

KH25Q

L70
25°C

320,000 Hours

EasyLED Small Bentley Kitty Hawk Area, Wall, and Flood Light



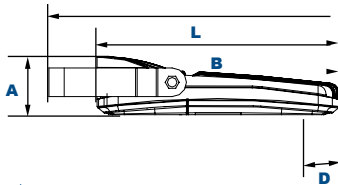
Shown with "KA" Kitty Hawk Arm Mounting Option.



Shown with "EH" Easy-Hang Wall Bracket



Shown with "SF" Slipfitter Option.



Dimensions

Width (D)	13 1/8" (340mm)	
Length (B)	15" (381mm)	Length with Mount (L)
Height (A)	3 1/2" (92mm)	

Kitty Hawk Arm (KA): 19 1/4" (491mm)
Slipfitter (SF): 18 1/2" (476mm)
Mounting Arm Adapter (MA): 19 1/2" (486mm)
Yoke (Y): 18" (457mm)
Bracket (BR): 18 1/2" (476mm)
Easy-Hang Wall Bracket (KHEH): 16" (406mm)

The LEPG KH25Q luminaire is available in three wattages with a wide choice of mounting configurations and optical distributions designed to replace HID lighting systems from 150w to 400w MH or HPS. Typical applications include general area, parking, flood, security, and accent lighting for retail centers, industrial parks, schools and universities, public transit and airports, office buildings and medical facilities. Mounting heights of 14 to 25 feet can be used based on light level and uniformity requirements.

Specifications and Features:

Housing:

Die Cast Aluminum Housing and Front Frame, Integral Heat Sinking and Driver Compartment. Photocell Adaptable. Nickel-Plated Stainless Steel Hardware.

Listing & Ratings:

CSA: Listed for Wet Locations, ANSI/UL 1598, 8750; IP66 Sealed LED Compartment.

Finish:

Textured Architectural Bronze Powdercoat Finish Over a Chromate Conversion Coating. Custom Colors Available Upon Request.

Lens:

Tempered Clear Flat or SoftLED Flat Glass Lens

Mounting Options:

Mounts with Kitty Hawk Arm, Adjustable Slipfitter, 2 1/2" Diameter Mounting Arm Adapter, Yoke, Two-Piece Bracket or Easy Hang Wall Bracket (Factory Installed).

EasyLED LED:

Aluminum Boards

Driver:

Electronic Driver, 120-277V, 50/60Hz or 347-480V, 50/60Hz (81w Model Only); Less Than 20% THD and PF>0.90. Standard Internal Surge Protection 6kV. 0-10V Dimming Standard for a Dimming Range of 100% to 10%; Dimming Source Current is 150 Microamps.

Controls:

Fixtures Ordered with Factory-Installed Photocell or Motion Sensor Controls are Internally Wired for Switching and/or 1-10V Dimming Within the Housing. Remote Direct Wired Interface of 1-10V Dimming is Not Implied and May Not Be Available, Please Consult Factory. Fixtures are Tested with LEPG Controls and May Not Function Properly With Controls Supplied By Others. Fixtures are NOT Designed for Use with Line Voltage Dimmers.

Warranty:

5-Year Warranty for -40°C to +50°C Environment.

See Page 6 for Projected Lumen Maintenance Table.

Order Information Example:

KH25QF1X112U5KCZKASP

KH25Q

Model	Optics/Beam	Wattage	Driver	CCT	Lens	Color	Mounting	Options
KH25Q =Small Bentley Kitty Hawk Area, Wall, and Flood Light	A =Type I/NEMA 7H x 5V B =Type II/NEMA 7H x 6V C =Type III/NEMA 7H x 7V D =Type IV/NEMA 6H x 5V F =Type V/NEMA 7H x 7V I =Narrow Beam/NEMA 4H x 4V* *Use with 81w & 112w 5K Model Only. See Page 4 & 6 for Distribution Information.	1X65 =65w* 1X81 =81w 1X112 =112w *Use with C & F Optics, 4K & 5K Models Only.	U =120-277V H =347-480V* *81w Model Only.	3K =3000K* 4K =4000K 5K =5000K * Use with 81w B, C, D, F Optics. ♦ Use with 112w D & F Optics.	C =Standard Clear Flat G =Glass Lens S =SoftLED Flat Glass Lens	Z =Bronze C =Custom (Consult Factory)	KA =Kitty Hawk Arm SF =Slipfitter MA =Mounting Arm Adapter Y =Yoke BR =Two-Piece Swivel Bracket EH =Easy-Hang Wall Bracket NM =No Mount	SF =Single Fuse (120-277V Only) DF =Double Fuse (120-277V Only) SP =Surge Protection M1 =Motion Sensor, IR for mounting heights of 20ft to 35ft M2 =Motion Sensor, IR for mounting heights of 18ft or less R3 =3-Pin Twist Lock Photocell Receptacle R5 =5-Pin Twist Lock Photocell Receptacle R7 =7-Pin ANSI C136.41—2013 Twist Lock Photocell Receptacle S23 =Internal Microwave Sensor with dimming for mounting heights of 25' or less (120-277V Only) S43 =Microwave On/Off Motion Sensor for Mounting Heights of 8' to 19', (120-277V Only)

Project Information:

Project Name: _____ Fixture Type: _____

Complete Catalog #: _____ Date: _____

Comments: _____

Certification & Listings:



DesignLights Consortium™ Qualified Luminaires:
 KH25QA1X[65 81 112][U H]5KC* KH25QD1X[65 81 112][U H]5KC*
 KH25QB1X[65 81 112][U H]5KC* KH25QF1X[65 81 112][U H]5KC*
 KH25QC1X[65 81 112][U H]5KC*



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Mounting Options:

**KH25Q with Kitty Hawk Arm (KA)**

Kitty Hawk Die-Cast Mounting Arm, Bronze Powdercoat Finish, Includes Hardware. Mounts Directly to Square Poles.

**KH25Q with Pole Mounting Arm Adaptor (MA)**

Die-Cast Adaptor for 2 3/4" Horizontal Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.

**KH25Q with Yoke (Y)**

Stamped Heavy-Duty Steel Yoke, Bronze Powdercoat Finish, Includes Hardware.

**KH25Q with "SF" External Mount Slipfitter (SF)**

External Mount Die-Cast Adjustable Slipfitter for 2 3/4" Tenons, Bronze Powdercoat Finish, Includes Hardware.

**KH25Q with Two-Piece Swivel Bracket (BR)**


Two-Piece Stamped Steel Adjustable Bracket, Bronze Powdercoat Finish, Includes Hardware.



**KH25Q with Easy-Hang Bracket (EH)**



Die-Cast Easy-Hang Wall Bracket, Bronze Powdercoat Finish, Includes Hardware.


EPA (Effective Projected Area)

Shown with Small Kitty Hawk Arm mounting.

Configuration	EPA (Sq. Ft.)	Weight (Lbs.)
 1	0.60	15 Lbs

Configuration	EPA (Sq. Ft.)	Weight (Lbs.)
 2@180° Mount	1.20	30 Lbs
 2@90° Mount	0.82	30 Lbs

Configuration	EPA (Sq. Ft.)	Weight (Lbs.)
 3@90° Mount	1.32	45 Lbs
 3@120° Mount	1.20	45 Lbs

Configuration	EPA (Sq. Ft.)	Weight (Lbs.)
 4@90° Mount	1.32	60 Lbs

Accessories & Replacement Parts:



Mounting Accessories (Order Separately, Field Installed)

KH20RPZ	Die-Cast Adaptor for 3" to 4" Round Poles, Bronze Powdercoat Finish. Use with KH25A Kitty Hawk Mounting Arm only.
KH20WMZ	Die-Cast Wall Mount Adaptor, Bronze Powdercoat Finish. Use with KH25A Kitty Hawk Mounting Arm only.
PTSB1SZ	Single Pole Tenon Spoke Bracket, 2 3/4" Horizontal Mounting Arm, Bronze Powdercoat Finish, Includes Hardware.
PTSB290SZ	Twin Pole Tenon Spoke Bracket, 2 3/4" Horizontal 90° Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.
PTSB2180SZ	Twin Pole Tenon Spoke Bracket, 2 3/4" Horizontal 180° Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.
PTSB390SZ*	Triple Pole Tenon Spoke Bracket, 2 3/4" Horizontal 90° Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.
PTSB3120SZ*	Triple Pole Tenon Spoke Bracket, 2 3/4" Horizontal 120° Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.
PTSB490SZ*	Quad Pole Tenon Spoke Bracket, 2 3/4" Horizontal 90° Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.

***Non-stock item. Consult factory for lead time.**

Accessories (Order Separately, Field Installed)

P18131	Twist Lock Non-Shorting (Open) Cap Disconnects Service to Fixture for Temporary or Permanent Disabling (Fixture Always Off). IP65, 480V Maximum.
P18132	Twist Lock Shorting Cap Provides Fixed Service to Fixture (Fixture Always On). IP65, Rated Load 7200w Tungsten.
P18140	110-120VAC Instant Twist Lock Photocell
P18150	120VAC Time Delay Twist Lock Photocell
P18152	277VAC Time Delay Twist Lock Photocell
P18156	120-277VAC Universal Twist Lock Photocell
P18157	480VAC Time Delay Twist Lock Photocell. For 480V use only.
ACCHSG1Z	Die Cast Accessory Housing for Installing Sensors or Other Lighting Controls, Bronze Powdercoat Finish
KH25GSZ	Aluminum Glare/House Side Shield, Bronze Powdercoat Finish, Includes Hardware.
KH25WG	Wire Guard, Stainless Steel Construction, Includes Hardware.
ACCHSG3	Bronze Polycarbonate Housing for Installing Sensors, Includes Sensor Bracket and Gasket.

Replacement Parts (Order Separately, Field Installed)

KH25GL	Tempered Clear Flat Glass Lens.
KH25GLSS	SoftLED Flat Glass Lens
KH25AZ	Kitty Hawk Die-Cast Mounting Arm, Bronze Powdercoat Finish, Includes Hardware. Mounts Directly to Square Poles.
ALMAAZ	Die-Cast Adaptor for 2 3/4" Horizontal Mounting Arms, Bronze Powdercoat Finish, Includes Hardware.
KH25YZ	Stamped Heavy-Duty Steel Yoke, Bronze Powdercoat Finish, Includes Hardware.
FL73SFZX	External Mount Die-Cast Adjustable Slipfitter for 2 3/4" Tenons, Bronze Powdercoat Finish, Includes Hardware.
FL73BRZ	Two-Piece Stamped Steel Adjustable Bracket, Bronze Powdercoat Finish, Includes Hardware.
KHEHZ	Die-Cast Easy-Hang Wall Bracket, Bronze Powdercoat Finish, Includes Hardware.
P17117	Internal Microwave Sensor with Dimming, 120-277VAC, 50/60Hz. See P17117 Specification Page for Details.
P17123	Internally Mounted Microwave On/Off Motion Sensor for Mounting Heights of 8' to 19', 120-277VAC, 50/60Hz

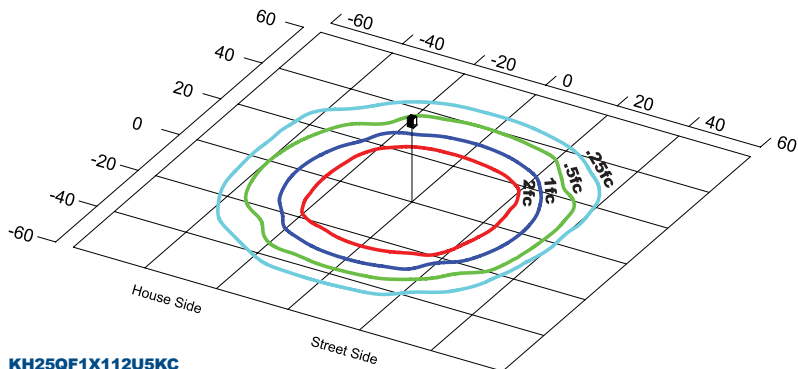
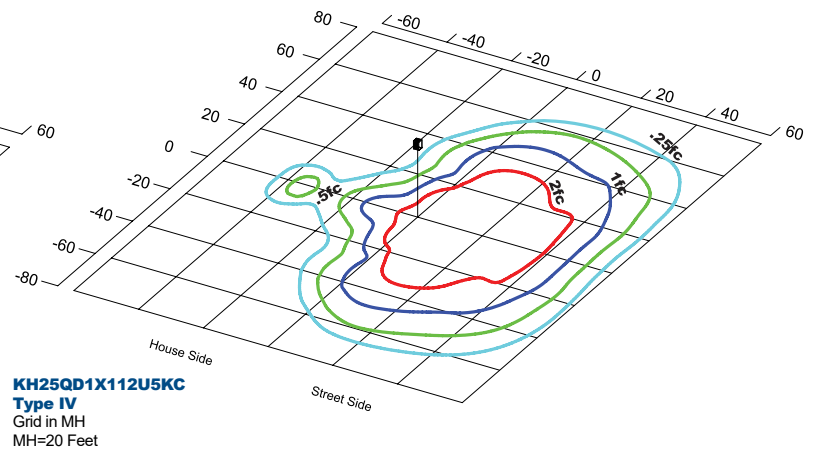
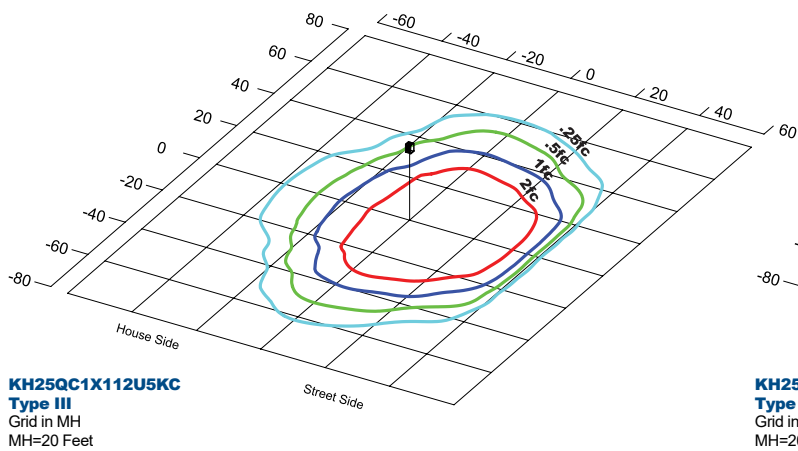
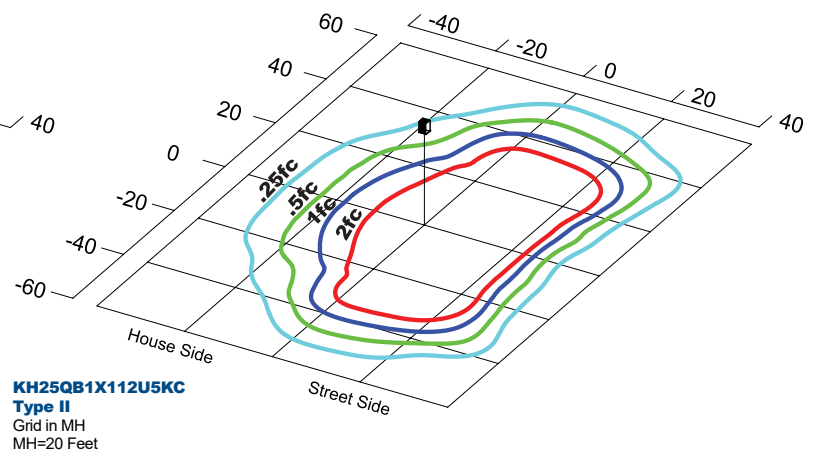
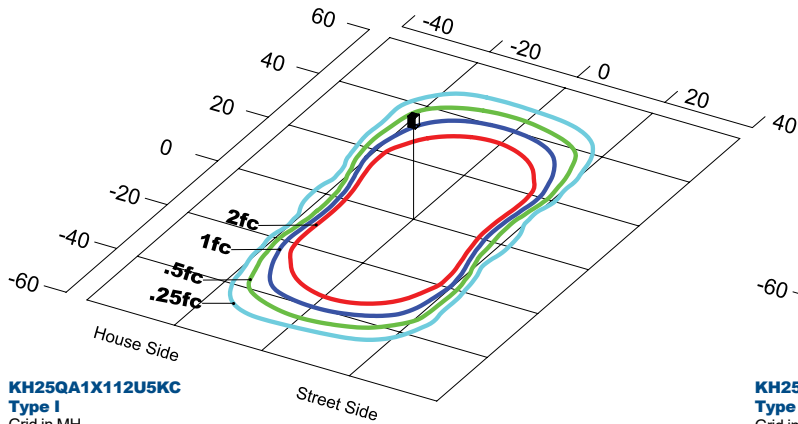
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Photometric Data



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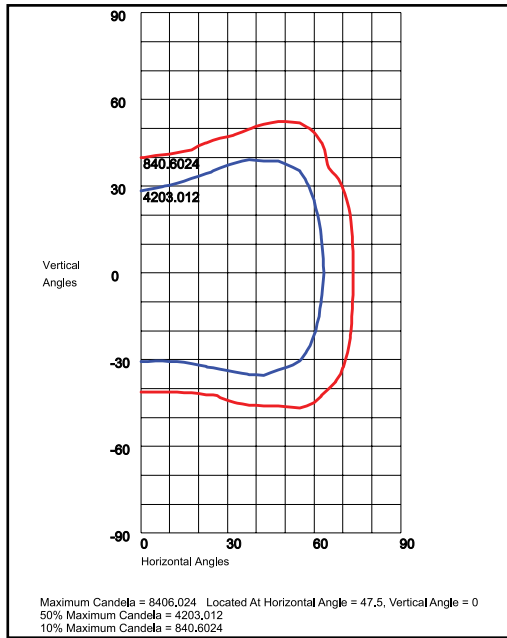
EasyLED Small Bentley Kitty Hawk Area, Wall, and Flood Light

Photometric Performance

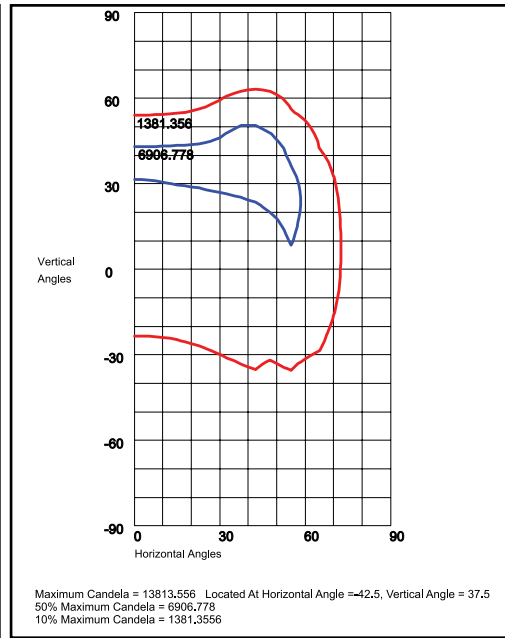
LED Board Watts	Drive Current (mA)	Input Watts	Optics	5000 CCT 80 CRI					4000 CCT 80 CRI					3000 CCT 80 CRI				
				Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
EasyLED 65w	525	68	C Type III	7,089	105	2	0	2	6,823	101	2	0	2	-	-	-	-	-
			F Type V	6,762	100	2	0	0	6,508	96	2	0	0	-	-	-	-	-
EasyLED 81w	525	84	A Type I	10,503	125	3	0	2	10,109	120	3	0	1	-	-	-	-	-
			B Type II	10,019	119	2	0	2	9,644	115	2	0	2	9,268	110	2	0	2
			C Type III	11,007	131	2	0	2	10,594	126	2	0	2	10,181	121	2	0	2
			D Type IV	10,338	123	1	0	2	9,950	118	1	0	2	9,563	114	1	0	2
			F Type V	10,499	125	3	0	1	10,106	120	3	0	1	9,712	115	3	0	1
EasyLED 112w	525	121	A Type I	15,214	126	3	0	2	14,644	121	3	0	2	-	-	-	-	-
			B Type II	14,514	120	2	0	2	13,970	115	2	0	2	-	-	-	-	-
			C Type III	15,944	132	3	0	3	15,346	127	3	0	3	-	-	-	-	-
			D Type IV	14,039	116	2	0	3	13,513	112	2	0	3	12,986	107	2	0	3
			F Type V	15,209	126	3	0	1	13,637	113	3	0	1	13,161	109	3	0	1

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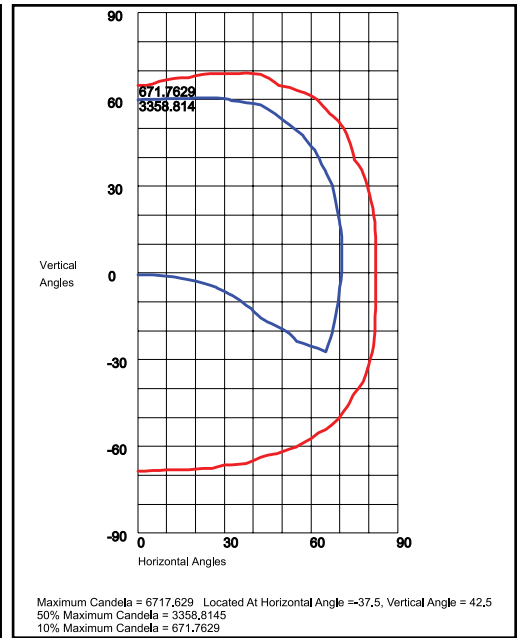
Photometric Data



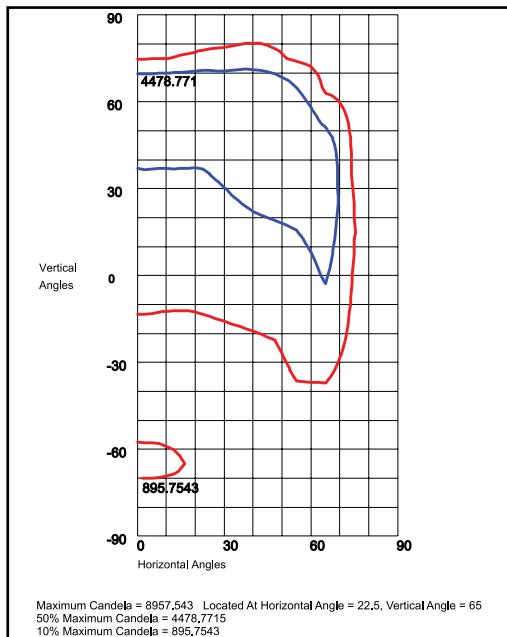
KH25QA1X112U5KC
130°H x 70°V, NEMA 7H x 5V



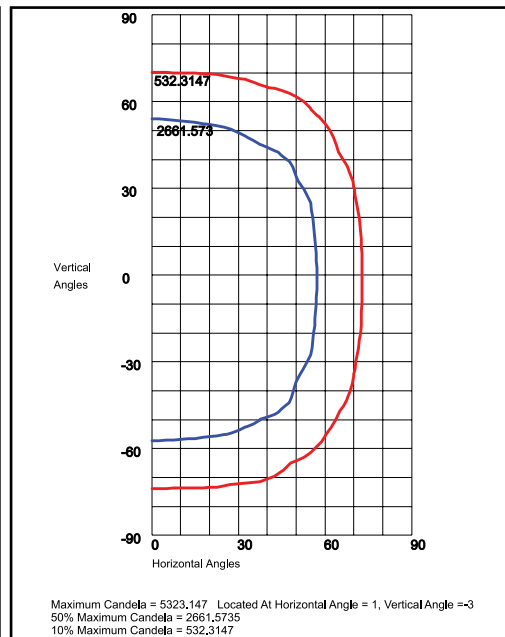
KH25QB1X112U5KC
110°H x 30°V, NEMA 7H x 6V



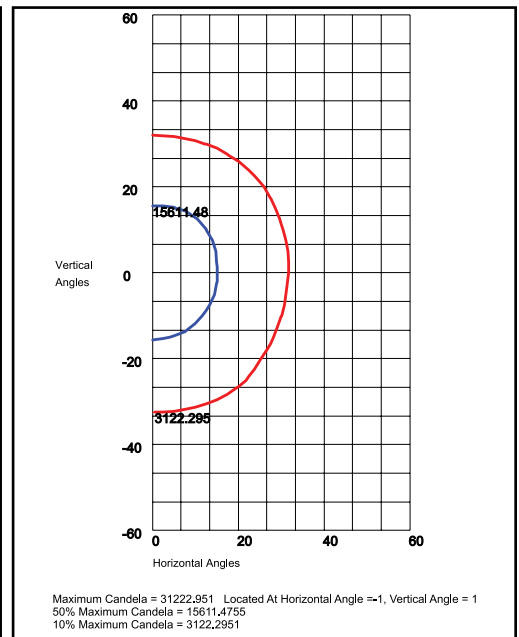
KH25QC1X112U5KC
120°H x 70°V, NEMA 7H x 7V



KH25QD1X112U5KC
110°H x 30°V, NEMA 6H x 5V



KH25QF1X112U5KC
115°H x 110°V, NEMA 7H x 7V



KH25QI1X112U5KC
30°H x 30°V, NEMA 4H x 4V

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Photometric Performance

LED Board Watts	Drive Current (mA)	Input Watts	Optics	5000 CCT 80 CRI		4000 CCT 80 CRI		3000 CCT 80 CRI	
				Lumens	LPW	Lumens	LPW	Lumens	LPW
EasyLED 65w	525	68	C 120°H x 70°V, NEMA 7H x 7V	7,038	104	6,774	100	-	-
			F 115°H x 110°V, NEMA 7H x 7V	6,779	100	6,525	97	-	-
EasyLED 81w	525	84	A 130°H x 70°V, NEMA 7H x 5V	10,496	125	10,102	120	-	-
			B 110°H x 30°V, NEMA 7H x 6V	10,033	119	9,657	115	9,280	110
			C 120°H x 70°V, NEMA 7H x 7V	10,928	130	10,518	125	10,108	120
			D 100°H x 30°V, NEMA 6H x 5V	10,271	122	9,886	117	9,501	113
			F 115°H x 110°V, NEMA 7H x 7V	10,526	125	10,131	120	9,737	116
			I 30°H x 30°V, NEMA 4H x 4V	10,181	121	-	-	-	-
EasyLED 112w	525	121	A 130°H x 70°V, NEMA 7H x 5V	15,204	126	14,634	121	-	-
			B 110°H x 30°V, NEMA 7H x 6V	14,533	120	13,988	116	-	-
			C 120°H x 70°V, NEMA 7H x 7V	15,830	131	15,236	126	-	-
			D 110°H x 30°V, NEMA 6H x 5V	13,794	114	13,277	110	12,760	105
			F 115°H x 110°V, NEMA 7H x 7V	15,248	126	13,672	113	13,195	109
			I 30°H x 30°V, NEMA 4H x 4V	14,078	116	-	-	-	-

Projected Lumen Maintenance

Data shown for 5000 CCT			Compare to MH			
TM-21-11	Input Watts	Initial	25,000 Hrs	50,000 Hrs	100,000 Hrs	Calculated LED Life
L70 Lumen Maintenance @ 25°C / 77°F	All wattages up to and including 121w	1.00	0.98	0.95	0.91	320,000
L70 Lumen Maintenance @ 50°C / 122°F		1.00	0.95	0.89	0.79	141,000
L80 Lumen Maintenance @ 40°C / 104°F		1.00	0.96	0.93	0.85	134,000

NOTES:

- Projected per IESNA TM-21-11. Data references the extrapolated performance projections for the 525mA base model in a 25°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.
- Compare to MH box indicates suggested Light Loss Factor (LLF) to be used when comparing to Metal Halide (MH) systems.

Features

- Ultra High Efficiency (Up to 91%)
- Active Power Factor Correction (0.99 Typical)
- Constant Current Output
- Lightning Protection
- All-Around Protection: SCP, OTP, OVP
- Waterproof (IP67) and Damp & Wet Location



Description

The EUC-120SxxxDT(ST) Series operate from a 90 ~ 305 Vac input range. They are designed to be highly efficient and highly reliable. The standard features include dimming control, lightning protection, over voltage protection, short circuit protection, and over temperature protection.

Models

Output Current	Input Voltage Range	Output Voltage Range	Max. Output Power	Typical Efficiency (1)	Power Factor		Model Number (2)
					120Vac	220Vac	
350 mA	90 ~ 305 Vac	206~343Vdc	120 W	91.0%	0.99	0.96	EUC-120S035DT(ST)
450 mA	90 ~ 305 Vac	160~266Vdc	120 W	91.0%	0.99	0.96	EUC-120S045DT(ST)
700 mA	90 ~ 305 Vac	103~171Vdc	120 W	91.0%	0.99	0.96	EUC-120S070DT(ST)
1050 mA	90 ~ 305 Vac	68~114Vdc	120 W	90.5%	0.99	0.96	EUC-120S105DT(ST)
1400 mA	90 ~ 305 Vac	52~86 Vdc	120 W	90.5%	0.99	0.96	EUC-120S140DT(ST)
1750 mA	90 ~ 305 Vac	41~68 Vdc	120 W	90.5%	0.99	0.96	EUC-120S175DT(ST)
2100 mA	90 ~ 305 Vac	34~57 Vdc	120 W	90.5%	0.99	0.96	EUC-120S210DT(ST)
2450 mA	90 ~ 305 Vac	29~49 Vdc	120 W	90.5%	0.99	0.96	EUC-120S245DT(ST)
2800 mA	90 ~ 305 Vac	26~43 Vdc	120 W	90.5%	0.99	0.96	EUC-120S280DT(ST)
3150 mA	90 ~ 305 Vac	23~38 Vdc	120 W	90.0%	0.99	0.96	EUC-120S315DT(ST)
3500 mA	90 ~ 305 Vac	20~34 Vdc	120 W	90.0%	0.99	0.96	EUC-120S350DT(ST)
4200 mA	90 ~ 305 Vac	17~28 Vdc	120 W	90.0%	0.99	0.96	EUC-120S420DT(ST)
4900 mA	90 ~ 305 Vac	14~24 Vdc	120 W	89.0%	0.99	0.96	EUC-120S490DT(ST)

Notes: (1) Measured at full load and 220 Vac input.

(2) A suffix -xxxx may be added to denote variations or modifications to the base product, where x can be any alphanumeric character or blank.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 V	-	305 V	
Input Frequency	47 Hz	-	63 Hz	

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Leakage Current	-	-	1 mA	At 277Vac 60Hz input
Input AC Current	-	-	1.5 A	Measured at full load and 100 Vac input.
	-	-	0.75 A	Measured at full load and 220 Vac input.
Inrush current	-	-	65 A	At 220Vac input, 25°C cold start, duration=1 ms, 10%lpk-10%lpk.
Inrush Current(I^2t)	-	-	1 A ² s	
Power Factor	0.90	-	-	At 100Vac-220Vac, 75%load-100%load
THD	-	-	20%	At 100Vac-277Vac, 75%load-100%load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Range				V dim=10 V
I _o = 350 mA	332 mA	350 mA	368 mA	
I _o = 450 mA	427 mA	450 mA	473 mA	
I _o = 700 mA	665 mA	700 mA	735 mA	
I _o = 1050 mA	997 mA	1050 mA	1102 mA	
I _o = 1400 mA	1330 mA	1400 mA	1470 mA	
I _o = 1750 mA	1662 mA	1750 mA	1837 mA	
I _o = 2100 mA	1995 mA	2100 mA	2205 mA	
I _o = 2450 mA	2327 mA	2450 mA	2572 mA	
I _o = 2800 mA	2660 mA	2800 mA	2940 mA	
I _o = 3150 mA	2992 mA	3150 mA	3307 mA	
I _o = 3500 mA	3325 mA	3500 mA	3675 mA	
I _o = 4200 mA	3990 mA	4200 mA	4410 mA	
I _o = 4900 mA	4655 mA	4900 mA	5145 mA	
Ripple and Noise (pk-pk)	-	-	3% V _O	Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor.
Line Regulation	-	-	±1%	
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	1.2 s	2.0 s	Measured at 120Vac input.
	-	0.6 s	1.2 s	Measured at 220Vac input.

Note: All specifications are typical at 25 °C unless otherwise stated.

Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Temperature Protection	-	100 °C	-	Case temperature
Short Circuit Protection	No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.			

Protection Functions (Continued)

Parameter	Min.	Typ.	Max.	Notes
Over Voltage Protection				
Io = 350 mA	411 V	446 V	480 V	Latch mode. The power supply shall return to normal operation only after the power is turn-on again.
Io = 450 mA	319 V	346 V	373 V	
Io = 700 mA	205 V	222 V	240 V	
Io = 1050 mA	136 V	148 V	160 V	
Io = 1400 mA	103 V	112 V	121 V	
Io = 1750 mA	81 V	88 V	96 V	
Io = 2100 mA	68 V	74 V	80 V	
Io = 2450 mA	58 V	64 V	69 V	
Io = 2800 mA	51 V	56 V	61 V	
Io = 3150 mA	45 V	49 V	54 V	
Io = 3500 mA	40 V	44 V	48 V	
Io = 4200 mA	33 V	36 V	40 V	
Io = 4900 mA	28 V	31 V	34 V	

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency				
Io = 350 mA	88.0%	89.0%	-	Measured at full load, 120Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be lower about 1%, if measured immediately after startup.
Io = 450 mA	88.0%	89.0%	-	
Io = 700 mA	88.0%	89.0%	-	
Io = 1050 mA	87.5%	88.5%	-	
Io = 1400 mA	87.5%	88.5%	-	
Io = 1750 mA	87.5%	88.5%	-	
Io = 2100 mA	87.5%	88.5%	-	
Io = 2450 mA	87.5%	88.5%	-	
Io = 2800 mA	87.5%	88.5%	-	
Io = 3150 mA	87.0%	88.0%	-	
Io = 3500 mA	87.0%	88.0%	-	
Io = 4200 mA	87.0%	88.0%	-	
Io = 4900 mA	86.0%	87.0%	-	
Efficiency				
Io = 350 mA	90.0%	91.0%	-	Measured at full load, 220Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be lower about 1%, if measured immediately after startup.
Io = 450 mA	90.0%	91.0%	-	
Io = 700 mA	90.0%	91.0%	-	
Io = 1050 mA	89.5%	90.5%	-	
Io = 1400 mA	89.5%	90.5%	-	
Io = 1750 mA	89.5%	90.5%	-	
Io = 2100 mA	89.5%	90.5%	-	
Io = 2450 mA	89.5%	90.5%	-	
Io = 2800 mA	89.5%	90.5%	-	
Io = 3150 mA	89.0%	90.0%	-	
Io = 3500 mA	89.0%	90.0%	-	
Io = 4200 mA	89.0%	90.0%	-	
Io = 4900 mA	88.0%	89.0%	-	
MTBF	-	250,000 hours	-	Measured at 120Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Life Time	-	67,200 hours		Measured at 220Vac input, 80%Load, Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details
Case Temperature	-	-	90°C (DT Series)	ST Series: 350 mA:88.2°C; Others: 89.5°C
Dimensions				
Inches (L x W x H)	7.64 x 2.66 x 1.44			
Millimeters (L x W x H)	194 x 67.5 x 36.5			
Net Weight	-	1000 g	-	

Note: All specifications are typical at 25 °C unless otherwise stated.

Specifications are subject to changes without notice.

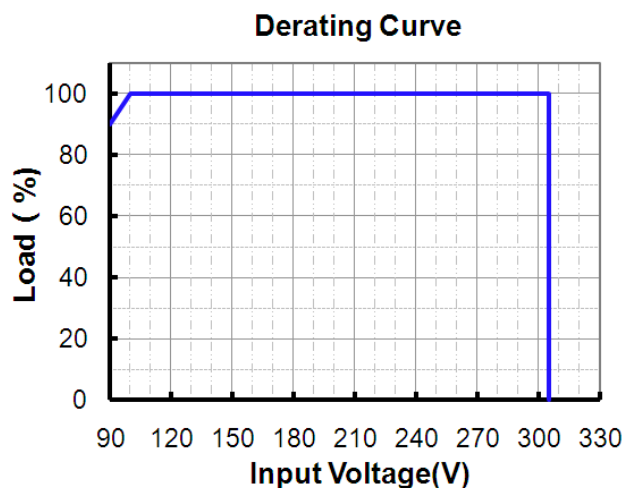
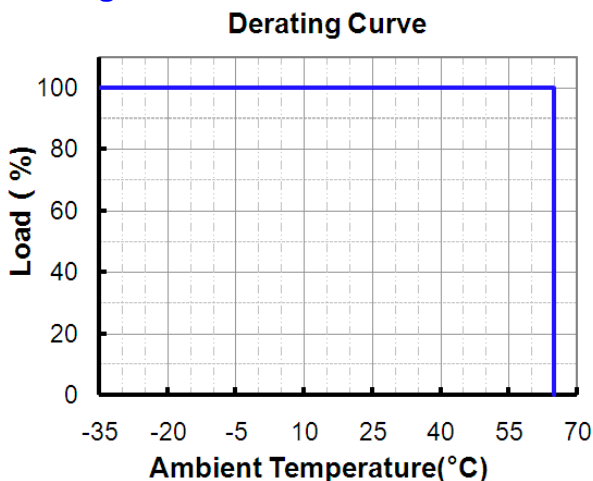
Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-35 °C	-	+65 °C	Humidity: 10% RH to 100% RH See Derating Curve for more details
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH

Safety & EMC Compliance

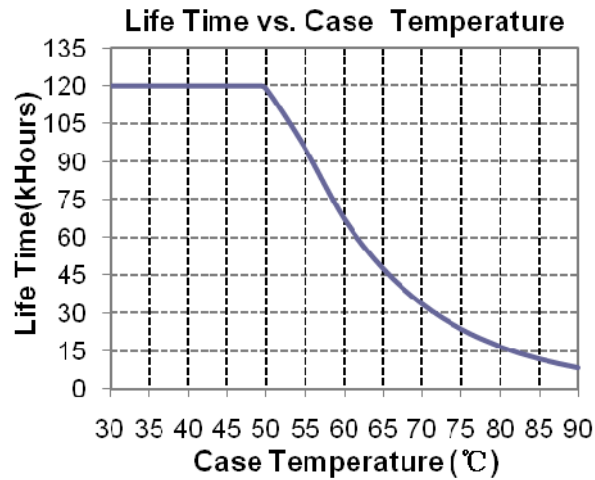
Safety Category	Standard
UL/CUL	UL8750, UL1012, CSA-C22.2 No. 107.1
CE	EN 61347-1, EN61347-2-13
EMI Standards	Notes
EN 55015	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 4 kV, line to earth 6 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Derating Curve

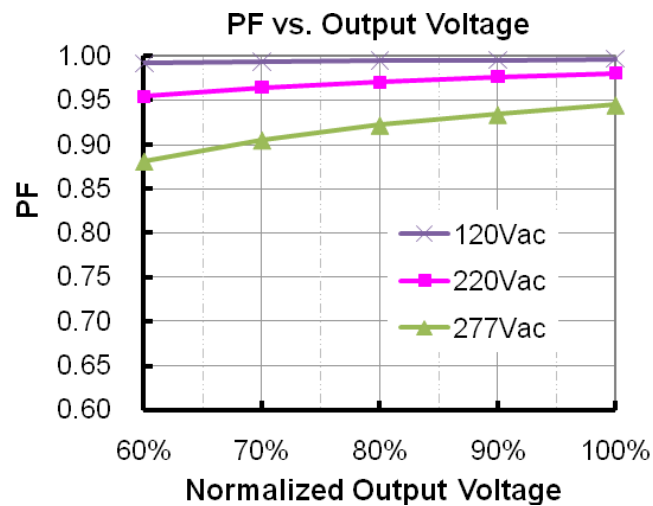


Specifications are subject to changes without notice.

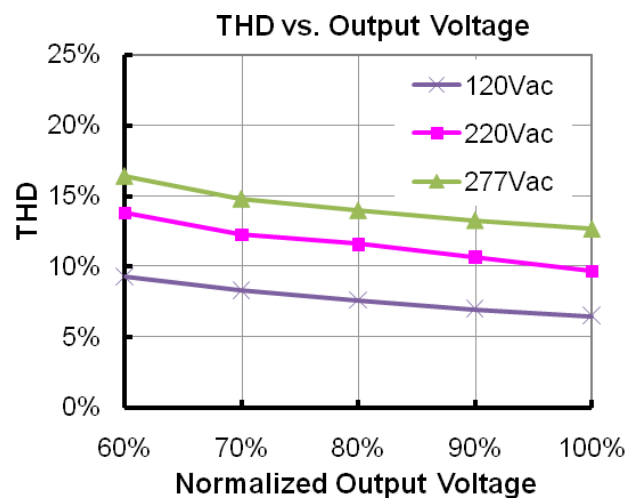
Life Time vs. Case Temperature Curve



Power Factor Characteristics



Total Harmonic Distortion

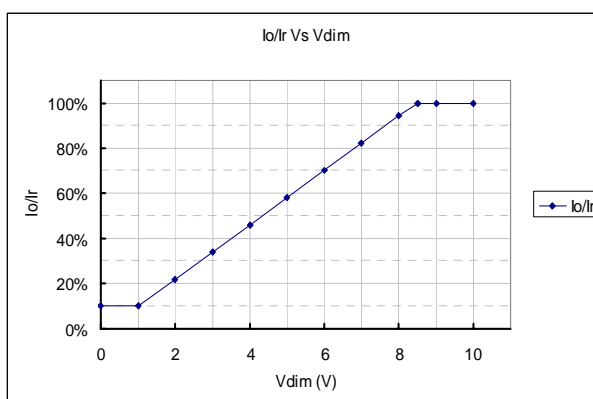
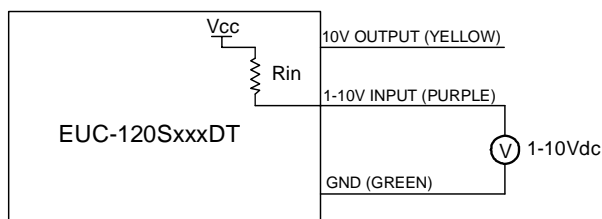


Dimming Control (On the secondary Side)

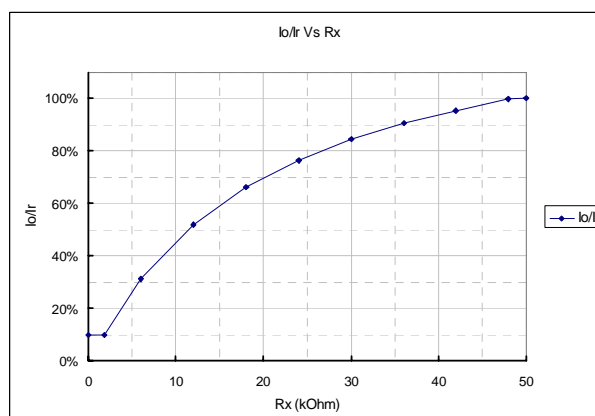
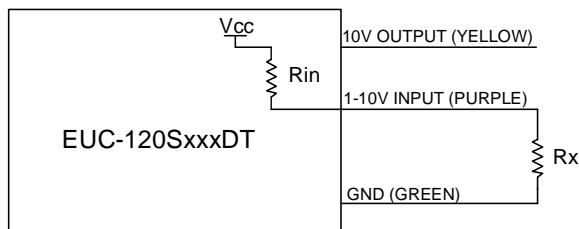
The function has two versions. One is with internal pull-up resistor; the output is full load when the dimming leads are floated. Another is with internal pull-down resistor; the output is 10% full load when the dimming leads are floated.

1. With pull-up resistor (Default, without suffix):

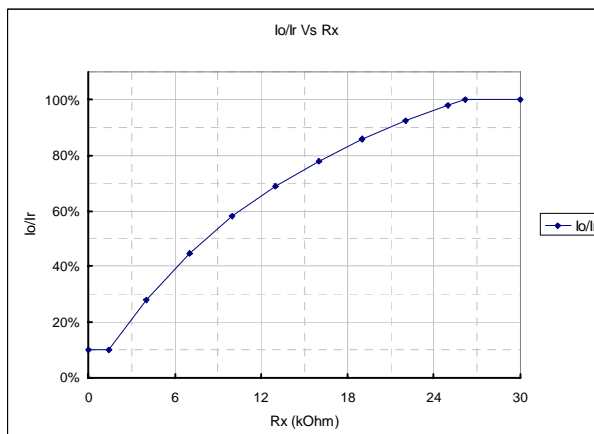
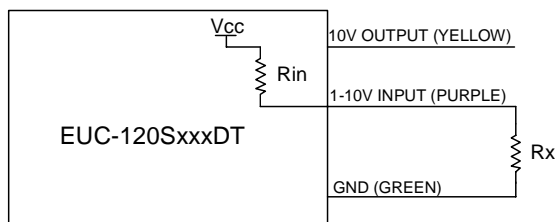
Parameter	Min.	Typ.	Max.	Notes
10V output	9.5 V	10 V	10.5 V	
10V output source current	0 mA	-	10 mA	
Absolute maximum voltage on the 1~10V input pin	-2 V	-	12 V	
Source current on 1~10V input pin	0 mA	-	0.5 mA	
Value of Rin (the resistor inside the LED driver which locate between the 1-10V input and 10V output pin)	19.8 K	20 K	20.2 K	



Implementation 1: DC input



Implementation 2: External resistor (Vcc=12V) 【EUC-120S490DT】



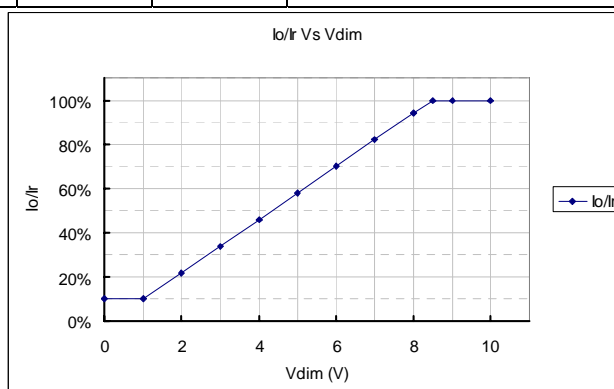
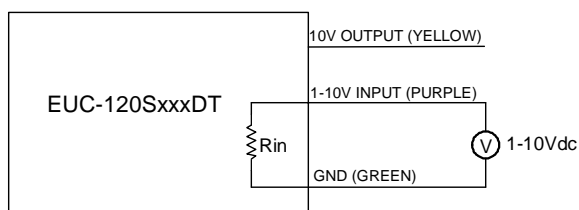
Implementation 3: External resistor (Vcc=15V) 【Other Models】

Notes:

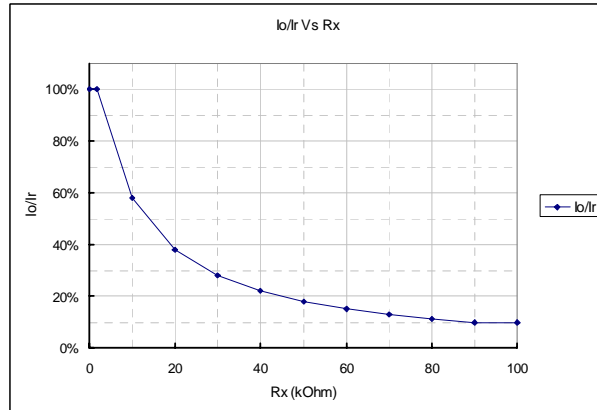
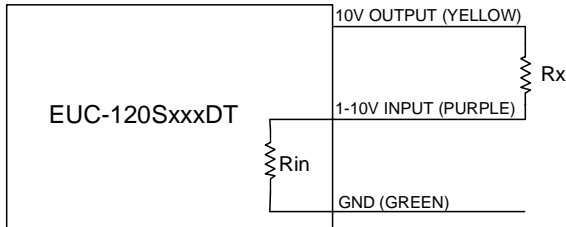
1. If the dimming function is not used, please let the dimming leads floated.
2. Io is actual output current and Ir is rated current without dimming control.
3. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 60% of the max. output voltage for any given model).
4. If the output voltage is maintained above 60% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
5. The dimming signal is allowed to be less than 1V, however, when it for 0-1V, the output current can maintain about 10%Ir. When it for 8.5-10V, the output current can maintain about 100%Ir.
6. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

2. With pull-down resistor: (The model number has a suffix -0040)

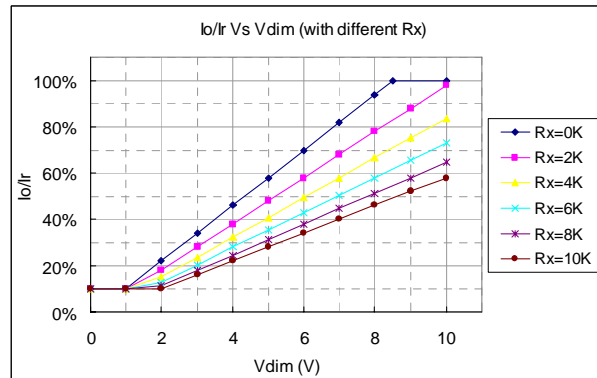
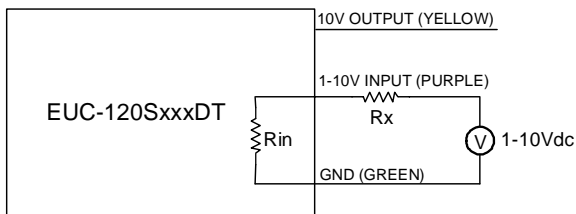
Parameter	Min.	Typ.	Max.	Notes
10V output voltage	9.5 V	10 V	10.5 V	
10V output source current	0 mA	-	10 mA	
Absolute maximum voltage on the 1~10V input pin	-2 V	-	12 V	
Sink current on 1~10V input pin	0 mA	-	1 mA	
Value of Rin (the resistor inside the LED driver which locate between the 1-10V input and GND)	9.9 K	10 K	10.1 K	



Implementation 1: DC input



Implementation 2: External resistor



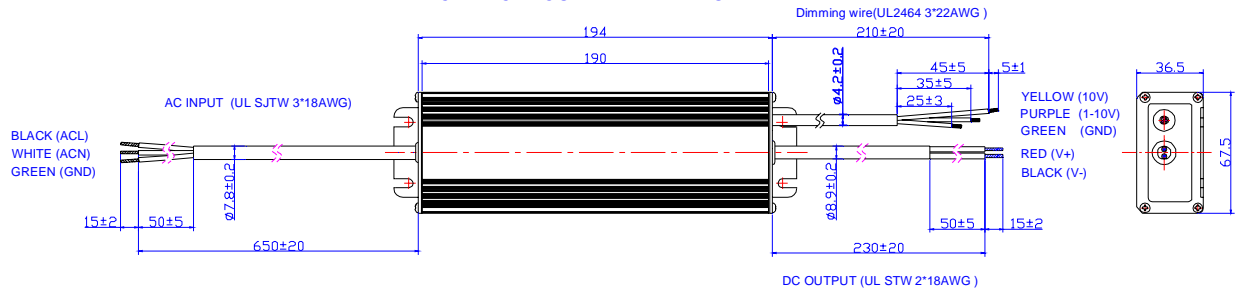
Implementation 3: External resistor and 1-10V DC Input

Notes:

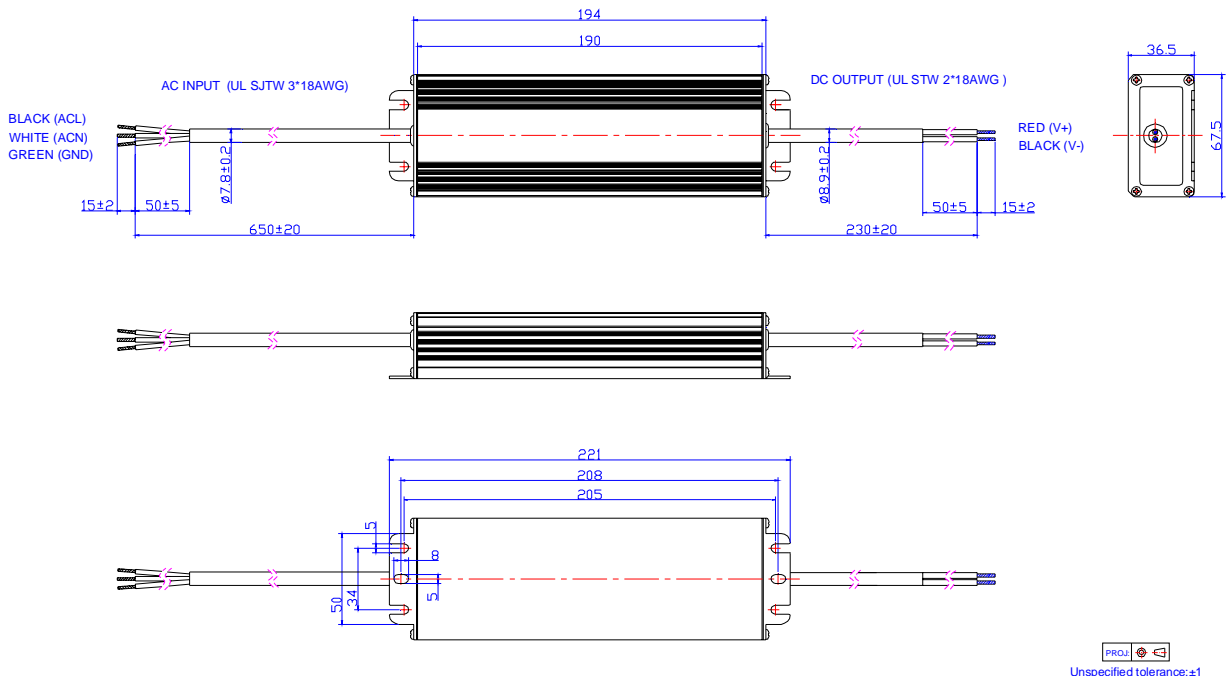
1. If the dimming function is not used, please short 10V output pin (yellow) and 1-10 input pin (purple).
2. I_o is actual output current and I_r is rated current without dimming control.
3. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 60% of the max. output voltage for any given model).
4. If the output voltage is maintained above 60% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
5. The dimming signal is allowed to be less than 1V, however, when it for 0-1V, the output current can maintain about 10% I_r . When it for 8.5-10V, the output current can maintain about 100% I_r .
6. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

Mechanical Outline

EUC-120SxxxDT



EUC-120SxxxST



RoHS Compliance

Our products comply with the European Directive 2011/65/EC, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2010-03-23	A	Add Leakage Current in Input Specifications	/	Max. 1 mA At 277Vac 50Hz input
		Change the Max. value of Operating Temperature	+70 °C	+65 °C
		Change the Max. Ambient Temperature in Derating Curve	+70 °C	+65 °C
		Change the MTBF data and testing condition	460,000 hours / Measured at EUC-120S140DT(ST)	320,000 hours / Measured at EUC-120S280DT(ST)
		Change the Life Time testing condition	Measured at EUC-120S140DT(ST)	Measured at EUC-120S280DT(ST)
		Add one note in Dimming Control	/	7. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.
		Change the dimming control line in Mechanical Outline	/	/
2010-10-22	B	Update the part of dimming control	/	/
2010-10-18	C	Add another dimming version with pull-down resistor	/	/
2011-01-14	D	Update MTBF & Life Time Date	For One Model	For Two Models
2011-09-07	E	Dimming Control	/	/
2012-06-11	F	Mechanical Outline	/	Updated
		Life time curve	/	Added
2012-7-17	G	Max Case Temperature	/	Updated
		Surge Immunity Test: AC Power Line	line to line 2 kV, line to earth 4 kV	line to line 4 kV, line to earth 6 kV
2012-7-24	H	External resistor in pull-up resistor	/	Updated
2012-9-21	I	Inrush Current(I^2t)	/	Added
		MTBF, Life time	/	Typical Value added
		Life time Curve	/	Updated
		Min PF, THD Max	/	Added
2013-03-25	J	Efficiency of Model 4900mA	/	1% lower
		Turn-on delay time @ 120Vac	Typ 0.6s; Max1.5s	Typ 1.2s; Max2.0s
		Turn-on delay time @ 220Vac	Typ 0.6s; Max1.0s	Typ 0.6s; Max1.2s
		Max Case temperature	/	Corrected
		PF Curve	/	Added
		THD Curve	/	Added
		OTP	/	Updated
		Mechanical Outline	/	Updated

Features

- High Efficiency (Up to 91%)
- Active Power Factor Correction (0.99 Typical)
- Constant Current Output
- 0-10V Dimming Control
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: OVP, SCP, OTP
- IP67 and Damp & Wet Location
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location



Description

The **EUC-085SxxxDT(ST)** series is a 85W, constant-current LED driver that operates from 90-305 Vac input with excellent power factor. It is created for many lighting applications including low bay, tunnel and street, etc. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature.

Models

Output Current	Input Voltage Range(1)	Output Voltage Range	Max. Output Power	Typical Efficiency (2)	Power Factor		Model Number (3,4)
					120Vac	220Vac	
350 mA	90 ~ 305 Vac	121~243Vdc	85 W	91%	0.99	0.95	EUC-085S035DT(ST) ⁽⁵⁾
450 mA	90 ~ 305 Vac	94~189 Vdc	85 W	91%	0.99	0.95	EUC-085S045DT(ST) ⁽⁵⁾
700 mA	90 ~ 305 Vac	61~121 Vdc	85 W	90%	0.99	0.95	EUC-085S070DT(ST) ⁽⁵⁾
1050 mA	90 ~ 305 Vac	40~81 Vdc	85 W	90%	0.99	0.95	EUC-085S105DT(ST) ⁽⁵⁾
1400 mA	90 ~ 305 Vac	30~61 Vdc	85 W	90%	0.99	0.95	EUC-085S140DT(ST) ⁽⁵⁾
1750 mA	90 ~ 305 Vac	24~49 Vdc	85 W	90%	0.99	0.95	EUC-085S175DT(ST) ⁽⁶⁾
2000 mA	90 ~ 305 Vac	21~43 Vdc	85 W	90%	0.99	0.95	EUC-085S200DT(ST) ⁽⁶⁾
2450 mA	90 ~ 305 Vac	17~35 Vdc	85 W	89%	0.99	0.95	EUC-085S245DT(ST) ⁽⁷⁾
2800 mA	90 ~ 305 Vac	15~30 Vdc	85 W	89%	0.99	0.95	EUC-085S280DT(ST) ⁽⁷⁾

- Notes:** (1) Certified input voltage range: UL, FCC 100-277Vac; otherwise 100-240Vac.
 (2) Measured at 100% load and 220 Vac input.
 (3) The DT suffix may be changed to ST to omit the dimming function and remove the two wires associated with that function.
 (4) All the models are certificated to KS, except EUC-085S035DT(ST).
 (5) Non-Class2 output (USR & CNR).
 (6) Class 2 output (USR only) for Dry and Damp Location.
 (7) Class 2 output (USR & CNR) for Dry and Damp Location; Class 2 output (CNR only) for Wet Location.

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 mA	At 277Vac 60Hz input
Input AC Current	-	-	1.1 A	Measured at 100% load and 100 Vac input.
	-	-	0.5 A	Measured at 100% load and 220 Vac input.
Inrush Current	-	-	60 A	At 220Vac input, 25°C cold start, duration=1 ms, 10%lpk-10%lpk.
Inrush Current(I ² t)	-	-	1 A ² s	
Power Factor	0.90	-	-	At 100Vac-277Vac, 50-60Hz, 100% Load
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Range	-5%	-	5%	
Ripple and Noise (pk-pk)	-	-	3% V _O	Measured by 20 MHz bandwidth oscilloscope and the output paralleled a 0.1 uF ceramic capacitor and a 10 uF electrolytic capacitor.
Output Current Ripple at < 200 Hz (pk-pk)	-	1%I _O	-	At 100% load condition. Only this component of ripple is associated with visible flicker.
Output Overshoot / Undershoot	-	-	10%	When power on or off.
No-load Output Voltage				
I _O = 350 mA	-	-	255V	
I _O = 450 mA	-	-	198V	
I _O = 700 mA	-	-	129V	
I _O = 1050 mA	-	-	87V	
I _O = 1400 mA	-	-	67V	
I _O = 1750 mA	-	-	54V	
I _O = 2000 mA	-	-	48V	
I _O = 2450 mA	-	-	39V	
I _O = 2800 mA	-	-	33V	
Line Regulation	-	-	±2%	
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	2.0 s	3.0 s	Measured at 120Vac input.
	-	0.6 s	1.0 s	Measured at 220Vac input.
Temperature Coefficient	-	-	0.06%/°C	Case temperature = 0°C ~T _C max

Protection Functions

Parameter	Min.	Typ.	Max.	Notes
Over Temperature Protection-Tc	-	100 °C	-	Latch mode. The power supply shall return to normal operation only after the power is turn-on again.
Short Circuit Protection	No damage shall occur when any output operating in a short circuit condition. The power supply shall be self-recovery when the fault condition is removed.			

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency I _o = 350 mA I _o = 450 mA I _o = 700 mA I _o = 1050 mA I _o = 1400 mA I _o = 1750 mA I _o = 2000 mA I _o = 2450 mA I _o = 2800 mA	88% 88% 87% 87% 87% 87% 87% 86% 86%	89% 89% 88% 88% 88% 88% 88% 87% 87%	- - - - - - - - -	Measured at 100% load, 120Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be lower about 2%, if measured immediately after startup.
Efficiency I _o = 350 mA I _o = 450 mA I _o = 700 mA I _o = 1050 mA I _o = 1400 mA I _o = 1750 mA I _o = 2000 mA I _o = 2450 mA I _o = 2800 mA	90% 90% 89% 89% 89% 89% 89% 88% 88%	91% 91% 90% 90% 90% 90% 90% 89% 89%	- - - - - - - - -	Measured at 100% load, 220Vac input, 25°C ambient temperature, after the unit is thermally stabilized. It will be lower about 2%, if measured immediately after startup.
MTBF	-	237,000 hours	-	Measured at 120Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	101,000 hours	-	Measured at 120Vac input, 80%Load ; Case temperature=60°C @ Tc point. See life time vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40 °C	-	+90°C	
Operating Case Temperature for Warranty Tc_w	-40 °C	-	+70 °C	
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 100% RH
Dimensions Inches (L x W x H) Millimeters (L x W x H)	5.91 x 2.66 x 1.44 150 x 67.5 x 36.5			With mounting ear 6.97 x 2.66 x 1.44 177 x 67.5 x 36.5
Net Weight	-	780 g	-	

Safety & EMC Compliance

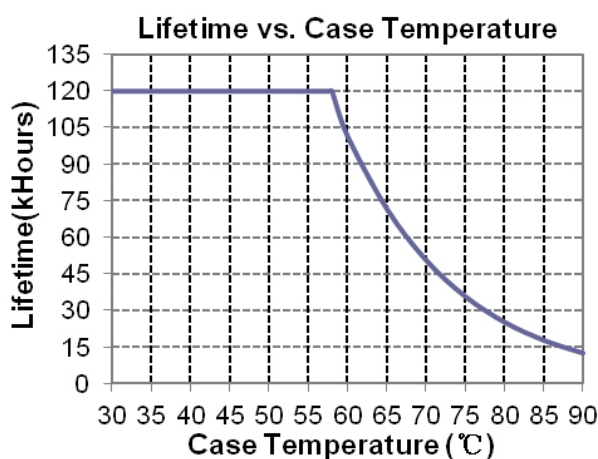
Safety Category	Standard
UL/CUL	UL8750, UL 1310, CAN/CSA-C22.2 No. 250.13, CAN/CSA-C22.2 No. 223-M91
CE	EN 61347-1, EN 61347-2-13
KS	KS C 7655

Safety & EMC Compliance(Continued)

EMI Standards	Notes
EN 55015 ⁽¹⁾	Conducted emission Test & Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15 ⁽¹⁾	ANSI C63.4 Class B
	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: [1] this device may not cause harmful interference, and [2] this device must accept any interference received, including interference that may cause undesired Operation.
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS
EN 61000-4-4	Electrical Fast Transient / Burst-EFT
EN 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 4 kV, Common Mode 6 kV
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies to Lighting Equipment

Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

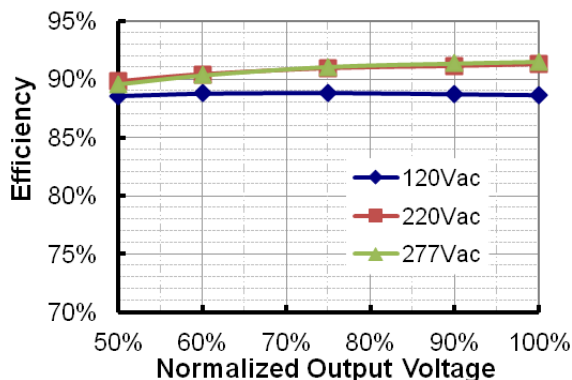
Lifetime vs. Case Temperature Curve



Efficiency vs. Load

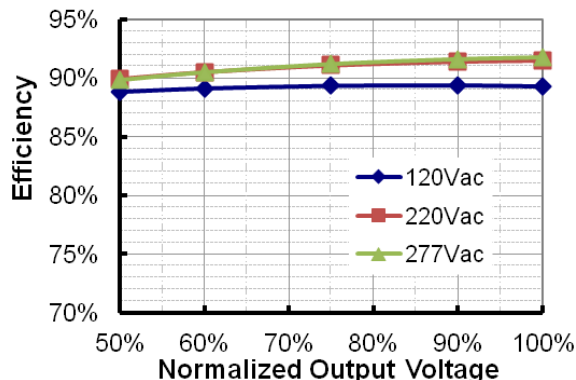
EUC-085S035DT(ST)

Efficiency vs. Output Voltage



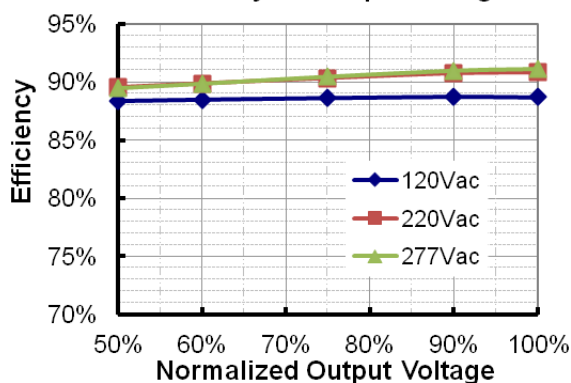
EUC-085S045DT(ST)

Efficiency vs. Output Voltage



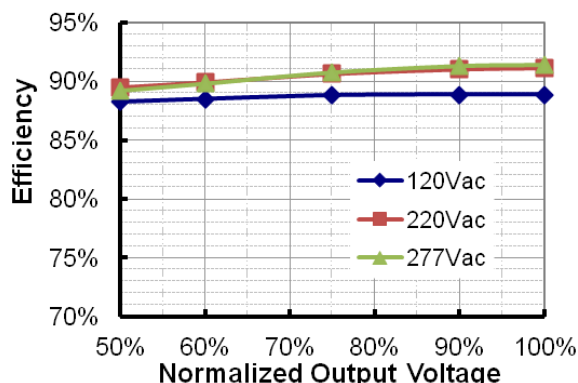
EUC-085S070DT(ST)

Efficiency vs. Output Voltage



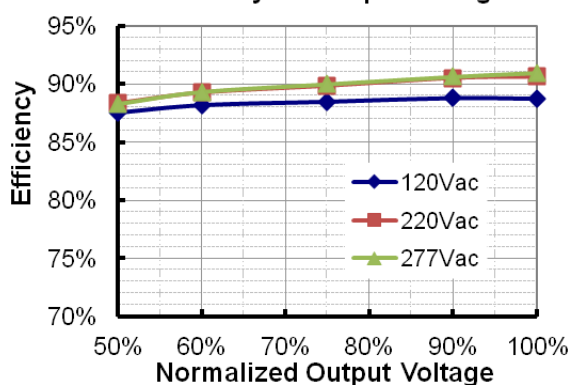
EUC-085S105DT(ST)

Efficiency vs. Output Voltage



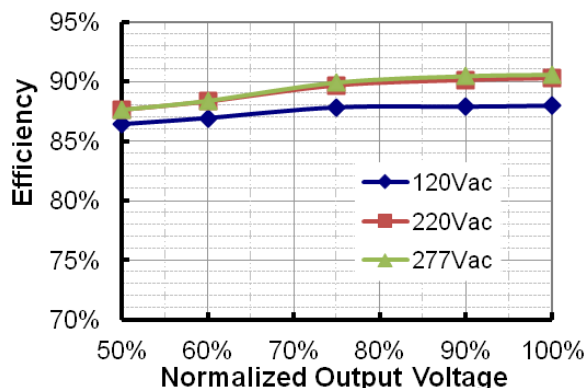
EUC-085S140DT(ST)

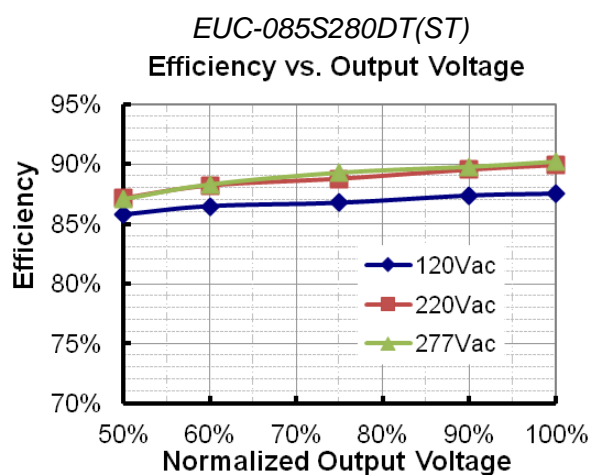
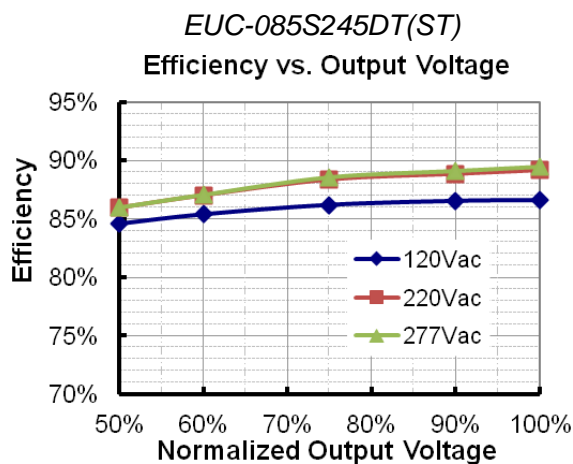
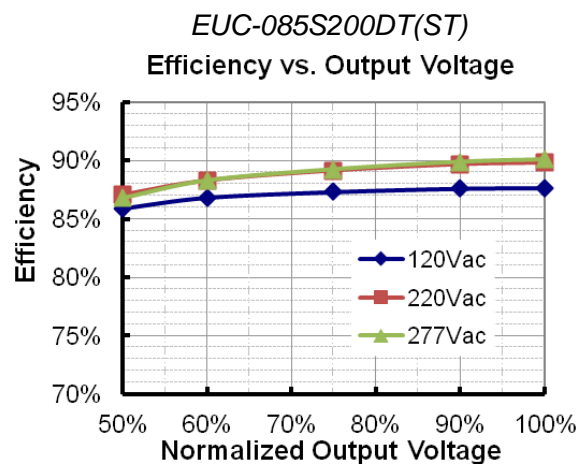
Efficiency vs. Output Voltage



EUC-085S175DT(ST)

Efficiency vs. Output Voltage

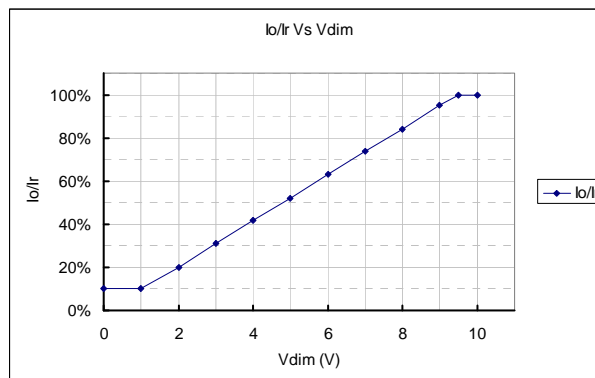
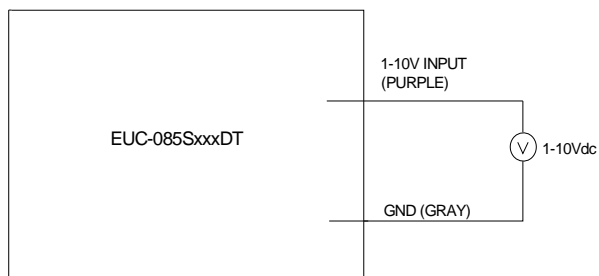




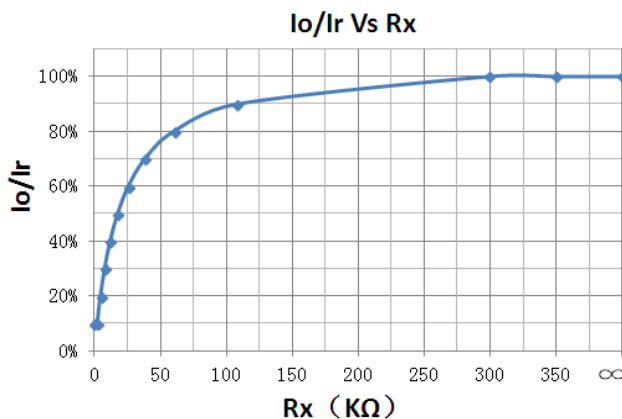
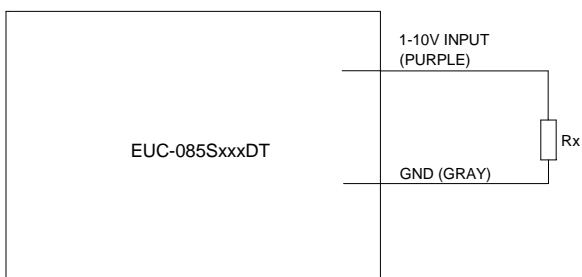
Dimming Control

Parameter	Min.	Typ.	Max.	Notes
Absolute maximum voltage on 1-10V input pin	-2 V	-	12 V	
Source current on 1~10V input pin	0 mA	-	0.5 mA	

The dimmer control may be operated from either a potentiometer or from an input signal of 1 – 10 Vdc. Two recommended implementations are provided below.



Implementation 1: DC input



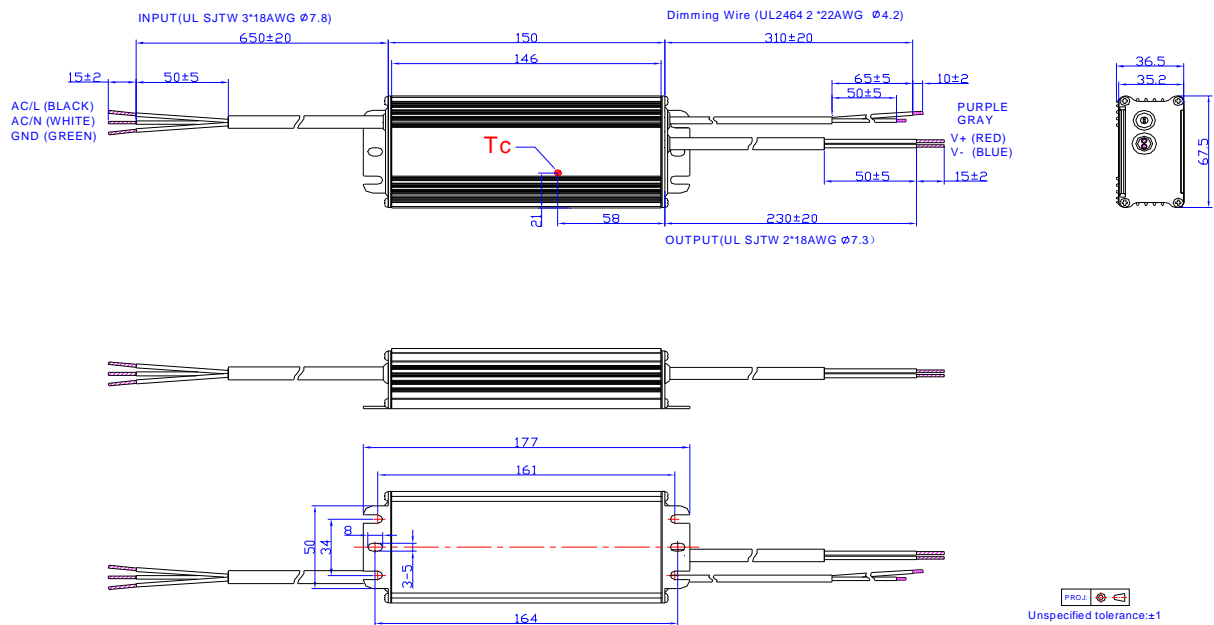
Implementation 2: External resistor

Notes:

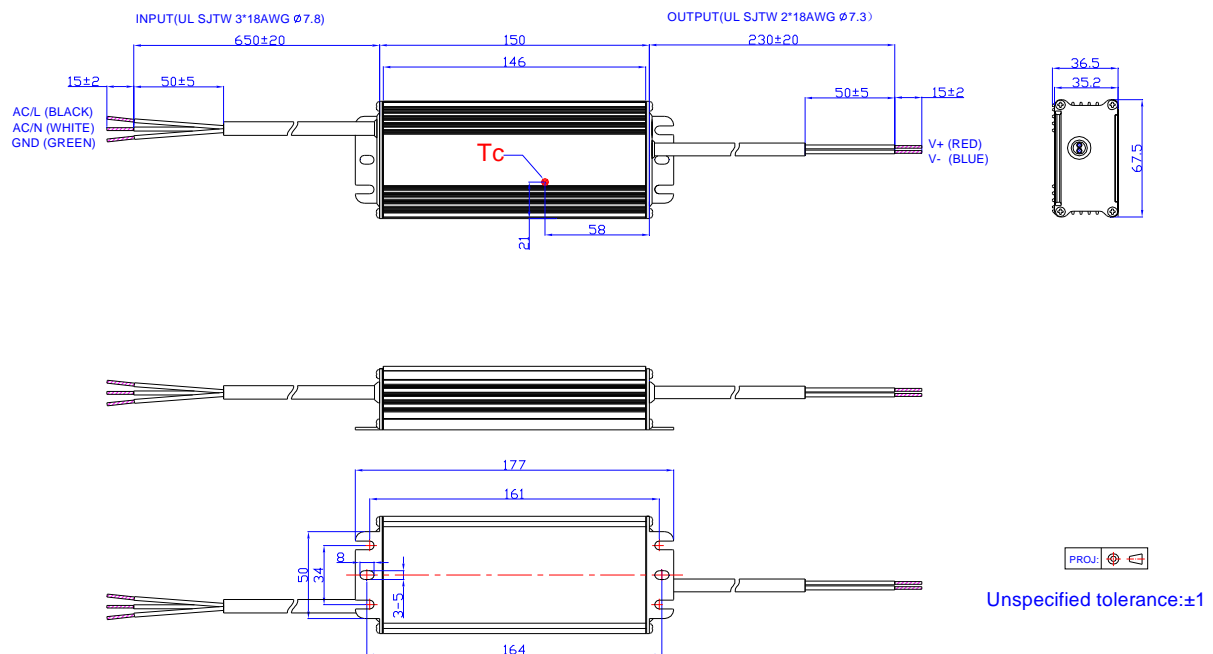
1. I_o is actual output current and I_r is rated current without dimming control.
2. For the driver to operate properly, the load voltage must be maintained above the minimum voltage threshold (approx. 50% of the max. output voltage for any given model).
3. If the output voltage is maintained above 50% of the maximum output voltage, the dimming control may be operated over the entire 1-10V range with output current varying from 100% down to practically 10%.
4. The dimming signal is allowed to be less than 1V, however, when it for 0-1V, the output current is 10% I_o .
5. Do not connect the GND of dimming to the output; otherwise, the LED driver can not work normally.

Mechanical Outline

EUC-085SxxxDT



EUC-085SxxxST



RoHS Compliance

Our products comply with reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU, calling for the elimination of lead and other hazardous substances from electronic products.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2010-09-01	A	Add EUC-085SxxxST Series	EUC-085SxxxDT	EUC-085SxxxST/DT
		Add notes of UL1310 Class 2 for all models.	/	(4) (5) (6)
		Add No-load Output Voltage	/	The typ. value of every model.
		Change Ripple and Noise (pk-pk)	5% VO	1% VO
		Change Line Regulation	1%	2%
		Change efficiency for all models	/	/
		Change MTBF	498,000 hours	300,000 hours
		Change Life Time	90,000 hours	63,000 hours
		Change Net Weight	750 g	770 g
		Delete the Dimming Implementation-- External zener diodes	Implementation 2: External zener diodes	/
		Change Mechanical Outline The dimming control Wire The output Wire	Purple / Green Red / Black	Purple / Gray Red / Blue
2010-9-29	B	Change Output Voltage Range Io= 350 mA Io= 450 mA Io= 700 mA Io= 1050 mA Io= 1400 mA Io= 1750 mA Io= 2000 mA Io= 2450 mA Io= 2800 mA	Min. 121V 94 V 61 V 40 V 30 V 24 V 21 V 17 V 15 V	Min. 122V 95 V 61 V 41 V 31 V 25 V 22 V 18 V 16 V
		Change Ripple and Noise (pk-pk)	Max. 1% Vo	Max. 3% Vo
2010-11-17	C	Add Derating Curve	/	/
2012-02-23	D	Mechanical Outline	the position of the wire outing hole	Changed
		OTP	120°C	110°C
2012-06-19	E	Life time curve	/	Added
		EN61000-4-5	line to line 2 kV, line to earth 4 kV	line to line 4 kV, line to earth 6 kV
		Max of No-load Output Voltage	/	Added
2012-7-5	F	Inrush Current	50 A	60 A
2012-7-17	G	Max Case Temperature	/	Updated
2012-9-27	H	Min PF, Max THD	/	Added
		Temperature coefficient	/	Added
		MTBF, Life time Typical Value	/	Added

Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2012-9-27	H	Life Time Curve	/	Updated
		Operating Temperature	-35°C	-40°C
		Derating Curve	/	Updated
2013-06-06	I	Product photo	/	Updated
		Min Output Voltage	/	Corrected
		Leakage current	1 mA	0.75 mA
		Typical value of OTP	110°C	100°C
		MTBF	320,000 hours	237,000 hours
		Derating Curve	/	Updated
		Efficiency curve	/	Added
		Mechanical outline	/	Updated
2016-04-20	J	KS	/	Added
		Features	/	Updated
		Description	/	Updated
		Models	/	Updated
		Output Specifications	Output Current Ripple at < 200 Hz (pk-pk)	Added
		General Specifications	Case Temperature	Operating Case Temperature for Safety Tc_s
		General Specifications	Operating Case Temperature for Warranty Tc_w	Added
		General Specifications	Storage Temperature	Added
		General Specifications	With mounting ear	Added
		General Specifications	Net Weight	Updated
		Environmental Specifications	/	Delete
		Safety & EMC Compliance	/	Updated
		Mechanical outline	/	Updated
2019-08-22	K	Features	Input surge protection	Updated
		Description	/	Updated
		Input Specifications(PF/THD)	50-60Hz	Added
		Safety & EMC Compliance	UL/CUL	Updated

Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2019-08-22	K	Safety & EMC Compliance	KS	Updated
		Safety & EMC Compliance	FCC	Updated
		Safety & EMC Compliance	EN 61000-4-5	Updated
		Mechanical Outline	/	Updated
		RoHS Compliance	/	Updated
2020-01-13	L	Features	Waterproof(IP67)	IP67
		Models	Notes(1)	Added
		Derating Curve	/	Deleted
		Format	Page footer	Updated

Our Product

[▶ AC/AC Adapter indoor use](#)[▶ AC/AC Adapter outdoor use](#)[▶ AC/DC Adapter indoor use](#)[▶ AC/DC Adapter outdoor use](#)[▶ LED Driver -new](#)[▶ Battery Chargers](#)[▶ GARDEN LIGHT power Units](#)[▶ Photocell & Timer Sensor](#)[▶ Controllers for garden light use](#)[▶ Photocell Switch-new](#)[▶ Built-in transformers](#)[▶ Switching Adapters](#)[▶ BALLAST](#)[Our Product > Surge Protection Device-new](#)

SPD277-10K



SPD277-10K.1

100-277 Vac

ELECTRONICAL SPECIFICATION :

- Input Voltage : 120 ~ 277Vac, 50 ~ 60Hz
- Clamping Voltage : 320V
- Maximum Energy 10/1000 μ s : 220Joules
- Maximum Peak Current 8/20 μ s : I_n = 3KA, I_{max} = 10KA
- Protects against surges according to IEEE C62.41.2 C High
- Protects against surges according to ANSI C136.2
- UL1449 Recognized Component in the United States and Canada
- 3-leaded device : L-G, L-N, and N-G in accordance with IEEE / ANSI C62.41.2 guidelines

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Certificate of Compliance

Certificate: 70207825

Master Contract: 233794 (233794)

Project: 70207825

Date Issued: 2017-02-16

Issued to: Quality Sourcing Services Inc
280 Scarlet Blvd
Oldsmar, Florida 34677-0021
USA
Attention: Dan Wetherington

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *David Lemaux*
David Lemaux

PRODUCTS

CLASS - C340202 - LUMINAIRES - LED-Surface Mounted

CLASS - C340282 - LUMINAIRES - LED-Surface Mounted - Certified to US Std

Model(s) KH45 KH25 Series LED Luminaires, suitable for wet locations,
rated 120-480V, 50/60Hz, 290W max.

APPLICABLE REQUIREMENTS

CSA C22.2 No. 250.0-18 – Luminaires

UL 1598, 4th Ed. – Luminaires