

# KR Series

KR4™ LED Specification Downlight – Square 4"

## 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 finishes, and a variety of dimming options including Cree Sunset Dimming Technology which provides rich, warm light that transitions from 2700K to 1800K as naturally as an incandescent source.

## 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, 0/1-10V; See control availability chart on page 3

**Limited Warranty\*:** 10 years on KR4™ 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	
<b>C-Channel Hanger Bars</b> 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	<b>T-Bar Clips</b> RARC7 - Set of four - For use with RBH24C-1 hanger bars

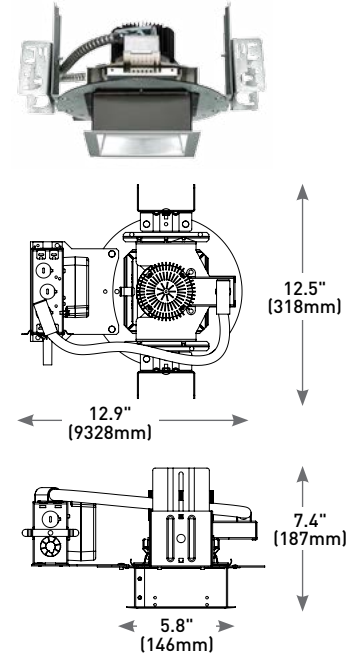
## Ordering Information

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

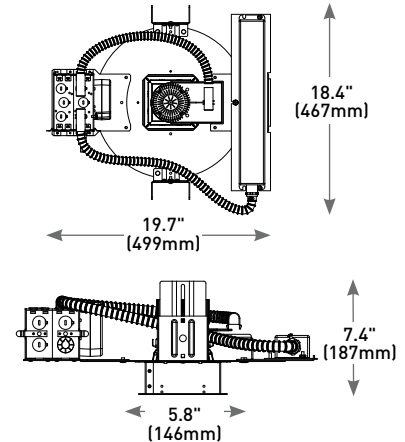
Reflector (Housing must be ordered separately)		
<b>KR4TS</b>		
Series	Reflector Finish	Flange Finish
KR4TS	SSGC Soft Satin Glow, Clear	FF Matches Reflector WF White Paint

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

NOTE: Price adder may apply depending on configuration



## Emergency Backup



Rev. Date: V6 05/23/2017



US: [lighting.cree.com](http://lighting.cree.com)

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Canada: [www.cree.com/canada](http://www.cree.com/canada)



T (800) 473-1234 F (800) 890-7507

## 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 3
- Triac dimming to 5%
- Continuous dimming to 10% with 0-10V DC control protocol
- **10V Source Current:** 9L & 12L: 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
- Reference <http://lighting.cree.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
- 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
- RoHS compliant. Consult factory for additional details

Recommended KR Series Lumen Maintenance Factors (LMF) <sup>1</sup>						
Ambient	Initial Delivered Lumens	Initial LMF	25K hr Projected <sup>2</sup> LMF	50K hr Projected <sup>2</sup> LMF	75K hr Calculated <sup>3</sup> LMF	100K hr Calculated <sup>3</sup> 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
	40L	1.03	0.96	0.90	0.83	0.77
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
	40L	1.03	0.95	0.88	0.82	0.76
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
	40L	1.02	0.94	0.87	0.81	0.75
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
	40L	1.01	0.93	0.86	0.80	0.74
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
	40L	1.00	0.92	0.85	0.79	0.74
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
	40L	0.98	0.91	0.84	0.78	0.73
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
	40L	0.96	0.90	0.83	0.77	0.72
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
	40L	0.95	0.88	0.82	0.76	0.71

<sup>1</sup>Lumen maintenance values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

<sup>2</sup>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

<sup>3</sup>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

## Installation

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



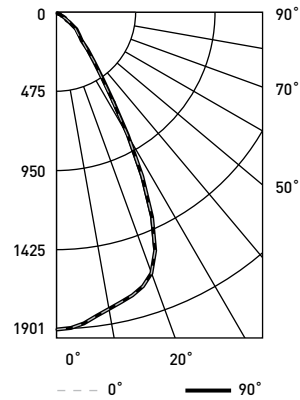
**Note:** 30L and 40L versions require marked spacing: 24" (600mm) x 12" (300mm) x 1/2" (12mm). 24" (600mm) luminaire to luminaire, 12" (300mm) luminaire to side wall, 1/2" (12mm) above luminaire

# KR4™ LED Specification Downlight – Square 4"

## Photometry

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

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%.



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%

Reference <http://lighting.cree.com/products/indoor/new-construction-downlights/kr-series> for detailed photometric data

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)

## 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

## Control Availability Chart

Initial Delivered Lumens	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	N/A	S	N/A	N/A	0	0	0
13L	N/A	S	N/A	S	N/A	N/A	0	0	0
20L	N/A	N/A	N/A	N/A	N/A	N/A	S	S	S
30L	N/A	N/A	N/A	N/A	N/A	N/A	S	S	S
40L	N/A	N/A	N/A	N/A	N/A	N/A	S	S	S

S = Standard Offering  
 0 = Optional Offering

