

CDR Series

CFL Pin Replacement or New Construction Downlights - Version B - 4", 6", and 8"

Rev. Date: V2 09/19/2022

Product Description

The CDR LED downlight offers high quality customizable light with lumen and CCT selectable switches. Ideal for replacing compact fluorescent lamp and fixtures, the new CDR LED downlight is available in 4", 6", and 8" new construction and pinned CFL retrofit applications.

Applications: New construction or CFL pin replacement upgrade for residential and commercial lighting

Performance Summary

Initial Delivered Lumens: 500 to 5,000 Lumens Selectable Switch (Reference Table Below)

Input Power: 5.5W to 52W (Reference Table Below)

CRI: 90+

CCT: 3000K/3500K/4000K Selectable Switch

Limited Warranty*: 5 years on luminaire; up to 5 years for SmartCast® accessories; 5 years for EB; 1 year for accessories

Lifetime: Designed to last 50,000 hours

Dimming: 0-10V Dimming to 5% compatible with SmartCast® Technology, and Lutron Vive through 0-10V interface

Rated for Wet Locations

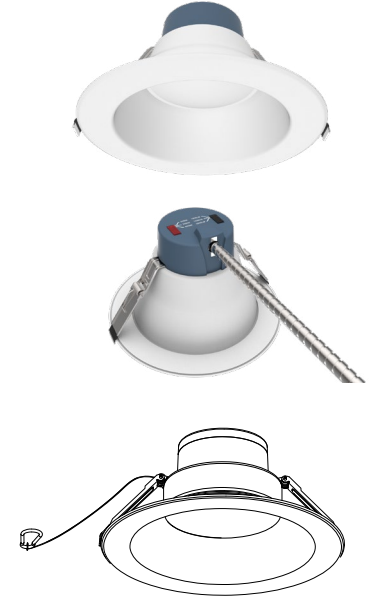
Easy to install in new construction or pinned CFL retrofit housing only with spring action housing clips. Not compatible with Cree Lighting RR or RC housings, or other incandescent housings

Operating Temperature Range: -20°C to +40°C (-4° F - +104° F)

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

Accessories

Field-Installed		
SmartCast® 10V Zone Controller CSC-ZC-10V-CWC - Intelligent sensing and control of 0-10V luminaires	Emergency LED Driver Kit EB15W-UNV-KIT - Provides 90 minutes and 15W of emergency power - Self Test - Minimum Operating Temperature: 0°C EB25W-UNV-KIT - Provides 90 minutes and 25W of emergency power - Self Test - Minimum Operating Temperature: 0°C	Plate for T-Grid Ceiling CDR-SDR-TGRID - 23.7" (602mm) x 11.9" (303mm) plate for use with 4, 6, and 8 CDR downlights - Optional accessory that provides more substantial structural integrity to ceiling for mounting downlights
Goof Rings w/White Finish GFR4 - ø8.2" (208mm) for use with 4.4" (110mm) to 5.9" (151mm) ceiling cutouts GFR6 - ø10.5" (267mm) for use with 6.3" (160mm) to 8.3" (210mm) ceiling cutouts GFR8 - ø12.5" (318mm) for use with 8.5" (216mm) to 10.3" (260mm) ceiling cutouts	Aluminum Baffle/Steel Trims in Black and Silver CDR4-TRMBKSV - ø6" (153mm) CDR6-TRMBKSV - ø8.4" (212mm) CDR8-TRMBKSV - ø10.3" (262mm)	



Dimensions			
Luminaire	Lens	O.D.	Height
CDR4	3.9" (99mm)	5.9" (150mm)	4.3" (109mm)
CDR6	6.2" (157mm)	8.3" (211mm)	5.2" (132mm)
CDR8	7.6" (193mm)	10.2" (259mm)	5.9" (150mm)

Ordering Information

Example: CDR8-B-ALS-9ACK-10V5-WH-UNV

CDR		B		9ACK		10V5	WH	UNV
Family	Size	Series	Lumen Package	CRI/CCT	Distribution	Control	Color	Voltage
CDR	4 4"	B	ALS 5.5/8/12W 500/700/1000 Lumens	9ACK 90 CRI, 3000K/3500K/4000K	Blank 85° Beam Angle (4") 90° Beam Angle (6" & 8")	10V5 0-10V Dimming to 5%	WH White	UNV - Universal 120-277V
	6 6"		ALS 7/10/18W 700/1000/1500 Lumens					
	8 8"		ALS 10/15/24W 1000/1500/2500 Lumens ALH 32/42/52W 3300/4000/5000 Lumens					



SMARTCAST®
TECHNOLOGY VIVE
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CREE ⇄ LIGHTING®

US: creelighting.com T (800) 236-6800 F (262) 504-5415
 Canada: creelighting-canada.com T (800) 473-1234 F (800) 890-7507

Product Specifications

CONSTRUCTION & MATERIALS

- Durable upper housing protects LEDs, driver and power supply
- Thermal management system uses both upper housing and lower reflector to conduct heat away from LEDs and transfer it to the plenum space for optimal performance. LED junction temperatures stay below specified maximum even when installed in insulated ceilings
- Includes 23.6" (600mm) conduit out of downlight

OPTICAL SYSTEM

- Unique combination of reflective and refractive optical components achieves a uniform, comfortable appearance while eliminating pixelation and color fringing. This ensures smooth light patterns are projected with no hot spots and minimal striations
- 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
- Diffusing polycarbonate lens shields direct view of LEDs while lower reflector balances brightness of lens with the ceiling to create a low-glare high angle appearance
- Both lumen output and CCT are adjustable with switches in the field to meet the requirements of numerous applications
- Beam Angle: 85° (4") and 90° (6" & 8") (included angle between points of 50% of maximum intensity)

ELECTRICAL SYSTEM

- Integral, high-efficiency power supply
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- **Input Voltage:** 120-277V, 50/60hz
- **Dimming:** 0-10V Dimming to 5% compatible with SmartCast® Technology, and Lutron Vive through 0-10V interface
- Use only lighting controls with neutral connection or controls intended for use with LED fixtures
- **Operating Temperature Range:** -20°C to + 40°C (-4° F - +104° F)

REGULATORY & VOLUNTARY QUALIFICATIONS

- cETLus Listed
- Suitable for wet locations for covered ceilings only
- Meets NEMA C82.77 standards
- Requires minimum 90°C supply conductors
- ALS lumen packages are suitable for insulated (IC) and non-insulated (non-IC) ceilings. ALH lumen package is suitable for non-insulated ceilings only
- Non-plenum rated
- Meets FCC Part 15, Subpart B, Class B limits for conducted and radiated emissions
- ENERGY STAR® certified. Please refer to <https://www.energystar.gov/productfinder/product/certified-lightfixtures/results> for most current information
- Meets CA Title 24 JA8 Requirements
- RoHS Compliant. Consult factory for additional details
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Installation

- For retrofit installation, the CDR series is easy to install in standard 4", 6", and 8" CFL pinned housings
- For new construction installation, the CDR series mounts easily to an existing junction box
- Recommended ceiling cutout - CDR4: 4.0" to 5.1"; CDR6: 6.3" to 7.5"; CDR8: 7.9" to 9.4"
- Requires access above the ceiling
- Quick install system using the spring clip system for easy install into existing pinned CFL housing or junction box.



NOTE: Reference <https://www.creelighting.com/products/indoor/new-construction-downlights/cdr-series> for detailed installation instructions

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Electrical Data*							
Size	Lumen Package		System Watts 120-277V	Total Current (A)			
				120V	208V	240V	277V
4"	ALS	Low	5.5	0.05	0.03	0.03	0.02
		Medium	8	0.07	0.04	0.04	0.03
		High	12	0.11	0.06	0.06	0.05
6"	ALS	Low	7	0.06	0.04	0.03	0.03
		Medium	10	0.09	0.05	0.05	0.04
		High	18	0.17	0.10	0.08	0.07
8"	ALS	Low	10	0.09	0.05	0.05	0.04
		Medium	15	0.14	0.08	0.07	0.06
		High	24	0.22	0.13	0.11	0.10
8"	ALH	Low	32	0.30	0.17	0.15	0.13
		Medium	42	0.39	0.22	0.19	0.17
		High	52	0.48	0.28	0.24	0.21

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

Initial Delivered Lumens*			
Size	Lumen Package		3000K/3500K/4000K
4"	ALS	Low	500
		Medium	700
		High	1,000
6"	ALS	Low	700
		Medium	1,000
		High	1,500
8"	ALS	Low	1,000
		Medium	1,500
		High	2,500
8"	ALH	Low	3,300
		Medium	4,000
		High	5,000

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

CDR Series Ambient Adjusted Lumen Maintenance ¹					
Ambient	Initial LMF	25K hr Reported ² LMF	50K hr Reported ² LMF	75K hr Estimated ³ LMF	100K hr Estimated ³ LMF
0°C (32°F)	1.05	0.97	0.90	0.83	0.77
5°C (41°F)	1.04	0.96	0.89	0.82	0.76
10°C (50°F)	1.03	0.95	0.88	0.81	0.75
15°C (59°F)	1.02	0.94	0.87	0.81	0.75
20°C (68°F)	1.01	0.93	0.86	0.80	0.74
25°C (77°F)	1.00	0.92	0.85	0.79	0.73
30°C (86°F)	0.99	0.91	0.84	0.78	0.72
35°C (95°F)	0.98	0.90	0.83	0.76	0.70
40°C (104°F)	0.97	0.89	0.81	0.75	0.68

¹ Lumen 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.

² In 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.

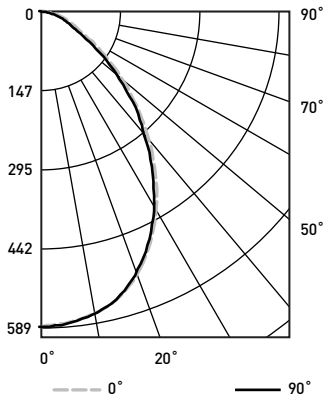
³ Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.



Photometry

CDR4-B-ALS-9ACK-10V5-WH-UNV, High Lumen Package, BASED ON TEST#: PL16735-001A

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%.



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	111	107	103	100
2	102	95	90	85
3	95	85	78	73
4	88	77	69	64
5	81	70	62	56
6	76	64	56	50
7	71	58	51	45
8	66	54	46	41
9	62	50	42	37
10	58	46	39	34

Effective Floor Cavity Reflectance: 20%

Average Luminance Table (cd/m ²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	39,272	39,496	39,867
55°	27,955	28,076	28,235
65°	18,413	18,450	18,526
75°	15,584	15,648	15,705
85°	10,497	10,172	9,806

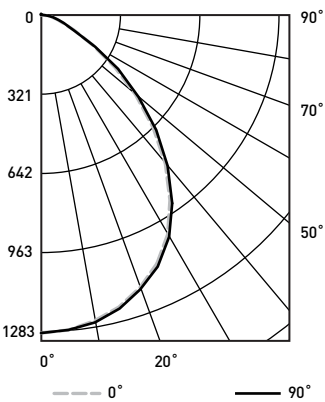
Reference <https://www.creelighting.com/products/indoor/new-construction-downlights/cdr-series> for detailed photometric data

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	432.14	N/A	38.9%
0-40	664.16	N/A	59.7%
0-60	990.81	N/A	89.1%
0-90	1,112.07	N/A	100%
0-180	1,112.07	N/A	100%

Photometry

CDR8-B-ALS-9ACK-10V5-WH-UNV, High Lumen Package, BASED ON TEST#: PL16737-003A

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%.



Coefficients Of Utilization – Zonal Cavity Method				
RC %:	80			
RW %:	70	50	30	10
RCR: 0	119	119	119	119
1	111	107	103	100
2	102	95	90	85
3	95	86	79	73
4	88	77	70	64
5	81	70	62	56
6	76	64	56	50
7	70	58	50	45
8	66	54	46	40
9	62	49	42	37
10	58	46	38	34

Effective Floor Cavity Reflectance: 20%

Average Luminance Table (cd/m ²)			
Vertical Angle	Horizontal Angle		
	0°	45°	90°
45°	24,588	24,699	24,665
55°	17,208	17,200	17,231
65°	9,368	9,277	9,237
75°	7,372	7,376	7,348
85°	6,469	6,571	6,570

Reference <https://www.creelighting.com/products/indoor/new-construction-downlights/cdr-series> for detailed photometric data

Zonal Lumen Summary			
Zone	Lumens	% Lamp	Luminaire
0-30	969.15	N/A	37.5%
0-40	1,530.32	N/A	59.2%
0-60	2,337.99	N/A	90.5%
0-90	2,583.02	N/A	100%
0-180	2,583.02	N/A	100%

Application Reference

CDR4-B

Open Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft ²	Average fc
4 x 4	Low	500	5.5	91	0.33	30
6 x 6	Low	500	5.5	91	0.15	14
8 x 8	Low	500	5.5	91	0.08	7
10 x 10	Low	500	5.5	91	0.06	5
4 x 4	Medium	700	8	88	0.48	41
6 x 6	Medium	700	8	88	0.22	19
8 x 8	Medium	700	8	88	0.12	10
10 x 10	Medium	700	8	88	0.08	7
4 x 4	High	1,000	12	83	0.72	59
6 x 6	High	1,000	12	83	0.34	28
8 x 8	High	1,000	12	83	0.18	15
10 x 10	High	1,000	12	83	0.12	10

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

Corridor Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft ²	Average fc
4' OC	Low	500	5.5	91	0.23	13
6' OC	Low	500	5.5	91	0.16	9
8' OC	Low	500	5.5	91	0.11	6
10' OC	Low	500	5.5	91	0.09	5
4' OC	Medium	700	8	88	0.33	18
6' OC	Medium	700	8	88	0.23	12
8' OC	Medium	700	8	88	0.16	8
10' OC	Medium	700	8	88	0.13	7
4' OC	High	1,000	12	83	0.50	25
6' OC	High	1,000	12	83	0.34	17
8' OC	High	1,000	12	83	0.24	12
10' OC	High	1,000	12	83	0.20	10

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

CDR6-B

Open Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft ²	Average fc
4 x 4	Low	700	7	100	0.42	41
6 x 6	Low	700	7	100	0.20	19
8 x 8	Low	700	7	100	0.11	10
10 x 10	Low	700	7	100	0.07	7
4 x 4	Medium	1,000	10	100	0.60	59
6 x 6	Medium	1,000	10	100	0.28	28
8 x 8	Medium	1,000	10	100	0.15	15
10 x 10	Medium	1,000	10	100	0.10	10
4 x 4	High	1,500	18	83	1.08	89
6 x 6	High	1,500	18	83	0.50	41
8 x 8	High	1,500	18	83	0.27	22
10 x 10	High	1,500	18	83	0.18	15

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

Corridor Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft ²	Average fc
4' OC	Low	700	7	100	0.29	17
6' OC	Low	700	7	100	0.20	12
8' OC	Low	700	7	100	0.14	8
10' OC	Low	700	7	100	0.12	7
4' OC	Medium	1,000	10	100	0.42	25
6' OC	Medium	1,000	10	100	0.28	17
8' OC	Medium	1,000	10	100	0.20	12
10' OC	Medium	1,000	10	100	0.17	10
4' OC	High	1,500	18	83	0.75	37
6' OC	High	1,500	18	83	0.51	25
8' OC	High	1,500	18	83	0.36	18
10' OC	High	1,500	18	83	0.30	15

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

Application Reference

CDR8-ALS-B

Open Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft2	Average fc
4 x 4	Low	1,000	10	100	0.60	59
6 x 6	Low	1,000	10	100	0.28	28
8 x 8	Low	1,000	10	100	0.15	15
10 x 10	Low	1,000	10	100	0.10	10
4 x 4	Medium	1,500	15	100	0.90	89
6 x 6	Medium	1,500	15	100	0.42	41
8 x 8	Medium	1,500	15	100	0.23	22
10 x 10	Medium	1,500	15	100	0.15	15
4 x 4	High	2,500	24	104	1.44	148
6 x 6	High	2,500	24	104	0.67	69
8 x 8	High	2,500	24	104	0.36	37
10 x 10	High	2,500	24	104	0.24	25

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

Corridor Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft2	Average fc
4' OC	Low	1,000	10	100	0.42	25
6' OC	Low	1,000	10	100	0.28	17
8' OC	Low	1,000	10	100	0.20	12
10' OC	Low	1,000	10	100	0.17	10
4' OC	Medium	1,500	15	100	0.63	37
6' OC	Medium	1,500	15	100	0.43	26
8' OC	Medium	1,500	15	100	0.30	18
10' OC	Medium	1,500	15	100	0.25	15
4' OC	High	2,500	24	104	1.00	62
6' OC	High	2,500	24	104	0.68	43
8' OC	High	2,500	24	104	0.48	30
10' OC	High	2,500	24	104	0.40	25

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

CDR8-ALH-B

Open Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft2	Average fc
4 x 4	Low	3,300	32	103	1.92	195
6 x 6	Low	3,300	32	103	0.90	91
8 x 8	Low	3,300	32	103	0.48	49
10 x 10	Low	3,300	32	103	0.32	33
4 x 4	Medium	4,000	42	95	2.52	237
6 x 6	Medium	4,000	42	95	1.18	110
8 x 8	Medium	4,000	42	95	0.63	59
10 x 10	Medium	4,000	42	95	0.42	39
4 x 4	High	5,000	52	96	3.12	296
6 x 6	High	5,000	52	96	1.46	138
8 x 8	High	5,000	52	96	0.78	74
10 x 10	High	5,000	52	96	0.52	49

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

Corridor Space						
Spacing	Lumen Package	Lumens	Wattage	LPW	w/ft2	Average fc
4' OC	Low	3,300	32	103	1.33	82
6' OC	Low	3,300	32	103	0.91	56
8' OC	Low	3,300	32	103	0.64	39
10' OC	Low	3,300	32	103	0.53	33
4' OC	Medium	4,000	42	95	1.75	99
6' OC	Medium	4,000	42	95	1.19	68
8' OC	Medium	4,000	42	95	0.84	48
10' OC	Medium	4,000	42	95	0.70	40
4' OC	High	5,000	52	96	2.17	124
6' OC	High	5,000	52	96	1.47	85
8' OC	High	5,000	52	96	1.04	60
10' OC	High	5,000	52	96	0.87	50

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