

## Features

- Ultra High Efficiency (Up to 93.5%)
- Full Power at Wide Output Current Range (Constant Power)
- DALI Dimming Control
- Dim-to-Off with Standby Power  $\leq 1$  W
- Input Surge Protection: DM 6kV
- All-Around Protection: OVP, SCP, OTP
- IP67
- Class II, Double Insulation
- Suitable for Built-in Use
- Complies with DALI protocol IEC62386-101,102 and part of 207
- 5 Years Warranty



## Description

The EUD-200SxxxBD series is a 200W, constant-current, programmable LED driver that operates from 90-305 Vac input with excellent power factor. Created for many lighting applications including high bay, high mast, sports 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.

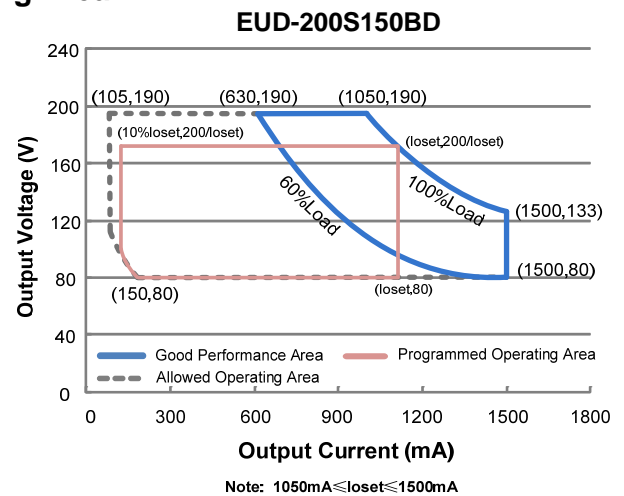
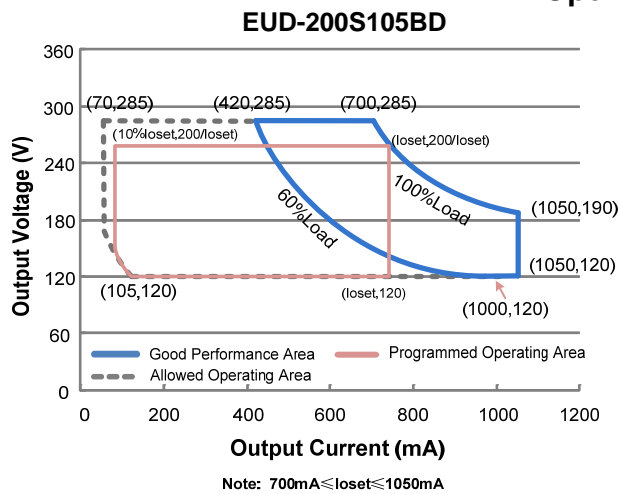
This product meets all requirements for Class II safety certification. However, the allowed leakage current could cause a mild shock if the case is touched while energized.

## 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		Model Number (4)
							120Vac	220Vac	
70-1050mA	700-1050mA	700 mA	90~305 Vac 127~250 Vdc	120~285Vdc	200 W	93.0%	0.99	0.96	EUD-200S105BD
105-1500mA	1050-1500mA	1400 mA	90~305 Vac 127~250 Vdc	80~190Vdc	200 W	93.5%	0.99	0.96	EUD-200S150BD

- Notes:** (1) Output current range with constant power at 200W  
 (2) Certified voltage range: 100-240Vac /127-250Vdc (except KS)  
 (3) Measured at 100%load and 220Vac input (see below "General Specifications" for details).  
 (4) All the models are certificated to KS, except EUD-200S105BD

## I-V Operating Area



## Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input Voltage	90 Vac	-	305 Vac	127~250 Vdc
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz
Input AC Current	-	-	2.4 A	Measured at 100%load and 100 Vac input.
	-	-	1.0 A	Measured at 100%load and 220 Vac input.
Inrush Current( $I^2t$ )	-	-	5.97 A <sup>2</sup> s	At 220Vac input, 25 °C cold start, duration=1.36 ms, 10%lpk-10%lpk. See Inrush Current Waveform for the details.
PF	0.90	-	-	At 100-240Vac, 50-60Hz, 60%-100% load (120-200W)
THD	-	-	20%	

## Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%I <sub>oset</sub>	-	5%I <sub>oset</sub>	100%load
Output Current Setting(I <sub>oset</sub> ) Range				
EUD-200S105BD	70 mA	-	1050 mA	
EUD-200S150BD	105 mA	-	1500 mA	
Output Current Setting Range with Constant Power				
EUD-200S105BD	700 mA	-	1050 mA	
EUD-200S150BD	1050 mA	-	1500 mA	
Total Output Current Ripple (pk-pk)	-	5%I <sub>omax</sub>	10%I <sub>omax</sub>	100%load, 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%I <sub>omax</sub>	-	100%load
Startup Overshoot Current	-	-	10%I <sub>omax</sub>	100%load

## Output Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
No Load Output Voltage EUD-200S105BD EUD-200S150BD	- - -	- - -	330 V 220 V	
Line Regulation	-	-	±0.5%	100%load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	1.0 s	2.0 s	Measured at 120Vac and 220Vac input, 60%-100% load
Temperature Coefficient of I <sub>o</sub> set	-	0.03%/°C	-	Case temperature = 0°C ~T <sub>c</sub> max

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

## General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EUD-200S105BD I <sub>o</sub> =700 mA I <sub>o</sub> =1050 mA EUD-200S150BD I <sub>o</sub> =1050 mA I <sub>o</sub> =1500 mA	88.0% 88.0%	90.0% 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: EUD-200S105BD I <sub>o</sub> =700 mA I <sub>o</sub> =1050 mA EUD-200S150BD I <sub>o</sub> =1050 mA I <sub>o</sub> =1500 mA	91.0% 91.0%	93.0% 93.0%	- -	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: EUD-200S105BD I <sub>o</sub> =700 mA I <sub>o</sub> =1050 mA EUD-200S150BD I <sub>o</sub> =1050 mA I <sub>o</sub> =1500 mA	91.5% 91.0%	93.5% 93.0%	- -	Measured at 100%load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Standby power	-	1 W	-	Measured at 230Vac/50Hz; Dimming off
MTBF	-	288,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	100,000 Hours	-	Measured at 220Vac input, 80%Load and 60°C case temperature; See lifetime vs. T <sub>c</sub> curve for the details
Operating Case Temperature for Safety T <sub>c_s</sub>	-40°C	-	+90°C	
Operating Case Temperature for Warranty T <sub>c_w</sub>	-40°C	-	+70°C	Case temperature for 5 years warranty
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	-	1150 g	-	

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

## Dimming Specifications

Parameter		Min.	Typ.	Max.	Notes
DA,DA High Level		9.5V	16V	22.5V	
DA,DA Low Level		-6.5V	0V	6.5V	
DA,DA Current		0mA	-	2mA	
Dimming Output Range	EUD-200S105BD	10%loset	-	loset	700mA ≤ loset ≤ 1050mA
	EUD-200S150BD				1050mA ≤ loset ≤ 1500mA
	EUD-200S105BD	70mA	-	loset	70mA ≤ loset < 700mA
	EUD-200S150BD	105mA			105mA ≤ loset < 1050mA

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

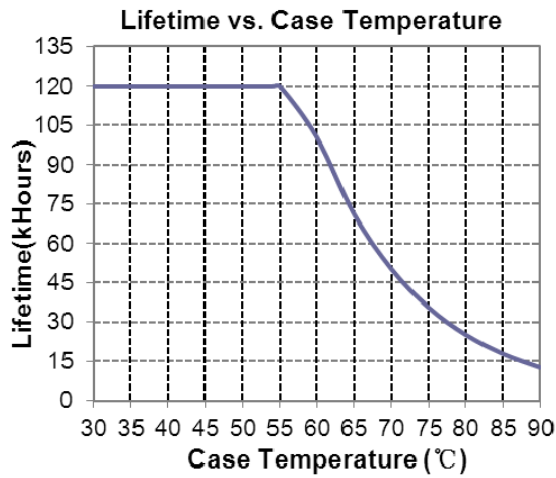
## Safety & EMC Compliance

Safety Category	Standard
ENEC & TUV & CE	EN 61347-1, EN61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
KS	KS C 7655
EMI Standards	Notes
EN 55015 <sup>(1)</sup>	Conducted emission Test & Radiated emission Test
EN 61000-3-2	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
EN 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 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
DALI Standards	Notes
DALI	IEC62386-101,102 & part of 207 <sup>(2)</sup>

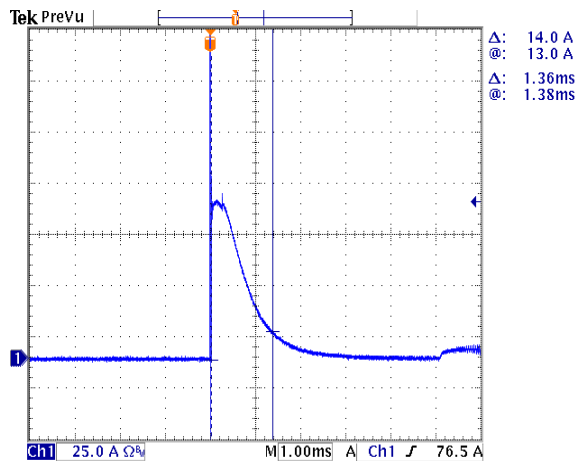
**Note:** (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(2) Optional Commands Implemented: 242 (query short circuit), 243 (query open circuit)

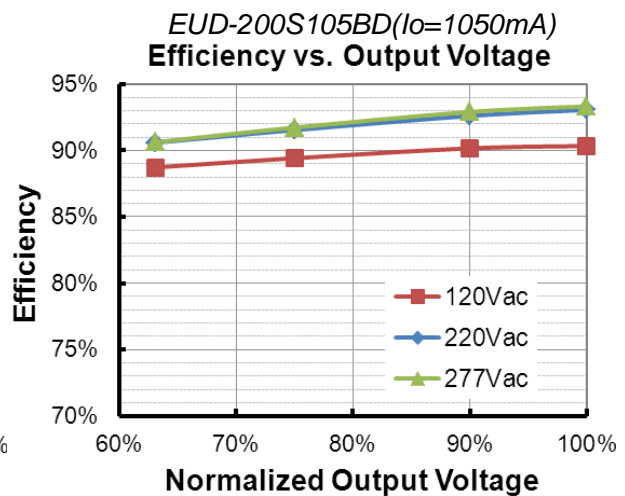
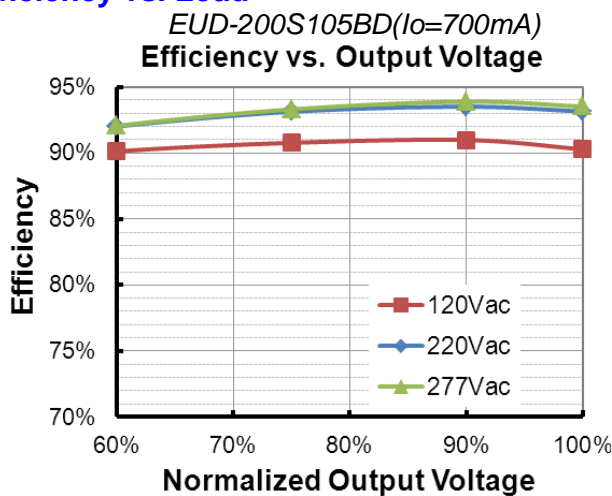
## Lifetime vs. Case Temperature

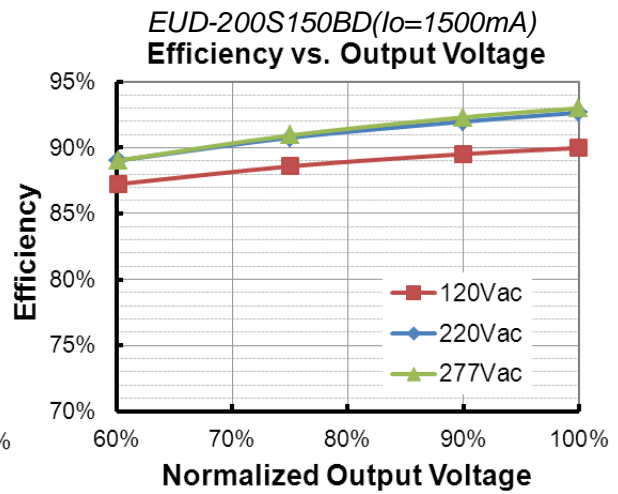
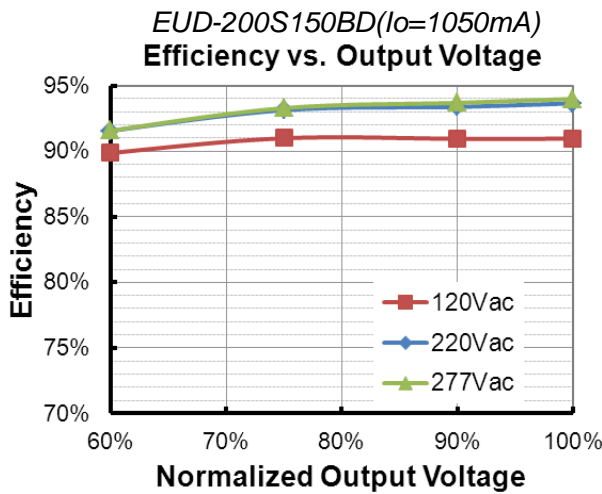


## Inrush Current Waveform

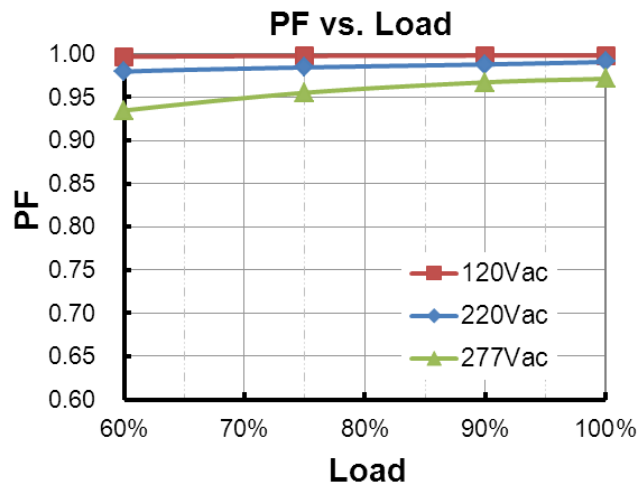


## Efficiency vs. Load

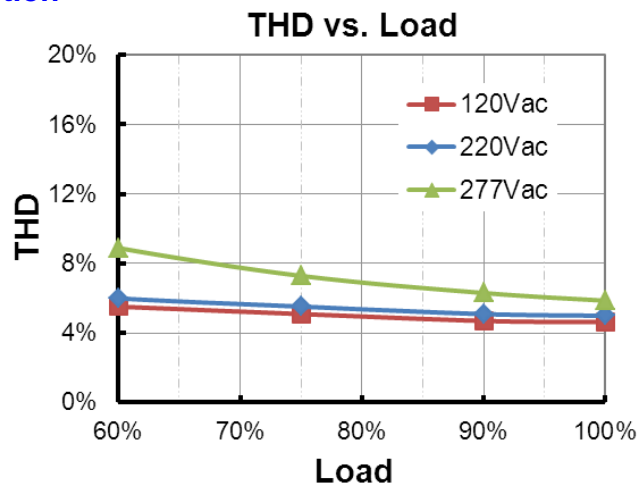




## Power Factor



## Total Harmonic Distortion



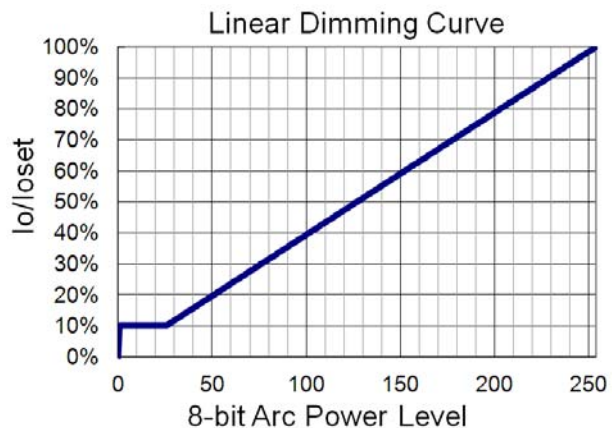
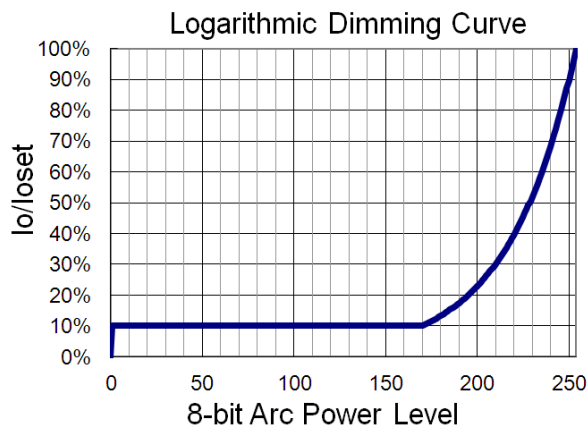
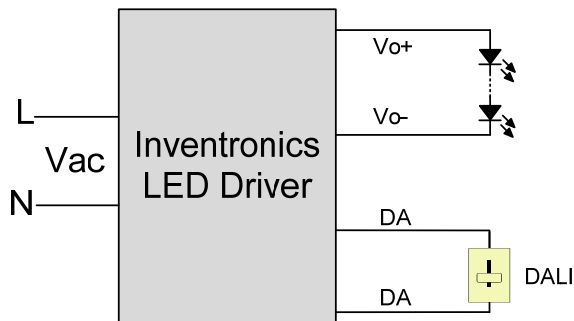
## Protection Functions

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

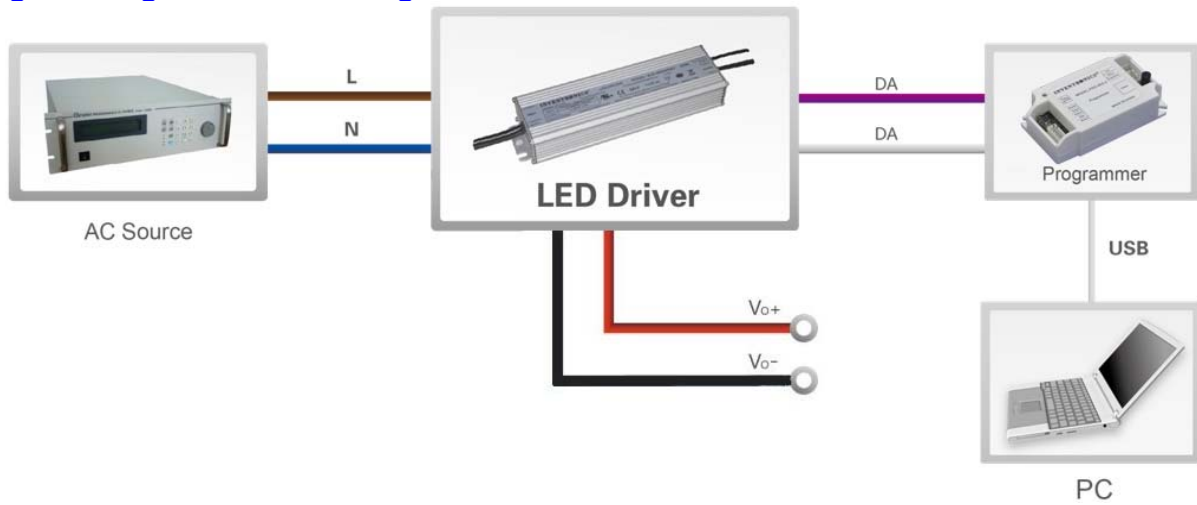
### ● DALI Dimming

The recommended implementation of the dimming control is provided below.



Implementation: DALI Dimming

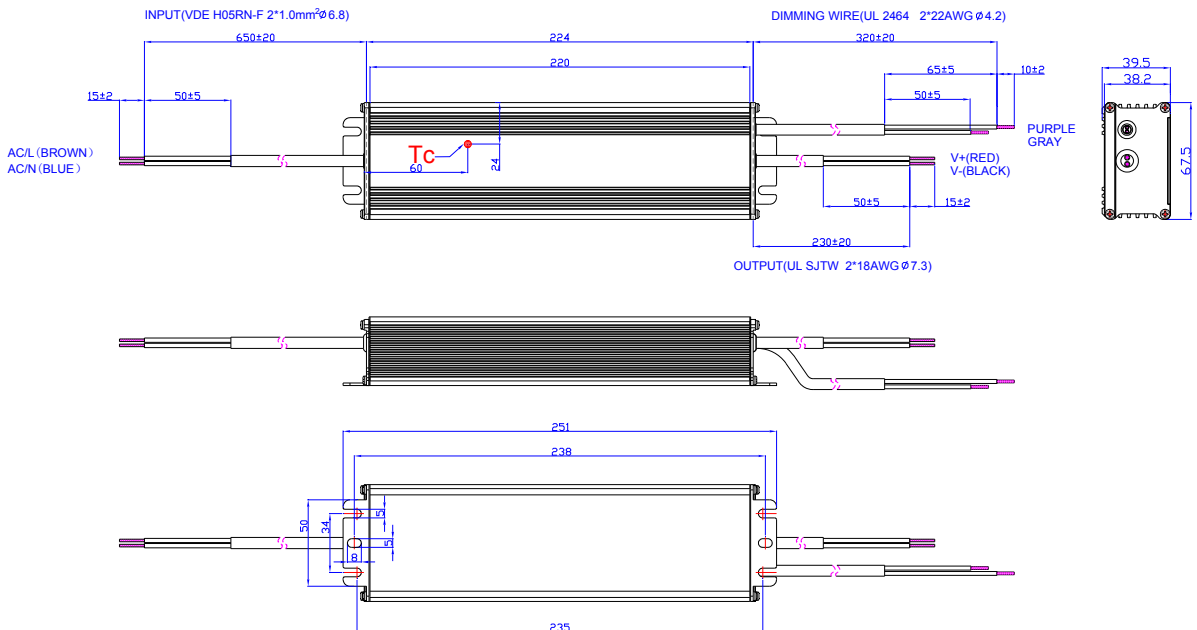
## Programming Connection Diagram



**Note:** The driver needs to be powered on during the programming process.

- Please refer to [PRG-MUL2](#) Multi-Programmer datasheet for details.

## Mechanical Outline



## 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
2015-06-23	A	Datasheets Release	/	/
2018-06-14	B	ENEC	/	Updated
		Features	5 Years Warranty	Updated
		Description	/	Updated
		Input Specifications	PF/THD	Updated
		Input Specifications	Turn-on Delay Time	Updated
		Output Specifications	No Load Output Voltage	Updated
		Temperature Coefficient of loset	Max 0.03%/°C	Typ 0.03%/°C
		Standby power	Max 1W	Typ 1W
		Operating Case Temperature for Warranty Tc_w	/	Updated
		Dimensions	With mounting ear	Added
		Mechanical Outline	/	Updated
2019-09-20	C	TUV Logo	/	Added
		KS Logo	/	Added
		Features	6kV line-line	DM 6kV
		Features	Waterproof (IP67)	IP67
		Models	Notes(4)	Added
		Safety &EMC Compliance	ENEC	Added
		Safety &EMC Compliance	TUV	Added
		Safety &EMC Compliance	CB	Added
		Safety &EMC Compliance	KS	Added
		Safety &EMC Compliance	EN 61000-4-5	Updated
		Safety &EMC Compliance	DALI Standards	Added
		Safety &EMC Compliance	Note	Added
		RoHS Compliance	/	Updated