INVENTRONICS

Features

- High Efficiency (Up to 92%)
- Full Power at 50-100% Max Current (Constant Power)
- 0-10V/PWM/Timer Dimmable
- Dim-to-Off with Standby Power ≤1 W
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: OVP, SCP, OTP
- IP67
- SELV Output

Description

The *EUD-150SxxxDV* series is a 150W, constant-current, programmable outdoor LED driver that operates from 90-305 Vac input with excellent power factor. Created for many lighting applications including high bay, tunnel and roadway, etc, it provides a dim-to-off mode with low standby power. 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

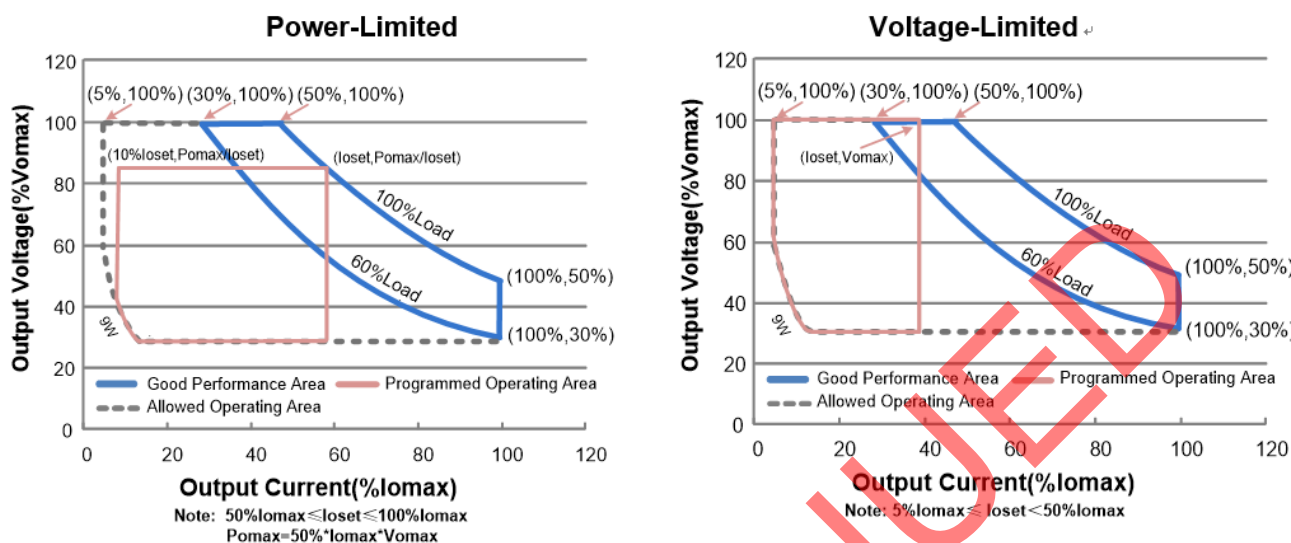| Output Current Range	Full-Power Current Range (1)	Default Output Current	Input Voltage Range(2)	Output Voltage Range	Max. Output Power	Typical Efficiency (3)	Typical Power Factor		Model Number
							120Vac	220Vac	
65-1300mA	650-1300mA	700 mA	90~305 Vac 127-250Vdc	69~230Vdc	150 W	92.0%	0.99	0.96	EUD-150S130DV
130-2600mA	1300-2600mA	2100 mA	90~305 Vac 127-250Vdc	35~115Vdc	150 W	91.5%	0.99	0.96	EUD-150S260DV
260-5200mA	2600-5200mA	4200 mA	90~305 Vac 127-250Vdc	18 ~ 58Vdc	150 W	90.5%	0.99	0.96	EUD-150S520DV(4)

Notes: (1) Output current range with constant power at 150W
(2) Certified input voltage range: 100-240Vac or 127-250Vdc (except CCC and KS)
(3) Measured at a 220Vac input with 100% maximum output current and 50% maximum output voltage.
(4) SELV output

Specifications are subject to changes without notice.   *All specifications are typical at 25 ℃ unless otherwise stated.*

I-V Operating Area

Power-Limited

Note: 50%Iomax≤Ioset≤100%Iomax
Pomax=50%*Iomax*Vomax

Voltage-Limited

Note: 5%Iomax≤Ioset<50%Iomax

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	305 Vac	
Input DC Voltage	127 Vdc	-	250 Vdc	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	1.8 A	Measured at 100% load and 100 Vac input.
	-	-	0.85 A	Measured at 100% load and 220 Vac input.
Inrush Current(I^2t)	-	-	1.4 A^2s	At 220Vac input, 25°C Cold Start, Duration=1.46 mS, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.90	-	-	At 100-277Vac, 50-60Hz, 60%-100% Load (90-150W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Ioset	-	5%Ioset	At 100% load condition
Output Current Setting(Ioset) Range	5%Iomax	-	100%Iomax	
Output Current Setting Range with Constant Power	50%Iomax	-	100%Iomax	
Total Output Current Ripple (pk-pk)	-	5%Iomax	10%Iomax	At 100% load condition, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%Iomax	-	At 100% load condition. Only this component of ripple is associated with visible flicker.

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Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Startup Overshoot Current	-	-	10%Iomax	At 100% load condition
No Load Output Voltage EUD-150S130DV EUD-150S260DV EUD-150S520DV	- - -	- - -	275V 138V 70V	
Line Regulation	-	-	$\pm$0.5%	Measured at 100% load
Load Regulation	-	-	$\pm$1.5%	
Turn-on Delay Time	-	0.8 s	1.5 s	Measured at 120Vac and 220Vac input. 60%-100% Load
Temperature Coefficient of Ioset	-	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:
EUD-150S130DV
    Io=650 mA
    Io=1300 mA
EUD-150S260DV
    Io=1300 mA
    Io=2600mA
EUD-150S520DV
    Io=2600mA
    Io=5200mA
	
	86.0%
	87.0%
	
	86.5%
	86.5%
	
	86.5%
	85.5%
		
		89.0%
		90.0%
		
		89.5%
		89.5%
		
		89.5%
		88.5%
			
			-
			-
			
			-
			-
			
			-
			-
				Measured at 100% load and steady-state temperature in 25°C ambient;
				(Efficiency will be about 2.0% lower if measured immediately after startup.)

Efficiency at 220 Vac input:
EUD-150S130DV
    Io=650 mA
    Io=1300 mA
EUD-150S260DV
    Io=1300 mA
    Io=2600mA
EUD-150S520DV
    Io=2600mA
    Io=5200mA
	
	89.0%
	90.0%
	
	89.5%
	89.5%
	
	89.5%
	88.5%
		
		91.0%
		92.0%
		
		91.5%
		91.5%
		
		91.5%
		90.5%
			
			-
			-
			
			-
			-
			
			-
			-
				Measured at 100% load and steady-state temperature in 25°C ambient;
				(Efficiency will be about 2.0% lower if measured immediately after startup.)

Efficiency at 277 Vac input:
EUD-150S130DV
    Io=650 mA
    Io=1300 mA
EUD-150S260DV
    Io=1300 mA
    Io=2600mA
EUD-150S520DV
    Io=2600mA
    Io=5200mA
	
	89.5%
	90.5%
	
	89.5%
	90.0%
	
	89.5%
	89.0%
		
		91.5%
		92.5%
		
		91.5%
		92.0%
		
		91.5%
		91.0%
			
			-
			-
			
			-
			-
			
			-
			-
				Measured at 100% load and steady-state temperature in 25°C ambient;
				(Efficiency will be about 2.0% lower if measured immediately after startup.)

General Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Standby power	-	-	1 W	Measured at 230Vac/50Hz; Dimming off
MTBF	-	236,000 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	-	+89°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+75°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)	8.62 × 2.66 × 1.56 219 × 67.5 × 39.5			With mounting ear 9.67 × 2.66 × 1.56 246 × 67.5 × 39.5
Net Weight	-	1210 g	-	

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-20 V	-	20 V	
Source Current on Vdim (+) Pin	200 µA	300 µA	450 µA	Vdim(+) = 0 V
Dimming Output Range	10%Ioset	-	Ioset	50%Iomax ⩽ Ioset ⩽ 100%Iomax
	5%Iomax	-	Ioset	5%Iomax ⩽ Ioset < 50%Iomax
Recommended Dimming Input Range	0 V	-	10 V	
Dim off Voltage	0.2 V	0.4 V	0.6 V	Default 0-10V dimming mode.
Dim on Voltage	0.4 V	0.6 V	0.8 V	
Hysteresis	-	0.2 V	-	
PWM_in High Level	3 V	-	10 V	
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	200 Hz	-	3 KHz	
PWM_in Duty Cycle	1%	-	99%	
PWM Dimming off (Positive Logic)	2%	4%	7%	Dimming mode set to PWM in PC interface.
PWM Dimming on (Positive Logic)	4%	6%	9%	
PWM Dimming off (Negative Logic)	93%	96%	98%	
PWM Dimming on (Negative Logic)	91%	94%	96%	

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Dimming Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
Hysteresis	-	2%	-	

Safety & EMC Compliance

Safety Category	Standard
ENEC & TUV & CE[1]	EN 61347-1, EN 61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
CCC	GB 19510.1, GB 19510.14
KS	KS C 7655
Global Mark	AS/NZS 61347.1, AS/NZS 61347.2.13

EMI Standards	Notes
EN 55015/GB 17743[2]	Conducted emission Test &Radiated emission Test
EN 61000-3-2/GB 17625.1	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker

EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge(ESD): 8kV air discharge, 4kV 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
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.
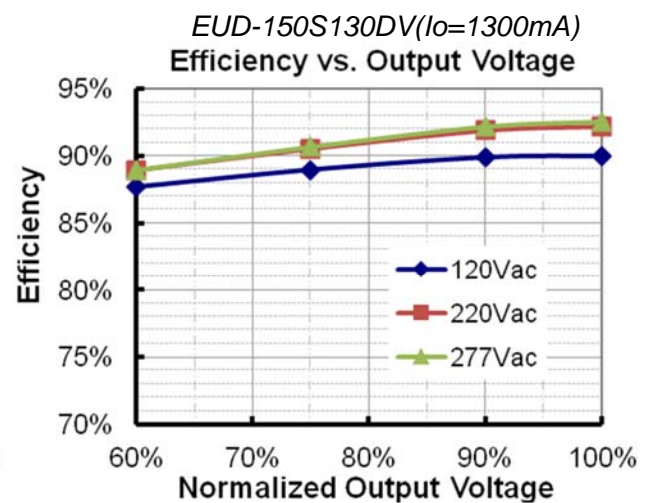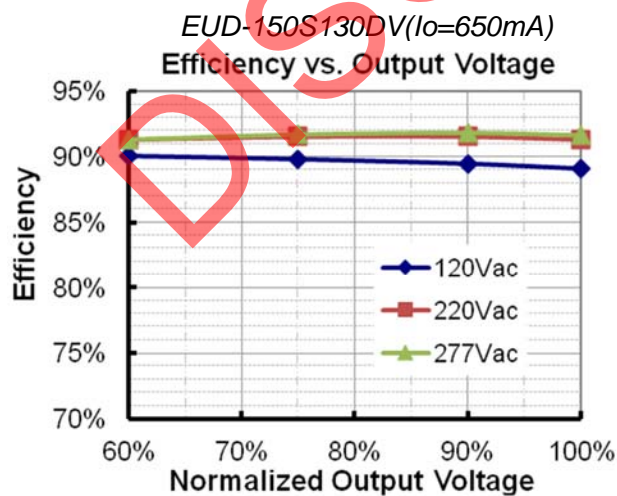
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Lifetime vs. Case Temperature
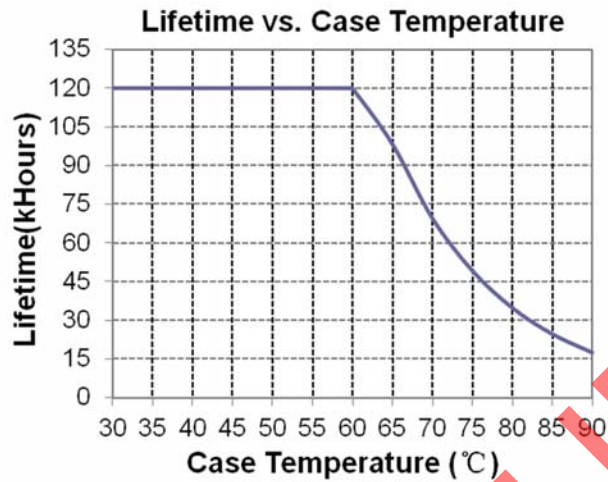

Inrush Current Waveform
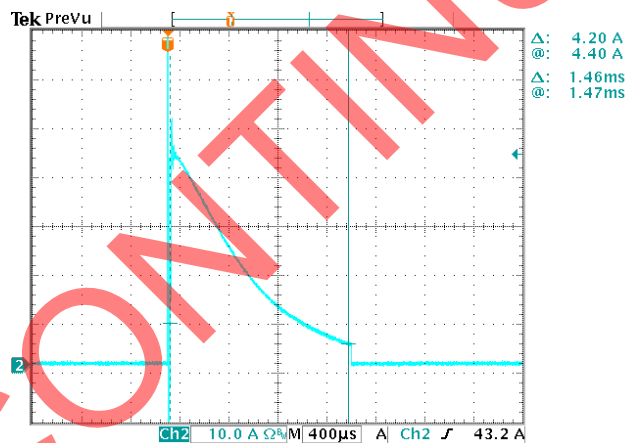
Efficiency vs. Load

EUD-150S130DV(Io=650mA)

EUD-150S130DV(Io=1300mA)

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EUD-150S260DV(Io=1300mA)
Efficiency vs. Output Voltage
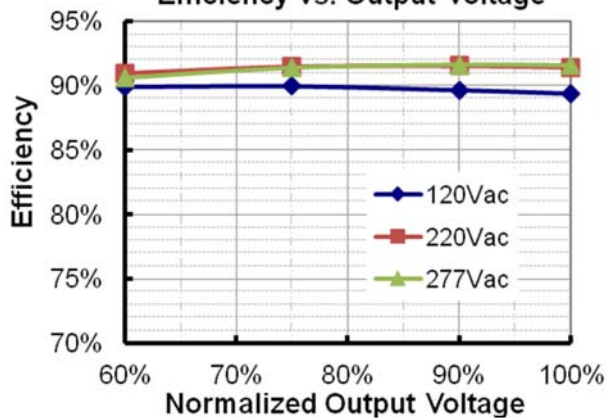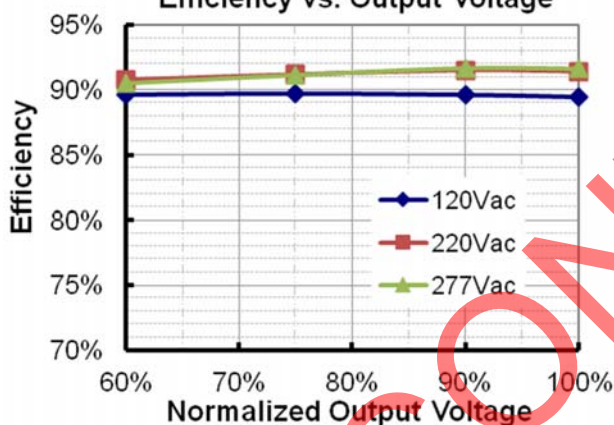

EUD-150S260DV(Io=2600mA)
Efficiency vs. Output Voltage
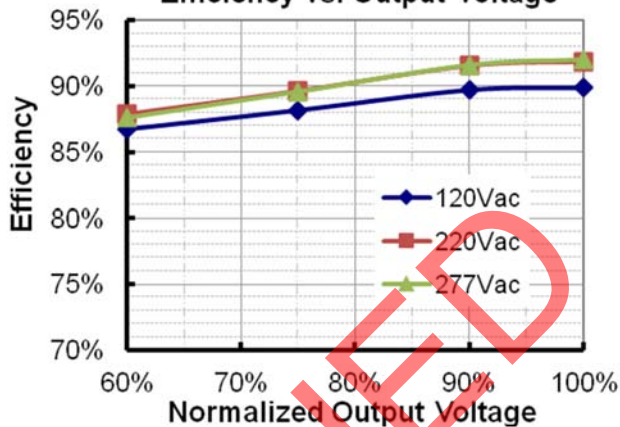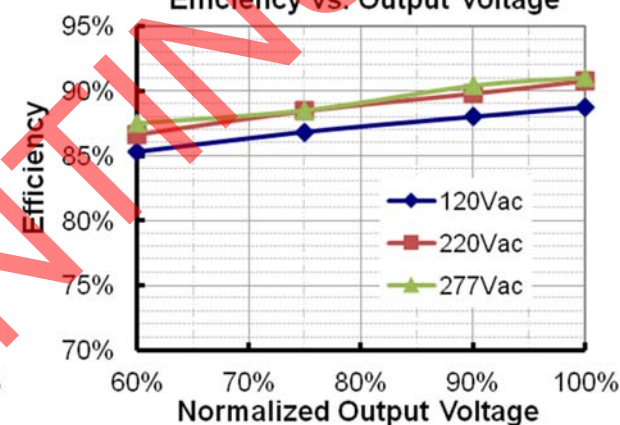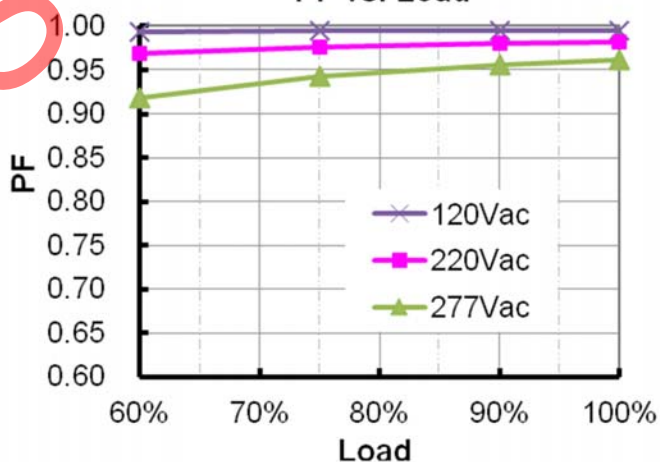

EUD-150S520DV(Io=2600mA)
Efficiency vs. Output Voltage
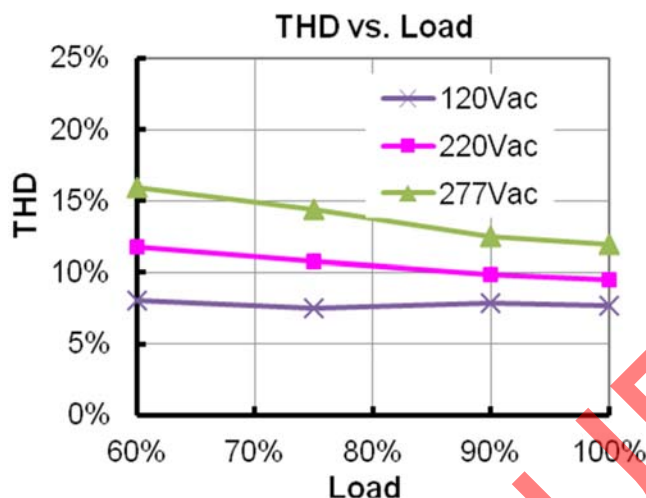

EUD-150S520DV(Io=5200mA)
Efficiency vs. Output Voltage

Power Factor

PF vs. Load

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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.
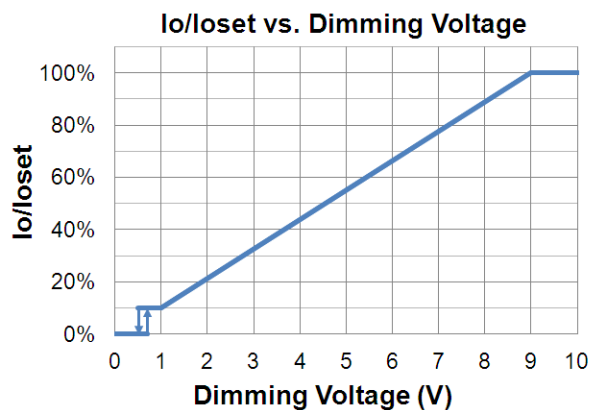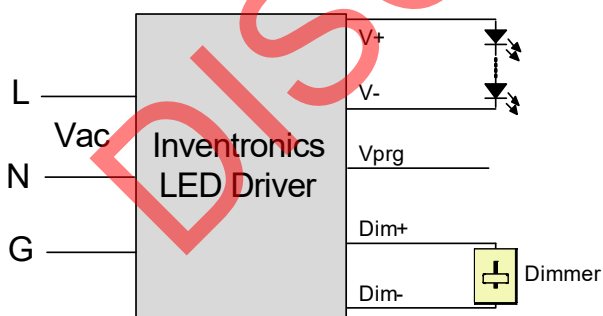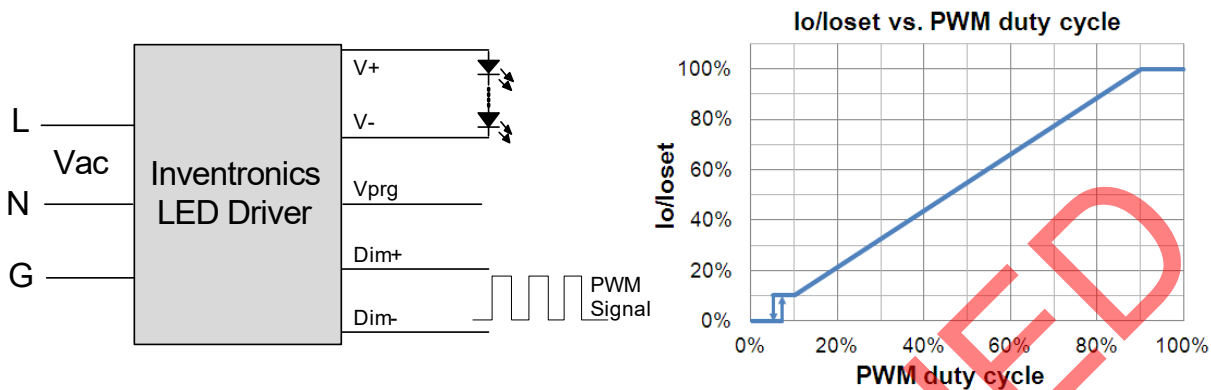

Implementation 1: DC Input

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.

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● PWM Dimming

The recommended implementation of the dimming control is provided below.

Implementation 2: Positive logic
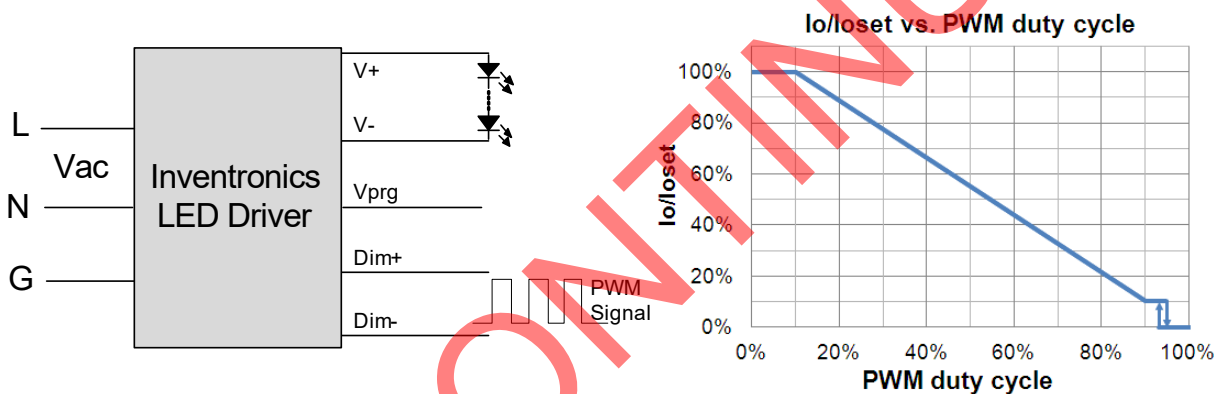
Implementation 3: Negative logic

Notes:

1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. When PWM negative logic dimming mode and Dim+ is open, the driver will output minimum current.

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● **Time Dimming**
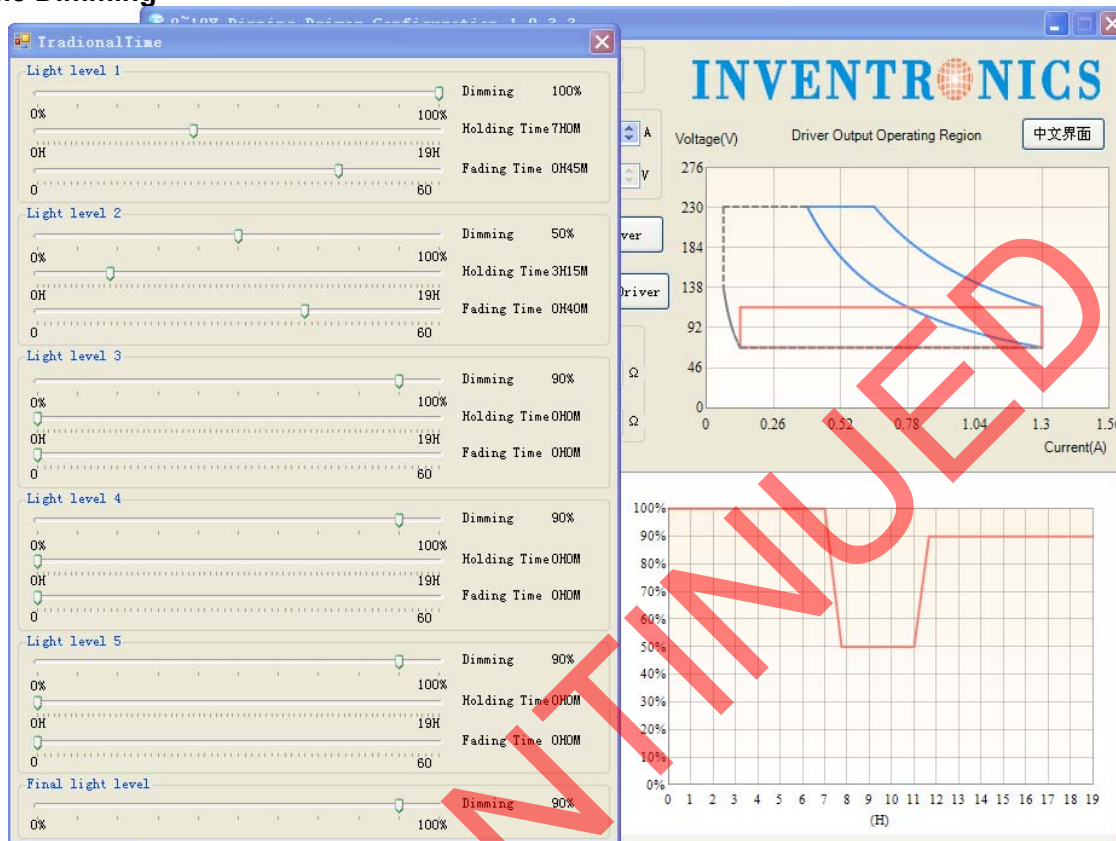
Set the timing curve by pulling the sliders.

● **0% Light Brightness**
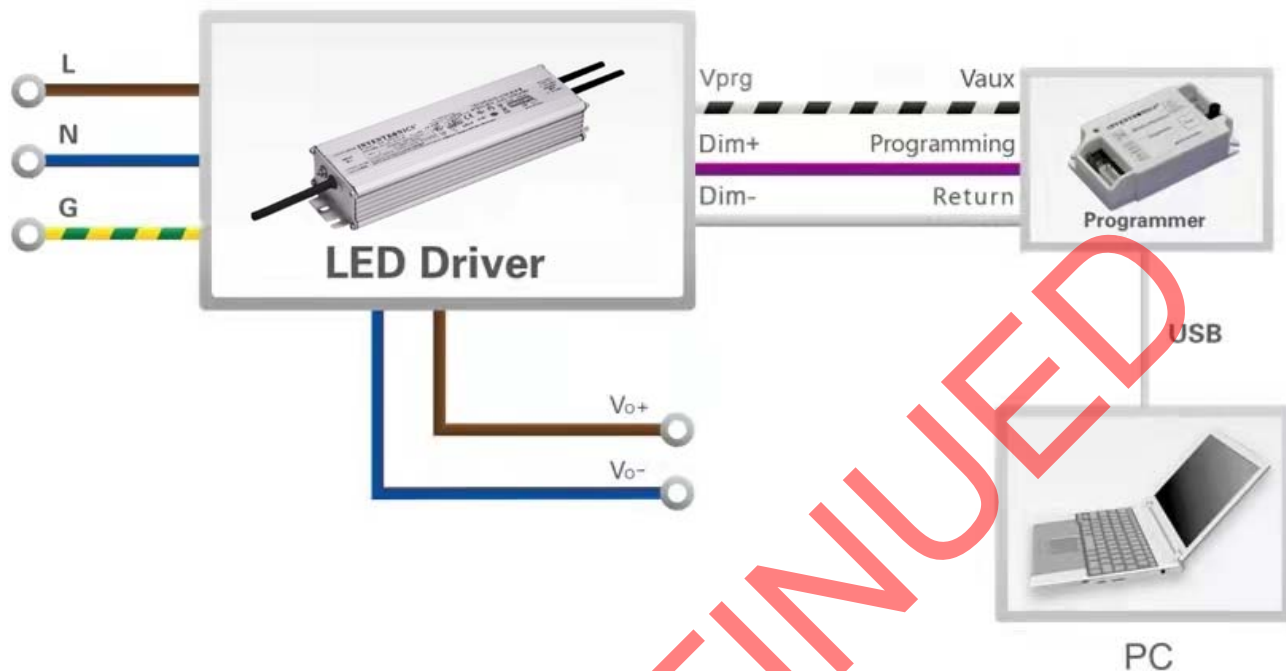
If the brightness of the LED lighting fixture down to 0%, please refer to the following wiring method. The lamp can be turned on/off using a switch and relay.
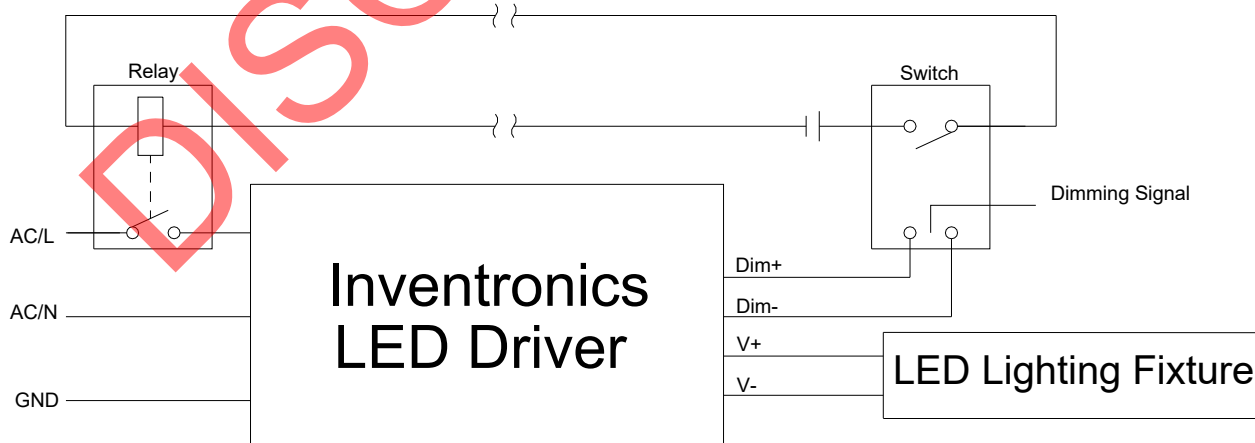
Implementation 4: 0% Light Brightness Wiring Method

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Programming Connection Diagram

Note: The driver does not need to be powered on during the programming process.

● **Please refer to PRG-MUL2 Multi-Programmer datasheet for details.**

Mechanical Outline

Unspecified tolerance:±1
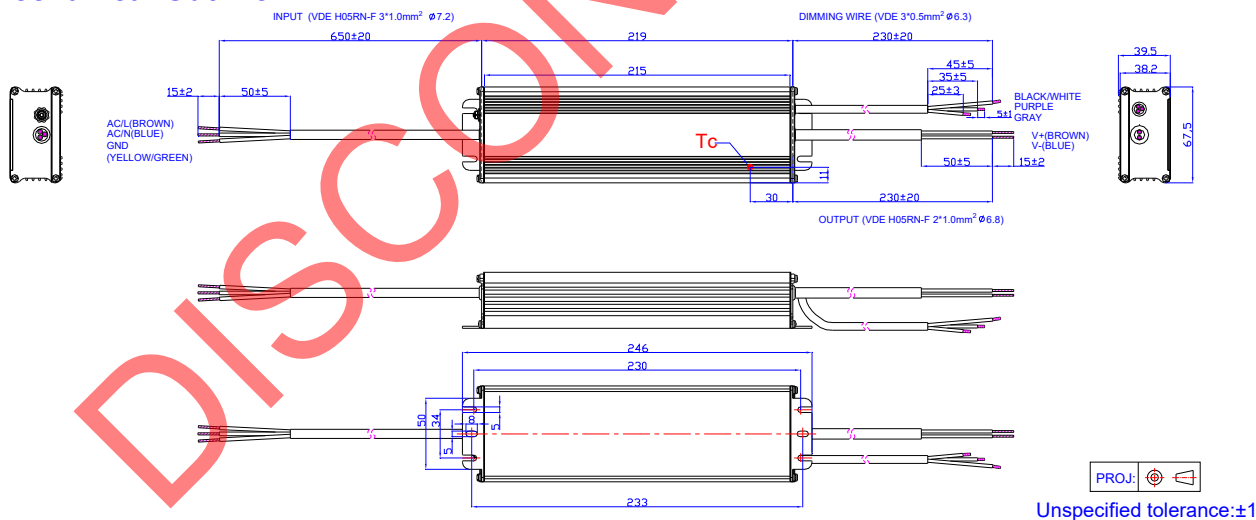
RoHS Compliance

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.

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Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2015-03-13	A	Datasheets Release	/	/
2015-06-01	B	Description	/	Update
		Models	/	Update
		Mechanical Outline	/	Update
2016-04-13	C	KS	/	Added
		General Specifications	With mounting ear	Added
		General Specifications	Net Weight	Update
		Safety & EMC Compliance	/	Update
2019-08-23	D	TUV Logo	/	Updated
		ENEC Logo	/	Updated
		Global Mark Logo	/	Added
		Features	Input surge protection	Updated
		Features	Suitable for Independent Use	Independent Logo
		Description	/	Updated
		Input Specifications(PF/THD)	50-60Hz	Added
		Output Specifications (Turn-on Delay Time)	60%-100% Load	Added
		Safety &EMC Compliance	ENEC	Added
		Safety &EMC Compliance	TUV	Added
		Safety &EMC Compliance	CB	Added
		Safety &EMC Compliance	CCC	Added
		Safety &EMC Compliance	KS	Updated
		Safety &EMC Compliance	Global Mark	Added
		Safety &EMC Compliance	EN 55015	Updated
		Safety &EMC Compliance	EN 61000-3-2	Updated
		Safety &EMC Compliance	EN 61000-4-5	Updated
		Mechanical Outline	/	Updated
		RoHS Compliance	/	Updated
2021-11-26	E	Features	/	Updated
		Safety & EMC Compliance	Note (1)	Updated

12 / 13

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Revision History (Continued)

Change Date	Rev.	Description of Change		
		Item	From	To
2021-11-26	E	0% Light Brightness	/	Added

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