NICKLES ELECTRIC

ELECTRICAL CONTRACTOR

Robert J. Nickles, Inc.

4269 Argosy CT. • Madison, WI 53714

WISCONSIN TRANSPORTATION BUILDERS ASSOCIATION

ONE EAST MAIN, SUITE 300
MADISON WI 53703

ARCHITECT: VDT

GENERAL CONTRACTOR: IDEAL BUILDERS

SUBMITTAL FOR: LIGHT FIXTURES

THE FOLLOWING SUBMITTAL HAS BEEN REVIEWED BY NICKLES ELECTRIC: JTP 2/11/2016

Metalux

DESCRIPTION

The SkyRidge™ transforms ambient lighting by perfectly blending a refined modern styling with our breakthrough WaveStream™ LED technology to deliver exceptional performance and superior energy savings. SkyRidge's advanced engineered LED system with superior optical design delivers an unparalleled combination of optimal light uniformity and exceptional efficiency for greater energy savings.

SkyRidge is compatible with all of today's popular ceiling systems and available in a variety of configurations for application versatility. Its perfect balance of form and function make it an ideal choice for commercial office spaces, schools, hospitals, retail and other indoor ambient applications.

Catalog #	24SR-LD1-48-C-INV-LD835-CD1-U	Type
Project	WTB	D
Comments		**Date**
Prepared by	NICKLES ELECTRIC	2/11/2016

SPECIFICATION FEATURES

Construction
Shallow 4.75" deep housing is extruded aluminum frame and injected molded composite end plates. End plates are securely attached with screws for strength and rigidity and the elimination of gaps. End plates have accessory grid-lock feature for safety and convenience. Four auxiliary fixture end suspension points are provided. Large access plate for supply connection.

Controls
The SkyRidge LED is Powered by Fifth Light, with a standard 0-10V continuous dimming driver that works with any 0-10V control/dimmer. Combine with energy saving products like occupancy sensors, daylighting controls and lighting relay panels to maximize energy savings. In addition, the SkyRidge can include a factory-installed integrated sensor system for occupancy and daylight dimming control and manual control from an optional handheld remote. Or, specify the Digital Addressable Lighting Interface (DALI) drivers, dimmable down to 1% with the HD option, for use with Fifth Light controls. See ordering information for details on all three options.

Electrical
Long-life LED system coupled with electrical driver to deliver optimal performance. LED's available in 3000K, 3500K, 4000K or 5000K with a typical CRI ≥ 85. Projected life is 60,000 hours at 84% lumen output. Electronic drivers are available for 120-277V applications.

Emergency Battery Pack Option
Optional 120v-277v integral emergency battery pack is available in 7-watts or 14-watts to meet critical life-safety lighting requirements. The 90-minute batteries provide constant power to the LED system, ensuring code-compliance. A test switch/indicator button can be tested safely from the ground using a laser pointer, while the patented EZ Key prevents accidental discharge of the battery during construction. See ordering information for details.

Driver Access
Drivers can be accessed via plenum.

Finish
Durable frame has high reflectance baked matte white enamel finish for luminous uniformity.

Optics
Precision formed optical assembly with positively retained high optical grade acrylic lens provides a directed optical distribution using WaveStream LED technology.

SkyTrim Accessory
Designed for an array of interior applications, SkyTrim is a luminous decorative accent that can be mounted directly on the light guide of a SkyRidge fixture either at the factory or in the field. It is ideal for spaces where color is necessary to provide visual cues, emphasize brand identity, directional awareness or simply as an artistic expression.

Compliance
Components are UL recognized. Indoor luminaires are cULus listed for 25° C ambient environments, RoHS compliant, and comply with IESNA LM-79. LEDs comply with LM-80 standards. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.

Warranty
Five year warranty.

24SR LED

2' X 4' TROFFER LED MODULE

Specification Grade Troffer

powered by **fifthlight** technology

CERTIFICATION DATA
cULus - 1598 and 2043**
Damp Location Listed
IC Rated
LM79/LM80 Compliant
ROHS Compliant
DesignLights Consortium® Qualified
NOM Compliant

*See Drywall Frame Kit Accessory in Ordering Information section.
**Fixture construction is suitable for use in Air-handling and plenum rated spaces in accordance with Section 300.22 (C) of the National Electrical Code, Section 4.3.11.2.6.5 of NFPA 90A and Section 602.2.1.4 of ICC.
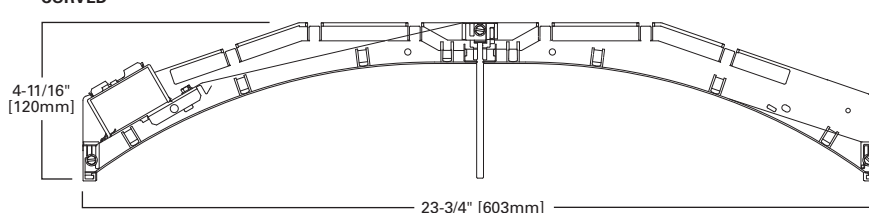
LINEAR DISCONNECT
Safe and convenient means of disconnecting power

CURVED

4-11/16" [120mm]

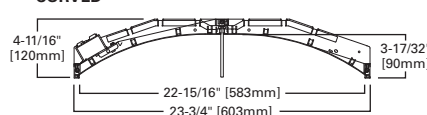23-3/4" [603mm]

MOUNTING DATA

23-3/4" [603mm]

47-15/16" [1218mm]

LAMP CONFIGURATIONS

CURVED
4-11/16" [120mm]
3-17/32" [90mm]
22-15/16" [583mm]
23-3/4" [603mm]

STRAIGHT
4-11/16" [120mm]
3-1/2" [89mm]
22-15/16" [584mm]
23-3/4" [603mm]

F·A·T·N
Powering Business Worldwide

ADF130560
2015-09-09 16:28:50

CEILING COMPATIBILITY

G
Grid/Lay-in
Standard

F
Drywall Frame
Kit

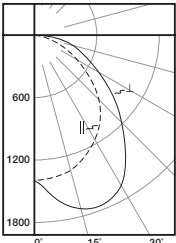| Ceiling Type	Trim Type
Exposed Grid	G
Concealed T	G or T
Slot Grid	G or T
Flange	*
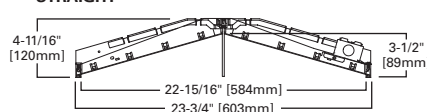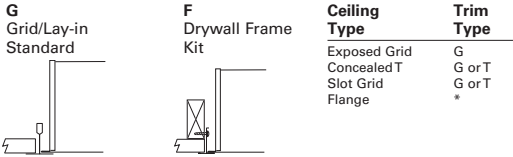
PHOTOMETRICS
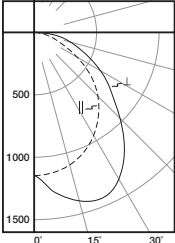
24SR-LD1-39-C-UNV-L835-CD1-U

Dimming Driver

Linear LED 3500K

Spacing criterion: (II) 1.2 x mounting height, (⊥) 1.6 x mounting height

Lumens: 3940

Input Watts: 38.8W

Efficacy: 102 LPW

Test Report: 22SR-LD1-39-C-UNV-L835-CD1-U.IES

Candlepower

Angle	Along ‖	45°	Across ⊥
0	1140	1140	1140
5	1140	1203	1251
10	1123	1270	1338
15	1097	1301	1400
20	1060	1311	1435
25	1012	1291	1421
30	951	1244	1355
35	883	1162	1247
40	804	1062	1111
45	717	954	970
50	621	840	834
55	513	724	702
60	402	609	592
65	299	502	486
70	213	408	393
75	143	321	303
80	91	238	205
85	47	134	111
90	0	0	0

Coefficients of Utilization

	Effective floor cavity reflectance			20%																
rc	80%				70%				50%			30%			10%			0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	90	83	77	96	88	81	76	84	79	74	81	76	72	78	74	71	69
3	90	79	70	64	87	77	69	63	74	68	62	71	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	41	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	32	43	36	31	42	36	31	29
9	56	43	34	29	55	42	34	29	41	33	28	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	1063	27.0
0-40	1763	44.7
0-60	3060	77.7
0-90	3940	100.0
0-180	3940	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	1453	1934	1966
55	1282	1809	1754
65	1014	1703	1648
75	792	1778	1678
85	773	2204	1825

24SR-LD1-48-C-UNV-L835-CD1-U

Dimming Driver

Linear LED 3500K

Spacing criterion: (II) 1.2 x mounting height, (⊥) 1.6 x mounting height

Lumens: 4810

Input Watts: 49.1W

Efficacy: 98 LPW

Test Report: 22SR-LD1-48-C-UNV-L835-CD1-U.IES

Candlepower

Angle	Along ‖	45°	Across ⊥
0	1388	1388	1388
5	1389	1461	1524
10	1371	1547	1639
15	1338	1591	1718
20	1291	1605	1759
25	1230	1584	1741
30	1159	1520	1661
35	1071	1422	1523
40	976	1302	1354
45	867	1167	1180
50	746	1026	1015
55	616	881	854
60	481	742	722
65	359	614	596
70	251	497	483
75	170	396	376
80	107	293	256
85	57	167	133
90	0	0	0

Coefficients of Utilization

	Effective floor cavity reflectance			20%																
rc	80%				70%				50%			30%			10%			0%
rw	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	99	95	105	101	97	93	97	93	90	93	90	87	89	87	85	83
2	98	90	83	77	96	88	81	76	84	79	74	81	76	72	78	74	71	69
3	90	79	70	64	87	77	69	63	74	67	62	71	66	61	69	64	60	58
4	82	70	61	54	80	68	60	54	66	59	53	64	57	52	61	56	51	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	41	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	40	35	33
8	60	46	38	32	58	46	37	32	44	37	32	43	36	31	42	36	31	29
9	56	43	34	29	55	42	34	29	41	33	28	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	1298	27.0
0-40	2154	44.8
0-60	3734	77.6
0-90	4810	100.0
0-180	4810	100.0

Luminance Data

Angle in Deg	Average 0-Deg cd/sm	Average 45-Deg cd/sm	Average 90-Deg cd/sm
45	1649	2220	2240
55	1444	2066	2003
65	1143	1954	1897
75	883	2058	1954
85	880	2577	2052

ORDERING INFORMATION

SAMPLE NUMBER: 24SR-LD1-48-C-UNV-L835-CD1-SVDP1-U

24SR	LD1	48	C	UNV	L835	CD	1

Rating
Blank=Standard
ATW-SW4= Chicago Rated [6]

Series [8]
24SR=2' x 4' SkyRidge Series

Air
[Blank]=Standard
A=Air (Vented) [7]

Lamp Type
LD1=LED 1.0

Stock Lumen Outputs
39=3900 Lumens
48=4800 Lumens [13]

MTO Lumen Outputs [4]
29=2900 Lumens [5], [12]
34=3400 Lumens [12]
45=4500 Lumens
53=5300 Lumens [13]
59=5900 Lumens [13]
64=6400 Lumens [13]

Reflector
C=Curved (Standard)
S=Straight

Optics
Blank=Standard

Voltage [1]
347V=347 Volt
UNV=Universal Voltage 120-277

Options
Emergency
EL7W=7-watt, 120V-277V emergency battery pack installed [2]
EL14W=14-watt 120V-277V emergency battery pack installed [2]
GTD2=Bodine Generator Transfer Device [17]
ETS2=IOTA Emergency Transfer Switch [17]

CCT
L830=3000K
L835=3500K
L840=4000K
L850=5000K

Flex [15]
Multiple Configurations Available

Driver Type
CD=0-10V Dimming Driver (10% - 100% Dimming)
HCD=0-10V Dimming Driver (1% - 100% Dimming) [16]
SD=Step-Dim Driver [11]
5LTD=Fifth Light DALI Driver [3] (10%- 100% Dimming)
5LTHD=Fifth Light DALI Driver [3] (1%- 100% Dimming)

Number of Drivers
1=1 Driver

S		D	1		U

Product Family
S=Integrated Sensor

Control Type
B=Sensor Mounting, No Sensor
V=Analog (0-10V) Output for Local Control [14]

Occupancy Technology
P=Passive Infrared

Sensing Technology
D=Dimming Daylight Harvesting (Closed Loop)

Coverage Pattern
1= ~144 Square Feet

SkyTrim [9]
TB=Tahitian Blue
PG=Primary Green
SO=Storaro Orange
PL=Pearl
BR=Belladonna Rose
MR=Medium Red
ST=Straw
CC=Custom [10]

Packaging
U=Unit Pack
PALC=Job Pack, in carton

ACCESSORIES

T3A END E.Q. BRACKET PARTS BAG (Standard with fixture)
DF-24-W=2' x 4' Drywall Frame Kit
SK-24-WT=2' x 4' Tall Surface Mount Kit
DF10P-C_=Decorator Dimmer, 0-10V
SF10P-_=Decorator Slide Dimmer, 0-10V
HHPRG-MS=Programming Remote for Integrated Sensor
ISHH-02=Personal Control Remote for Integrated Sensor

NOTES: [1] Products also available in non-US voltages and frequencies for international markets. [2] With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. [3] Must be used in conjunction with a DALI control system. For complete DALI soluitions by Fifth Light, visit www.coopercontrol.com. [4] Made-to-order (MTO) requites four week lead time. [5] 2900 lumen option is not available with Step-Dim. [6] Chicago rated version does not allow for row mounting. [7] Air version is vented but does not meet air handling requirements. Air version is non-IC. Air version is not available with integrated sensor. [8] DesignLights Consortium™ Qualified and classified for DLC Standard (all lumen packages). Refer to www.designlights.org for details. [9] Fixtures using factory installed SkyTrim option are not DLC qualified. [10] Custom color must list Roscolux numeric color specification code. [11] 2900, 3400, 5900 and 6400 lumen packages are not available with Step-Dim driver. [12] 5LTD option is not available in 2900 and 3400 lumen packages. [13] 5LTHD not available in 4800, 5300, 5900 and 6400 lumen packages. [14] Integral sensor works only with "CD" driver and is factory prewired to the driver for stand-alone control. [15] Flex does not include dimming leads. Control leads provided by others. [16] HCD driver option is not available with 6400 lumen package. [17] Used to transfer fixture to secondary power source for life-safety operation. When used with a dimming fixture, two devices are required to ensure control is disabled while operating under emergency power.

Specifications & dimensions subject to change without notice. Consult your Eaton Representative for availability and ordering information.

SHIPPING DATA

Catalog No.	Wt.
24SR-LD1-39	24 lbs.
24SR-LD1-48	24 lbs.

F·A·T·N
Powering Business Worldwide

Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

ADF130560
2015-09-09 16:28:50

INTEGRATED SENSOR

Description
This innovative luminaire-integrated sensor control system is optimized for code-compliant occupancy detection and daylight harvesting – all from within the foot print of Metalux's award-winning recessed ambient luminaires.

No New Wires
An in-place fixture retrofit is all that's needed to meet most energy codes in commercial spaces. The sensor system is factory wired to the luminaire, switching on or off based on occupancy, and dimming the light when enough daylight is available.

Sophisticated lighting control without commissioning
The luminaire-integrated sensor system offers out-of-the-box operation using thoughtful default settings.

Flexibility and Individual Control
When the application demands more, the sensor system has the option to make changes using a remote control. The remote allows changes from the default settings for occupancy, target light level, preset lighting levels, and more.

Cost-effective, Stand-alone Operation
With a single product to mount and a single electrical connection to make, the Metalux luminaire with an integrated sensor system saves money on the total installed cost when occupancy or daylight harvesting controls are needed. The integrated sensor system works stand-alone, without the need for additional switches and dimmers. When manual-on, manual dimming or other code-required control schemes are needed, please see the comprehensive offering of Greengate and Fifth Light solutions from Cooper Controls at www.coopercontrol.com.
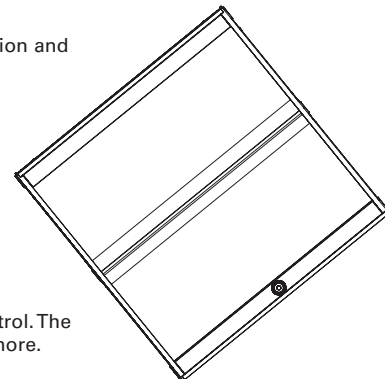
### Metalux Integrated Sensor Sequence of Operation
The occupancy sensing portion of the sensor uses Passive Infrared (PIR) technology with Auto-on/Auto-off operation. The small lens in the center of the sensor directs the view of a passive infrared occupancy detector to sense occupants moving through the room. To trigger the light on, an occupant must cross at least two passive infrared beams. When motion in the coverage area ceases, the sensor logic concludes the room is unoccupied, and begins a count-down timer. By default, the timer is factory-set to 20 minutes, and can be adjusted to 5, 10, 15 and 20 minutes using the optional remote control, model number HHPRG-MS. Any motion detected during the count-down timer will cause the light to remain on and resets the timer. When motion is detected, a red LED will blink. In addition to the default on/off functionality, the sensor has an Energy Saver feature, where the light can be set to dim to a preset level after the sensor detects no occupancy for half of the count-down timer, when the timer is complete the lighting will change to the unoccupied setting. The Energy Saver feature works when the count-down timer is set to at least 15 minutes, and the preset level and feature are configured using the optional remote control. See the Sensor Programming Guide that comes with the HHPRG-MS remote for details on this feature. The sensitivity of the occupancy detection can be adjusted, using the HHPRG-MS remote. By default, the sensor operates at the full detection range shown on the coverage pattern diagram. Using the "LO" button on the HHPRG-MS remote, reduces the sensor detection range by 50%. Full coverage can be restored at any time by pressing the "HI" button on the remote. The red LED indicator will blink repeatedly to confirm any programming change.

The dimming daylight harvesting portion of the sensor uses a small photo sensor located next to the occupancy sensing lens. The sensor continuously measures the available light in the room, even when the fixture is turned off. This allows sensor to operate in one of three daylighting modes, where the artificial light from the paired Metalux luminaire can adjust the light based on the amount of ambient light from surrounding natural and artificial light sources. Since the sensor measures light from its luminaire along with other light sources, this sensor follows a closed-loop dimming daylight harvesting style. The first mode, Daytime, is active when the sensor detects light of at least 100 lux in the room. In Daytime mode, when the light is turned on after detecting occupancy, the sensor will begin balancing the luminaire light level relative to the total available light it measures. The default light balancing target in daytime mode is 500 lux. This level can be adjusted higher or lower using the optional HHPRG-MS remote, and pressing "SET" and then the "DO" (Daytime Occupied) button to store the new light level. Similarly, the Daytime Unoccupied, "DU" has a default of level of 0 lux, or off, but can be adjusted higher to prevent the lights from turning off completely when unoccupied. More details on this function are found in the Sensor Programming Guide for the HHPRG-MS remote.

The next two modes, Twilight and Nighttime, function in a similar way, allowing the artificial light to adjust to different levels based on the surroundings. While primarily for use in outdoor luminaires, these modes are available for use in areas with a wide range of natural light, including atriums, day lit stairwells, and rooms with large or continuous windows. The Twilight mode is active when the sensor detects 50-100 lux in the off position, and has a 300 lux default light balancing target. The Nighttime mode is active when the sensor detects less than 50 lux, and has a 250 lux default light balancing target. Like the Daytime mode, there are separate settings for Twilight Occupied ("TO"), Twilight Unoccupied ("TU"), Nighttime Occupied ("NO") and Nighttime Unoccupied ("NU") which can be adjusted and set using the optional HHPRG-MS remote.

In addition to programming the sensor, the optional HHPRG-MS remote can be used for personal control to adjust the lighting temporarily override the functions of the sensor temporarily. The remote has raise/lower buttons to adjust the light level for special tasks, as well as a power button to turn the lights on or off. Unless the SET button and another function is selected, any changes made using these buttons will revert to the programmed settings after the sensor has detected no occupancy for its programmed time out, and turned off the lighting. The next time the sensor detects occupancy, it will revert to its programmed settings for count-down timer and light balancing.

Coverage

Top View

Side View

Reccomended Mounting Height 8–12 ft.
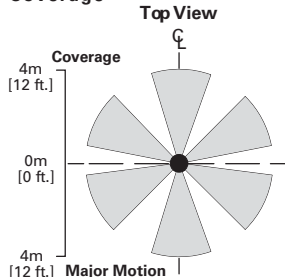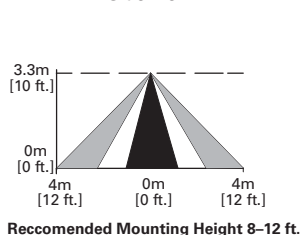
Optional Remote Control

HHPRG-MS Remote

F·T·N
Powering Business Worldwide

ADF130560
2015-09-09 16:28:50

Applications: For use in insulated ceilings and can be installed in direct contact with insulation

AIRTIGHT
Meets IECC Energy Code.
(Less than 2 CFM
leakage at 1.57 PSI)
Performance Tested
per ASTM
E283-84

6 3/8"
(162.4cm)

8 1/8"
(207cm)

5 9/16"
(141cm)

4 1/4"
(108cm)
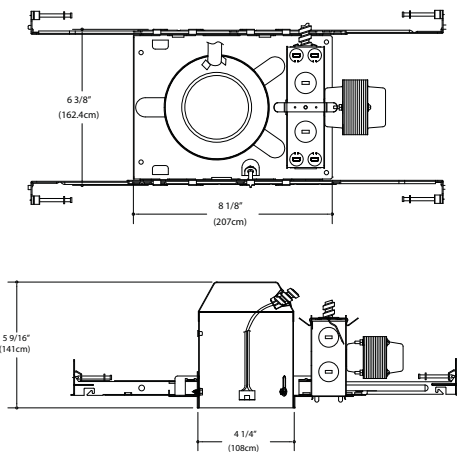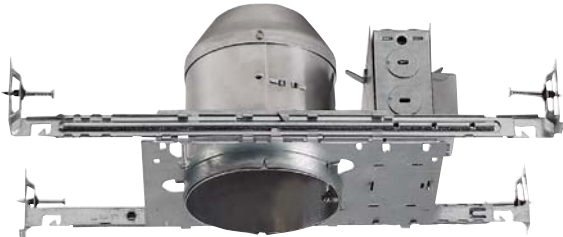
Catalog #	Ceiling Cut-Out	Plaster Frame	Input Voltage	Lamp (Ordered Separately)	Lamp Base	Transformer
E-RHN4101TP	4.375"	7.625"W X 12.25"L	120V	(1) 12V MR16, LED 10W Max	2-pin GU5.3	120V Magnetic

Performance
- 1-year limited warranty

Construction & Materials
- Integral thermal protector guards against misuse of insulation materials and improper lamping
- Junction Box is listed for eight (4in-4out) No. 12AWG (90°C) through-branch circuit conductors and has five 1/2", one 34" and four Romex® knockouts with true pry out slots
- Romex® knockouts include built in strain relief - no additional clamps required
- Pre-installed hanger bars allow housing to be positioned at any point within 24" joist span and include locking screw. Score lines provided for easy field shortening to accommodate 12" joist span
- Hanger bars can easily be field repositioned 90° on the plaster frame
- Hanger bars are designed to fit on to T-Bar spine for quick alignment and can be permanently secured without the need for additional clips
- LED lamps dimmable to 25% when using with a dimmer suitable for magnetic loads (see recommended list of leading edge dimmers)
- Housing adjusts for ceilings up to 1-3/8" thick
- 5-1/2" height allows for use in 2" x 6" joint construction

Electrical
- 10W maximum LED lamp wattage. Not for use with halogen lamps. Use with LED lamps only.
- 120V magnetic transformer steps line voltage down to lamp operating voltage

Regulatory
- UL listed for damp locations

Trims
- E-T4100WH - Pin Hole w/Baffle
- E-T4216CL - Reflector

- E-T4316BK - Black Metal Baffle
- E-T4316WH - White Metal Baffle
- E-T4616WH - Gimbal

- E-T4801WH - Slotted Wall Wash w/Baffle
- E-T4726WH - Eyeball w/Baffle

LM16
LED MR16 Lamp

Product Description

The Cree LM16 delivers up to 620 lumens while achieving over 68 lumens per watt. The LM16 LED MR16 lamp is available in a variety of beam angles with a color temperature of 3000K. Designed to halogen MR16 lamp standards, the LM16 LED lamp imitates the size, appearance and lumen performance of halogen lamps. This lamp saves 80 percent of annual energy savings and is suitable for open track fixtures and non-IC rated downlights. It is capable of dimming down to 5 percent and is perfect for down lighting, track and accent lighting use in both commercial and retail applications.

Performance Summary

Delivered Light Output: 464 lumens (35W eq); 620 lumens (50W eq)

Input Power: 7 watts (35W eq); 9 watts (50W eq)

CRI: 83

CCT: 3000K

Beam Angle: 17°, 25° and 40°

CBCP: 35W eq 17°: 2862, 35W eq 25°: 1995, 35W eq 40°: 728
50W eq 17°: 4152, 50W eq 25°: 2650, 50W eq 40°: 1057

Warranty: 3 year limited warranty†

Lifetime: Designed to last 25,000 hours in open track fixtures and non-IC downlights
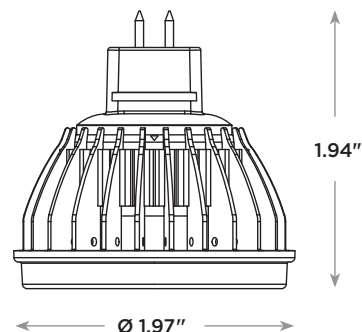
Dimming: 5%*

Ordering Information
Example: LM16-50-30K-25D

LM16		30K		
Product	**Watt Equivalent**	**CCT**	**Beam Angle**	**Base**
LM16	**35** 35W	**30K** 3000 Kelvin	**17D** 17° Spot	**Blank** GU5.3 Base
	50 50W		**25D** 25° Flood	
			40D 40° Wide Flood	

*See compatible dimming controls page.
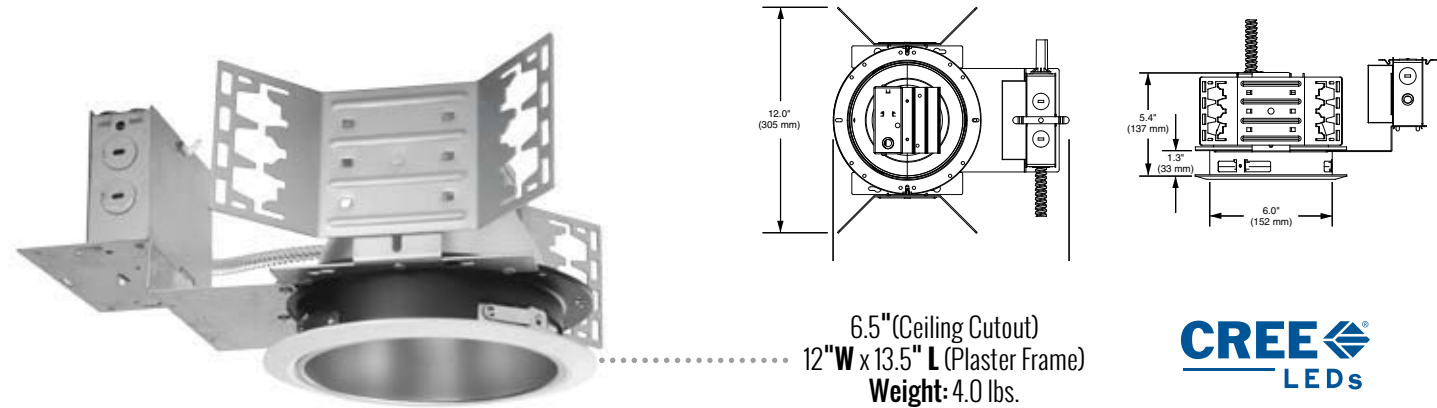† See www.cree.com/lighting for warranty terms.

1.94″

Ø 1.97″

6" LED DOWNLIGHT
NEW CONSTRUCTION - TYPE NON-IC
(E-A6NL21-1T)

Applications: For use in non-insulated ceilings or where insulation can be kept 3" from housing.

12.0"
(305 mm)

5.4"
(137 mm)
1.3"
(33 mm)
6.0"
(152 mm)

6.5"(Ceiling Cutout)
12"**W** x 13.5" **L** (Plaster Frame)
Weight: 4.0 lbs.

CREE LEDs

(Pictured with trim, ordered separately. See next page
for trim selection.)

Catalog #	Description	Input Voltage	Initial Delivered Lumens	CCT	CRI	50K Hours Projected Lumen Maintenance Factor at 25°C [1]	Comparable To
E-A6NL21-1T	21W LED Warm White	120V	1000	3500K	80	25,000 Hours	75W Incandescent

[1] Calculated L_{70} based on 6,048 hours of LM-80 testing: >36,000 hours

Line Current Data

Voltage	Operating Amperes
120V	0.17

Performance
- Estimated 25,000 hours of maintenance-free operation
- 3-year limited warranty

Construction & Materials
- Heavy-gauge formed steel housing integral reflector mounting spring
- Snap-on Junction box cover plates
- Precisely formed non-imaging one-piece reflector design
- Thermally protected in accordance with Article 410 of NEC and UL 1598
- 1¼" deep aperture throat, to accommodate all standard ceilings
- Mounting brackets are adjustable from above or below the ceiling and have a 5" vertical adjustment
- Oversize, through branch circuit rated, Junction box
- Use ½" EMT for mounting or choice of optional C-Channel or flat hanger bars
- Heat dissipating aluminum extrusion
- Ten ½" and four ¾" knockouts with pry-outs
- Eight knockouts with Romex cable clamp
- Cree® LEDs inside

Electrical
- Non-dimmable
- Listed for eight #12AWG (4 in-4 out) 90°C feed through branch circuit conductors

Regulatory
- UL, cUL Listed for damp locations
- UL, cUL Listed for installations where insulation can be kept 3 inches away

Accessories
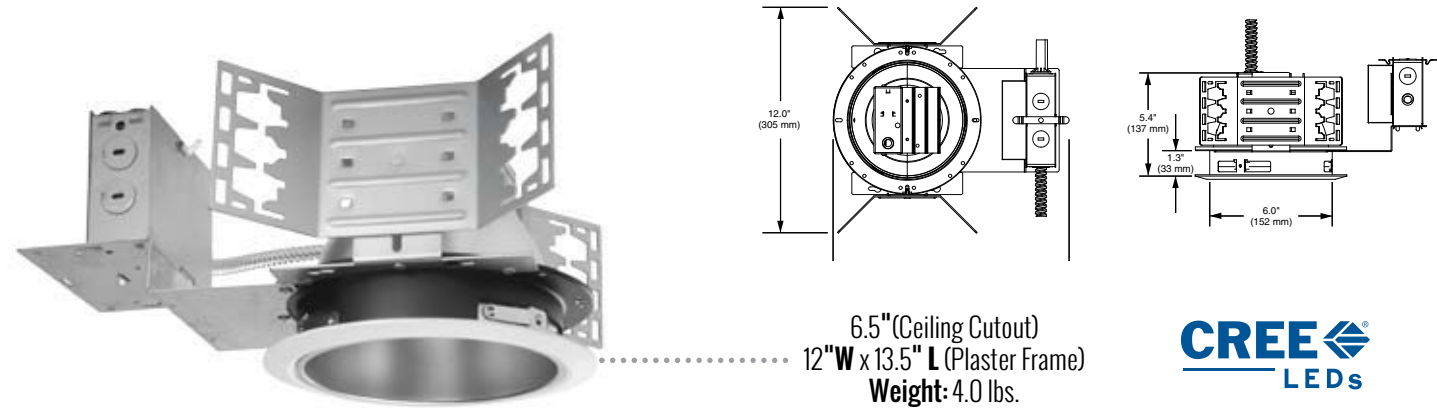

30-inch C-Channel Hanger Bars (2)
CAT.# E-RABH30C

27-inch Flat Bar Hangers (2)
CAT.# E-RABH27

T-Bar Clips (4)
CAT.# E-RARC7

6" LED DOWNLIGHT
NEW CONSTRUCTION - TYPE NON-IC
(E-A6NL21-1T)

Applications: For use in non-insulated ceilings or where insulation can be kept 3" from housing.

12.0"
(305 mm)

5.4"
(137 mm)

1.3"
(33 mm)

6.0"
(152 mm)

6.5" (Ceiling Cutout)
12" **W** x 13.5" **L** (Plaster Frame)
Weight: 4.0 lbs.

CREE LEDs

(Pictured with trim, ordered separately. See next page
for trim selection.)

Catalog #	Description	Input Voltage	Initial Delivered Lumens	CCT	CRI	50K Hours Projected Lumen Maintenance Factor at 25°C [1]	Comparable To
E-A6NL21-1T	21W LED Warm White	120V	1000	3500K	80	25,000 Hours	75W Incandescent

[1] Calculated L_{70} based on 6,048 hours of LM-80 testing: >36,000 hours

Line Current Data

Voltage	Operating Amperes
120V	0.17

Performance
- Estimated 25,000 hours of maintenance-free operation
- 3-year limited warranty

Construction & Materials
- Heavy-gauge formed steel housing integral reflector mounting spring
- Snap-on Junction box cover plates
- Precisely formed non-imaging one-piece reflector design
- Thermally protected in accordance with Article 410 of NEC and UL 1598
- 1¼" deep aperture throat, to accommodate all standard ceilings
- Mounting brackets are adjustable from above or below the ceiling and have a 5" vertical adjustment
- Oversize, through branch circuit rated, Junction box
- Use ½" EMT for mounting or choice of optional C-Channel or flat hanger bars
- Heat dissipating aluminum extrusion
- Ten ½" and four ¾" knockouts with pry-outs
- Eight knockouts with Romex cable clamp
- Cree® LEDs inside

Electrical
- Non-dimmable
- Listed for eight #12AWG (4 in-4 out) 90°C feed through branch circuit conductors

Regulatory
- UL, cUL Listed for damp locations
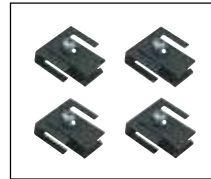- UL, cUL Listed for installations where insulation can be kept 3 inches away

Accessories

30-inch C-Channel Hanger Bars (2)
CAT.# E-RABH30C

27-inch Flat Bar Hangers (2)
CAT.# E-RABH27

T-Bar Clips (4)
CAT.# E-RARC7
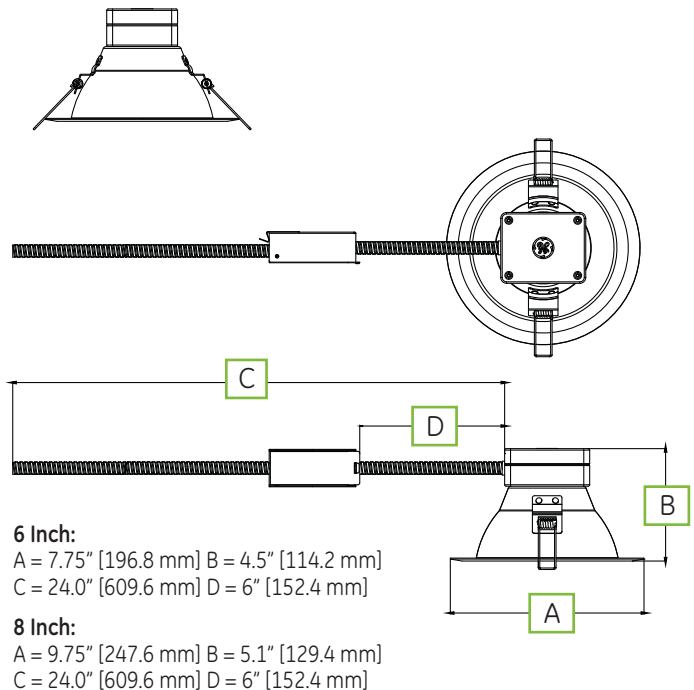
Lumination™ LED Luminaires
RX Series Downlights

Product Description:

The Lumination RX Series LED downlights are the ideal retrofit solution for traditional 1 or 2-lamp CFL downlights. They install in just minutes into most 6-inch and 8-inch CFL rough-in frames and bring a fresh look to the space. Unlike plug-in LED lamps, the RX downlight give you a new power supply and 50,000 hour life rating, so that you won't have to worry about compatibility or maintenance issues with the original ballasts. All downlights in the RX family have 120-277V input and a uniform lit appearance, delivering premium performance in an economical package.

Targeted Performance Summary:

Distribution Patterns: Wide
Delivered Lumen Output: 1000, 1500, 2000, 3000
System Input Power: 14W, 19.5W, 25W, 36W
System Efficacy (LPW): 71-83
Input Voltage: 120-277V
Standard Dimming Controls: Non-Dimming
CCT: 3000K, 3500K & 4000K
CRI: 82
Lifetime Rating: L70 @ 50,000 hours
Input Frequency (Hz): 60Hz
Power Factor: >0.9
Mounting Options: Spring clips clamp on to existing frame or directly to ceiling
Weight: 0.6 lb
IC Rating: Non-IC Rated
Limited Warranty: 5 years system
Files Available: LM79, LM80, IES

Listings:
• UL and cUL Listed.
• Suitable for damp locations.

Product Dimensions:

6 Inch:
A = 7.75" [196.8 mm] B = 4.5" [114.2 mm]
C = 24.0" [609.6 mm] D = 6" [152.4 mm]

8 Inch:
A = 9.75" [247.6 mm] B = 5.1" [129.4 mm]
C = 24.0" [609.6 mm] D = 6" [152.4 mm]

a product of **ecomagination**℠

Ordering Information: Quick Ship Program Available!

DESCRIPTION	RECESSED CAN SIZE	CCT	CRI	MAXIMUM LUMENS	VOLTAGE	WATTS	LPW
RX610830MV	6"	3000K	82	1000	120-277V	14	71
RX610835MV	6"	3500K	82	1000	120-277V	14	71
RX610840MV	6"	4000K	82	1000	120-277V	14	71
RX810830MV	8"	3000K	82	1000	120-277V	14	71
RX810835MV	8"	3500K	82	1000	120-277V	14	71
RX810840MV	8"	4000K	82	1000	120-277V	14	71
RX815830MV	8"	3000K	82	1500	120-277V	19.5	77
RX815835MV	8"	3500K	82	1500	120-277V	19.5	77
RX815840MV	8"	4000K	82	1500	120-277V	19.5	77
RX820830MV	8"	3000K	82	2000	120-277V	25	80
RX820835MV	8"	3500K	82	2000	120-277V	25	80
RX820840MV	8"	4000K	82	2000	120-277V	25	80
RX830830MV	8"	3000K	82	3000	120-277V	36	83
RX830835MV	8"	3500K	82	3000	120-277V	36	83
RX830840MV	8"	4000K	82	3000	120-277V	36	83

SKU	CATALOG#	DESCRIPTION	
93018829	GRRC6RPTWT	RX6" Goof Ring (OD 8.9")	5 per pack
93018831	GRRC8RPTWT	RX8" Goof Ring (OD 10.6")	5 per pack

GE imagination at work

# Photometric Data: Lumination™ RX Series Downlights

RX610835MV-PUBLISH.IES

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10°	45.28
10-20°	128.47
20-30°	191.06
30-40°	217.35
40-50°	194.77
50-60°	130.45
60-70°	58.96
70-80°	26.73
80-90°	6.38
90-100°	0.03
100-110°	0.03
110-120°	0.04
120-130°	0.06
130-140°	0.09
140-150°	0.11
150-160°	0.10
160-170°	0.07
170-180°	0.02

COEFFICIENTS OF UTILIZATION

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	103	100	108	105	101	99	100	98	96	97	95	93	93	91	90	88
2	102	95	90	85	100	94	88	84	90	86	82	87	83	80	84	81	78	76
3	95	86	79	73	92	84	78	72	81	76	71	78	74	70	76	72	69	67
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	55	67	60	55	65	59	54	63	58	54	52
6	75	63	55	49	74	62	55	49	61	54	49	59	53	48	58	52	48	46
7	70	58	50	44	69	57	49	44	56	49	44	54	48	43	53	47	43	41
8	66	53	45	40	64	52	45	40	51	44	40	50	44	39	49	43	39	37
9	61	49	41	36	60	48	41	36	47	41	36	46	40	36	45	40	36	34
10	58	45	38	33	56	45	38	33	44	37	33	43	37	33	42	37	33	31

NOTE: Floor Cavity Reflectance : 20%

ZONAL LUMEN SUMMARY

Zone	Lumens	% of Fixture
0-20°	173.75	17.40
0-30°	364.80	36.50
0-40°	582.16	58.20
0-60°	907.38	90.70
0-80°	993.07	99.30
0-90°	999.45	99.90

LUMINANCE DATA (CANDELA/m²)

Gamma	0°	45°	90°
45°	182507	182586	182564
55°	129254	129299	129343
65°	67939	67939	67902
75°	49999	50078	50216
85°	28738	28329	29848

POLAR GRAPH
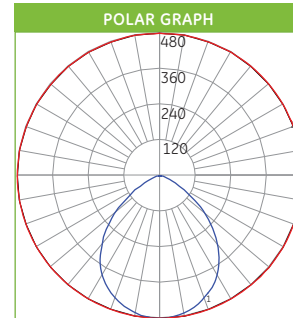
RX820835MV-PUBLISH.IES

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10°	88.00
10-20°	250.24
20-30°	373.80
30-40°	437.77
40-50°	408.07
50-60°	273.31
60-70°	110.22
70-80°	45.22
80-90°	12.64
90-100°	0.02
100-110°	0.03
110-120°	0.06
120-130°	0.11
130-140°	0.16
140-150°	0.18
150-160°	0.17
160-170°	0.12
170-180°	0.04

COEFFICIENTS OF UTILIZATION

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	103	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88
2	102	96	90	85	100	94	88	84	90	86	82	87	83	80	84	81	79	77
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67
4	87	77	69	63	85	76	68	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	68	61	55	66	60	55	65	59	54	63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	34
10	57	45	38	33	56	45	37	33	44	37	32	43	37	32	42	36	32	31

NOTE: Floor Cavity Reflectance : 20%

ZONAL LUMEN SUMMARY

Zone	Lumens	% of Fixture
0-20°	338.25	16.90
0-30°	712.05	35.60
0-40°	1149.82	57.50
0-60°	1831.2	91.60
0-80°	1986.64	99.30
0-90°	1999.28	100.00

LUMINANCE DATA (CANDELA/m²)

Gamma	0°	45°	90°
45°	266136	266196	266346
55°	188753	188759	188889
65°	86295	86220	86354
75°	58284	58366	58407
85°	43727	44376	45714

POLAR GRAPH
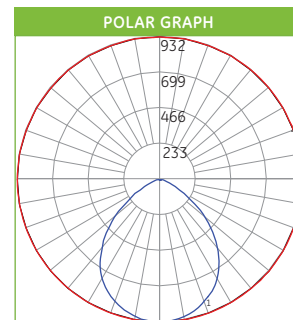
Product Specifications:

Construction:
- 16 gauge Aluminum spinning reflector housing, powder coating
- Custom engineered heat sink flange for passive cooling on all lumen options

Installation:
- Fixture mounting to an existing metal frame
- Conduit connect to quick-disconnect for easy installation

Optical System:
- Custom engineered reflectors for wide distributions.
- Semi-diffuse diffuser for ideal combination of optical efficiency and uniformity

Electrical System:
- High efficiency drivers, non-dimming

For more information and access to all of our resources, including our design tool visit: **www.gelighting.com**

Applications: General purpose track lighting that's a perfect fit for indoor residential, commercial, retail or industrial applications

CREE LEDs

5"**D** x 3.6"**W** x 6.5"**H**
Weight: 0.9 lbs.

Catalog #	Description	Input Voltage	Initial Delivered Lumens	CCT	CRI	50K Hours Projected Lumen Maintenance Factor at 25°C [1]	Comparable To
E-KXC215U1(*)	15W LED Beveled Cylinder - Residential Soft White	120V	980	2700K	80	35,000 Hours	75W PAR30
E-KXC215U3(*)	15W LED Beveled Cylinder Warm White	120V	980	3000K	80	35,000 Hours	75W PAR30
E-KXC215U7(*)	15W LED Beveled Cylinder - Residential Neutral White	120V	980	4000K	80	35,000 Hours	75W PAR30

(*) Specify finish color. K=Black, W=White
[1] Calculated L_{70} based on 6,048 hours of LM-80 testing: >36,000 hours

Performance
- Estimated 35,000+ hours of maintenance-free operation
- 3-year limited warranty

Construction & Materials
- Durable aluminum housing with white or black polyester powder-coat finish
- Polycarbonate adapter with copper conductor
- Spring latch secures light fixture to track
- Integral On/Off switch
- Pivot mount allows rotations up to 350° horizontally and 0-90° vertically in both directions for maximum aiming adjustability
- Supplied with 20° spot reflector and additional 40° diffuse lens for easy beam angle interchangeability. Diffuse lens changes lumen output to 950 lumens
- Compatible with 1- or 2-circuit track from E-conolight, Ruud Lighting, Juno, Prescolite, and Con-Tech
- Cree® LEDs inside

Electrical
- Dimmable down to 10% (see next page for compatible dimmers)
- 120V operation

Regulatory
- ETL Listed for dry locations

NOTE:
These track fixtures are ETL classified to be used with the following track systems:
- E-conolight: E-K1 and E-K2 Series
- Ruud Lighting: T1 and T2 Series
- Juno®: T and TU Series (not affiliated with E-conolight or Ruud)

e-conolight®

Recommended Dimmers

- Leviton Trimatron 6683
- Leviton Decora 6633
- Cooper Aspire 9530
- Lutron Abella AB-600HW-XX
- Lutron Maestro CN-600PHW
- Lutron Diva/C-L DVCL-153P-XX
- Lutron Lumea LGCL-153PLH-XX

NOTE: The presence of a dimmer on this chart is not a guarantee or warranty of the compatibility of the fixture in any particular installation. The absence of a dimmer from this chart does not necessarily imply incompatibility.

e-conolight®

Applications: General purpose track lighting that's a perfect fit for indoor residential, commercial, retail or industrial applications

CREE® LEDs

Also available in Black Finish

5.125**"H** x 1.875**"W** x 3.44**"L**
Weight: 0.77 lbs.

Catalog #	Description	Input Voltage	Initial Delivered Lumens	CCT	CRI	Estimated Lifetime
E-KXF108F1K	8W LED, Soft White, Black Finish	120V	500	2700K	80	30,000 Hours
E-KXF108F1W	8W LED Soft White, White Finish	120V	500	2700K	80	30,000 Hours
E-KXF108F3K	8W LED Warm White, Black Finish	120V	530	3000K	80	30,000 Hours
E-KXF108F3W	8W LED Warm White, White Finish	120V	530	3000K	80	30,000 Hours
E-KXF108F7K	8W LED, Neutral White, Black Finish	120V	530	4000K	80	30,000 Hours
E-KXF108F7W	8W LED, Neutral White, White Finish	120V	530	4000K	80	30,000 Hours

Performance
- Estimated 30,000 hours of maintenance-free operation
- -10°C minimum starting temperature
- 3-year limited warranty
- Pivot mount allows rotation of 350° horizontally and 90° vertically in both directions for maximum aiming adjustability
- Compatible with 1- or 2-circuit track from E-conolight, Ruud Lighting and certain track systems from Juno and Con-Tech
- 36° beam angle
- Polycarbonate adapter with copper conductor

Regulatory
- ETL Listed for dry locations

Construction & Materials
- Die-cast aluminum
- White and Black powder-coat finish
- Polycarbonate reflector and lens
- Mounts to Juno track via integrated adapter
- Cree® LEDs

Electrical
- Non-dimmable 120V driver
- 0.07 amps at 120V
- > 0.9 power factor
- < 20% Total Harmonic Distortion

Applications: Kitchens (not recommended for use over a sink) and pantries - also recommended for workshops, retail, display and entertainment centers

CREE® LEDs

1.0"**H** x 3.5"**W** x 8.0",12.5",21.5",30.0",40.0"**L**
Weight: 8.0" - 1.03 lbs.
12.5" - 1.4 lbs.
21.5" - 2.2 lbs.
30.0" - 3.04 lbs.
40.0" - 3.9 lbs.

Catalog #	Description	Input Voltage	Initial Delivered Lumens	CCT	CRI	Estimated Lifetime	Comparable To:
E-UN08L0321	8" 3W LED Soft White	120V	202	2700K	90	60,000 Hours	65W T5 Lamp
E-UN13L0621	12.5" 6W LED Soft White	120V	332	2700K	90	60,000 Hours	8W T5 Lamp
E-UN22L0921	21.5" 9W LED Soft White	120V	484	2700K	90	60,000 Hours	8W T5 Lamp
E-UN30L1121	30" 11W LED Soft White	120V	690	2700K	90	60,000 Hours	13W T5 Lamp
E-UN40L1521	40" 15W LED Soft White	120V	917	2700K	90	60,000 Hours	13W T5 Lamp

[1] Calculated L_{70} based on 10,000 hours of LM-80 testing: >60,000 hours

Performance
- Estimated 96,000 hours of maintenance-free operation to L_{70} at 25°C (77°F)
- 5-year limited warranty

Construction & Materials
- Aluminum housing with On/Off rocker switch
- White powder coat finish
- Polystyrene diffuser with glass cover
- Surface mount
- 1 Romex connector included with each fixture
  (models can be daisy chained together with through wiring of Romex)
- Cree® LEDs inside

Regulatory
- UL Listed for dry locations

Electrical
- Custom low-profile driver, Non-Isolated, Dimmable Driver, 120VAC 60Hz
- > 0.9 power factor
- < 20% total harmonic distortion
- 75°C minimum supply wire required
- Amperage draw: E-UN08L0321 - 0.028A
  E-UN13L0621 - 0.045A
  E-UN22L0921 - 0.066A
  E-UN30L1121 - 0.091A
  E-UN40L1521 - 0.120A