

Features

- Ultra High Efficiency (Up to 93.0%)
- Full Power at 70-100% Max Current (Constant Power)
- Compact Package Design
- 0-10V/PWM/Timer Dimmable
- All-Around Protection: OVP, SCP, OTP
- Waterproof (IP67)
- Suitable for EU Independent Use



CCCTUVCECB

Description

The EBD-150S105DVA series is a 150W, constant-current, programmable outdoor LED driver that operates from 176-305 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 over voltage, short circuit, and over temperature.

Models

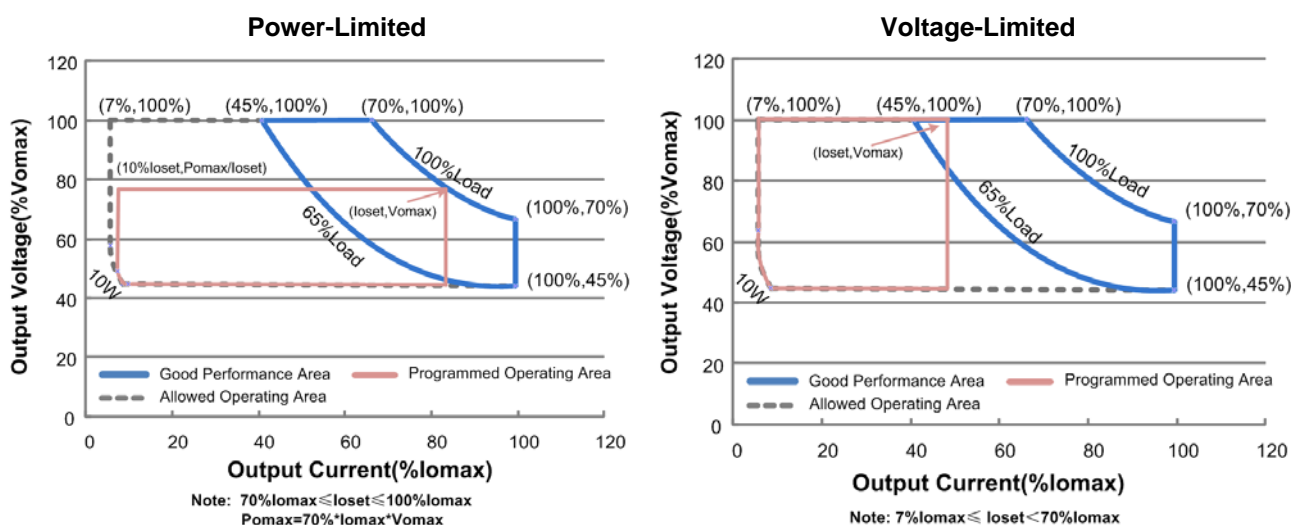
Output Current Range	Full-Power Current Range (1)	Default Output Current	Input Voltage Range(2)	Output Voltage Range	Max. Output Power	Typical Efficiency (3)	Power Factor (3)	Model Number
70-1050 mA	700-1050 mA	700 mA	176~305 Vac	97~214 Vdc	150 W	93.0%	0.98	EBD-150S105DVA
280-4200 mA	2800-4200 mA	2800 mA	176~305 Vac	24~53 Vdc	150 W	93.0%	0.98	EBD-150S420DVA

Notes: (1) Output current range with constant power at 150W

(2) Certified input voltage range: 200-240Vac

(3) Measured at 220Vac input with 70% maximum output current and 100% maximum output voltage.

I-V Operation Curve



Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	176 Vac	-	305 Vac	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	0.82 A	Measured at full load and 220 Vac input.
Inrush Current(I^2t)	-	-	2.40 A ² s	At 220Vac input, 25°C cold start, duration=984 us, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.9	-	-	At 220-240Vac, 65%-100% Load (98-150W)
THD	-	-	20%	

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%loset	-	5%loset	At full load condition
Output Current Setting(loset) Range	7%lomax	-	100%lomax	
Output Current Setting Range with Constant Power	70%lomax	-	100%lomax	
Output Current Ripple(pk-pk)	-	5%lomax	10%lomax	At full load condition
Startup Overshoot Current	-	-	10%lomax	At full load condition
No Load Output Voltage EBD-150S105DVA EBD-150S420DVA	- -	- -	231V TBD V	
Line Regulation	-	-	±0.5%	Measured at full load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	0.6 s	1.5 s	Measured at 220Vac input.
Temperature Coefficient	-	-	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	-	20 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 220 Vac input: EBD-150S105DVA I _o =700 mA I _o =1050 mA EBD-150S420DVA I _o =2800 mA I _o =4200 mA	91.0% 90.5% 91.0% 89.0%	93.0% 92.5% 93.0% 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.)
MTBF	-	305,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	99,500 Hours	-	Measured at 220Vac input, 80%Load and 60°C case temperature; See lifetime vs. T _c curve for the details
Operating Case Temperature for Safety T _{c_s}	-	-	90°C	
Operating Case Temperature for Warranty T _{c_w}	-	-	70°C	
Dimensions Inches (L × W × H) Millimeters (L × W × H)	7.08 × 2.68 × 1.59 180 × 68 × 40.5			
Net Weight	-	1000 g	-	

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

Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the V _{dim} (+) Pin	-20 V	-	20 V	
Source Current on V _{dim} (+)Pin	200 uA	300 uA	450 uA	V _{dim} (+) = 0 V
Dimming Output Range	10%I _o set	-	I _o set	70%I _o max ≤ I _o set ≤ 100%I _o max
	7%I _o max	-	I _o set	7%I _o max ≤ I _o set < 70%I _o max
Recommended Dimming Range	0 V	-	10 V	Default 0-10V dimming mode.
PWM_in High Level	3 V	-	10 V	Dimming mode set to PWM in PC interface.
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	200 Hz	-	2 KHz	
PWM_in Duty Cycle	1%	-	99%	

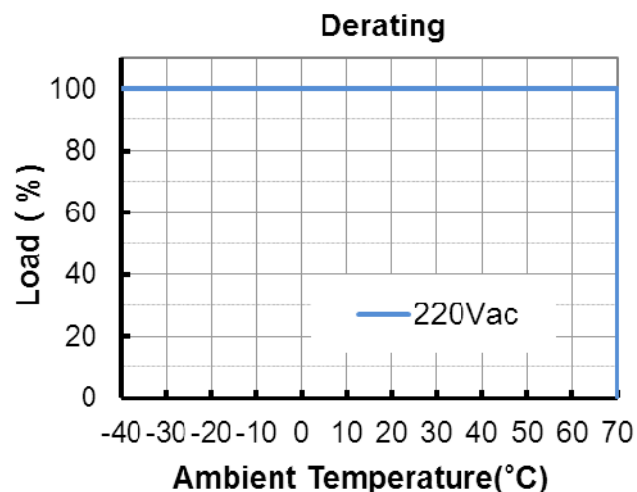
Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Ambient Temperature	-40 °C	-	+70 °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

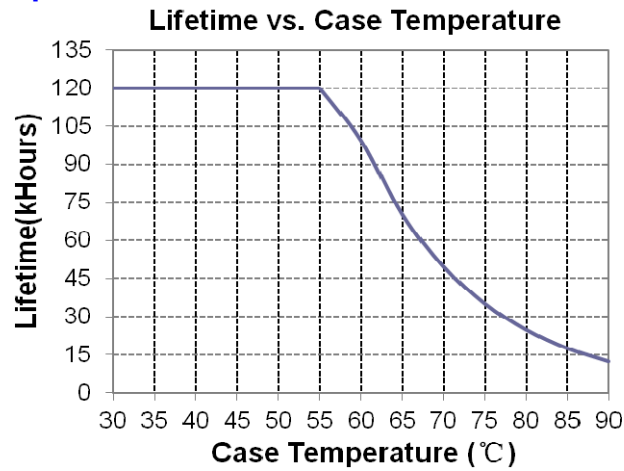
Safety & EMC Compliance

Safety Category	Standard
CE	EN 61347-1, EN61347-2-13
CCC	GB 19510.1, GB 19510.14
EMI Standards	Notes
EN 55015/GB 17743	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): 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: level 3, criteria A
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

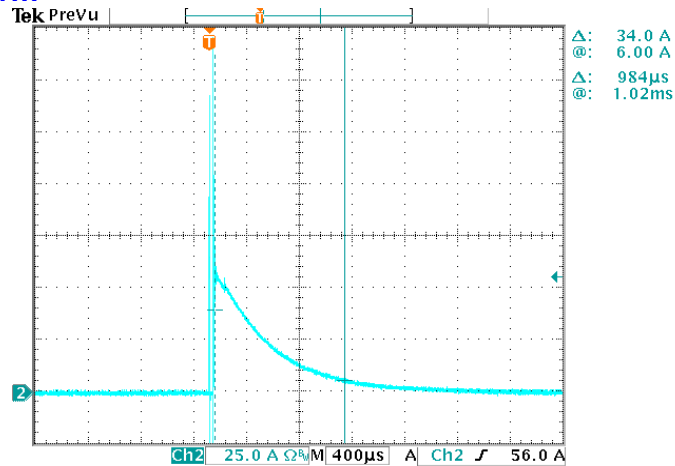
Derating



Lifetime vs. Case Temperature



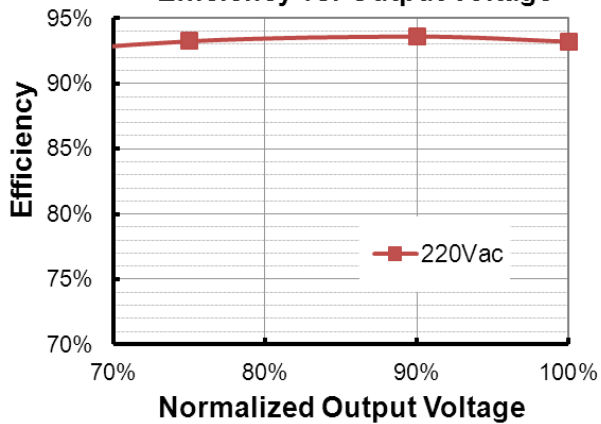
Inrush Current Waveform



Efficiency vs. Load

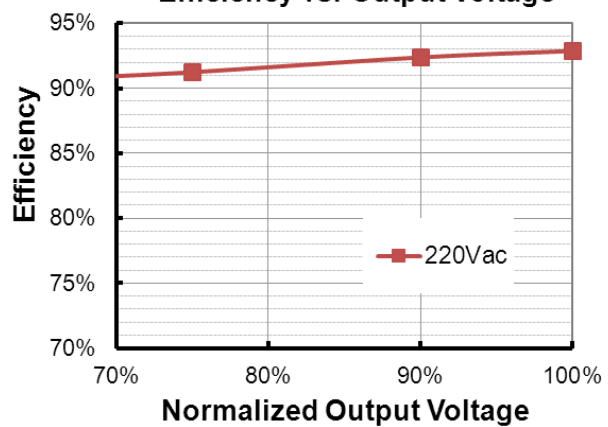
EBD-150S105DVA($I_o=700mA$)

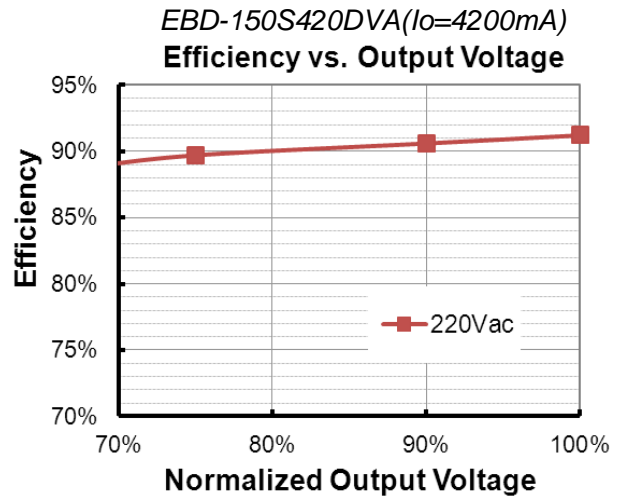
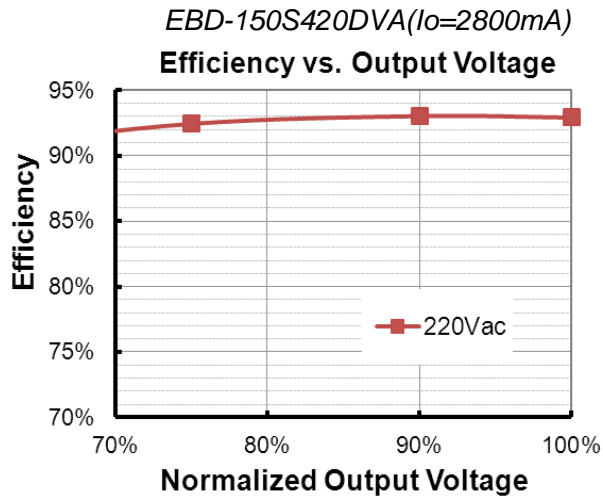
Efficiency vs. Output Voltage



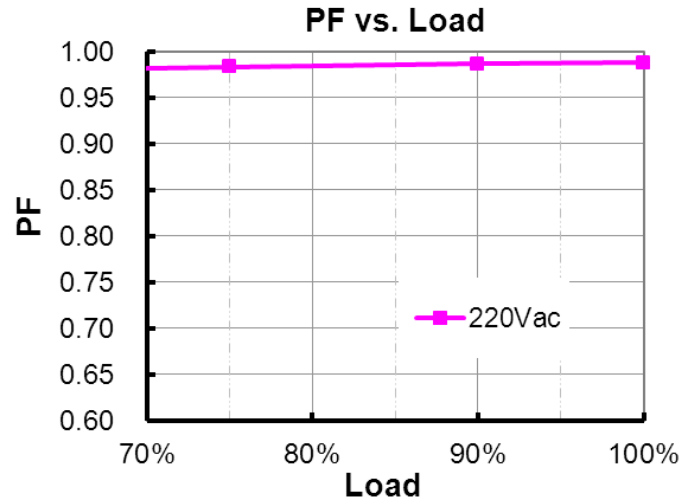
EBD-150S105DVA($I_o=1050mA$)

Efficiency vs. Output Voltage

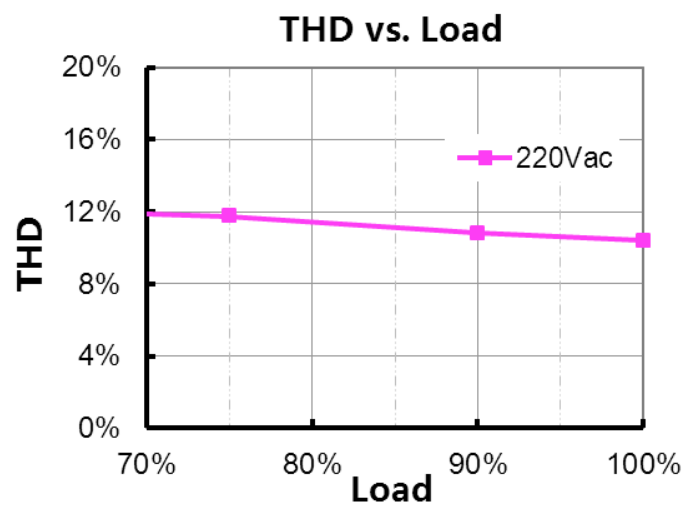




Power Factor



Total Harmonic Distortion



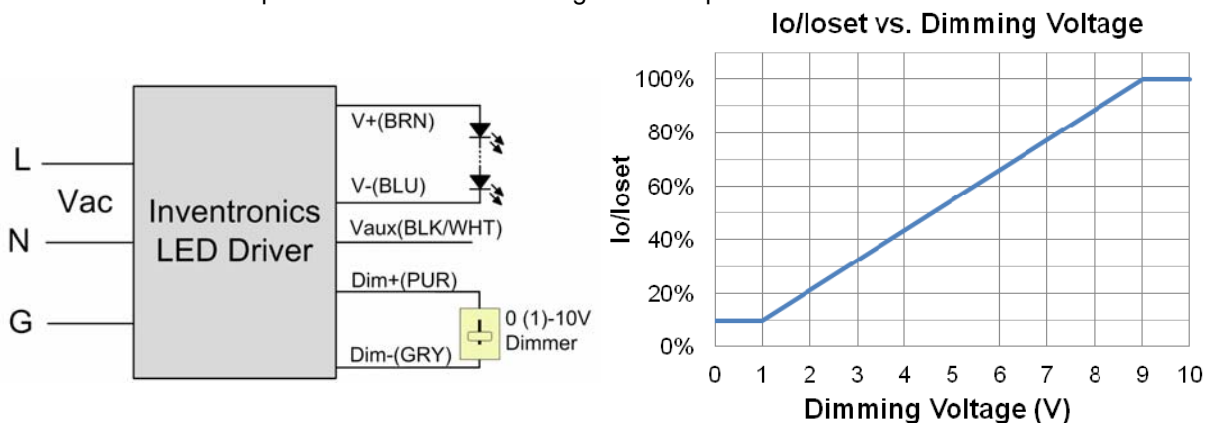
Protection Functions

Parameter	Notes
Over Temperature Protection	Auto Recovery. The output shall return to normal when 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

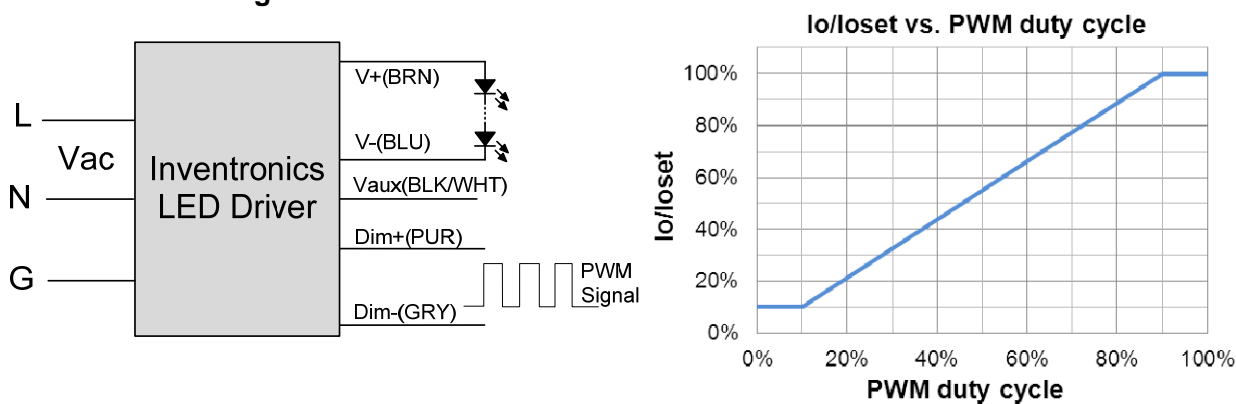
The recommended implementation of the dimming control is provided below.

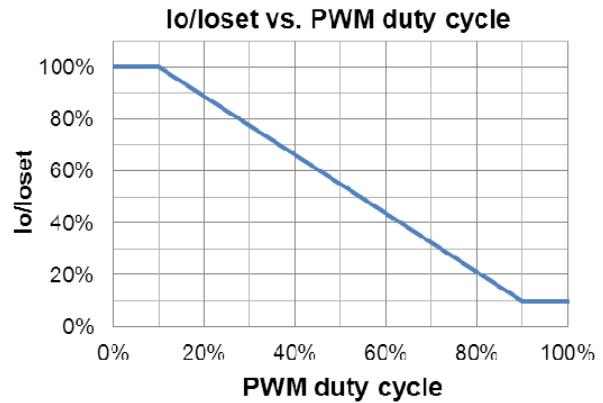
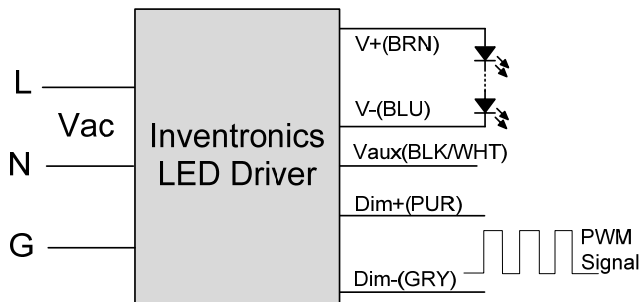


Notes:

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 + should be open.

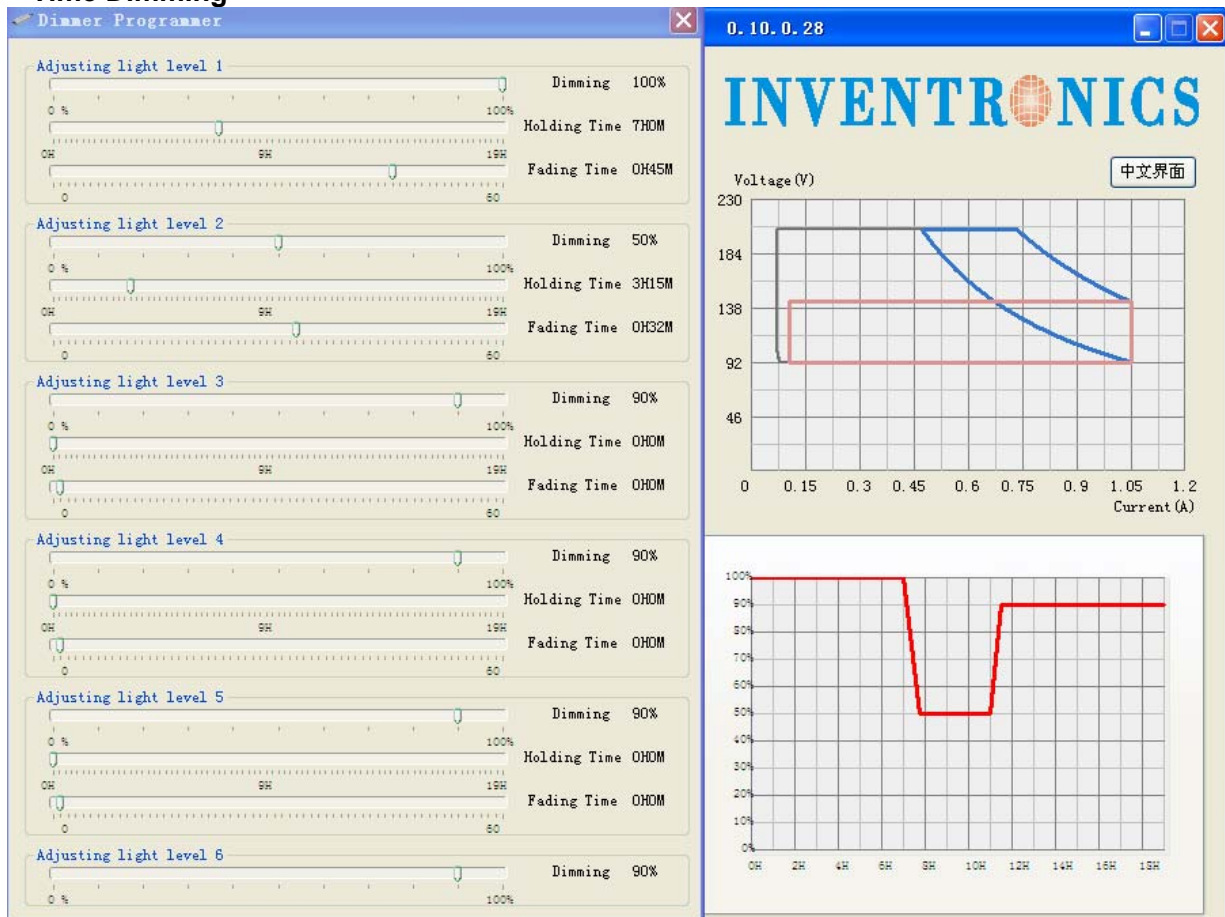
● PWM Dimming





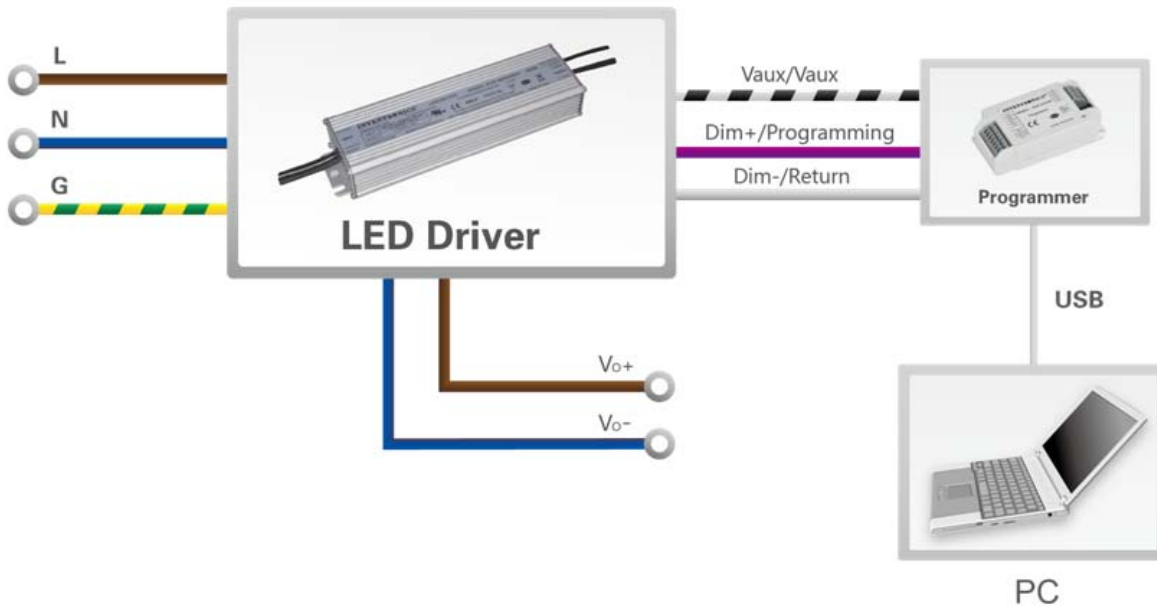
Implementation 3: Negative logic

● Time Dimming



Set the timing curve by pulling the sliders.

Programming Connection Diagram



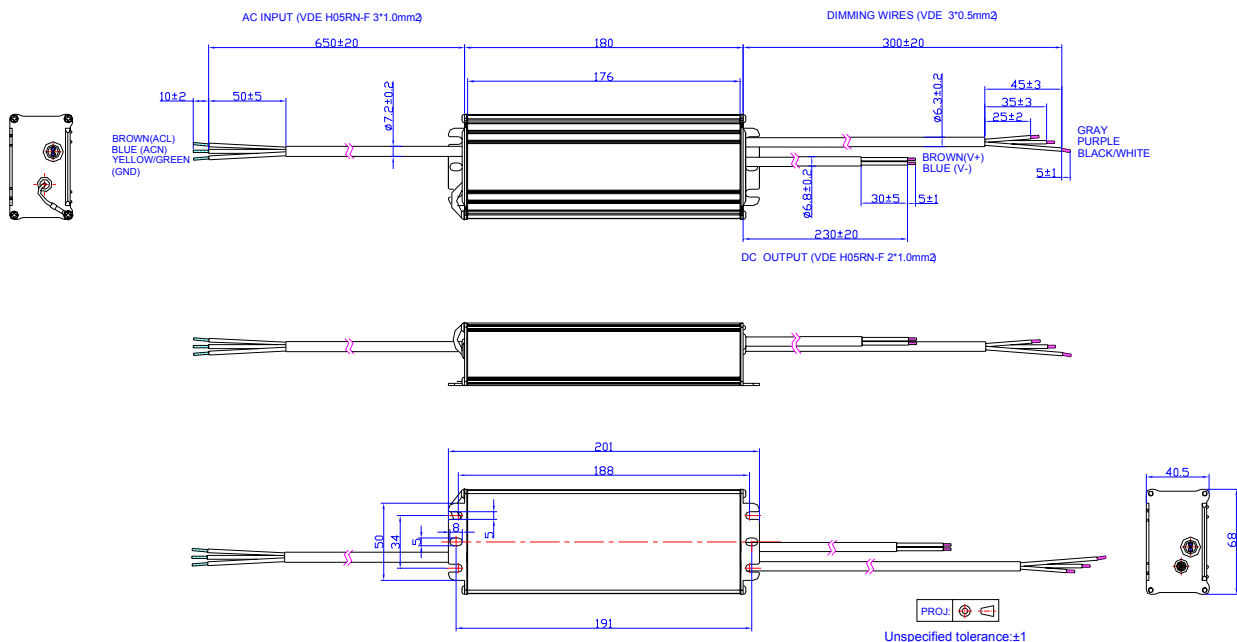
Note: The driver does not need to be powered on during the programming process.

- Please refer to SDD-AAPNP(Programmer) datasheet for details.

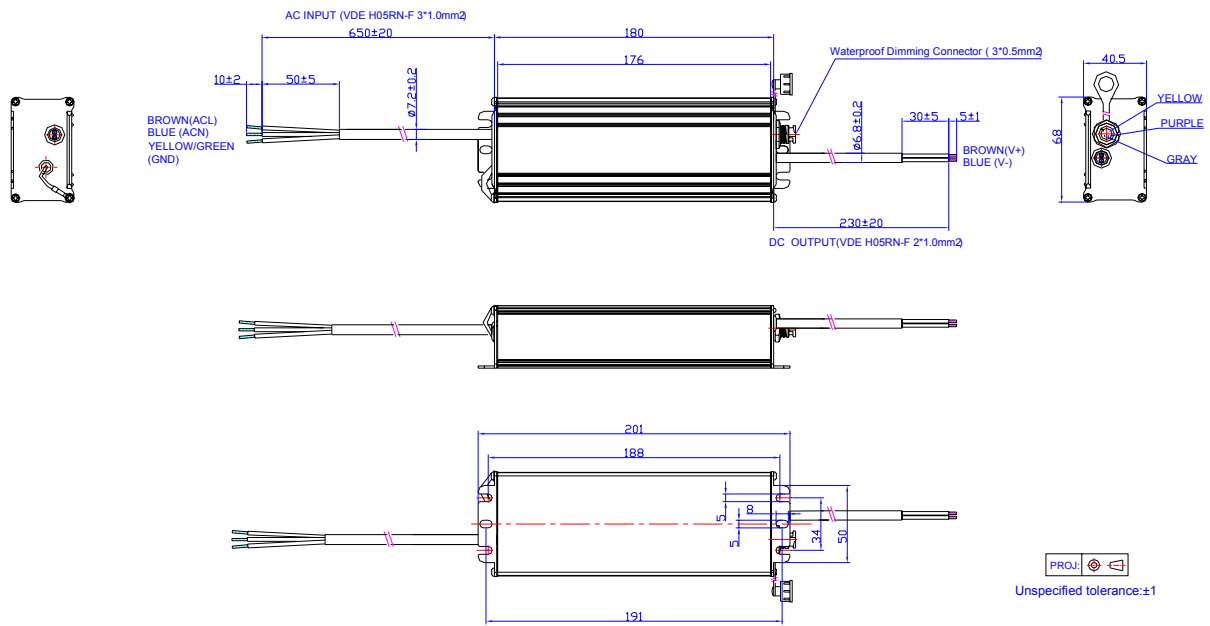
http://www.inventronics-co.com/cp_det.aspx?c_kind=2&c_kind2=177&c_kind3=179&id=220&productName=SDD-AAPNP

Mechanical Outline

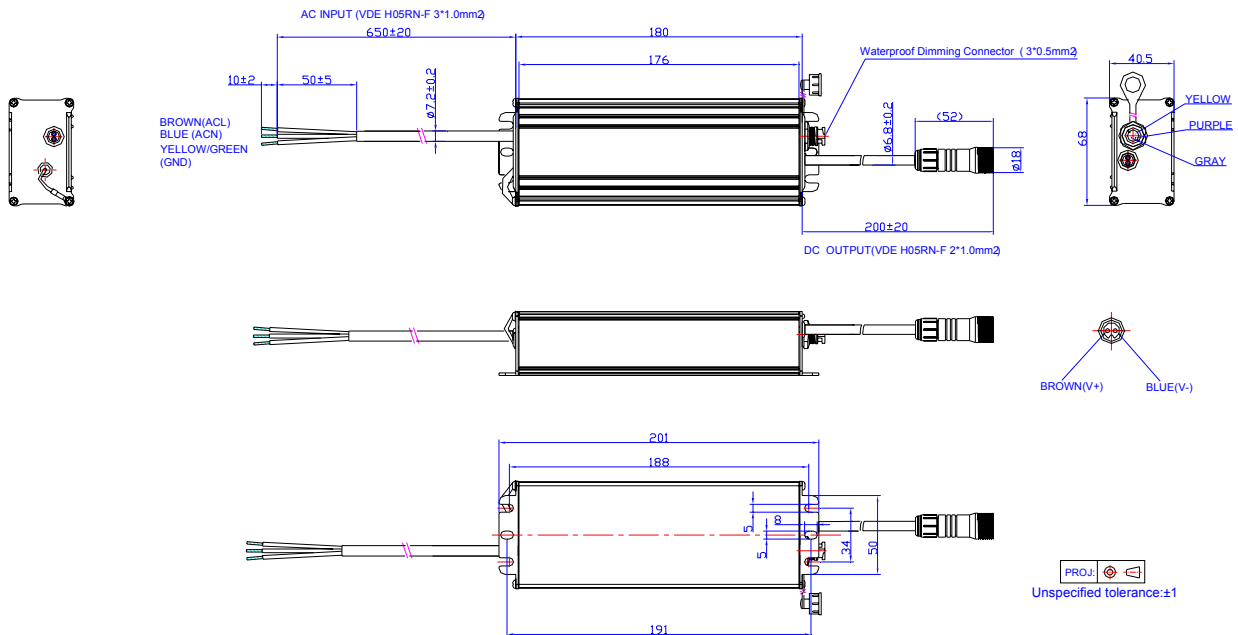
EBD-150SxxxDVA0000



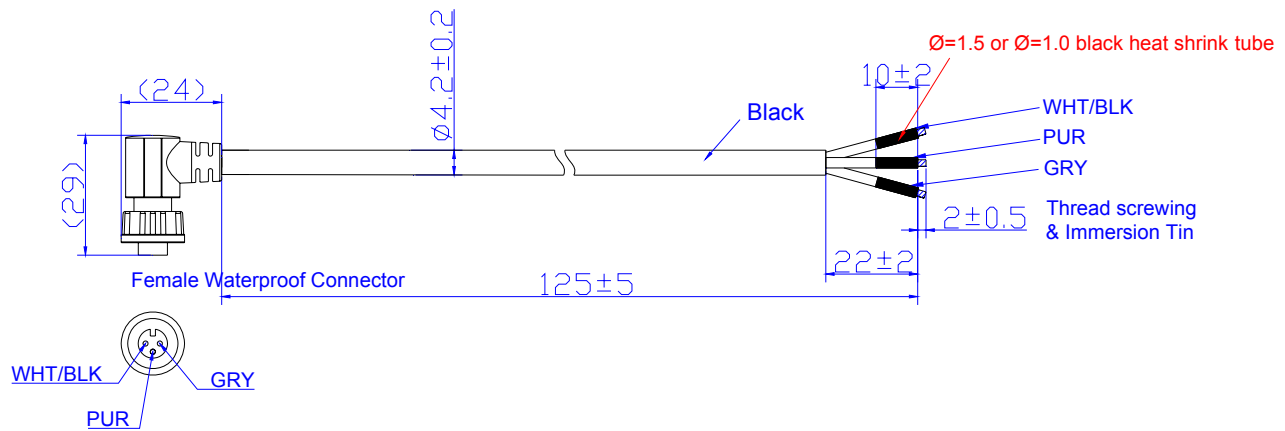
EBD-150SxxxDVA00V0



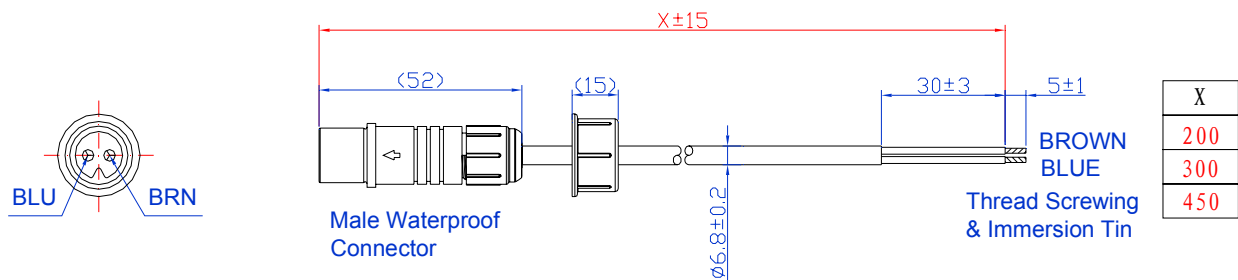
EBD-150SxxxDVA00D0



Corresponding Dimming/programming Waterproof Connector:



Corresponding Output Waterproof Connector:



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.