

LS-FD High Efficiency Series

LS4™ High Efficiency Series LED Surface Ambient Luminaire – 4'



Product Description

The LS-FD High Efficiency surface ambient luminaire delivers 130+ lumens per watt with 80+ CRI illumination. The 4' (1219mm) luminaire is available with up to 5000 lumens in 3500K, 4000K and 5000K color temperatures. The LS-FD Series features sleek and compact architectural design with flexible lumen packages, color temperatures and standard 0-10V dimming. Flexible mounting of the LS-FD Series allows for individual mount or continuous row applications for surface mount, suspended mount, pendant mount and cove installations.

Applications: Surface ambient applications for new construction and upgrade.

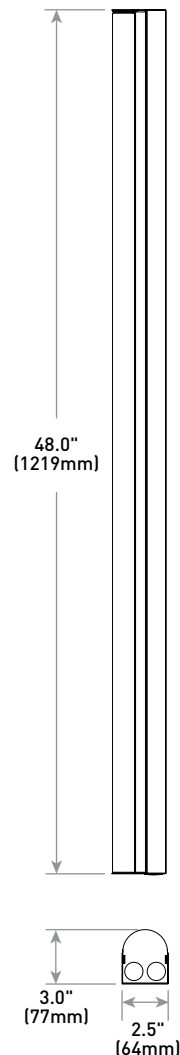
Performance Summary

Initial Delivered Lumens: 2,500-5,000 lumens
Input Power: 18-38 watts
Efficacy: 130 LPW
CRI: 80+ CRI
CCT: 3500K, 4000K, 5000K
Input Voltage: 120-277 VAC
L₇₀ Lifetime: > 100,000 hours at 35°C
Limited Warranty*: 10 years on luminaire
Limited Warranty Emergency Back Up (EB) Battery: 1 Year on 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		
Reflectors - Refer to reflector spec sheet Solid LS4-SR - Pair of reflectors Apertured LS4-AR - Pair of reflectors Joint Aligner LS-RJ - Top housing aligner for continuous rows LS-RFLJ - Reflector aligner for continuous row	Adjustable Cable Support Kits for T-Bar Applications AC5-48-Q14B-TB - Includes 5.0" (127mm) Canopy, 48" (1219mm) Adjustable Cable, Q14B Gripper and T-Bar Clip Continuous Row Through Wiring Kit 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	Adjustable Cable Support Kits w/ Power Feeds AC5-12/3-48-Q14B-JB - Non-dimming applications - Includes 5.0" (127mm) Cable Canopy, 48" (1219mm) #12/3 SJT Cord, Q14B Gripper and J-Box Strap AC5-18/5-48-Q14B-JB - Dimming applications - Includes 5.0" (127mm) Cable Canopy, 48.0" (1219mm) #18/5 SJT Cord, Q14B Gripper and J-Box Strap AC5-18/2-48-Q14B-JB - For use with AC5-12/3-48-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 Dimming Occupancy Sensor w/ Photocell S-WRAC-OC-1 - Enables daylight harvesting - Not for use with EB14 option - Not for continuous row applications - Refer to installation instructions for details



Ordering Information

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

LS4			10V		FD	
Product	Initial Delivered Lumens	CCT	Control	Voltage	CRI	Options
LS4	25L 18W, 2,500 lumens 40L 30W, 4,000 lumens 50L 38W, 5,000 lumens	35K 3500K 40K 4000K 50K 5000K	10V 0-10V dimming to 5%	Blank 120-277 Volt	FD 80+ CRI	TW Through Wire Option - Factory installed - Includes quick connects for use in continuous row applications



LS4™ High Efficiency Series Surface Ambient Luminaire – 4'

Product Specifications
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:** 120-277V, 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:** < 25%

CONTROLS

- Continuous dimming to 5% with 0-10V DC control protocol
- **10V Source Current:** 0.25mA
- For use with Class 1 or Class 2 dimming systems. Use only lighting controls with relay or FET-based outputs, or lighting controls with neutral connection. Reference www.creelink.com/exLink.asp?70982140Z58R34I26620963 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 Premium qualified. Please refer to <http://www.designlights.org/QPL> for most current information

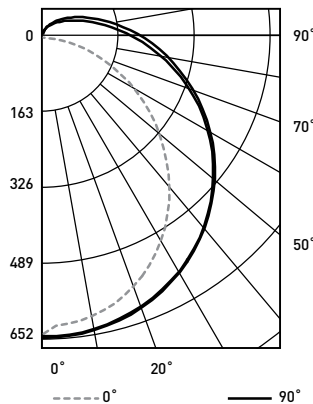
Electrical Data*

Initial Delivered Lumens	System Watts 120-277V	Total Current (A)			
		120V	208V	240V	277V
25L	18	0.16	0.10	0.08	0.07
25L w/EB14	22	0.19	0.12	0.11	0.09
40L	30	0.26	0.17	0.15	0.13
40L w/EB14	35	0.31	0.20	0.17	0.15
50L	38	0.33	0.21	0.19	0.16
50L w/EB14	44	0.38	0.24	0.20	0.18

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%

Photometry
LS4-25L-40K-10V-FD BASED ON CESTL REPORT TEST #: PL09630-001

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/m ²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	6,774	6,121	6,156
55°	6,158	5,645	5,778
65°	5,388	5,218	5,408
75°	4,356	4,814	5,011
85°	2,904	4,575	4,695

Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	117	117	117	117
1	104	98	93	88
2	94	84	77	70
3	85	73	65	57
4	78	65	55	48
5	71	58	48	41
6	66	52	42	36
7	61	47	38	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	504	N/A	20.8%
0-40	831	N/A	34.3%
0-60	1,515	N/A	62.5%
0-90	2,185	N/A	90.1%
0-180	2,425	N/A	100%

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

Recommended LS-FD Series Lumen Maintenance Factors (LMF)¹

Ambient	Initial LMF	25K hr Projected ² LMF	50K hr Calculated ³ LMF	75K hr Calculated ³ LMF	100K hr Calculated ³ LMF
0°C (32°F)	1.04	1.04	1.04	1.04	1.04
5°C (41°F)	1.03	1.03	1.03	1.03	1.03
10°C (50°F)	1.02	1.02	1.02	1.02	1.02
15°C (59°F)	1.02	1.02	1.02	1.02	1.02
20°C (68°F)	1.01	1.01	1.01	1.01	1.01
25°C (77°F)	1.00	1.00	1.00	1.00	1.00
30°C (86°F)	0.99	0.99	0.99	0.99	0.99
35°C (95°F)	0.98	0.98	0.98	0.98	0.98

¹ Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

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 (IDUT) 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 (IDUT) i.e. the packaged LED chip