

Features

- High Efficiency (Up to 93%)
- Constant Current Output
- 0-10V Dimming Control
- Input Surge Protection: 4kV line-line, 6kV line-earth
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67) and UL Dry / Damp / Wet Location
DTA models in Wet Locations must be Built-In
- SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous
(Classified) location
- UL Type TL (Temperature Limited)



Description

The EUC-150SxxxDTA(STA) series is a 150W, constant-current LED driver that operates from 90-305 Vac input with excellent power factor. It is created for high bay, tunnel and roadway lights. 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)
					120Vac	220Vac	
530 mA	90 ~ 305 Vac 127~300 Vdc	142~283Vdc	150 W	93.0%	0.99	0.95	EUC-150S053DTA(STA)
700 mA	90 ~ 305 Vac 127~300 Vdc	107~214Vdc	150 W	92.5%	0.99	0.95	EUC-150S070DTA(STA)
860 mA	90 ~ 305 Vac 127~300 Vdc	87~174Vdc	150 W	91.5%	0.99	0.95	EUC-150S086DTA(STA)
1050 mA	90 ~ 305 Vac 127~300 Vdc	71~142Vdc	150 W	92.0%	0.99	0.95	EUC-150S105DTA(STA)
1400 mA	90 ~ 305 Vac 127~300 Vdc	53~107Vdc	150 W	91.0%	0.99	0.95	EUC-150S140DTA(STA) (4)
2100 mA	90 ~ 305 Vac 127~300 Vdc	36~71.5Vdc	150 W	91.0%	0.99	0.95	EUC-150S210DTA(STA) (4)
2450 mA	90 ~ 305 Vac 127~300 Vdc	31~61.2Vdc	150 W	91.0%	0.99	0.95	EUC-150S245DTA(STA) (4)
2800 mA	90 ~ 305 Vac 127~300 Vdc	27~53.5Vdc	150 W	91.0%	0.99	0.95	EUC-150S280DTA(STA) (4)
3150 mA	90 ~ 305 Vac 127~300 Vdc	24~47Vdc	150 W	91.0%	0.99	0.95	EUC-150S315DTA(STA) (4)
3500 mA	90 ~ 305 Vac 127~300 Vdc	22~43Vdc	150 W	91.5%	0.99	0.95	EUC-150S350DTA(STA) (4)
4200 mA	90 ~ 305 Vac 127~300 Vdc	18~36Vdc	150 W	91.0%	0.99	0.95	EUC-150S420DTA(STA) (4)

Notes: (1) UL, FCC certified input voltage range: 100-277Vac or 127-300Vdc; other certified input voltage range except UL & FCC: 100-240Vac or 127-250Vdc (except KS)

(2) Measured at full load and 220 Vac input.

(3) All the models are certificated to KS, except EUC-150S053DTA(STA)

(4) SELV output

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	127~300 Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	1.0 mA	At 277Vac/60Hz input , grounding effectively
Input AC Current	-	-	1.8 A	Measured at full load and 100Vac input.
	-	-	0.9 A	Measured at full load and 220Vac input.
Inrush current(I ² t)	-	-	0.95 A ² s	At 220Vac input, 25°C cold start, duration=496 μs, 10%l _{pk} -10%l _{pk} . See Inrush Current Waveform for the details.
PF	0.90	-	-	At 100-277Vac, 75%-100% Load (112.5-150W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%I _o	-	5%I _o	At full load condition.
Total Output Current Ripple (pk-pk)	-	5%I _o	10%I _o	At full load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%I _o	-	At full load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%I _o	At full load condition.
No load Output Voltage				
I _o = 530 mA	-	-	309 V	
I _o = 700 mA	-	-	236 V	
I _o = 860 mA	-	-	206 V	
I _o = 1050 mA	-	-	160 V	
I _o = 1400 mA	-	-	118 V	
I _o = 2100 mA	-	-	82 V	
I _o = 2450 mA	-	-	71 V	
I _o = 2800 mA	-	-	62 V	
I _o = 3150 mA	-	-	54 V	
I _o = 3500 mA	-	-	52 V	
I _o = 4200 mA	-	-	46 V	
Line Regulation	-	-	±1%	At full load condition.
Load Regulation	-	-	±3%	
Turn-on Delay Time	-	1.0 s	2.0 s	Measured at 120Vac and 220Vac input.
Temperature Coefficient	-	-	0.03%/°C	Case temperature = 0°C ~T _c max
12V Auxiliary Output Voltage	10.8 V	12 V	13.2 V	
12V Auxiliary Output Source Current	0 mA		20 mA	Return terminal is "Dim-"

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

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: $I_o = 530 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 860 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 2100 \text{ mA}$ $I_o = 2450 \text{ mA}$ $I_o = 2800 \text{ mA}$ $I_o = 3150 \text{ mA}$ $I_o = 3500 \text{ mA}$ $I_o = 4200 \text{ mA}$	88.0% 88.0% 87.5% 88.0% 87.0% 87.0% 87.0% 87.0% 87.0% 87.5% 87.0%	90.0% 90.0% 89.5% 90.0% 89.0% 89.0% 89.0% 89.0% 89.0% 89.5% 89.0%	- - - - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 220 Vac input: $I_o = 530 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 860 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 2100 \text{ mA}$ $I_o = 2450 \text{ mA}$ $I_o = 2800 \text{ mA}$ $I_o = 3150 \text{ mA}$ $I_o = 3500 \text{ mA}$ $I_o = 4200 \text{ mA}$	91.0% 90.5% 89.5% 90.0% 89.0% 89.0% 89.0% 89.0% 89.0% 89.5% 89.0%	93.0% 92.5% 91.5% 92.0% 91.0% 91.0% 91.0% 91.0% 91.0% 91.5% 91.0%	- - - - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 277 Vac input: $I_o = 530 \text{ mA}$ $I_o = 700 \text{ mA}$ $I_o = 860 \text{ mA}$ $I_o = 1050 \text{ mA}$ $I_o = 1400 \text{ mA}$ $I_o = 2100 \text{ mA}$ $I_o = 2450 \text{ mA}$ $I_o = 2800 \text{ mA}$ $I_o = 3150 \text{ mA}$ $I_o = 3500 \text{ mA}$ $I_o = 4200 \text{ mA}$	91.0% 90.5% 90.0% 90.0% 89.0% 89.0% 89.0% 89.0% 89.0% 90.0% 89.5%	93.0% 92.5% 92.0% 92.0% 91.0% 91.0% 91.0% 91.0% 91.0% 92.0% 91.5%	- - - - - - - - - - -	Measured at full load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
MTBF	-	274,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	112,000 Hours	-	Measured at 220Vac input, 80%Load and 60°C case temperature; 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	
Operating Case Temperature for Type TL Tc_TL	-40°C	-	+64°C	
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%RH

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Dimensions Inches (L × W × H) Millimeters (L × W × H)	7.83 × 2.66 × 1.56 199 × 67.5 × 39.5			With mounting ear 8.90 × 2.66 × 1.56 226 × 67.5 × 39.5
Net Weight	-	1115 g	-	

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

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	0 V	-	12 V	
Source Current on Vdim (+)Pin	100 uA	140 uA	180 uA	
Dimming Output Range	10%Io	-	100%Io	
Recommended Dimming Input Range	0 V	-	10 V	

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

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL 8750, CAN/CSA-C22.2 No. 250.13-12
CE	EN 61347-1, EN61347-2-13
KS	KS C 7655 : 2011
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 C63.4:2009 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: line to line 4 kV, line to earth 6 kV ⁽²⁾

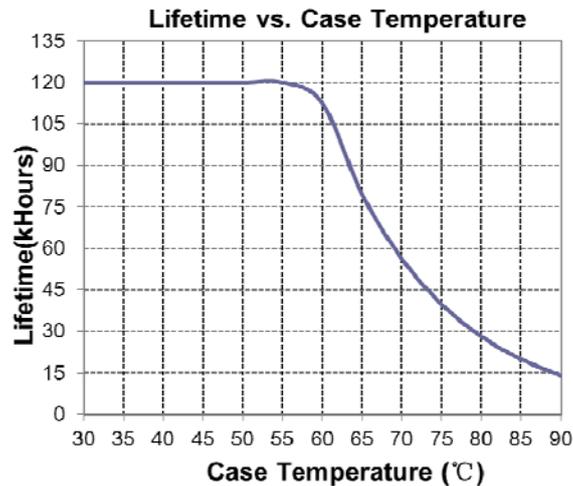
Safety & EMC Compliance (Continued)

EMS Standards	Notes
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

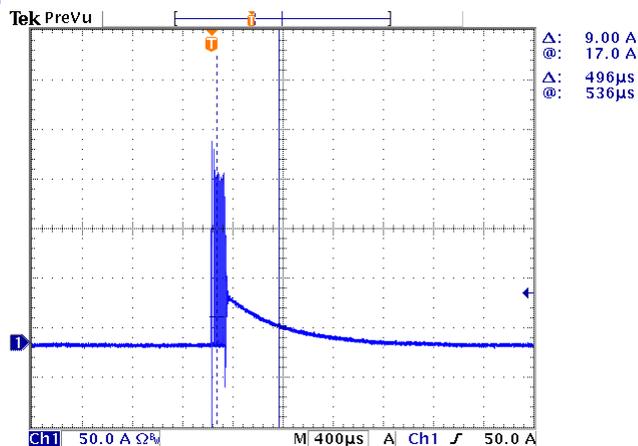
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(2) To perform electric strength (hi-pot) testing, the “GDT ground disconnect” (nut and metal lock sheet) on the driver end-cap should be removed temporarily to prevent the internal gas discharge tube from conducting (as allowed by IEC 60598-1 Clause 10.2). After testing is completed, these items must be reinstalled to restore line-to-earth surge protection and secure the end cap.

Lifetime vs. Case Temperature



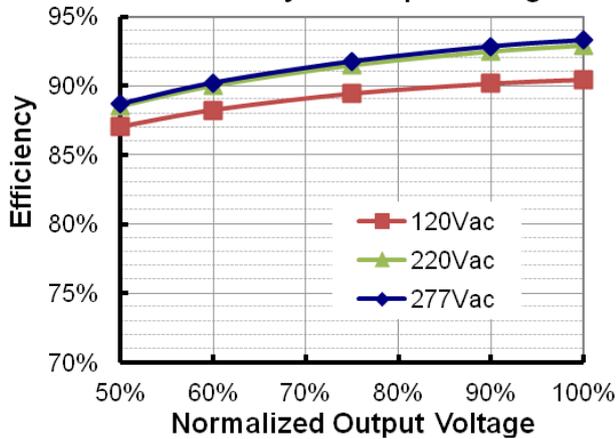
Inrush Current Waveform



Efficiency vs. Load

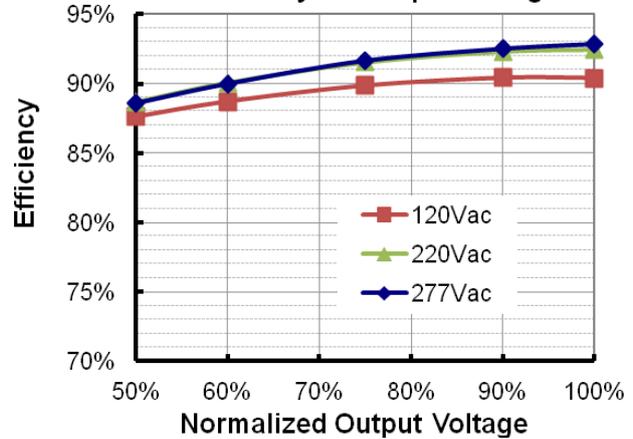
EUC-150S053DTA(STA)

Efficiency vs. Output Voltage



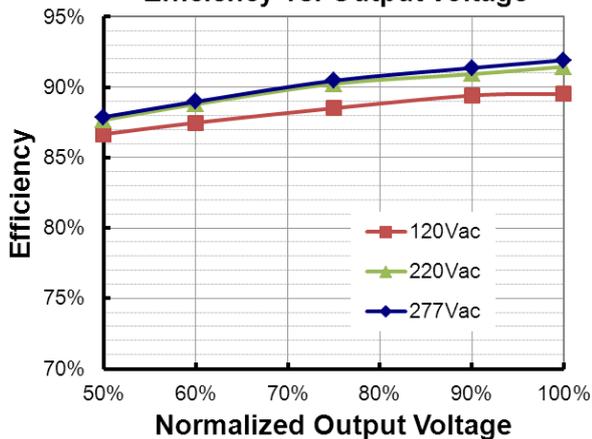
EUC-150S070DTA(STA)

Efficiency vs. Output Voltage



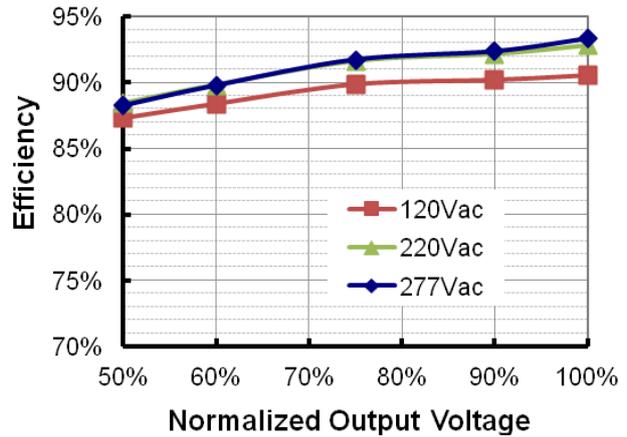
EUC-150S086DTA(STA)

Efficiency vs. Output Voltage



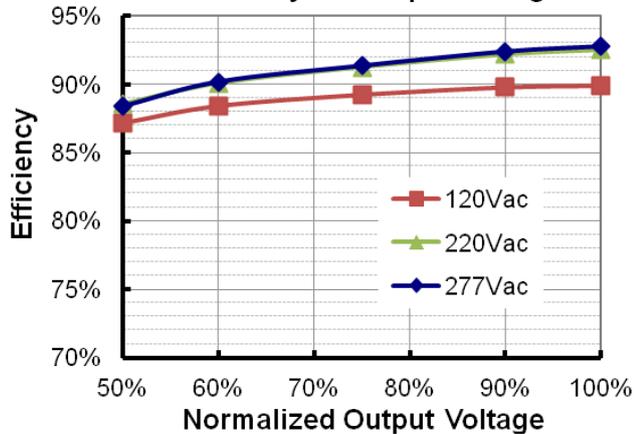
EUC-150S105DTA(STA)

Efficiency vs. Output Voltage



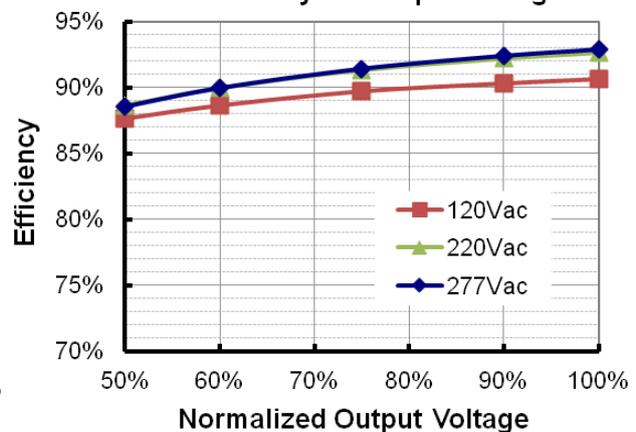
EUC-150S140DTA(STA)

Efficiency vs. Output Voltage



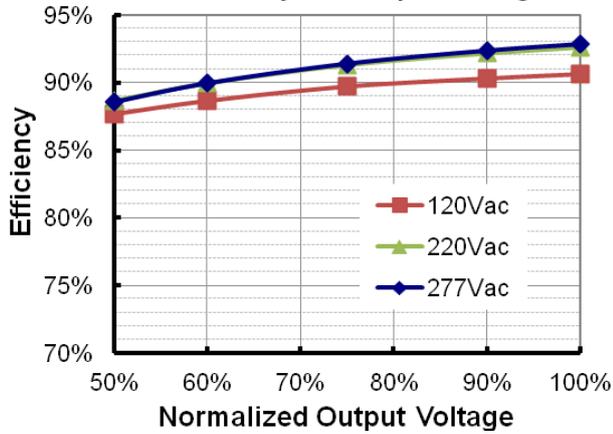
EUC-150S210DTA(STA)

Efficiency vs. Output Voltage



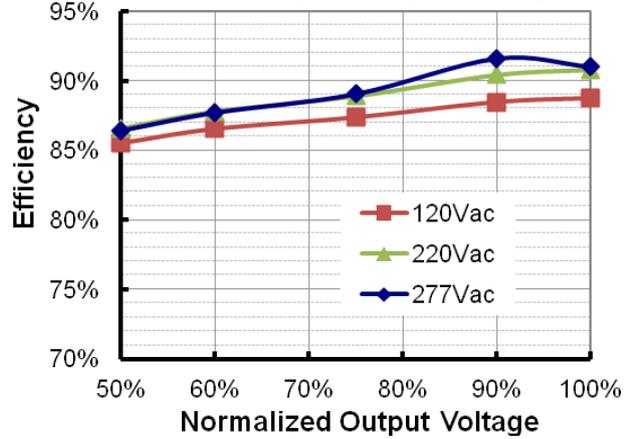
EUC-150S245DTA(STA)

Efficiency vs. Output Voltage



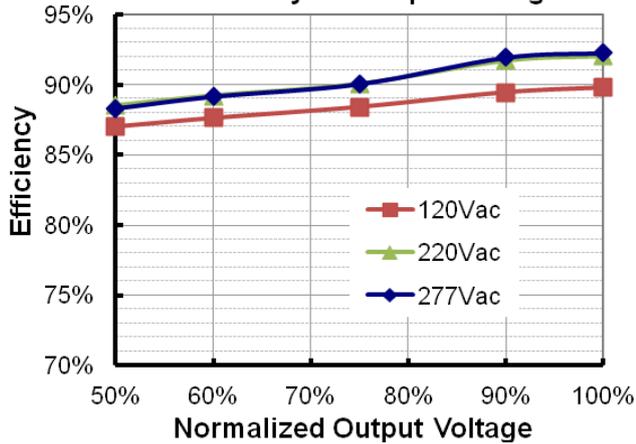
EUC-150S280DTA(STA)

Efficiency vs. Output Voltage



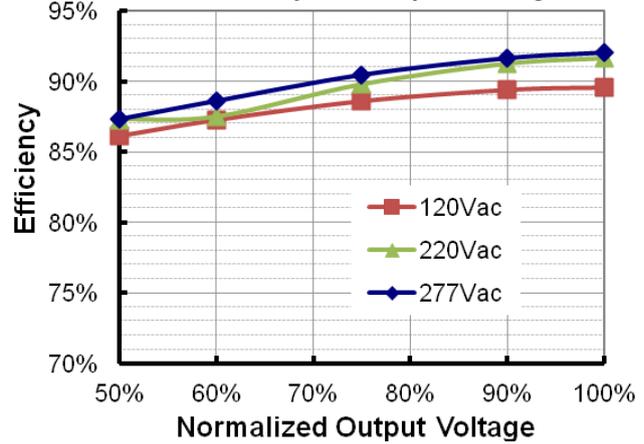
EUC-150S315DTA(STA)

Efficiency vs. Output Voltage



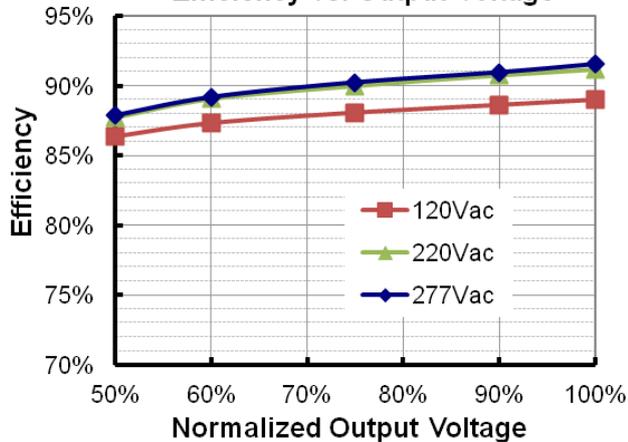
EUC-150S350DTA(STA)

Efficiency vs. Output Voltage

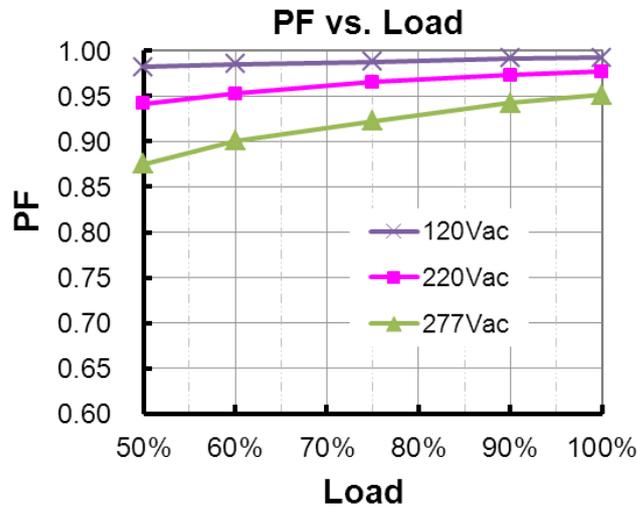


EUC-150S420DTA(STA)

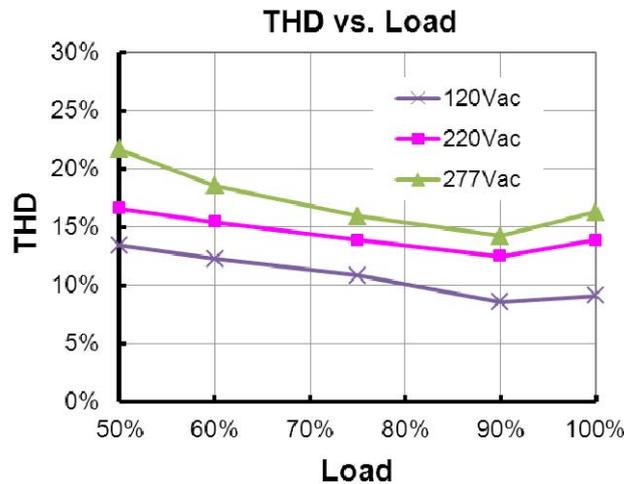
Efficiency vs. Output Voltage



Power Factor



Total Harmonic Distortion



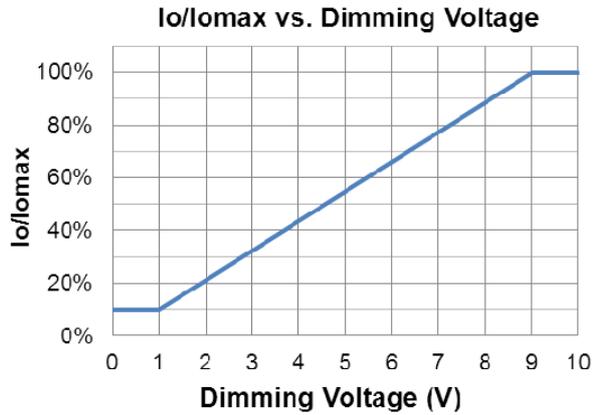
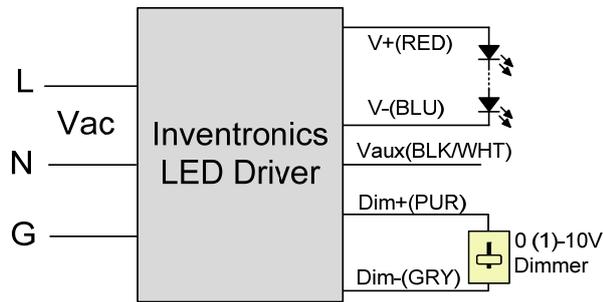
Protection Functions

Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Over Voltage Protection	Limits output voltage at no load and in case the normal voltage limit fails.

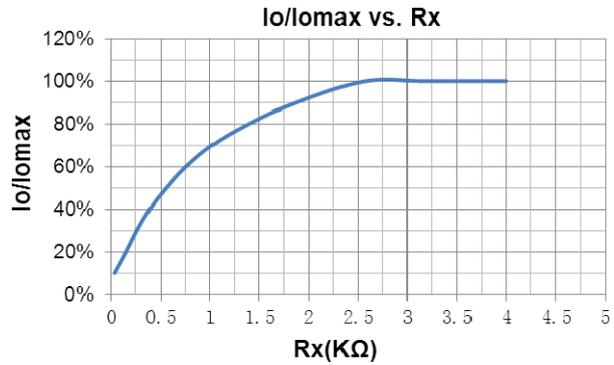
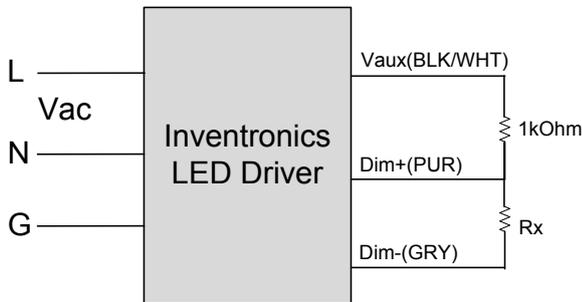
Dimming

● 0-10V Dimming

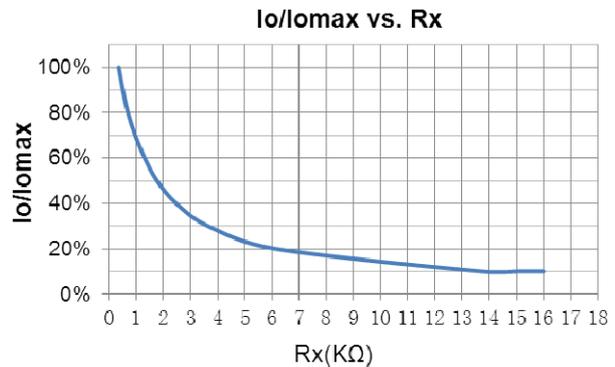
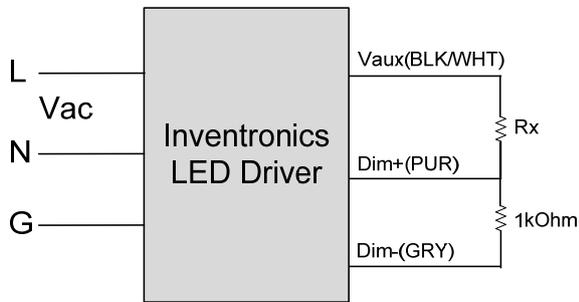
The recommended implementation of the dimming control is provided below.



Implementation 1: DC Input



Implementation 2: External Resistor



Implementation 3: External Resistor

Notes:

1. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like resistors and zener.
2. The dimming signal is allowed to be less than 1V, when it is between 0 and 1V, the output level is 10%.
3. Do NOT connect the Gray Wire (dim-) and Blue Wire (V-) together.
4. The dimming section is not isolated from output.
5. If 0-10V dimming is not used, Dim + can be either open or connected to Vaux.

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2013-01-18	A	Datasheets Release	/	/
2015-07-22	B	External Grounding Screw Solution	/	/
2016-04-22	C	KS	/	Added
		General Specifications	With mounting ear	Added
		General Specifications	Net Weight	Update
		Safety & EMC Compliance	/	Update
		Mechanical Outline	/	Update