

KR Series

KR4™ LED Specification Downlight – Square 4"

Rev. Date: V10 12/13/2021

Product Description

The KR4™ LED specification downlight features Cree TrueWhite® Technology and delivers beautiful, high-quality light with efficacy up to 68 lumens per watt. Designed for new construction applications, the KR Series is available in a variety of color temperatures, round and square trims with high-quality anodized aluminum reflector finish, and a variety of dimming options.

Performance Summary

Utilizes Cree TrueWhite® Technology

Initial Delivered Lumens: 650-3,000 lumens; Delivered lumen output is typical when using a SSGC type reflector

Input Power: 13-44 watts

Emergency Performance: Up to 1,210 Lumens; 10W; Minimum 90 Minutes

CRI: 90

CCT: 2700K, 3000K, 3500K, 4000K

Controls: Triac Dimming to 5%, 0/1-10V Dimming to 10%, and Lutron EcoSystem® Dimming to 1%

Limited Warranty*: 10 years on KR4™ luminaire/1 year on accessories

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

Assembled in the USA by Cree Lighting from US and imported parts

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

Accessories

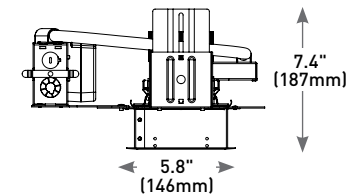
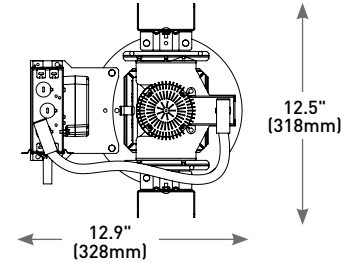
Field-Installed	
C-Channel Hanger Bars	T-Bar Clips
RBH30C - Pair of 30" (762mm) rigid 3/4" x 1/2" (19mm x 13mm) C-Channel bars	RARC7 - Set of four - For use with RBH24C-1 hanger bars
RBH24C-1 - Pair of 24" (610mm) x 1-1/2" (38mm) x 1/2" (13mm) standard C-Channel bars	

Ordering Information

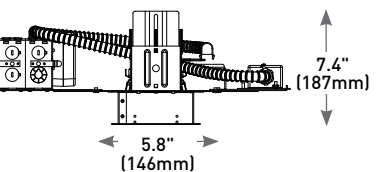
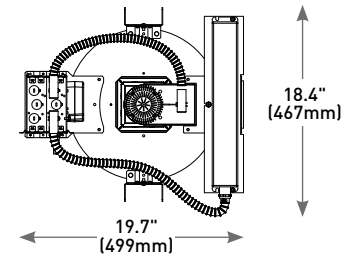
Fully assembled luminaire is composed of two components that must be ordered separately:
Example: **Housing:** KR4S-20L-35K-120V-10V + **Reflector:** KR4TS-SSGC-FF

Reflector (Housing must be ordered separately)		
KR4TS		
Series	Reflector Finish	Flange Finish
KR4TS	SSGC Soft Satin Glow, Clear	FF Matches Reflector WF White Paint

Housing (Reflector must be ordered separately)								
KR4	Size	Reflector	Lumen Package	Optic	CCT	Voltage	Controls	Options
KR4	S							
Series	Size	Reflector	Lumen Package	Optic	CCT	Voltage	Controls	Options
KR	4 inch	S Square	9L 13W, 650 Lumens – 50 LPW 13L 18W, 950 Lumens – 53 LPW 20L 30W, 1,450 Lumens – 48 LPW 30L 39W, 2,050 Lumens – 53 LPW 40L 44W, 3,000 Lumens – 68 LPW	Blank 70° Beam Angle	27K 2700K 30K 3000K 35K 3500K 40K 4000K	120V 120 Volts 277V 277 Volts 347V 347 Volts	Blank - For standard control offering refer to control availability chart on page 4 10V 0/1-10V Dimming - Refer to control availability chart on page 4 LES Lutron EcoSystem® Dimming - Refer to control availability chart on page 4	EB7 Emergency Backup - Minimum 90 minutes - 120V, 277V only - Minimum operating temperature: 0°C (32°F)



Emergency Backup



US: creelighting.com T (800) 236-6800

Canada: creelighting-canada.com T (800) 473-1234

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Product Specifications

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, 277V, or 347V, 50/60Hz
- **Operating Temperature Range:** -18°C - +40°C (0°F - +104°F); minimum operating temperature with EB7 option is 0°C (32°F)

CONTROLS

- For standard control offering refer to control availability chart on page 4
- Triac dimming to 5%
- Continuous dimming to 10% with 0-10V DC control protocol
- **10V Source Current:** 9L & 13L: 0.15mA; 20L-40L: 2.2mA
- For use with Class 2 dimming systems only
- Use only lighting controls with neutral connection or controls intended for use with LED fixtures
- Lutron EcoSystem® Dimming to 1%
- Reference <http://creelighting.com/products/indoor/new-construction-downlights/kr-series> for recommended dimming controls and wiring diagrams

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for thru-wiring 8#12AWG-90°C
- Suitable for damp locations
- Designed for indoor use only
- Thermally protected Type NON-IC in accordance with Article 410 of the NEC and UL 1598
- Requires minimum 90°C supply conductors
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- RoHS compliant. Consult factory for additional details
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

KR Series Ambient Adjusted Lumen Maintenance ¹						
Ambient	Initial Delivered Lumens	Initial LMF	25K hr Reported ² LMF	50K hr Reported ² LMF	75K hr Estimated ³ LMF	100K hr Estimated ³ LMF
5°C (41°F)	9L, 13L	1.04	1.04	1.04	1.04	1.04
	20L	1.04	1.04	1.04	1.04	1.04
	30L	1.04	1.03	1.03	1.03	1.03
	40L	1.04	1.01	1.00	1.00	1.00
10°C (50°F)	9L, 13L	1.03	1.03	1.03	1.03	1.03
	20L	1.03	1.03	1.03	1.03	1.03
	30L	1.03	1.02	1.02	1.02	1.02
	40L	1.03	1.00	0.99	0.99	0.99
15°C (59°F)	9L, 13L	1.02	1.02	1.02	1.02	1.02
	20L	1.02	1.02	1.02	1.02	1.02
	30L	1.02	1.01	1.01	1.01	1.01
	40L	1.02	0.99	0.98	0.98	0.98
20°C (68°F)	9L, 13L	1.01	1.01	1.01	1.01	1.01
	20L	1.01	1.01	1.01	1.01	1.01
	30L	1.01	1.00	1.00	1.00	1.00
	40L	1.01	0.98	0.97	0.97	0.96
25°C (77°F)	9L, 13L	1.00	1.00	1.00	1.00	1.00
	20L	1.00	1.00	1.00	1.00	1.00
	30L	1.00	0.99	0.99	0.99	0.99
	40L	1.00	0.96	0.96	0.96	0.95
30°C (86°F)	9L, 13L	0.99	0.99	0.99	0.99	0.99
	20L	0.99	0.98	0.98	0.98	0.98
	30L	0.99	0.98	0.98	0.98	0.98
	40L	0.99	0.96	0.95	0.95	0.94
35°C (95°F)	9L, 13L	0.98	0.98	0.98	0.98	0.98
	20L	0.98	0.97	0.97	0.97	0.97
	30L	0.98	0.97	0.97	0.97	0.97
	40L	0.98	0.95	0.94	0.94	0.94

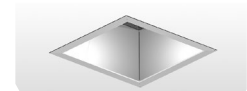
¹Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors.

²In 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.

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

Installation

- Recommended ceiling cutout 4.75" x 4.75" (120mm x 120mm)



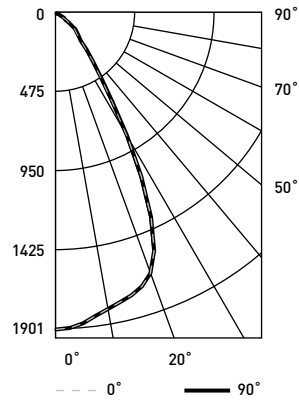
Note: 30L and 40L versions require marked spacing: 24" (600mm) x 12" (300mm) x 1/2" (12mm), 24" (600mm) luminaire to luminaire, 12" (300mm) luminaire to side wall, 1/2" (12mm) above luminaire

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Photometry

KR4S-30L-27K-120V W/KR4TS-SSGC-FF BASED ON RESTL REPORT TEST #: PL03922-001

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%.



RESTL Test Report #: PL03922-001
 KR4S-30L-27K-120V
 w/KR4TS-SSGC-FF
 Initial Delivered Lumens: 1,968
 Efficacy: 51.0 LPW
 S/M: 0.96

Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	113	110	107	105
2	107	102	97	94
3	101	94	89	84
4	95	87	81	77
5	90	81	75	70
6	85	76	69	65
7	81	71	64	60
8	77	66	60	56
9	73	63	56	52
10	69	59	53	49

Effective Floor Cavity Reflectance: 20%

Average Luminance Table (cd/m²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	19,899	21,511	20,267
55°	12,253	9,386	12,426
65°	5,175	5,447	5,266
75°	1,861	2,925	1,891
85°	2,632	4,212	526

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	1,296	N/A	65.8%
0-40	1,691	N/A	85.8%
0-60	1,928	N/A	97.8%
0-90	1,971	N/A	100.0%
0-180	1,971	N/A	100.0%

Cone of Light		
Distance from Workplane	Footcandles	Beam Diameter
6' (1.8m)	53	5.7' (1.7m)
8' (2.4m)	30	7.6' (2.3m)
10' (3.0m)	19	9.6' (2.9m)
12' (3.7m)	13	11.5' (3.5m)
14' (4.3m)	10	13.2' (4.0m)

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

Application Reference

Based on KR4S-30L-27K-120V W/KR4TS-SSGC-FF Luminaire

Open Space					
Spacing	Lumens	Wattage	LPW	w/ft²	Average FC
4 x 4	2,050	39	53	2.34	128
6 x 6				1.09	60
8 x 8				0.59	31
10 x 10				0.39	21

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	2,050	39	53	1.63	54
6' on Center				1.04	35
8' on Center				0.78	26
10' on Center				0.65	21

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

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Control Availability Chart

Lumen Package	Non-Dimming			Triac Dimming to 5%			0/1-10V Dimming to 10%		
	120V	277V	347V	120V	277V	347V	120V	277V	347V
9L	N/A	S - Leave control Blank when ordering	N/A	S - Leave control Blank when ordering	N/A	N/A	O - Order w/10V	O - Order w/10V	O - Order w/10V
13L	N/A	S - Leave control Blank when ordering	N/A	S - Leave control Blank when ordering	N/A	N/A	O - Order w/10V	O - Order w/10V	O - Order w/10V
20L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	S - Order w/10V
30L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	S - Order w/10V
40L	N/A	N/A	N/A	N/A	N/A	N/A	S - Order w/10V	S - Order w/10V	S - Order w/10V

Control Availability Chart Cont'd.

LES Dimming to 1%			
Lumen Package	120V	277V	347V
9L	N/A	N/A	O - Order w/LES
13L	O - Order w/LES	O - Order w/LES	O - Order w/LES
20L	O - Order w/LES	O - Order w/LES	O - Order w/LES
30L	O - Order w/LES	O - Order w/LES	O - Order w/LES
40L	O - Order w/LES	O - Order w/LES	O - Order w/LES

S = Standard Offering
O = Optional Offering