Features

- Ultra High Efficiency (Up to 93.5%)
- Constant Current Output
- 0-10V Dimmable and Dim-to-Off (DT models)
- Standby Power ≤1 W
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: OVP, SCP, OTP
- IP67 and UL Dry / Damp Location
- SELV Output
- TYPE HL, for use in a Class I, Division 2 hazardous (Classified) location

Description

The *EUD-200SxxxDT(ST)-00A0* series is a 200W, constant-current LED driver that operates from 90-305 Vac input with excellent power factor. Created for many lighting applications including high bay, high mast, arena and roadway, etc, it provides either a fixed output current (ST models) or 0-10V dimming with a dim-to-off mode and low standby power (DT models). 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)	Typical Power Factor		Model Number (3)
					120Vac	220Vac	
700 mA	90 ~ 305 Vac 127~300 Vdc	143~286 Vdc	200 W	93.5%	0.99	0.96	EUD-200S070DT(ST)-00A0
1050 mA	90 ~ 305 Vac 127~300 Vdc	95~190 Vdc	200 W	93.5%	0.99	0.96	EUD-200S105DT(ST)-00A0
1400 mA	90 ~ 305 Vac 127~300 Vdc	71~142 Vdc	200 W	93.0%	0.99	0.96	EUD-200S140DT(ST)-00A0
2100 mA	90 ~ 305 Vac 127~300 Vdc	47~ 95 Vdc	200 W	93.0%	0.99	0.96	EUD-200S210DT(ST)-00A0(4)
2450 mA	90 ~ 305 Vac 127~300 Vdc	41~ 82 Vdc	200 W	93.5%	0.99	0.96	EUD-200S245DT(ST)-00A0(4)
2800 mA	90 ~ 305 Vac 127~300 Vdc	35~ 71 Vdc	200 W	92.5%	0.99	0.96	EUD-200S280DT(ST)-00A0(4)
4200 mA	90 ~ 305 Vac 127~300 Vdc	24~ 48 Vdc	200 W	93.0%	0.99	0.96	EUD-200S420DT(ST)-00A0(4)
4900 mA	90 ~ 305 Vac 127~300 Vdc	21~ 41 Vdc	200 W	92.0%	0.99	0.96	EUD-200S490DT(ST)-00A0(4)

Notes: (1) UL, FCC certified input voltage range: 100-277Vac or 127-300Vdc; otherwise: 100-240Vac or 127-250Vdc
(2) Measured at 100% load and 220 Vac input.
(3) All the models are certificated to KS, except EUD-200S070DT(ST)-00A0
(4) SELV output

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	305 Vac	
Input DC Voltage	127 Vdc	-	300 Vdc	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.75 MIU	UL8750; 277Vac/ 60Hz, grounding effectively
	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz, grounding effectively
Input AC Current	-	-	2.4 A	Measured at 100% load and 100 Vac input.
	-	-	1.2 A	Measured at 100% load and 220 Vac input.
Inrush Current(I^2t)	-	-	3.2 A^2s	At 220Vac input, 25℃ cold start, duration=1.7 ms,10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.90	-	-	At 100-277Vac, 50-60Hz,75%-100% Load (150-200W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Io	-	5%Io	At 100% load condition
Total Output Current Ripple (pk-pk)	-	5%Io	10%Io	At 100% load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%Io	-	At 100% load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%Io	At 100% load condition
No Load Output Voltage I_O = 700 mA I_O = 1050 mA I_O = 1400 mA I_O = 2100 mA I_O = 2450 mA I_O = 2800 mA I_O = 4200 mA Io = 4900 mA	 - - - - - - - -	 - - - - - - - -	 305V 205V 155V 110V 95V 80V 55V 48V	
Line Regulation	-	-	±0.5%	Measured at 100% load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	0.8 s	1.5 s	Measured at 120Vac and 220Vac input.
Temperature Coefficient of Io	-	0.03%/°C	-	Case temperature = 0°C ~Tc max
12V Auxiliary Output Voltage	10.8 V	12 V	13.2 V	
12V Auxiliary Output Source Current	0 mA	-	200 mA	Return terminal is “Dim−“

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: I_O = 700 mA I_O = 1050 mA I_O = 1400 mA I_O = 2100 mA I_O = 2450 mA I_O = 2800 mA I_O = 4200 mA I_O = 4900 mA	 88.0% 88.0% 87.0% 87.0% 88.0% 86.0% 87.5% 87.0%	 91.0% 91.0% 90.0% 90.0% 91.0% 89.0% 90.5% 90.0%	 - - - - - - - -	Measured at 100% 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 = 700 mA I_O = 1050 mA I_O = 1400 mA I_O = 2100 mA I_O = 2450 mA I_O = 2800 mA I_O = 4200 mA I_O = 4900 mA	 91.5% 91.5% 91.0% 91.0% 91.5% 90.5% 91.0% 90.0%	 93.5% 93.5% 93.0% 93.0% 93.5% 92.5% 93.0% 92.0%	 - - - - - - - -	Measured at 100% 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 = 700 mA I_O = 1050 mA I_O = 1400 mA I_O = 2100 mA I_O = 2450 mA I_O = 2800 mA I_O = 4200 mA I_O = 4900 mA	 92.0% 91.5% 91.0% 91.0% 91.5% 91.0% 91.5% 90.5%	 94.0% 93.5% 93.0% 93.0% 93.5% 93.0% 93.5% 92.5%	 - - - - - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Standby power	-	-	1 W	Measured at 230Vac/50Hz; Dimming off
MTBF	-	341,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	120,000 Hours	-	Measured at 220Vac input, 80%Load and 60°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	+87°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+70°C	Humidity: 10%RH to 95%RH
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 95%RH
Dimensions Inches (L × W × H) Millimeters (L × W × H)	 8.82 × 2.66 × 1.56 224 × 67.5 × 39.5			With mounting ear 9.88 × 2.66 × 1.56 251 × 67.5 × 39.5
Net Weight	-	1200 g	-	

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-20 V	-	20 V	
Source Current on Vdim (+)Pin	90 μA	120 μA	150 μA	
Dimming Output Range	10%I_O	-	100%I_O	
Recommended Dimming Input Range	0 V	-	10 V	
Dim off Voltage	0.2 V	0.4 V	0.6 V	
Dim on Voltage	0.4 V	0.6 V	0.8 V	
Hysteresis	-	0.2 V	-	

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, CAN/CSA-C22.2 No. 250.13
CE(1)	EN 61347-1, EN 61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
KS	KS C 7655
EMI standards	**Notes**
EN 55015(2)	Conducted emission Test &Radiated emission Test
EN 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
FCC Part 15(2)	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 (3)
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test

Safety & EMC Compliance (Continued)

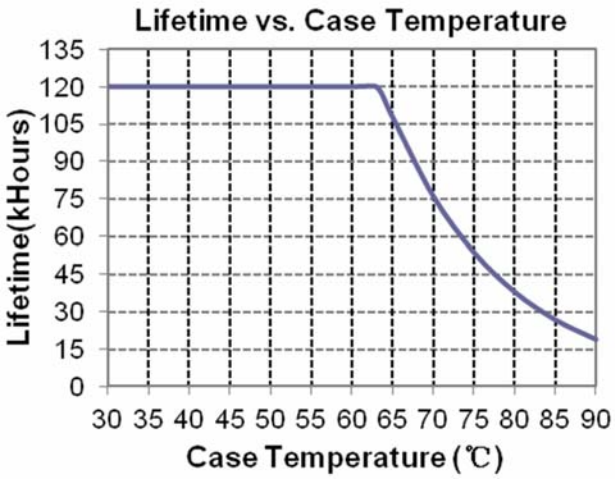
Safety Category	Standard
EN 61000-4-11	Voltage Dips
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Note: (1) For compliance with EU Directive 2009/125/EC (ecodesign requirements for energy-related products) the Dim-to-Off function shall not be used or alternatively be interrupted through use of a relay or similar device to prevent excessive standby power consumption (as illustrated in Implementation 4).

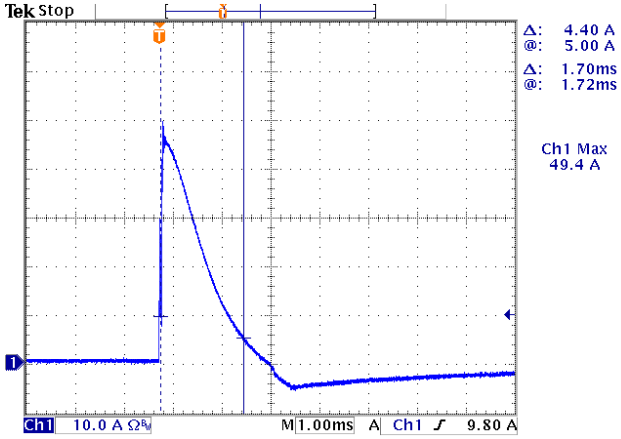
(2) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(3) 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

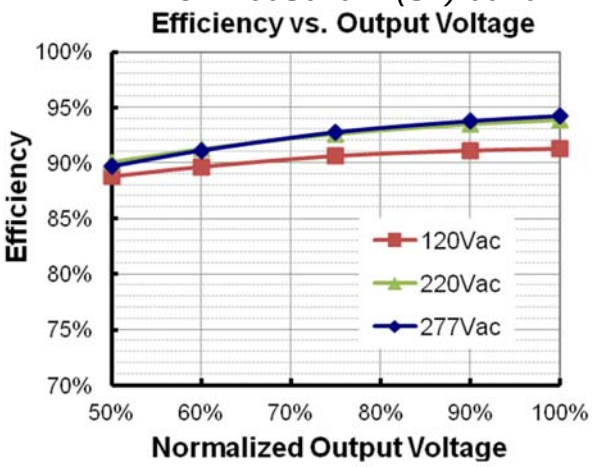


Inrush Current Waveform

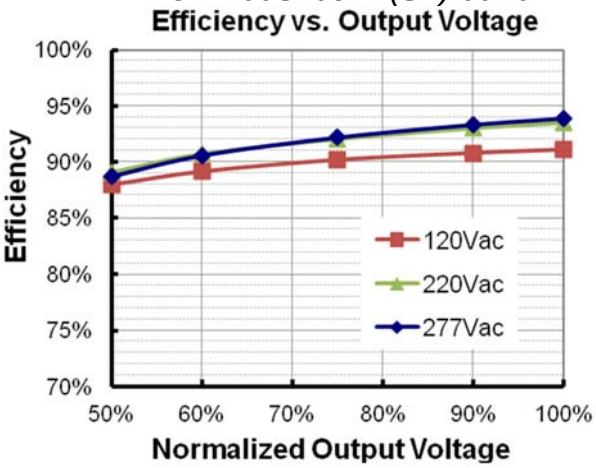


Efficiency vs. Load

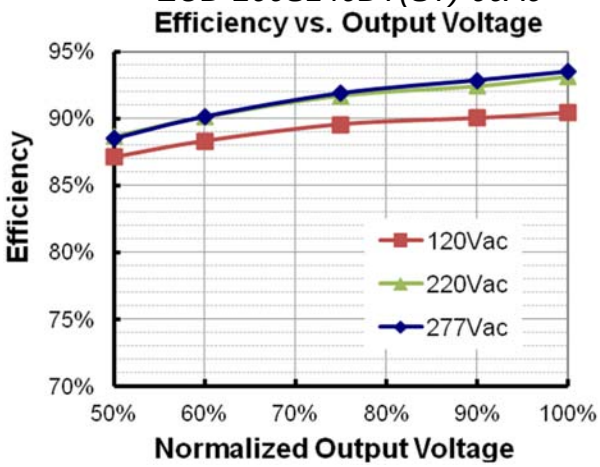
EUD-200S070DT(ST)-00A0



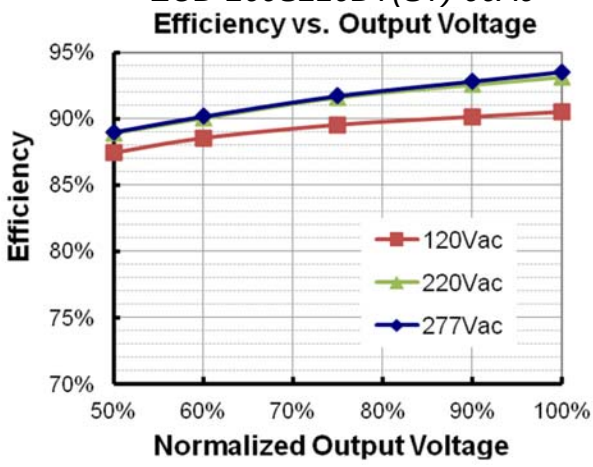
EUD-200S105DT(ST)-00A0



EUD-200S140DT(ST)-00A0



EUD-200S210DT(ST)-00A0



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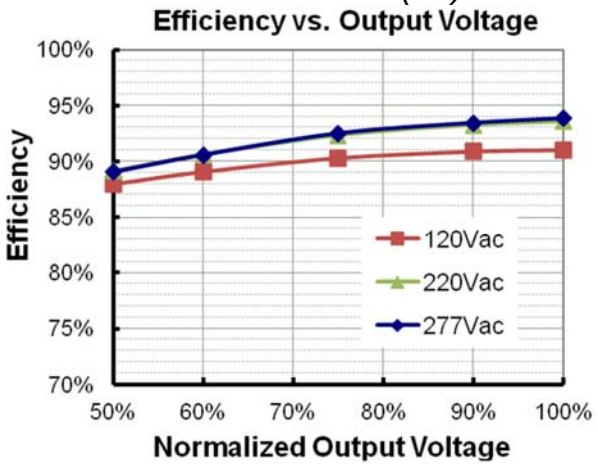

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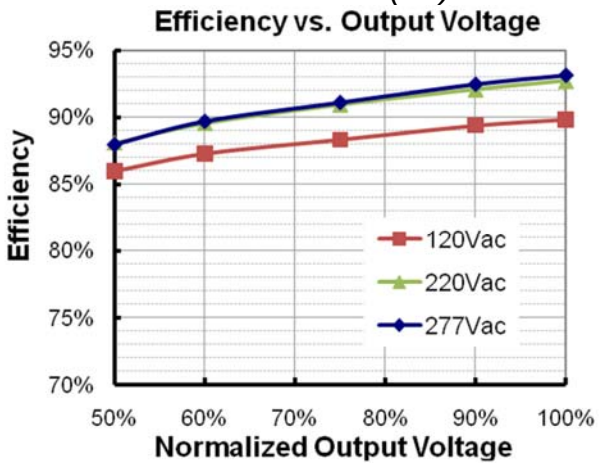
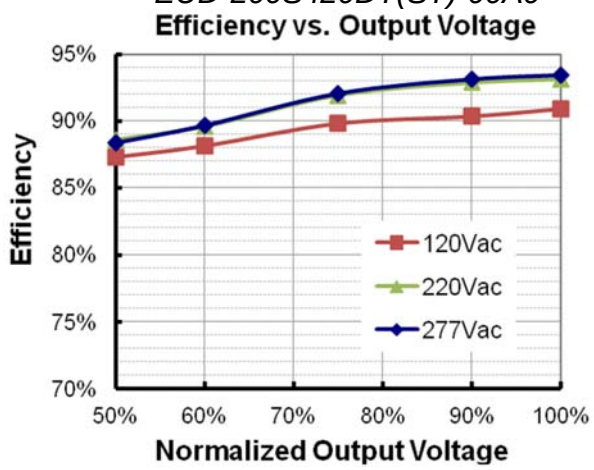
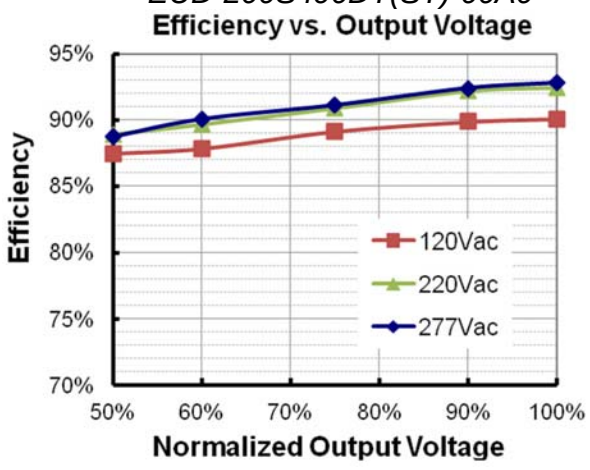


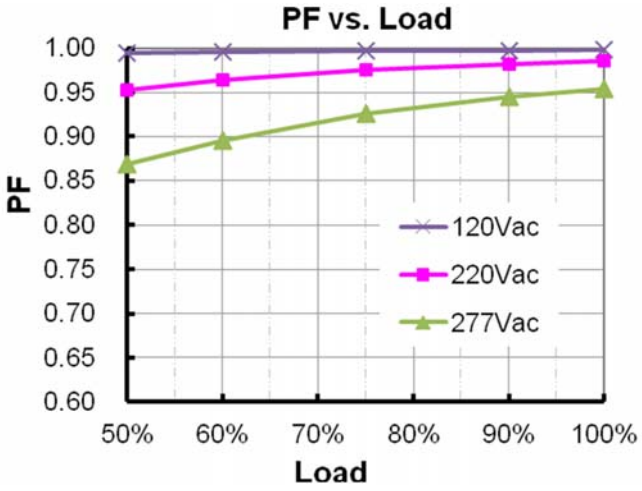
EUD-200S420DT(ST)-00A0



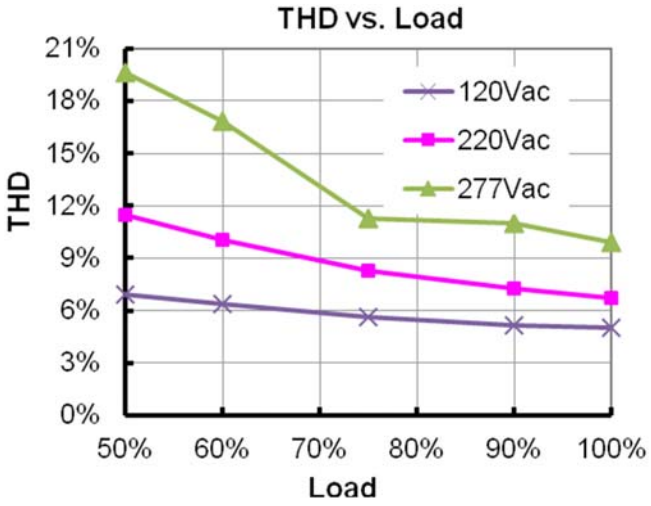
EUD-200S490DT(ST)-00A0



Power Factor



Total Harmonic Distortion



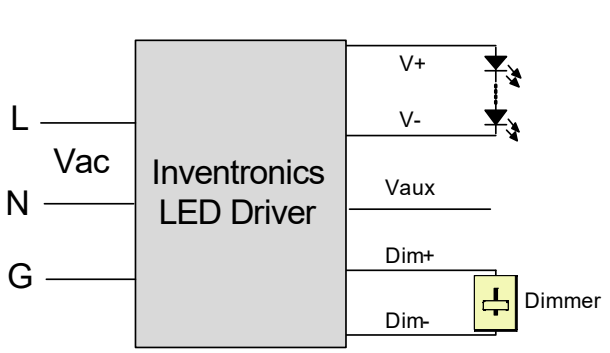
Protection Functions

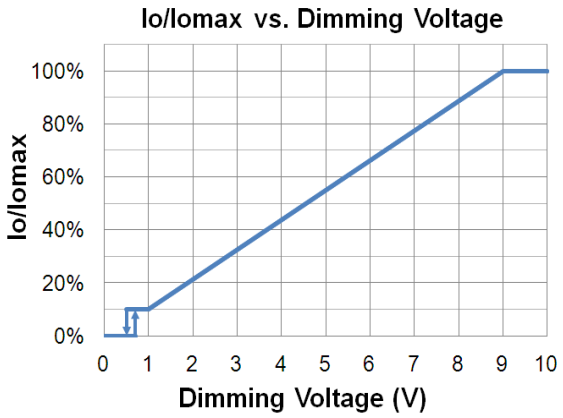
Parameter	Notes
Over Temperature Protection	Decreases output current, returning to normal after over temperature is removed.
Short Circuit Protection	Auto Recovery. No damage will occur when any output is short circuited. The output shall return to normal when the fault condition is removed.
Over Voltage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

Dimming

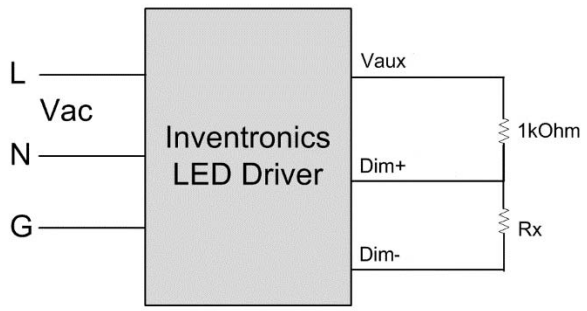
- **0-10V Dimming**

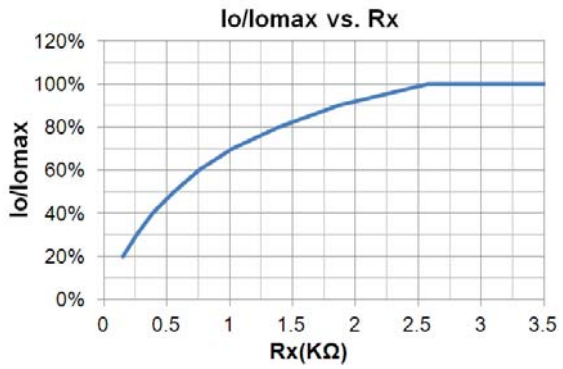
The recommended implementation of the dimming control is provided below.





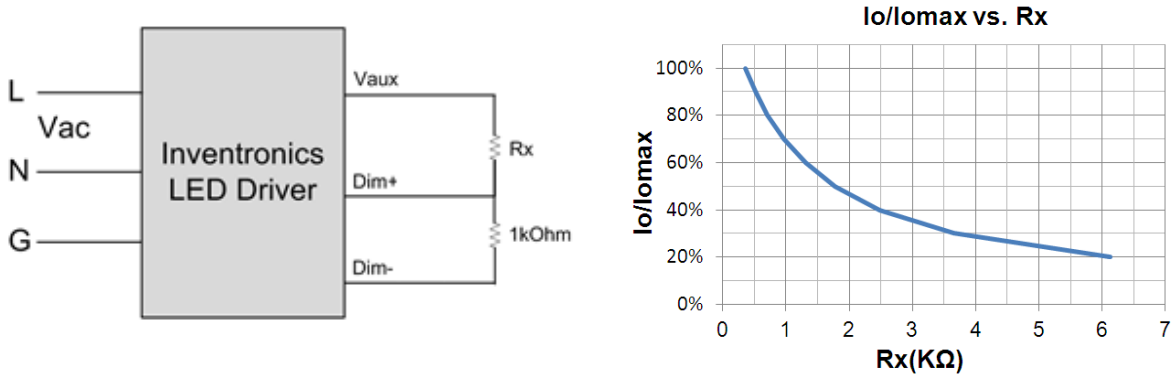
Implementation 1: DC Input





Implementation 2: External Resistor

www.inventronics-co.com Tel: 86-571-56565800 Fax: 86-571-86601139 sales@inventronics-co.com



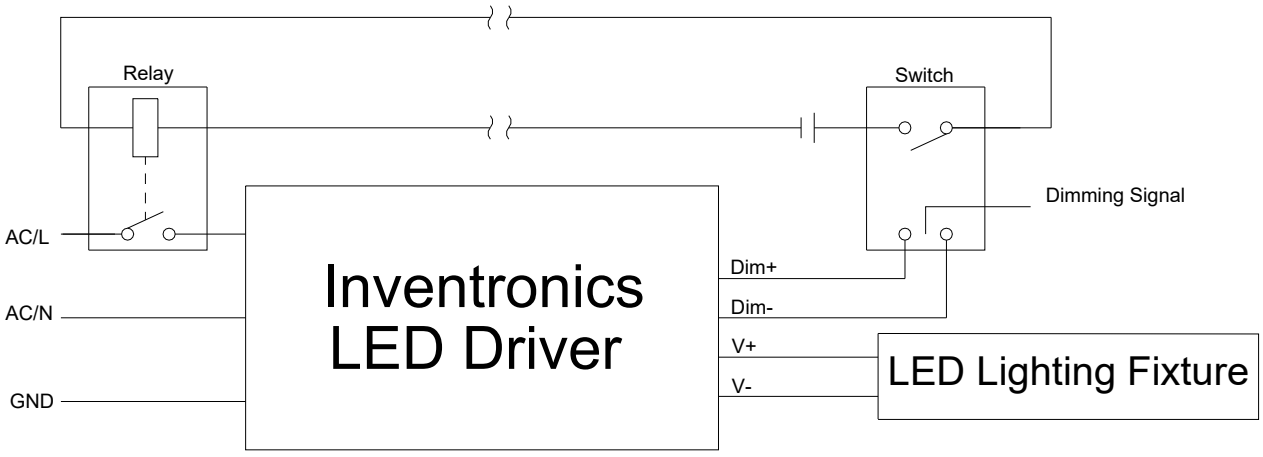
Implementation 3: External Resistor

Notes:

1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. The dimmer can also be replaced by an active 0-10V voltage source signal or passive components like zener.
3. If 0-10V dimming is not used, Dim + can be either open or connected to Vaux.

- **0% Light Brightness**

  If the brightness of the LED lighting fixture down to 0%, please refer to the following wiring method. The lamp can be turned on/off using a switch and relay.

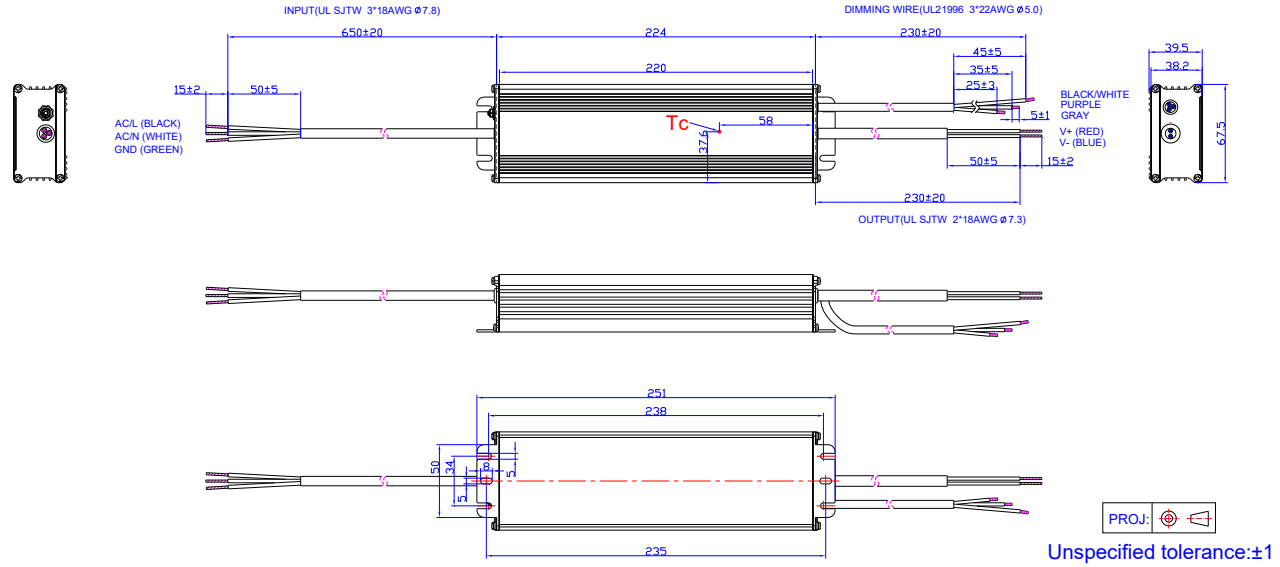


Implementation 4: 0% Light Brightness Wiring Method

www.inventronics-co.com **Tel: 86-571-56565800** **Fax: 86-571-86601139** **sales@inventronics-co.com**

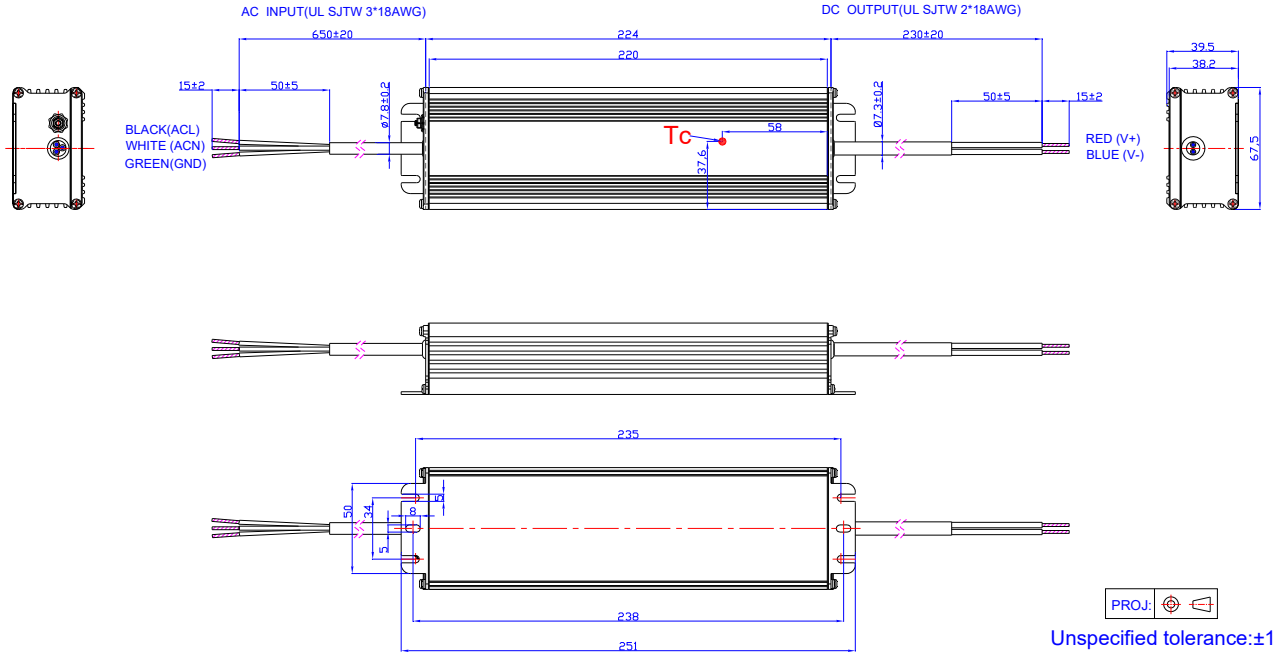
Mechanical Outline

EUD-200SxxxDT-00A0



Unspecified tolerance:±1

EUD-200SxxxST-00A0



Unspecified tolerance:±1

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
2014-10-20	A	Datasheets Release	/	/
2015-03-11	B	Features	Input Surge Protection: 4kV line-line, 6kV line-earth	Added
		Output Current Ripple(pk-pk)	Output Current Ripple(pk-pk)	Total Output Current Ripple (pk-pk)
		Output Current Ripple at < 200 Hz (pk-pk)	/	Added
		Case Temperature	Case Temperature	Operating Case Temperature for Safety Tc_s
		Operating Case Temperature for Warranty Tc_w	/	Added
		General Specifications	Storage Temperature	Added
		Environmental Specifications	/	Delete
		Safety & EMC Compliance	EN 55015 EN 61000-3-2 EN 61000-3-3	Delete
		Derating	/	Delete
2015-12-03	C	CE、KS	/	Added
		External Grounding Screw Solution	/	/
		Safety & EMC Compliance	/	Updated
		Mechanical Outline	/	Updated
2016-03-31	D	General Specifications	With mounting ear	Updated
		Safety &EMC Compliance	/	Updated
2016-06-12	E	Mechanical Outline	/	Updated
2017-03-07	F	Inrush Current(I^2t)	/	Updated
		Mechanical Outline	/	Updated
2019-08-24	G	CB Logo	/	Added
		Features	Input surge protection	Updated
		Description	/	Updated
		Input Specifications(PF/THD)	50-60Hz	Added
		Safety &EMC Compliance	UL/CUL	Updated
		Safety &EMC Compliance	CB	Added
		Safety &EMC Compliance	KS	Updated
		Safety &EMC Compliance	FCC	Updated

Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2019-08-24	G	Safety &EMC Compliance	EN 61000-4-5	Updated
		Mechanical Outline	/	Updated
		RoHS Compliance	/	Updated
2021-12-02	H	Features	/	Updated
		Safety &EMC Compliance	Note (1)	Added
		0% Light Brightness	/	Added