

# LS Series

LS4™ LED Surface Ambient Luminaire – 4'

## Product Description

The LS4™ surface ambient luminaire delivers up to 109 lumens per watt of Cree TrueWhite® Technology 90+ CRI illumination. The 4' (1219mm) luminaire is available with up to 5,050 lumens in 3500K, 4000K and 5000K color temperatures. The LS Series features sleek and compact architectural design with flexible lumen packages, color temperatures and standard 0-10V dimming. Flexible mounting of the LS Series allows for individual mount or continuous row applications for surface mount, suspended mount, pendant mount and cove installations.

**Applications:** Surface and suspended ambient applications for new construction and upgrade

## Performance Summary

Utilizes Cree TrueWhite® Technology

**Initial Delivered Lumens:** 2,500-5,050 lumens

**Input Power:** 23-48 watts

**Efficacy:** Up to 109 LPW

**CRI:** 90+ CRI

**CCT:** 3500K, 4000K, 5000K

**Input Voltage:** 120-277, 347 VAC

**L<sub>70</sub> Lifetime:** > 100,000 hours at 35°C

**Limited Warranty\*:** 10 years on luminaire

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

**Dimensions:** L 48.0" (1219mm) x W 2.5" (64mm) x H 3.0" (77mm)

**Weight:** 5 lbs. (2.3kg)

**Dimming:** 0-10V dimming to 5%

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

## Reflectors & Accessories

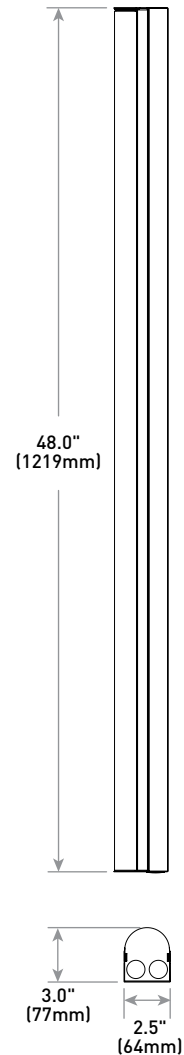
Field-Installed		
<b>Reflectors</b> - Refer to reflector spec sheet <b>Solid</b> LS4-SR - Pair of reflectors <b>Apertured</b> LS4-AR - Pair of reflectors <b>Joint Aligner</b> LS-RJ - Top housing aligner for continuous rows LS-RFLJ - Reflector aligner for continuous row	<b>Adjustable Cable Support Kits for T-Bar Applications*</b> AC5-48-Q14B-TB AC5-48-Q14B-TB-50BULK (Pack of 50) - Includes 5.0" (127mm) Canopy, 48.0" (1219mm) Adjustable Cable, Q14B Gripper and T-Bar Clip AC2-48-Q14B-TB AC2-48-Q14B-TB-50BULK (Pack of 50) - Same as above except with 2" (51mm) Canopy <b>Adjustable Loop Cable Kit for Unfinished Ceiling Applications*</b> AC-144-Q14B-LP AC-144-Q14B-LP-50BULK (Pack of 50) - Includes 144.0" (366cm) L x 1/16" (2mm) Diameter Adjustable Galvanized Loop Cable w/ Q14B Gripper <b>Continuous Row Through Wiring Kit*</b> LS4TWK - Includes (3) #12AWG 54.0" (1372mm) Wires for Line (black), Neutral (white), Ground (green), (2) #18AWG 54.0" (1372mm) Wires for 0-10V dimming (purple, gray) and (10) Wire Nuts - Optional accessory for use when luminaire is not ordered with factory installed TW option - Not for use with EB14 option	<b>Adjustable Cable Support Kits w/ Power Feeds†</b> ACS-12/3-48-Q14B-JB - Non-dimming applications - Includes 5.0" (127mm) Cable Canopy, 48" (1219mm) #12/3 SJT Cord, Q14B Gripper and J-Box Strap ACS-18/5-48-Q14B-JB - Dimming applications - Includes 5.0" (127mm) Cable Canopy, 48.0" (1219mm) #18/5 SJT Cord, Q14B Gripper and J-Box Strap ACS-18/2-48-Q14B-JB - For use with ACS-12/3-48-Q14B-JB for selective luminaire dimming control in row mounted luminaires - Includes 5.0" (127mm) Cable Canopy, 48.0" (1219mm) #18/2 SVT Cord, Q14B Gripper and J-Box Strap <b>Dimming Occupancy Sensor w/Photocell</b> S-WRAC-OC-1 - Enables daylight harvesting - Not for use with EB14 option - Not for continuous row applications - Refer to installation instructions for details

† Refer to the [CS & LS Accessory spec sheet](#) for more details

## Ordering Information

Example: LS4-40L-35K-10V

LS4			10V		
Product	Initial Delivered Lumens	CCT	Control	Voltage	Options
LS4	25L 23W, 2,500 lumens 40L 40W, 4,250 lumens 50L 48W, 5,050 lumens	35K 3500K 40K 4000K 50K 5000K	10V 0-10V dimming to 5%	Blank 120-277 Volt 34 347 Volt -Available with 40L only	EB14 Emergency Backup - Minimum 90 minutes - 1,400 lumens - Minimum operating temperature: 0°C (32°F)  TW Through Wire Option - Factory installed - Includes quick connects for use in continuous row applications - Not for use with 25L, 50K, 347V or EB14 option



Rev. Date: V8 11/17/2017



**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 & MATERIALS**

- Constructed of durable 22 gauge steel
- Acrylic lens delivers a low-glare, diffused light distribution
- Prepainted white for enhanced smooth finish

**OPTICAL SYSTEM**

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing
- Components work together to optimize distribution, balancing the delivery of high illuminance levels on horizontal surfaces with an ideal amount of light on walls and vertical surfaces. This increases the perception of spaciousness

**ELECTRICAL SYSTEM**

- **Power Factor:** > 0.9
- **Input Power:** Stays constant over life
- **Input Voltage:** 120-277 or 347 VAC, 60Hz
- **Operating Temperature Range:** -28°C - +35°C (-18.4°F - +95°F); minimum operating temperature with EB14 option is 0°C (32°F)
- **Total Harmonic Distortion:** < 20% for 120-277V

**CONTROLS**

- Continuous dimming to 5% with 0-10V DC control protocol
- **10V Source Current:** 0.25mA
- Use only lighting controls with neutral connection or controls intended for use with LED fixtures
- Reference [www.creelink.com/exLink.asp?70982140Z58R34126620963](http://www.creelink.com/exLink.asp?70982140Z58R34126620963) for recommended dimming controls and wiring diagrams

**REGULATORY & VOLUNTARY QUALIFICATIONS**

- cULus Listed
- Suitable for damp locations
- Suitable for continuous row mounting
- Designed for indoor use
- Not intended for use in environments containing airborne corrosive agents such as chemical solvents, cleaners, or cutting fluids
- **Ingress Protection:** IP20
- UL924 (EB option). Maximum mounting height: 10.0' (3.0m)
- RoHS compliant. Consult factory for additional details
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- DLC qualified. Please refer to <https://www.designlights.org/search/> for most current information

Electrical Data*						
Initial Delivered Lumens	System Watts 120-347V	Total Current (A)				
		120V	208V	240V	277V	347V
25L	23	0.20	0.12	0.11	0.09	N/A
25L w/EB14	27	0.23	0.14	0.13	0.11	N/A
40L	40	0.37	0.21	0.19	0.16	0.13
40L w/EB14	44	0.37	0.24	0.20	0.17	N/A
50L	48	0.44	0.26	0.22	0.19	N/A
50L w/EB14	55	0.47	0.29	0.25	0.21	N/A

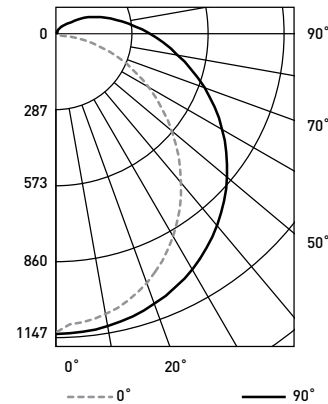
\* Electrical data at 25°C (77°F). Actual wattage may differ by +10%/–15% when operating between 120-347V +/- 10%

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**Photometry**

**LS4-40L-40K-10V BASED ON CESTL REPORT TEST #: PL10232-001A**

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%.



Average Luminance Table (cd/m²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
	45°	11,719	10,566
55°	10,699	9,696	10,257
65°	9,542	8,925	9,694
75°	7,966	8,285	9,171
85°	5,636	7,998	8,922

Reference <http://lighting.cree.com/products/indoor/surface-ambient/ls-series> for detailed photometric data

Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	116	116	116	116
1	104	98	93	88
2	94	84	76	70
3	85	73	64	57
4	77	65	55	48
5	71	57	48	41
6	65	51	42	35
7	61	47	37	31
8	56	42	34	28
9	53	39	30	25
10	49	36	28	22

Effective Floor Cavity Reflectance: 20%

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	882	N/A	20.6%
0-40	1,453	N/A	33.9%
0-60	2,640	N/A	61.6%
0-90	3,823	N/A	89.2%
0-180	4,285	N/A	100%

LS Series Ambient Adjusted Lumen Maintenance¹						
Ambient	Initial Delivered Lumens	Initial LMF	25K hr Projected² LMF	50K hr Projected³ LMF	75K hr Projected²/Calculated³ LMF	100K hr Calculated³ LMF
0°C (32°F)	25L	1.05	0.99	0.96²	0.92²	0.88
	40L/50L	1.04	1.04	1.04³	1.04³	1.04
5°C (41°F)	25L	1.04	0.99	0.95²	0.91²	0.87
	40L/50L	1.03	1.03	1.03³	1.03³	1.03
10°C (50°F)	25L	1.03	0.98	0.94²	0.90²	0.86
	40L/50L	1.02	1.02	1.02³	1.02³	1.02
15°C (59°F)	25L	1.02	0.97	0.93²	0.89²	0.86
	40L/50L	1.02	1.02	1.02³	1.02³	1.02
20°C (68°F)	25L	1.01	0.96	0.92²	0.88²	0.85
	40L/50L	1.01	1.01	1.01³	1.01³	1.01
25°C (77°F)	25L	1.00	0.95	0.91²	0.87²	0.84
	40L/50L	1.00	1.00	1.00³	1.00³	1.00
30°C (86°F)	25L	0.99	0.94	0.90²	0.86²	0.83
	40L/50L	0.99	0.99	0.99³	0.99³	0.99
35°C (95°F)	25L	0.98	0.93	0.89²	0.86²	0.82
	40L/50L	0.98	0.98	0.98³	0.98³	0.98

¹ Lumen maintenance values at 25°C 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

