

# 228 Series™

## LED Canopy Luminaire Upgrade Kits

### Product Description

Energy-efficient, long life LED upgrade for surface mounted (RT1-RT5) and recessed (RT6) HID canopy luminaires. Reduces total ownership costs. Luminaire mounts directly to the existing housing by replacing existing door frame and lens assembly. The optical units come factory wired to the LED drivers. The luminaire attaches to existing housing hangs down to provide hands-free field wiring.

**Applications:** Petroleum stations, convenience stores, drive-thru banks and restaurants, retail and grocery

### Performance Summary

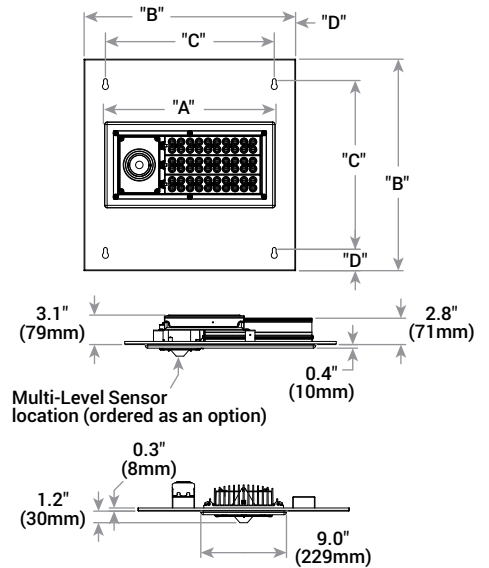
Patented NanoOptic® Product Technology
Made in the U.S.A. of U.S. and imported parts
<b>CRI:</b> Minimum 70 CRI
<b>CCT:</b> 4000K (+/- 300K), 5700K (+/- 500K) standard
<b>Limited Warranty*:</b> 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

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

### Accessories

<b>Field-Installed</b>
<b>Hand-Held Remote</b> XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

### RT1/RT2/RT3/RT4/RT5



Mounting	LED Count (x10)	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Weight
RT1	03	12.5" (317mm)	22.0" (559mm)	17.6" (387mm)	2.2" (48mm)	20.0 lbs. (9.1kg)
	06	17.8" (451mm)				25.0 lbs. (11.3kg)
RT2	03	12.5" (317mm)	22.5" (572mm)	20.1" (510mm)	1.2" (31mm)	20.0 lbs. (9.1kg)
	06	17.8" (451mm)				25.0 lbs. (11.3kg)
RT3	03	12.5" (317mm)	20.6" (523mm)	18.3" (464mm)	1.2" (30mm)	20.0 lbs. (9.1kg)
	06	17.8" (451mm)				25.0 lbs. (11.3kg)
RT4	03	12.5" (317mm)	19.5" (495mm)	15.5" (394mm)	2.0" (51mm)	18.5 lbs. (8.4kg)
	06	17.8" (451mm)				23.5 lbs. (10.7kg)
RT5	03	12.5" (317mm)	21.6" (549mm)	19.2" (487mm)	1.2" (31mm)	21.5 lbs. (9.8kg)
	06	17.8" (451mm)				24.5 lbs. (11.1kg)

RT6 - see page 4 for weight & dimensions

### Ordering Information

Example: CAN-228-PS-RT1-03-E-UL-WH-525

CAN-228	Product	Optic	Mounting	LED Count (x10)	Series	Voltage	Color Options	Drive Current	Options
CAN-228	PS Petroleum Symmetric SL Sparkle Petroleum	RT1 Elsco Franciscan Upgrade Kit - For nominal 23.8" x 23.8" (603mm x 603mm) shoebox luminaires RT2 LSI Dakota or Masters Upgrade Kit - For nominal 23" x 23" (584mm x 584mm) shoebox luminaires RT3 Whiteway Riviera or Rig-A-Lite Upgrade Kit - For nominal 21" x 21" (533mm x 533mm) shoebox luminaires RT4 Elsco Merrit Upgrade Kit - For nominal 20" x 20" (508mm x 508mm) shoebox luminaires RT5 Jet Philips Upgrade Kit - For nominal 22" x 22" (559mm x 559mm) shoebox luminaires RT6 LSI Richmond or Whiteway Civic Upgrade Kit - For nominal 19" x 9" x 13.5" (483mm x 299mm x 343mm) recessed luminaires - Available with 60 LEDs only	03 06	E	UL Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	525 525mA 700 700mA	DIM 0-10V Dimming - Control by others - Refer to <a href="#">Dimming spec sheet</a> for details - Can't exceed specified drive current ML Multi-Level - Refer to <a href="#">ML spec sheet</a> for details PML Programmable Multi-Level - Refer to <a href="#">PML spec sheet</a> for details 40K 4000K Color Temperature - Color temperature per luminaire - Minimum 70 CRI	



**Product Specifications**

**CONSTRUCTION & MATERIALS**

- Energy-efficient, long life LED upgrades for surface mounted HID canopy luminaires using the RT1-RT5 upgrade kits and for nominal 19" x 9" x 13.5" (483mm x 299mm x 343mm) recessed canopy luminaires using the RT6 upgrade kit
- Reduces total ownership costs
- Luminaire mounts directly to existing HID housing by replacing existing door frame and lens assembly
- Optical unit is constructed of high performance aluminum extrusion with rugged die cast end cap for exceptional performance and durability
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Black, bronze, silver and white are available
- **Weight:** See Weight and Dimensions Chart on pages 1 and 4

**RT1-RT5**

- Adaptor panel is pre-assembled to the optical unit and is factory wired to the LED driver. Panel is heavy gauge die-formed steel with exclusive Colorfast DeltaGuard® powder coat finish
- Optical unit is constructed of high performance aluminum extrusion with rugged die cast end cap for exceptional performance and durability
- Complete panel assembly is secured to the existing housing with four corner brackets and stainless steel screws
- Luminaire is provided with two suspension stainless steel aircraft cables to allow panel assembly to hinge open and allow for hands-free field wiring

**RT6**

- Hinge and latch brackets are pre-assembled to the optical unit and is factory wired to the LED driver
- Brackets are made out of heavy gauge die-formed steel with exclusive Colorfast DeltaGuard® powder coat finish
- Hinge brackets allow luminaire to hinge open and provide for hands-free field wiring
- Heavy gauge die-formed aluminum trim plate with exclusive Colorfast DeltaGuard® powder coat finish completes assembly
- Plate is secured in place with stainless steel screws and is provided with factory installed foam gasket to keep water and other elements from entering the luminaire

**ELECTRICAL SYSTEM**

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Field adjustable drive current. Can't exceed drive current specified in part number
- Integral 10kV surge suppression protection standard
- To address inrush current, slow blow fuse or type C/D breaker should be used
- **10V Source Current:** 0.15mA

**REGULATORY & VOLUNTARY QUALIFICATIONS**

- cULus Classified for use with:
  - RT1 - ElSCO Franciscan luminaires
  - RT2 - LSI Dakota or Masters luminaires
  - RT3 - Whiteway Riviera or Rig-A-Lite luminaires
  - RT4 - ElSCO Merrit luminaires
  - RT5 - Jet Philips luminaires
  - RT6 - LSI Richmond or Whiteway Civic luminaires
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15 Class A standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC qualified when ordered with PS or SL optics with 60 LEDs. Please refer to [www.designlights.org/QPL](http://www.designlights.org/QPL) for most current information

Electrical Data*							
LED Count (x10)	System Watts 120-480V	Total Current					
		120V	208V	240V	277V	347V	480V
525mA							
03	54	0.45	0.28	0.25	0.23	0.16	0.12
06	99	0.83	0.48	0.42	0.38	0.29	0.22
700mA							
03	70	0.58	0.35	0.31	0.28	0.21	0.16
06	132	1.11	0.66	0.57	0.50	0.39	0.28

\* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/-10%

Recommended 228 Series™ Lumen Maintenance Factors (LMF) <sup>1</sup>					
Ambient	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)	1.04	0.99	0.97	0.95	0.93
10°C (50°F)	1.03	0.98	0.96	0.94	0.92
15°C (59°F)	1.02	0.97	0.95	0.93	0.91
20°C (68°F)	1.01	0.96	0.94	0.92	0.90
25°C (77°F)	1.00	0.95	0.93	0.91	0.89

<sup>1</sup> Lumen maintenance values at 25°C 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 (IDUT) 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 (IDUT) i.e. the packaged LED chip

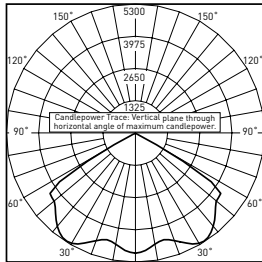


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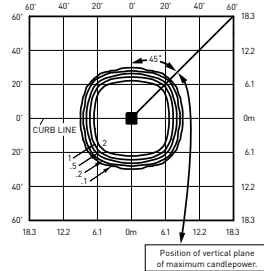
### Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/canopy-and-soffit/228-series>

#### PS



RESTL Test Report #: PL05998-001  
CAN-228-PS-RT\*-06-E-UL-700-40K  
Initial Delivered Lumens: 13,261



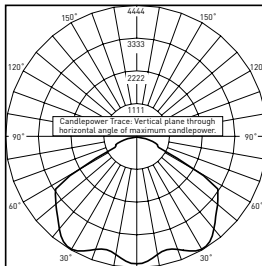
CAN-228-PS-\*\*\*-06-E-UL-700-40K  
Mounting Height: 15' (4.6m) A.F.G.  
Initial Delivered Lumens: 13,698  
Initial FC at grade

Petroleum Symmetric Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
525mA				
03	5,417	B2 U1 G0	5,626	B2 U1 G0
06	10,654	B3 U1 G0	11,064	B3 U1 G0
700mA				
03	6,965	B3 U1 G0	7,233	B3 U1 G0
06	13,698	B3 U1 G0	14,225	B3 U1 G0

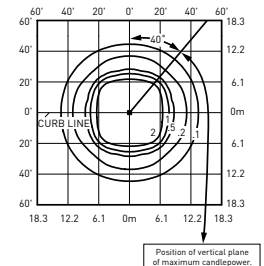
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf)

#### SL



RESTL Test Report #: PL05465-001  
CAN-228-SL-RT\*-06-E-UL-700-40K  
Initial Delivered Lumens: 12,759



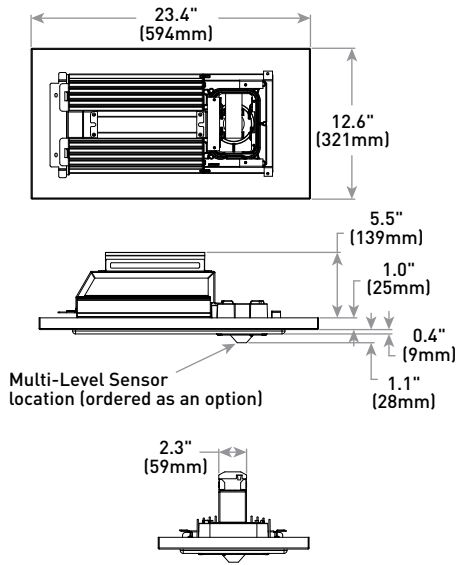
CAN-228-SL-\*\*\*-06-E-UL-700-40K  
Mounting Height: 15' (4.6m) A.F.G.  
Initial Delivered Lumens: 13,251  
Initial FC at grade

Sparkle Petroleum Distribution				
LED Count (x10)	4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
525mA				
03	5,241	B2 U1 G1	5,442	B2 U1 G1
06	10,307	B3 U1 G1	10,703	B3 U1 G1
700mA				
03	6,738	B2 U1 G1	6,997	B2 U1 G1
06	13,251	B3 U1 G1	13,761	B3 U1 G1

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

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: [www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf](http://www.ies.org/PDF/Erratas/TM-15-11BugRatingsAddendum.pdf)

**RT6**



Mounting	LED Count (x10)	Weight
RT6	06	21.5 lbs. (9.8kg)