

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
- Waterproof (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)	Power Factor		Model Number (3)
					120Vac	220Vac	
700 mA	90 ~ 305 Vac 127~300 Vdc	143~286Vdc	200 W	93.5%	0.99	0.96	EUD-200S070DT(ST)-00A0
1050 mA	90 ~ 305 Vac 127~300 Vdc	95~190Vdc	200 W	93.5%	0.99	0.96	EUD-200S105DT(ST)-00A0
1400 mA	90 ~ 305 Vac 127~300 Vdc	71~142Vdc	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 Voltage	90 Vac	-	305 Vac	127~300 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 ² t)	-	-	3.2 A ² s	At 220Vac input, 25°C 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				
Io = 700 mA	-	-	305V	
Io = 1050 mA	-	-	205V	
Io = 1400 mA	-	-	155V	
Io = 2100 mA	-	-	110V	
Io = 2450 mA	-	-	95V	
Io = 2800 mA	-	-	80V	
Io = 4200 mA	-	-	55V	
Io = 4900 mA	-	-	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-"

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

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	
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 100%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	-	

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	-20 V	-	20 V	
Source Current on Vdim (+)Pin	90 μ A	120 μ A	150 μ A	
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	-	

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

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750, CAN/CSA-C22.2 No. 250.13
CE	EN 61347-1, EN61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
KS	KS C 7655
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 ⁽²⁾
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS
EN 61000-4-8	Power Frequency Magnetic Field Test

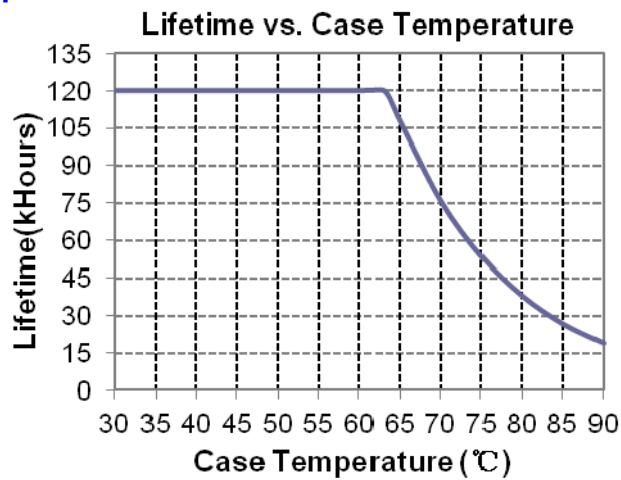
Safety & EMC Compliance (Continued)

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

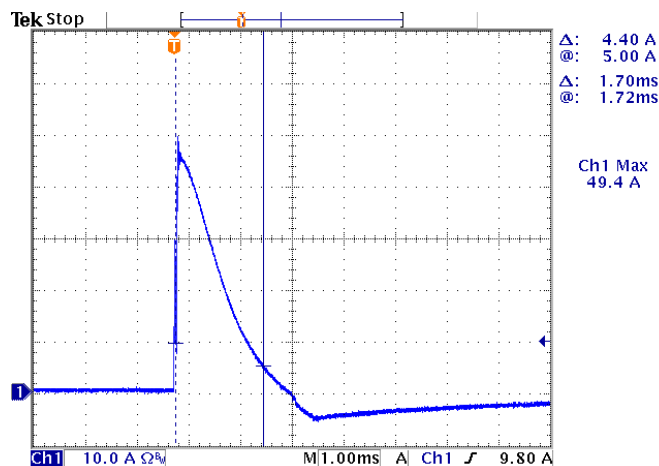
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(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

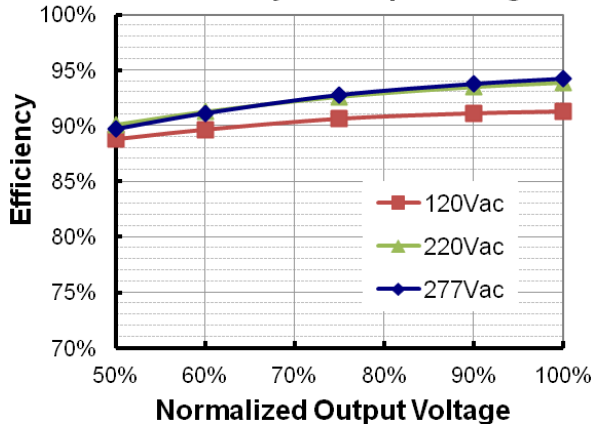


Inrush Current Waveform

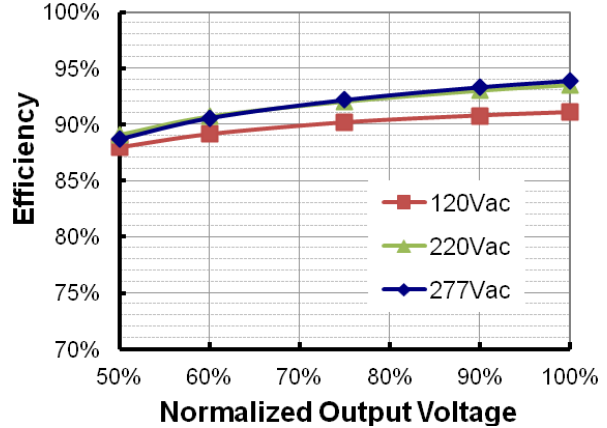


Efficiency vs. Load

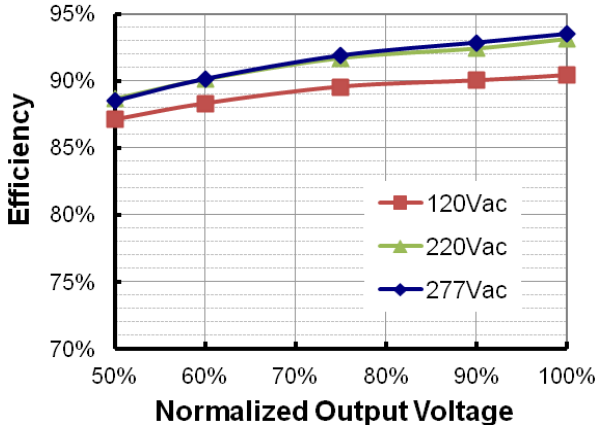
EUD-200S070DT(ST)-00A0
Efficiency vs. Output Voltage



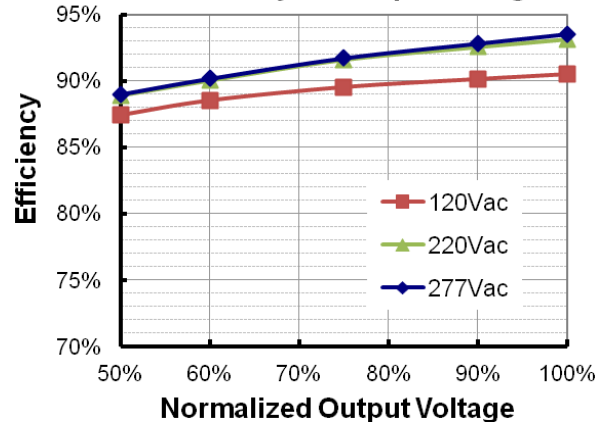
EUD-200S105DT(ST)-00A0
Efficiency vs. Output Voltage



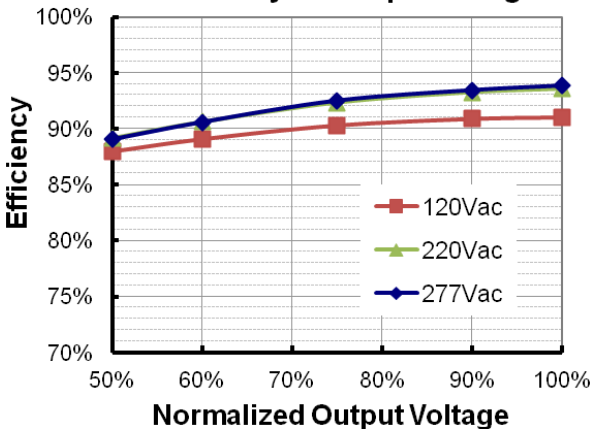
EUD-200S140DT(ST)-00A0
Efficiency vs. Output Voltage



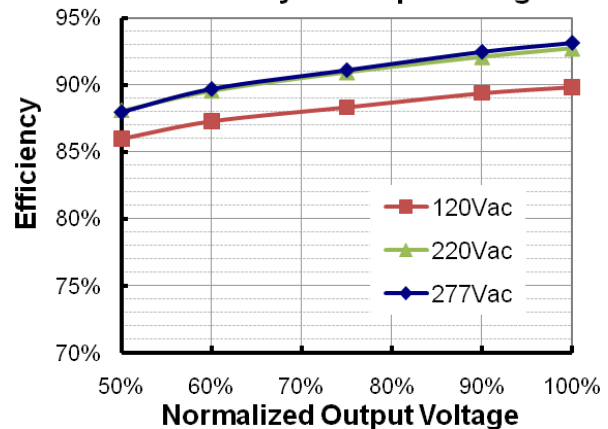
EUD-200S210DT(ST)-00A0
Efficiency vs. Output Voltage

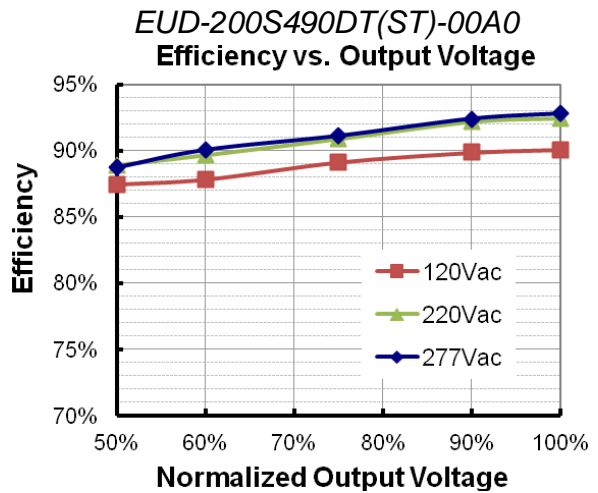
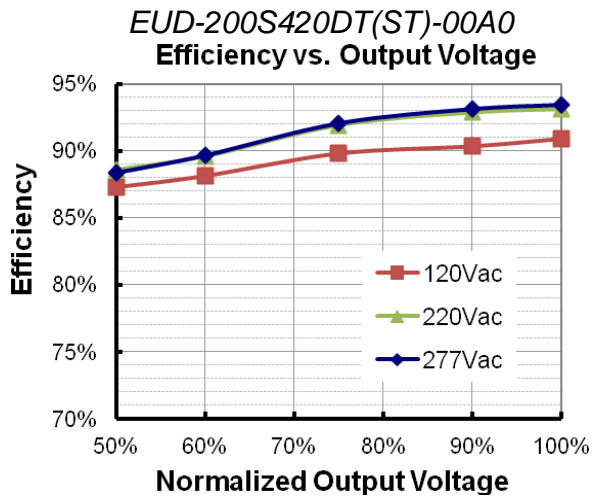


EUD-200S245DT(ST)-00A0
Efficiency vs. Output Voltage

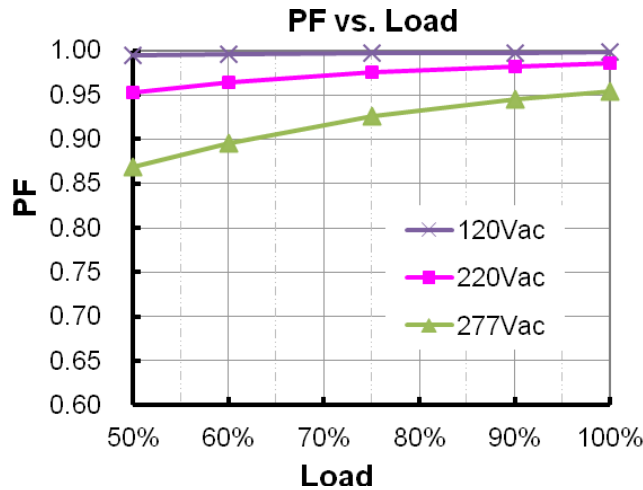


EUD-200S280DT(ST)-00A0
Efficiency vs. Output Voltage

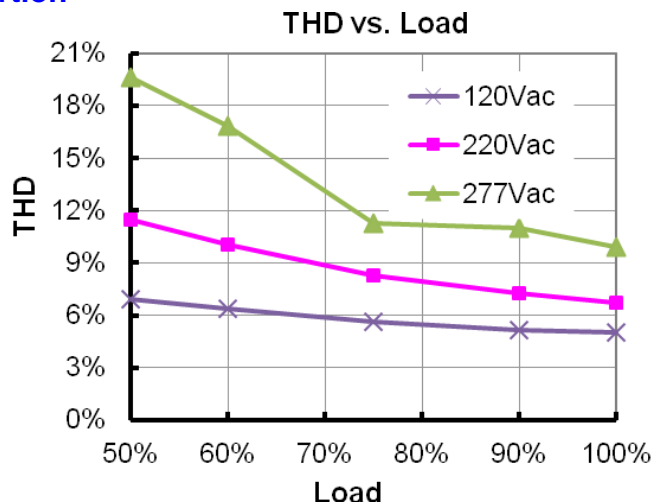




Power Factor



Total Harmonic Distortion



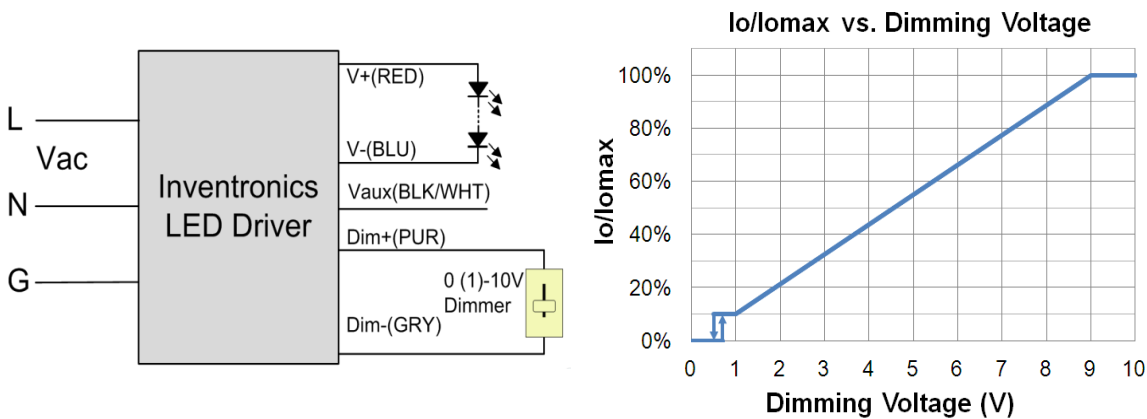
Protection Functions

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.

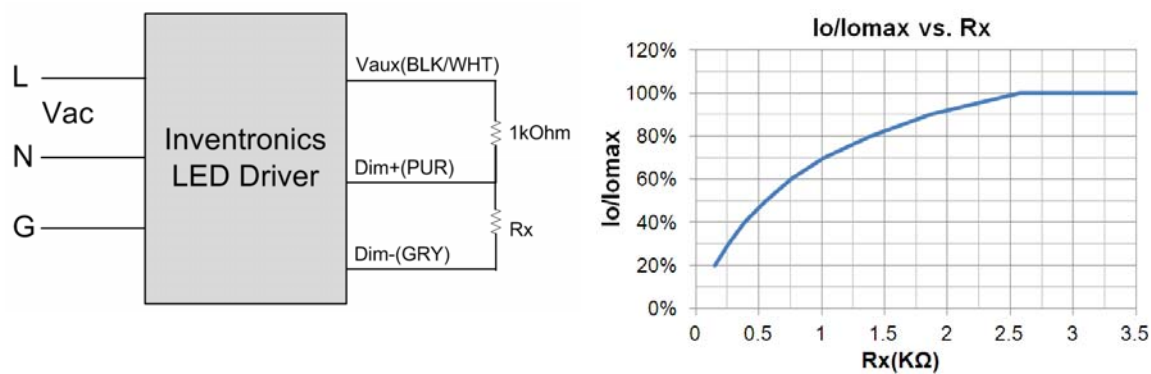
Dimming

● 0-10V Dimming

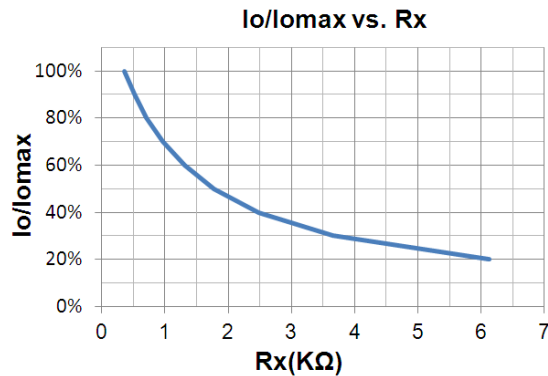
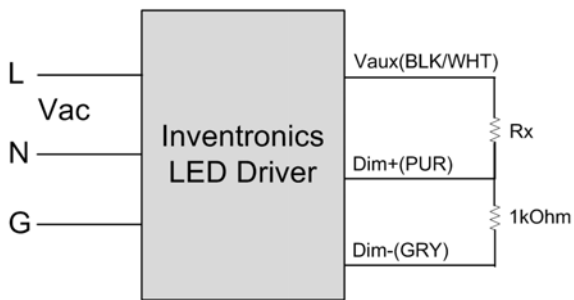
The recommended implementation of the dimming control is provided below.



Implementation 1: DC Input



Implementation 2: External Resistor



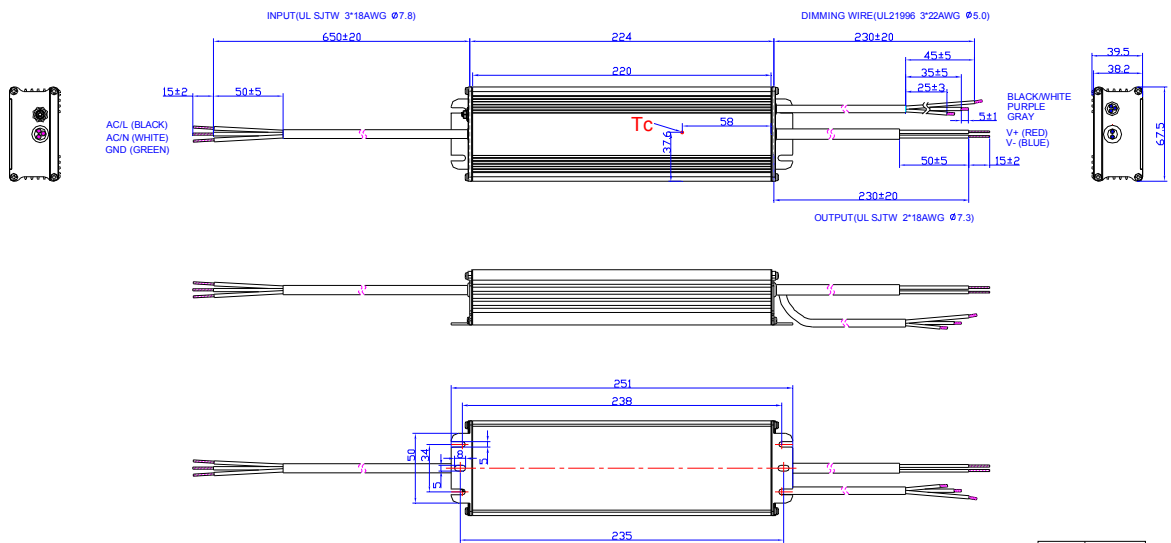
Implementation 3: External Resistor

Notes:

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

Mechanical Outline

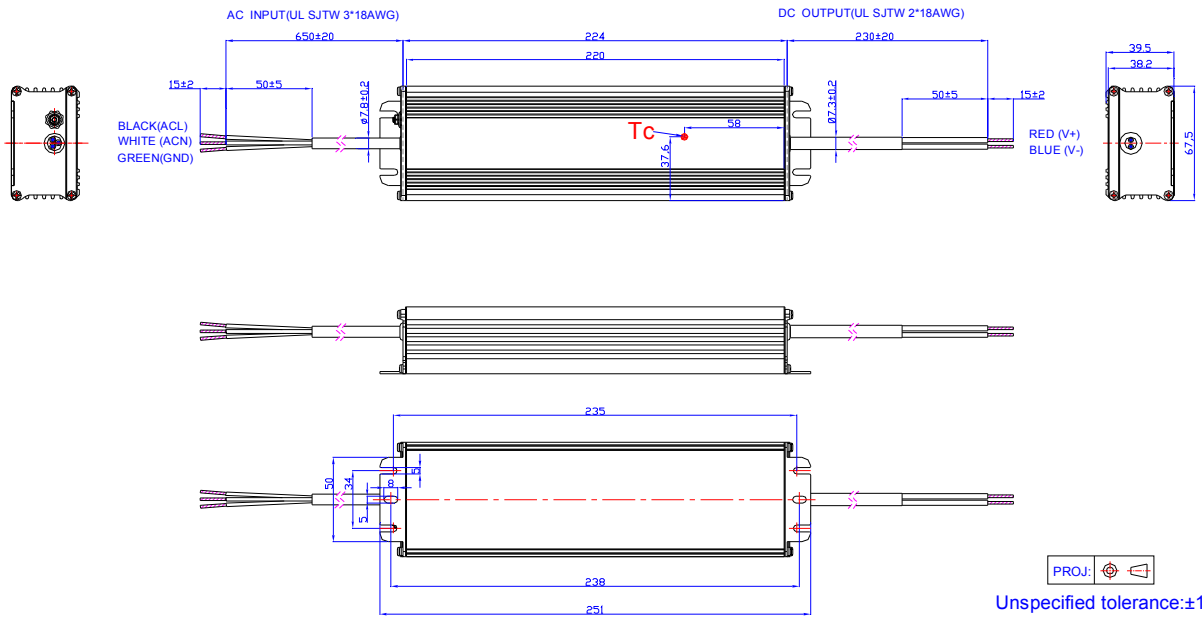
EUD-200SxxxDT-00A0



PROJ:

Unspecified tolerance:±1

EUD-200SxxxST-00A0



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
2015-12-03	C	Derating	/	Delete
		CE、KS	/	Added
		External Grounding Screw Solution	/	/
		Safety & EMC Compliance	/	Updated
2016-03-31	D	Mechanical Outline	/	Updated
		General Specifications	With mounting ear	Updated
2016-06-12	E	Safety & EMC Compliance	/	Updated
		Mechanical Outline	/	Updated
2017-03-07	F	Inrush Current(I ² t)	/	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

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