

KR Series with Cree SmartCast® Technology

KR4™ LED Specification Downlight – Round 4"

Product Description

The KR4™ LED specification downlight with Cree SmartCast® Technology, Cree's intelligent light solution, provides extreme energy productivity and code compliance – all with installation that's so intuitive and simple, it just works. The KR Series is available in a variety of color temperatures, round and square trims with high-quality anodized aluminum reflector finishes, and a sloped ceiling adaptor accessory.

Performance Summary

Utilizes Cree TrueWhite® Technology
Initial Delivered Lumens: 700-2,350 Lumens; Delivered lumen output is typical when using a SSGC type reflector
Input Power: 13-39 watts
Emergency Performance: Up to 1,210 Lumens; 10W; Minimum 90 Minutes
CRI: 90
CCT: 2700K, 3000K, 3500K, 4000K
Controls: Cree SmartCast® Technology
Limited Warranty†: 10 years on luminaire
Limited Warranty Emergency Back Up (EB) Battery: 1 Year Battery Back Up. Test regularly in accordance with local codes

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

Accessories

Field-Installed		
Sloped Ceiling Adaptor KXKS4**WW ** 0-35 (order in 5 degree increments)	T-Bar Clips RARC7 - Set of four - For use with RBH24C-1 hanger bars	Cree SmartCast® Technology Face Plates 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
C-Channel Hanger Bars RBH30C - Pair of 30" (762mm) rigid 3/4" x 1/2" (19mm x 13mm) C-Channel bars RBH24C-1 - Pair of 24" (610mm) x 1-1/2" (38mm) x 1/2" (13mm) standard C-Channel bars	Trim Ring KR4TA - White beauty ring to cover pan head fasteners on KR4T reflector	Cree SmartCast® Technology Wireless Dimmer/Switch CWD-CWC-WH Cree SmartCast® Technology Wireless Switch CWS-CWC-WH
	Cree SmartCast® Technology Configuration Tool CCT-CWC-1 - One required per project when CMA control is selected	

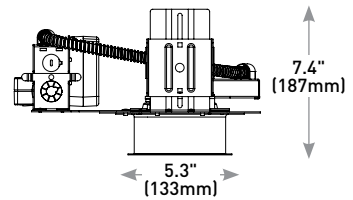
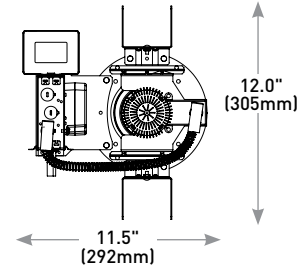
Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:
Example: **Housing:** KR4-20L-35K-120V-10R + **Reflector:** KR4T-SSGC-FF

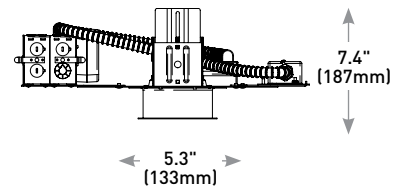
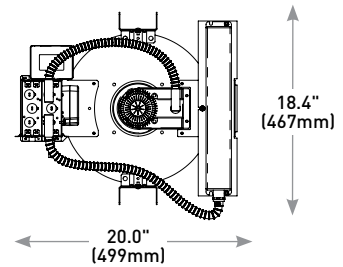
Reflector (Housing must be ordered separately)		
KR4T		
Series	Reflector Finish	Flange Finish
KR4T Standard Trim - Reflector attaches to housing with pan head fasteners and keyhole slots	SSGC Soft Satin Glow, Clear	FF Matches Reflector WF White Paint

Housing (Reflector must be ordered separately)								
Series	Size	Reflector	Initial Delivered Lumens	Optic	CCT	Voltage	Controls	Options
KR	4 inch	Blank Round	9L	Blank 70° Beam Angle	27K	120V 120 Volts 277V 277 Volts	10R Cree SmartCast® Technology - Includes control module and motion and ambient sensors	EB7 Emergency Backup - Minimum 90 minutes - 120V, 277V only - Minimum operating temperature: 0°C (32°F)
			13W, 700 Lumens – 54 LPW		30K			
			18W, 1,000 Lumens – 56 LPW		35K			
			20L 30W, 1,550 Lumens – 52 LPW		40K			
			30L 39W, 2,350 Lumens – 60 LPW		400K			

NOTE: Price adder may apply depending on configuration



Emergency Backup and Cree SmartCast® Technology



Rev. Date: V7 10/09/2018



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.

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics, and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CONSTRUCTION & MATERIAL

- Low brightness parabolic spun Alzak aluminum cone, 0.06" (2mm) thick with polished radius and continuous self-flange
- Soft Satin Glow Clear finish, standard
- 2" (51mm) aperture throat to accommodate all standard and up to 3" (76mm) thick ceilings and provide flexibility in mounting within grid
- Provided with quick mounting brackets for optional carrying channels
- Light engine, optics, and driver accessible from below ceiling

ELECTRICAL SYSTEM

- **Power Factor:** > 0.9 for 120V and 277V
- **Total Harmonic Distortion:** < 20% at full load
- **Input Power:** 120 or 277V, 50/60Hz
- **Operating Temperature Range:** -18°C - +40°C (0°F - +104°F); minimum operating temperature with EB7 option is 0°C (32°F)

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for thru-wiring 8#12AWG-90°C
- Suitable for damp locations
- Designed for indoor use
- Thermally protected Type NON-IC in accordance with Article 410 of the NEC and UL 1598
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- EnergyStar® certified when ordered with 30L. Please refer to <https://www.energystar.gov/productfinder/product/certified-light-fixtures/results> for most current information
- RoHS compliant. Consult factory for additional details
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

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

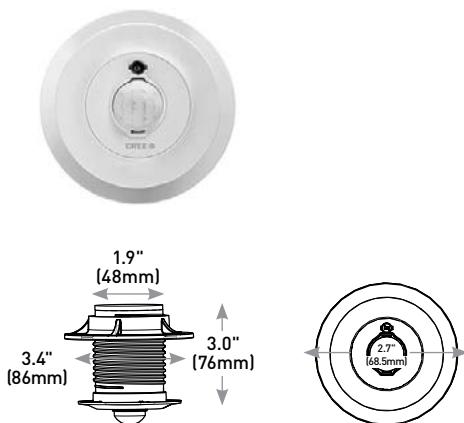
LUMINAIRE

- 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 www.creelink.com/exLink.asp?236135640H88E44I39771048

Motion and Ambient Light Sensor included with Cree SmartCast® Technology



Installation

- Recommended ceiling cutout 4.75" (120mm)



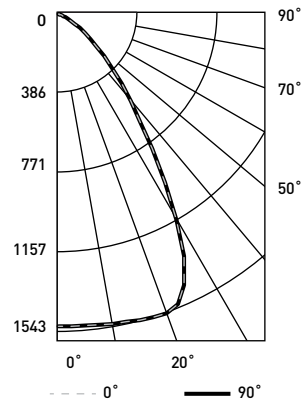
Note: 30L version requires marked spacing: 24" (600mm) x 12" (300mm) x 1/2" (12mm). 24" (600mm) luminaire to luminaire, 12" (300mm) luminaire to side wall, 1/2" (12mm) above luminaire

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Photometry

KR4-30L-27K-120V W/KR4T-SSGC-FF BASED ON UL REPORT TEST #: 157461

Luminaire photometry has been conducted 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%.



UL Test Report #: 157461
 KR4-30L-27K-120V
 w/KR4T-SSGC-FF
 Initial Delivered Lumens: 2,235
 Efficacy: 59.0 LPW
 S/M: 1.1

Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	112	109	106	104
2	106	100	95	91
3	99	91	86	81
4	93	84	77	73
5	87	77	71	66
6	82	72	65	60
7	77	66	59	54
8	73	62	55	50
9	69	58	51	46
10	65	54	47	43

Effective Floor Cavity Reflectance: 20%

Average Luminance Table (cd/m²)				
Vertical Angle	Horizontal Angle			
	0°	45°	90°	
45°	59,182	59,182	59,182	
55°	30,926	30,926	30,926	
65°	12,854	12,854	12,854	
75°	6,046	6,046	6,046	
85°	1,795	1,795	1,795	

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,228	N/A	54.8%
0-40	1,733	N/A	77.4%
0-60	2,170	N/A	96.9%
0-90	2,239	N/A	100.0%
0-180	2,239	N/A	100.0%

Cone of Light		
Distance from Workplane	Footcandles	Beam Diameter
6' (1.8m)	42	6.9' (2.1m)
8' (2.4m)	24	9.1' (2.8m)
10' (3.0m)	15	11.5' (3.5m)
12' (3.7m)	11	13.5' (4.1m)
14' (4.3m)	8	15.8' (4.8m)

For exact photometric data, please reference our available IES and LM-79 test results at <http://lighting.cree.com/products/indoor/new-construction-downlights/kr-series>

Application Reference

Based on KR4-30L-27K-120V W/KR4T-SSGC-FF Luminaire

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4 x 4	2,350	39	60	2.34	144
6 x 6				1.09	67
8 x 8				0.59	36
10 x 10				0.39	24

10' Ceiling, 80/50/20 Reflectances, 2.5 workplane. LLF: 1.0 Initial. Open Space: 50' x 40' x 10'

Corridor					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4' on Center	2,350	39	60	1.63	57
6' on Center				1.04	36
8' on Center				0.78	27
10' on Center				0.65	23

10' Ceiling, 80/20/50 Reflectances, Light levels on the ground. LLF: 1.0 Initial. Corridor: 6' Wide x 100' Long

KR Series Ambient Adjusted Lumen Maintenance¹

Ambient	Initial Delivered Lumens	Initial LMF	25K hr Projected ² LMF	50K hr Projected ² LMF	75K hr Calculated ³ LMF	100K hr Calculated ³ LMF
5°C (41°F)	9L and 13L	1.05	1.04	1.03	1.03	1.02
	20L and 30L	1.03	0.99	0.94	0.90	0.86
10°C (50°F)	9L and 13L	1.04	1.03	1.03	1.02	1.02
	20L and 30L	1.02	0.97	0.93	0.89	0.85
15°C (59°F)	9L and 13L	1.03	1.02	1.02	1.01	1.01
	20L and 30L	1.01	0.96	0.91	0.88	0.84
20°C (68°F)	9L and 13L	1.02	1.01	1.00	1.00	0.99
	20L and 30L	1.01	0.95	0.90	0.87	0.83
25°C (77°F)	9L and 13L	1.00	1.00	0.99	0.99	0.99
	20L and 30L	1.00	0.94	0.89	0.86	0.82
30°C (86°F)	9L and 13L	0.99	0.99	0.98	0.98	0.98
	20L and 30L	0.97	0.93	0.88	0.85	0.81
35°C (95°F)	9L and 13L	0.98	0.97	0.97	0.97	0.97
	20L and 30L	0.96	0.92	0.87	0.84	0.80
40°C (104°F)	9L and 13L	0.97	0.96	0.96	0.96	0.95
	20L and 30L	0.95	0.90	0.86	0.83	0.79

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

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

