-WH (neutral wire required) CSC-CWD-UNV-WH (no neutral required)	SmartCast® Technology Wireless Plug Load Controller CPLC-JB-CWC SmartCast® 10V Zone Controller CSC-ZC-10V-CWC - Intelligent sensing and control of 0-10V luminaires
SmartCast® Technology Face Plates CFP-1-WH - Matching face plate, 1-gang, white CFP-2-WH - Matching face plate, 2-gang, white	SmartCast® Technology Wireless Switch CSC-CWS-UNVN-WH (neutral wire required) CSC-CWS-UNV-WH (no neutral required) SmartCast® 5-Button Wireless Scene Controller CSC-SC-5B-CWC-WH (w/o text) CSC-SC-5S-CWC-WH (w/scene text) CSC-SC-5X-CWC-WH (w/custom text)	

Ordering Information

Example: ZRRK24-60L-835-10V5-UNV

ZRRK									
Series	Size	Lumen Package		CRI/CCT	Lens	Control	Voltage	Factory Installed Options*	
ZRRK	14	30L	50L	830 85 CRI, 3000K 835 85 CRI, 3500K 840 85 CRI, 4000K - Available with all lumen packages except 1x4 and 2x4 with 50L 850 85 CRI, 5000K	Blank ZR Curve	10V5 - 0-10V 5% Dimming SC1 - SmartCast Wireless Technology with 1% Dimming. - Integral motion and ambient sensors	UNV - Universal 120-277V 34 - 347V (120-347V) - Available only with 10V5 control	EB	Emergency Backup - Available with UNV voltage only - Provides 90 minutes of emergency operation
		3,100 Lumens	5,100 Lumens						
		40L	60L						
	22	4,100 Lumens	6,325 Lumens						
		20L	40L						
		2,030 Lumens	4,070 Lumens						
	24	30L	60L						
		3,110 Lumens	6,325 Lumens						
		40L	80L						
		4,130 Lumens	8,300 Lumens						
		50L	5,100 Lumens						

*Consult factory for other options.



Product Specifications

SMARTCAST® TECHNOLOGY

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 fixture height [3.0" [77mm] on 2x2 and 2x4 and 3.4" [86mm] on 1x4] and lightweight design effectively target a broad range of plenum spaces and allow for easy installations
- Luminaire is pre-painted for enhanced smooth finish
- Luminaire sides and ends are hemmed in for safe, easy handling
- **Weight:** ZRRK14 - 9.5 lbs. (4.3kg); ZRRK22 - 10.1 lbs. (4.6kg); ZRRK24 - 14.6 lbs. (6.6kg)


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 nominal
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277V, 347V, 60Hz
- **Operating Temperature Range:** 0°C - + 35°C [32°F - + 95°F]
- **Total Harmonic Distortion:** <20%
- **Dimming:** 1%-100% (Varies by control)

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Classified (UL1598C)
- Suitable for damp locations
- Designed for indoor use only
- Suitable for installation in 1x4, 2x2, and 2x4 recessed troffer that uses NEMA® 9/16" or 15/16" T-Bar ceiling grid. Minimum internal pan size of existing pan is: 1' x 4' - 48.00" (1219 mm) x 12.28" (312 mm) x 3.43" (87 mm) high; 2' x 2' - 24.00" (609 mm) x 23.90" (607 mm) x 3.03" (77 mm) high; 2x4 - 47.5" (1219 mm) x 23.5" (607 mm) x 3" (77 mm)
- 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 limits for conducted and radiated emissions
-  **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

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 and IC Certifications

LUMINAIRE

- Luminaires operate at full intensity until OneButton™ Setup is initiated by the Cree Configuration Tool
- 10 year power fail memory of settings
- **NOTE:** SmartCast luminaires must be installed on unswitched AC power. Constant power is required to maintain all luminaires on the SmartCast network. If wall control or manual dimming is required, a SmartCast wall control dimmer must be used for manual on, off, and dimming.

DEPLOYMENT

- Please refer to the SmartCast® Deployment Guide at <https://cree.widen.net/s/mvxtfd2pcz/smartcastr-wireless-deployment-guide>

Delivered Lumens & Electrical Data*									
Size	Lumen Package	Initial Delivered Lumens	System Watts 120-347V**	Total Current (A)					
				120V	208V	240V	277V	347V**	
1x4	30L	3,100	22	0.25	0.11	0.10	0.09	0.07	
	30L w/EB		27	0.30	0.12	0.10	0.09	N/A	
	40L	4,100	30	0.34	0.16	0.15	0.12	0.10	
	40L w/EB		35	0.39	0.16	0.15	0.12	N/A	
	50L	5,100	36	0.40	0.19	0.16	0.14	0.12	
	50L w/EB		41	0.45	0.19	0.16	0.15	N/A	
	60L	6,325	45	0.49	0.23	0.20	0.18	0.15	
	60L w/EB		50	0.54	0.23	0.20	0.18	N/A	
2x2	20L	2,030	15	0.20	0.08	0.07	0.06	0.05	
	20L w/EB		20	0.25	0.08	0.07	0.07	N/A	
	30L	3,070	22	0.25	0.11	0.10	0.09	0.07	
	30L w/EB		27	0.30	0.12	0.10	0.09	N/A	
	40L	4,070	30	0.34	0.16	0.15	0.12	0.10	
	40L w/EB		35	0.39	0.16	0.15	0.12	N/A	
	50L	5,075	36	0.40	0.19	0.16	0.14	0.12	
	50L w/EB		41	0.45	0.19	0.16	0.15	N/A	
2x4	30L	3,110	22	0.25	0.11	0.10	0.09	0.07	
	30L w/EB		27	0.30	0.12	0.10	0.09	N/A	
	40L	4,130	30	0.34	0.16	0.15	0.12	0.10	
	40L w/EB		35	0.39	0.16	0.15	0.12	N/A	
	50L	5,100	36	0.40	0.19	0.16	0.14	0.12	
	50L w/EB		41	0.45	0.19	0.16	0.15	N/A	
	60L	6,325	45	0.49	0.23	0.20	0.18	0.15	
	60L w/EB		50	0.54	0.23	0.20	0.18	N/A	
	80L	8,300	60	0.66	0.29	0.25	0.23	0.19	
	80L w/EB		65	0.71	0.30	0.26	0.23	N/A	

* Electrical data at 25°C (77°F). Actual wattage and lumens may differ by +/- 10% when operating between 120-277V or 347V +/- 10%.
** 347V not available with EB or GTD option.

ZR-RK Series Ambient Adjusted Lumen Maintenance ¹					
Ambient	Initial LMF	25K hr Reported ² LMF	50K hr Reported ² LMF	75K hr Estimated ³ LMF	100K hr Estimated ³ LMF
25°C (77°F)	1.00	0.95	0.90	0.85	0.81

¹ Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors.

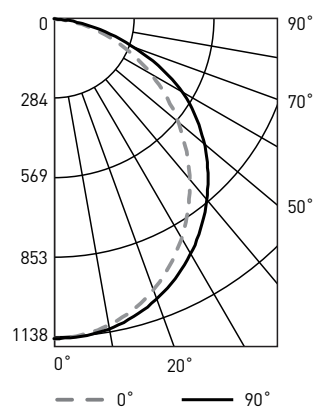
² In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

³ Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

Photometry

ZRRK14-30L-830-LDE5-UNV BASED ON NINGBO TENGLI TESTING REPORT #: STD200706NB-A

Luminaire photometry has been conducted in accordance with IES LM-79. IES LM-79 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	109	104	100	96
2	99	91	84	78
3	90	80	72	65
4	83	71	62	55
5	76	63	54	48
6	70	57	48	42
7	65	52	43	37
8	61	47	39	33
9	57	43	35	29
10	53	40	32	27

Effective Floor Cavity Reflectance: 20%

Reference <https://www.creelighting.com/products/indoor/troffers/zr-rk> for detailed photometric data

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	872	N/A	28.0%
0-40	1,416	N/A	45.4%
0-60	2,471	N/A	79.3%
0-90	3,113	N/A	96.4%
0-180	3,116	N/A	100%

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
		0°	45°	90°
	45°	2,803	3,040	3,253
	55°	2,559	2,901	3,213
	65°	2,264	2,768	3,008
	75°	1,833	2,419	2,384
	85°	981	1,347	1,357

Application Reference

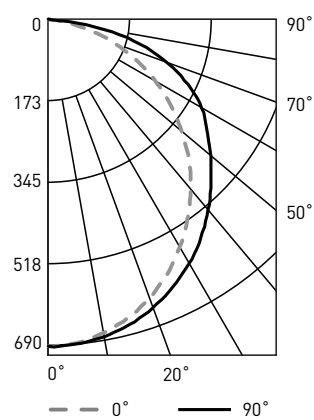
Open Space						
Spacing	Initial Delivered Lumens	Lumens	Wattage	LPW	w/ft2	Average fc
8 x 8	30L	3,100	22	141	0.34	43
	40L	4,100	30	137	0.47	57
	50L	5,100	36	142	0.56	71
	60L	6,325	45	141	0.70	88
8 x 10	30L	3,100	22	141	0.28	36
	40L	4,100	30	137	0.38	47
	50L	5,100	36	142	0.45	59
	60L	6,325	45	141	0.56	73
10 x 10	30L	3,100	22	141	0.22	29
	40L	4,100	30	137	0.30	38
	50L	5,100	36	142	0.36	47
	60L	6,325	45	141	0.45	59
10 x 12	30L	3,100	22	141	0.18	23
	40L	4,100	30	137	0.25	30
	50L	5,100	36	142	0.30	38
	60L	6,325	45	141	0.38	47

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

Photometry

ZRRK22-20L-830-LDE5-UNV BASED ON NINGBO TENGLI TESTING REPORT #: STD200706NB-J

Luminaire photometry has been conducted in accordance with IES LM-79. IES LM-79 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	95
2	98	90	83	77
3	89	78	70	63
4	82	69	60	53
5	75	62	53	46
6	69	56	46	40
7	64	50	41	35
8	60	46	37	31
9	56	42	34	28
10	52	39	31	25

Effective Floor Cavity Reflectance: 20%

Reference <https://www.creelighting.com/products/indoor/troffers/zr-rk> for detailed photometric data

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	533	N/A	26.3%
0-40	872	N/A	43.0%
0-60	1,553	N/A	76.6%
0-90	2,024	N/A	99.9%
0-180	2,027	N/A	100%

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
		0°	45°	90°
	45°	165	178	190
	55°	153	174	198
	65°	136	177	213
	75°	104	169	216
	85°	34	72	83

Application Reference

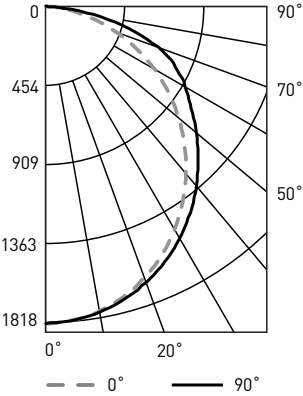
Open Space						
Spacing	Lumen Package	Initial Delivered Lumens	Wattage	LPW	w/ft2	Average fc
8 x 8	20L	2,030	15	135	0.23	28
	30L	3,070	22	140	0.34	43
	40L	4,070	30	136	0.47	57
	50L	5,075	36	141	0.56	71
8 x 10	20L	2,030	15	135	0.19	24
	30L	3,070	22	140	0.28	36
	40L	4,070	30	136	0.38	47
	50L	5,075	36	141	0.45	59
10 x 10	20L	2,030	15	135	0.15	19
	30L	3,070	22	140	0.22	28
	40L	4,070	30	136	0.30	38
	50L	5,075	36	141	0.36	47
10 x 12	20L	2,030	15	135	0.13	15
	30L	3,070	22	140	0.18	23
	40L	4,070	30	136	0.25	30
	50L	5,075	36	141	0.30	38

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

Photometry

ZRRK24-50L-830-LDE5-UNV BASED ON NINGBO TENGLI TESTING REPORT #: STD200706NB-Z

Luminaire photometry has been conducted in accordance with IES LM-79. IES LM-79 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	95
2	98	89	82	76
3	89	78	70	63
4	81	69	60	53
5	75	62	52	46
6	69	55	46	40
7	64	50	41	35
8	59	46	37	31
9	56	42	34	28
10	52	39	31	25

Effective Floor Cavity Reflectance: 20%

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,406	N/A	26.1%
0-40	2,300	N/A	42.7%
0-60	4,100	N/A	76.1%
0-90	5,383	N/A	99.9%
0-180	5,390	N/A	100%

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
		0°	45°	90°
	45°	2,314	2,406	2,540
	55°	2,170	2,334	2,585
	65°	1,973	2,352	2,821
	75°	1,602	2,457	2,746
	85°	790	1,127	899

Reference <https://www.creelighting.com/products/indoor/troffers/zr-rk> for detailed photometric data

Application Reference

Open Space						
Spacing	Initial Delivered Lumens	Lumens	Wattage	LPW	w/ft2	Average fc
8 x 8	30L	3,110	22	141	0.34	43
	40L	4,130	30	138	0.47	57
	50L	5,100	36	142	0.56	71
	60L	6,325	45	141	0.70	88
	80L	8,300	60	138	0.94	115
8 x 10	30L	3,110	22	141	0.28	36
	40L	4,130	30	138	0.38	48
	50L	5,100	36	142	0.45	59
	60L	6,325	45	141	0.56	73
	80L	8,300	60	138	0.75	96
10 x 10	30L	3,110	22	141	0.22	29
	40L	4,130	30	138	0.30	38
	50L	5,100	36	142	0.36	47
	60L	6,325	45	141	0.45	59
	80L	8,300	60	138	0.60	77
10 x 12	30L	3,110	22	141	0.18	23
	40L	4,130	30	138	0.25	31
	50L	5,100	36	142	0.30	38
	60L	6,325	45	141	0.38	47
	80L	8,300	60	138	0.50	62

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