Features

- Ultra High Efficiency (Up to 94%)
- Full Power at Wide Output Current Range (Constant Power)
- 0-5V/0-10V/PWM/Timer Dimmable
- Input Surge Protection: DM 6kV, CM 10kV
- All-Around Protection: OVP, SCP, OTP
- IP67
- SELV Output
- 7 Years Warranty

Description

The *EUG-200SxxxDV* series is a 200W, constant-current, programmable LED driver that operates from 90-305 Vac input with excellent power factor. It is created for high bay, high mast, arena 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 input surge, output over voltage, short circuit, and over temperature.

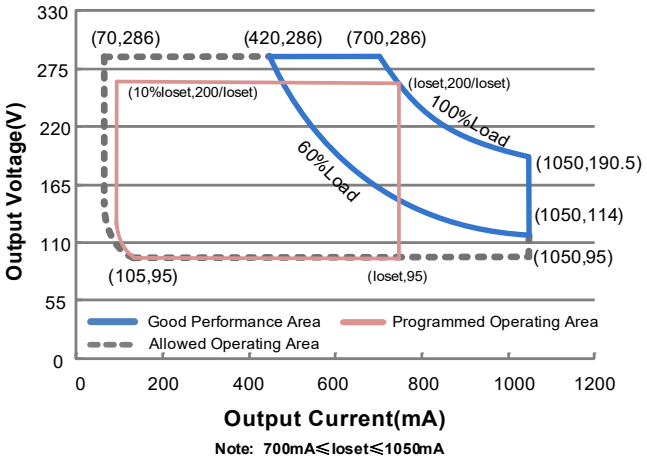
Models

Adjustable 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 (4)(5)
							120Vac	220Vac	
70-1050mA	700-1050mA	700 mA	90~305 Vac/ 127~250 Vdc	95~286Vdc	200W	94.0%	0.99	0.96	EUG-200S105DV
140-2100mA	1400-2100mA	1400 mA	90~305 Vac/ 127~250 Vdc	48~143Vdc	200W	94.0%	0.99	0.96	EUG-200S210DV
245-3500mA	2450-3500mA	2800 mA	90~305 Vac/ 127~250 Vdc	29 ~ 82Vdc	200W	93.5%	0.99	0.96	EUG-200S350DV(6)
385-5600mA	3850-5600mA	4900 mA	90~305 Vac/ 127~250 Vdc	18 ~ 52Vdc	200W	92.5%	0.99	0.96	EUG-200S560DV(6)

Notes: (1) Output current range with constant power at 200W.
(2) Certified voltage range: 100-240Vac or 127-250Vdc (except CCC, KS and BIS).
(3) Measured at 100% load and 220Vac input (see below “General Specifications” for details).
(4) All the models are certificated to KS, except EUG-200S105DV.
(5) All the models are certificated to SAA, except EUG-200S350DV.
(6) SELV Output.

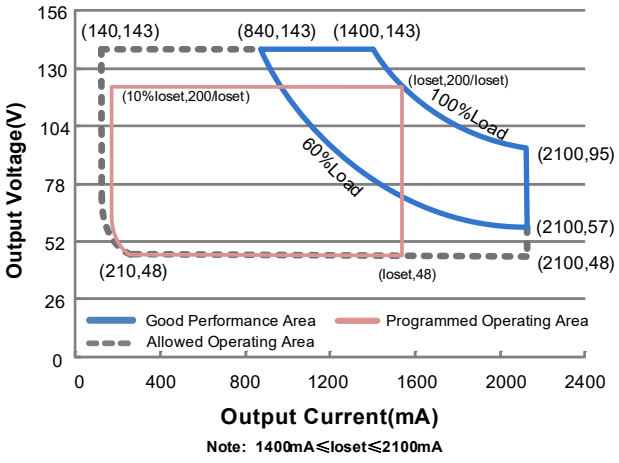
I-V Operation Area

EUG-200S105DV



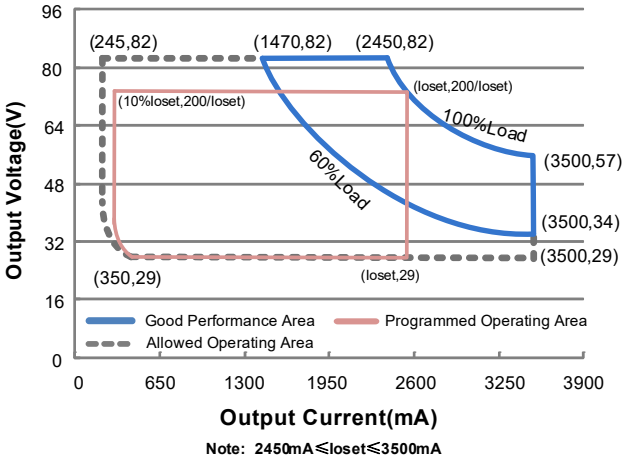
Note: 700mA≤Ioset≤1050mA

EUG-200S210DV



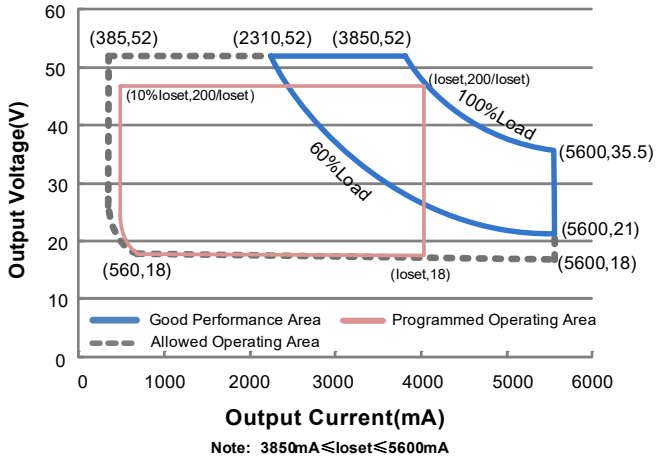
Note: 1400mA≤Ioset≤2100mA

EUG-200S350DV



Note: 2450mA≤Ioset≤3500mA

EUG-200S560DV



Note: 3850mA≤Ioset≤5600mA

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	IEC 60598-1; 240Vac/ 60Hz
Input AC Current	-	-	2.64 A	Measured at 100% load and 100 Vac input.
	-	-	1.20 A	Measured at 100% load and 220 Vac input.
Inrush Current(I^2t)	-	-	2.65 A^2s	At 220Vac input, 25°C cold start, duration=1.36 ms, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
PF	0.9	-	-	At 100-240Vac, 50-60Hz, 60%-100% Load (120-200W)
THD	-	-	20%	

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
THD	-	-	10%	At 220-240Vac, 50-60Hz, 75%-100% Load (150-200W)

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%Ioset	-	5%Ioset	At 100% load condition
Output Current Setting(Ioset) Range EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV	 70 mA 140 mA 245 mA 385 mA	 - - - -	 1050 mA 2100 mA 3500 mA 5600 mA	
Output Current Setting Range with Constant Power EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV	 700 mA 1400 mA 2450 mA 3850 mA	 - - - -	 1050 mA 2100 mA 3500 mA 5600 mA	
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.
Startup Overshoot Current	-	-	10%Iomax	At 100% load condition
No Load Output Voltage EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV	 - - - -	 - - - -	 330 V 170 V 95 V 60 V	
Line Regulation	-	-	±0.5%	Measured at 100% load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	-	1.0 s	Measured at 120Vac input, 60%-100% Load
	-	-	0.5 s	Measured at 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	-	20 mA	Return terminal is “Dim−“

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EUG-200S105DV Io= 700mA Io=1050mA EUG-200S210DV Io=1400mA Io=2100mA EUG-200S350DV Io=2450mA Io=3500mA EUG-200S560DV Io=3850mA Io=5600mA	 89.0% 88.0% 89.5% 88.0% 88.5% 87.0% 88.0% 87.0%	 91.0% 90.0% 91.5% 90.0% 90.5% 89.0% 90.0% 89.0%	 - - - - - - - -	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: EUG-200S105DV Io= 700mA Io=1050mA EUG-200S210DV Io=1400mA Io=2100mA EUG-200S350DV Io=2450mA Io=3500mA EUG-200S560DV Io=3850mA Io=5600mA	 92.0% 91.0% 92.0% 90.5% 91.5% 89.5% 90.5% 89.5%	 94.0% 93.0% 94.0% 92.5% 93.5% 91.5% 92.5% 91.5%	 - - - - - - - -	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: EUG-200S105DV Io= 700mA Io=1050mA EUG-200S210DV Io=1400mA Io=2100mA EUG-200S350DV Io=2450mA Io=3500mA EUG-200S560DV Io=3850mA Io=5600mA	 92.5% 91.5% 92.5% 91.0% 91.5% 90.0% 91.0% 90.0%	 94.5% 93.5% 94.5% 93.0% 93.5% 92.0% 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.)
MTBF	-	230,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	95,000 Hours	-	Measured at 220Vac input, 80%Load and 70°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature for Safety Tc_s	-40°C	-	+90°C	
Operating Case Temperature for Warranty Tc_w	-40°C	-	+75°C	Case temperature for 7 years warranty. *Please see Inventronics Warranty Statement for complete details.* 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)	7.87 × 2.66 × 1.56 200 × 67.5 × 39.7			With mounting ear 8.70 × 2.66 × 1.56 221 × 67.5 × 39.7
Net Weight	-	1180 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 uA	300 uA	450 uA	Vdim(+) = 0 V
Dimming Output Range	EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV	10%Ioset	-	Ioset	700 mA ⩽ Ioset ⩽ 1050 mA 1400 mA ⩽ Ioset ⩽ 2100 mA 2450 mA ⩽ Ioset ⩽ 3500 mA 3850 mA ⩽ Ioset ⩽ 5600 mA
	EUG-200S105DV EUG-200S210DV EUG-200S350DV EUG-200S560DV	70 mA 140 mA 245 mA 385 mA	-	Ioset	70 mA ⩽ Ioset ＜ 700 mA 140 mA ⩽ Ioset ＜ 1400 mA 245 mA ⩽ Ioset ＜ 2450 mA 385 mA ⩽ Ioset ＜ 3850 mA
Recommended Dimming Range for 0-5V		0 V	-	5 V	Dimming mode set to 0-5V in Inventronics programming software.
Recommended Dimming Input Range		0 V	-	10 V	Default 0-10V dimming mode with positive logic.
PWM_in High Level		3 V	-	10 V	Dimming mode set to PWM in Inventronics programming software .
PWM_in Low Level		-0.3 V	-	0.6 V	
PWM_in Frequency Range		200 Hz	-	2 KHz	
PWM_in Duty Cycle		1%	-	99%	

Safety &EMC Compliance

Safety Category	Standard
CE	EN 61347-1, EN 61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
CCC	GB 19510.1, GB 19510.14
KC	KC 61347-1, KC 61347-2-13
KS	KS C 7655
BIS	IS 15885(Part2/Sec13)
NOM	NOM-058-SCFI
SAA	AS/NZS 61347.1, AS/NZS 61347.2.13
EMI Standards	**Notes**
EN IEC 55015/GB/T 17743/KS C 9815(1)	Conducted emission Test &Radiated emission Test
EN IEC 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

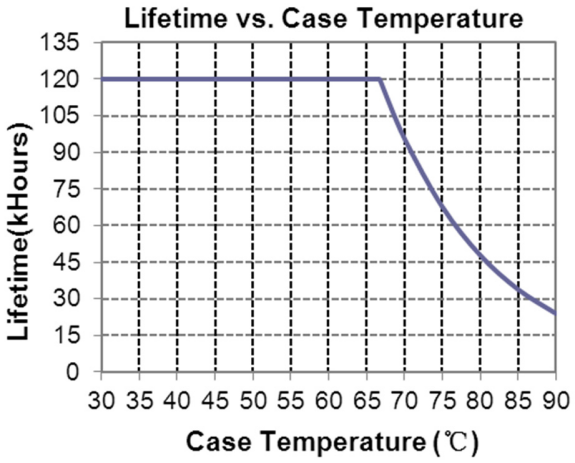
Safety &EMC Compliance (Continued)

EMS Standards	Notes
EN 61000-4-5	Surge Immunity Test: AC Power Line: Differential Mode 6 kV, Common Mode 10 kV (2)
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/KS C 9547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

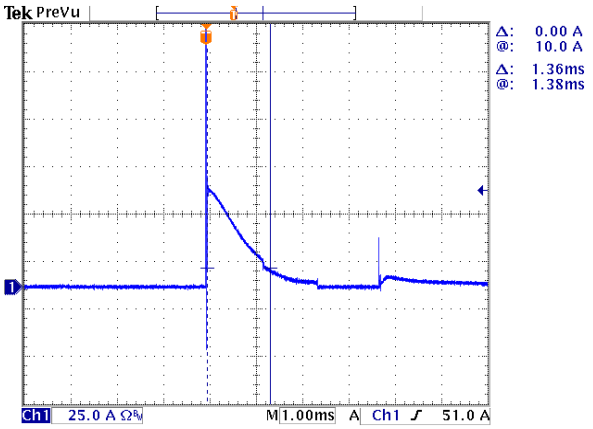
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

(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

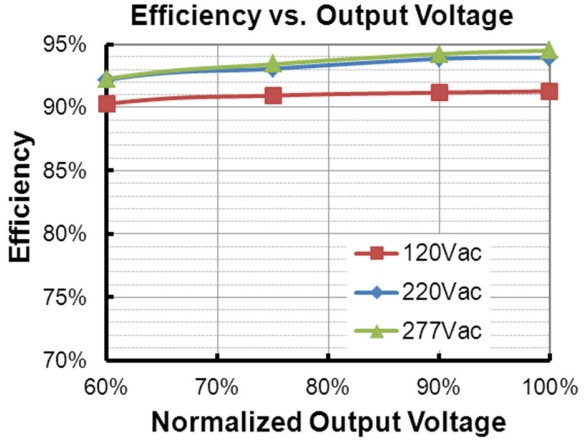


Inrush Current Waveform

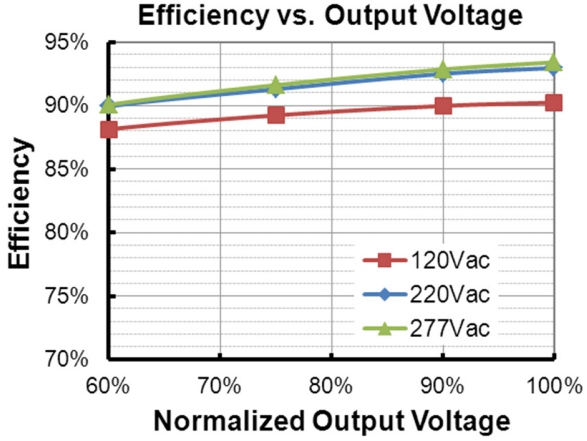


Efficiency vs. Load

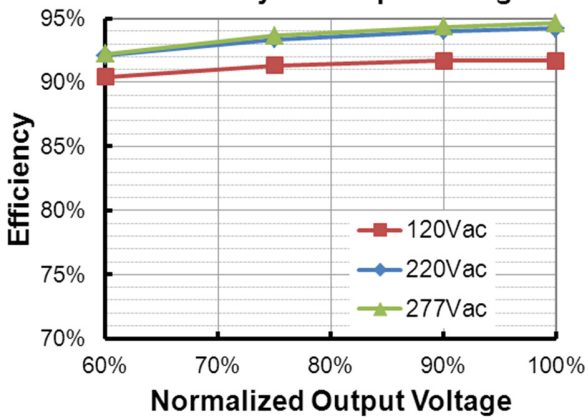
EUG-200S105DV(Io=700mA)



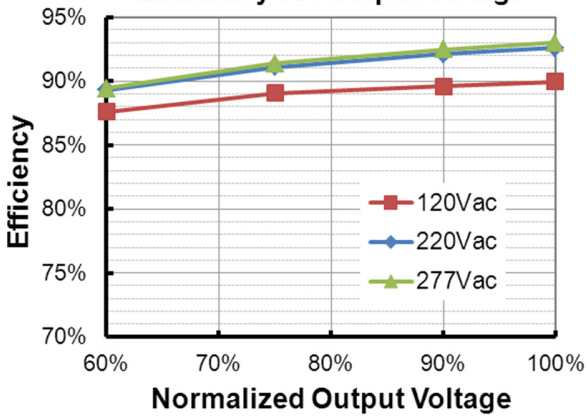
EUG-200S105DV(Io=1050mA)



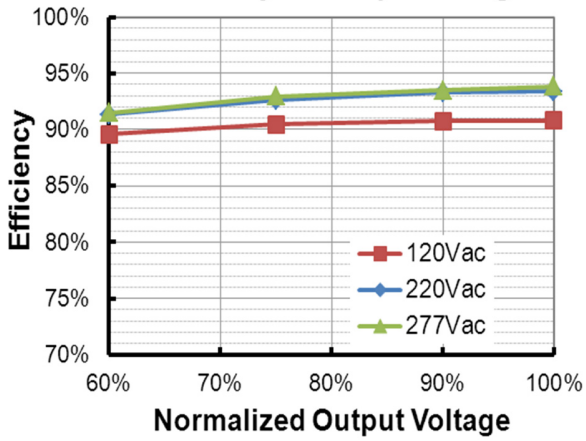
EUG-200S210DV(Io=1400mA)



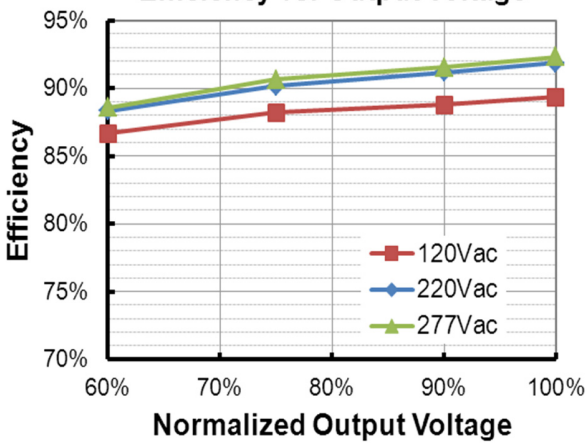
EUG-200S210DV(Io=2100mA)

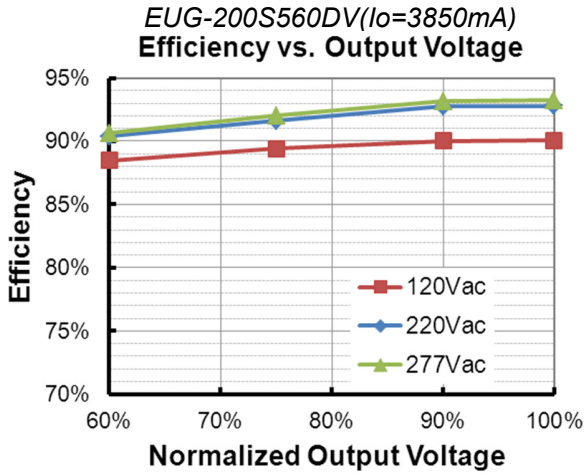


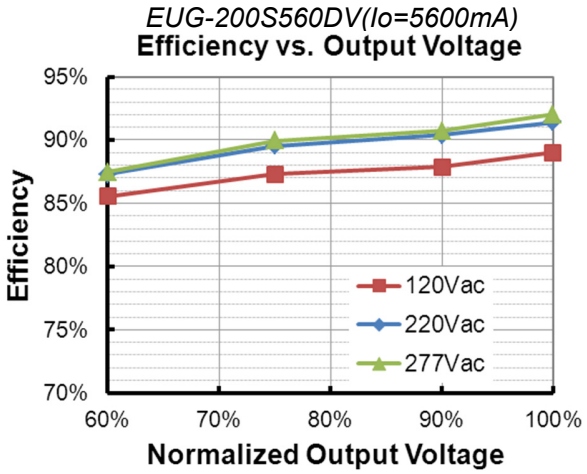
EUG-200S350DV(Io=2450mA)



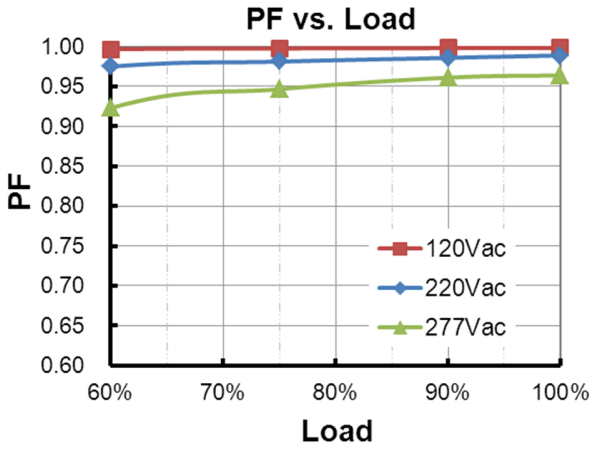
EUG-200S350DV(Io=3500mA)



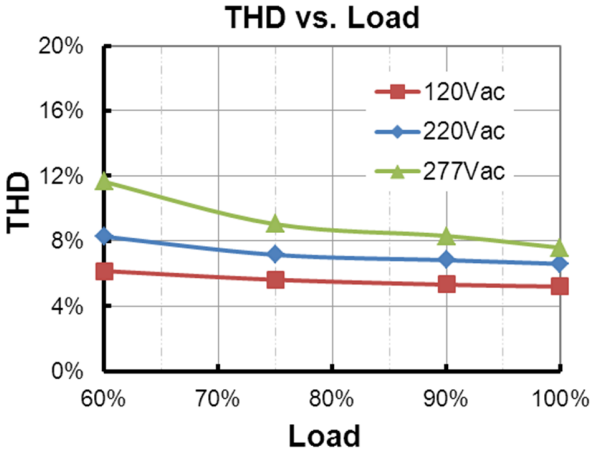




Power Factor



Total Harmonic Distortion



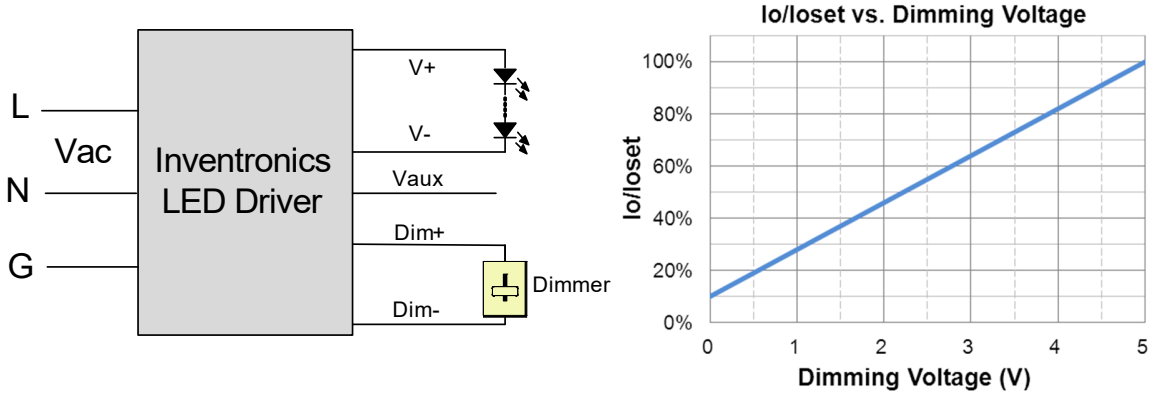
Protection Functions

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.

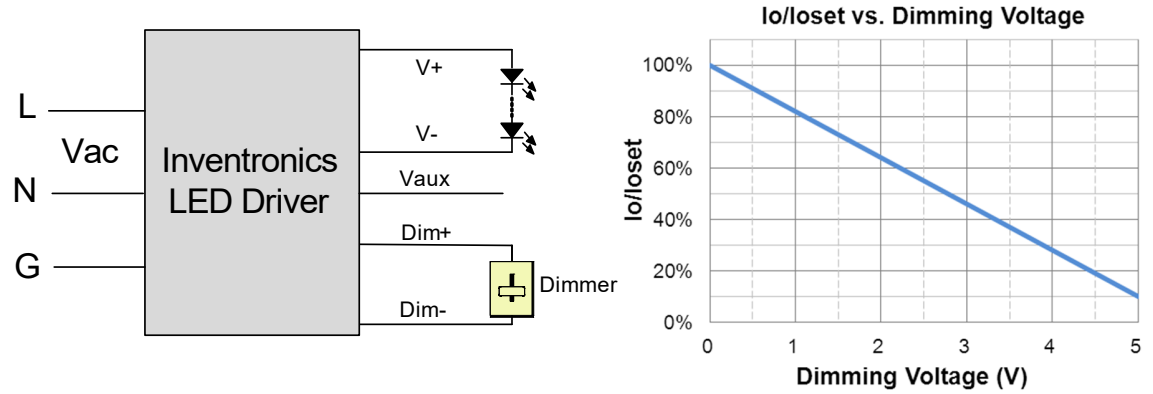
Dimming

- **0-5V Dimming**

The recommended implementation of the dimming control is provided below.



Implementation 1: Positive logic



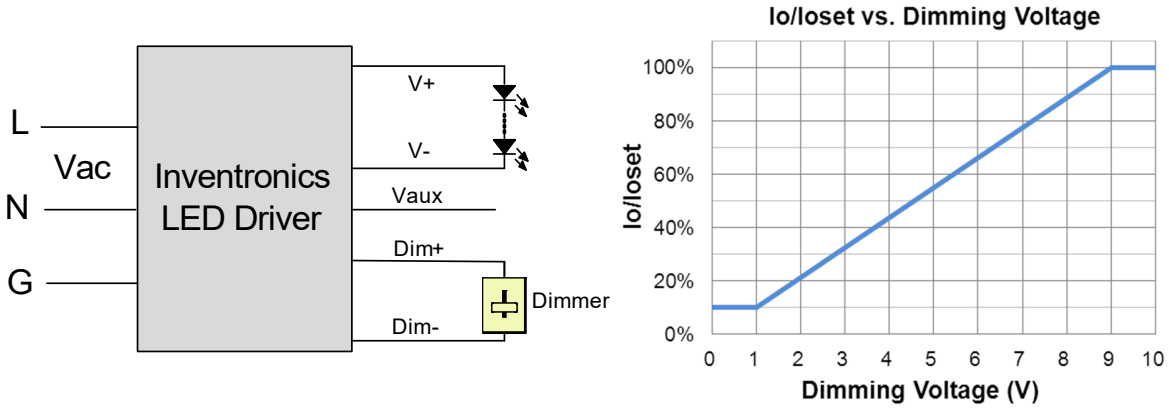
Implementation 2: Negative logic

Notes:

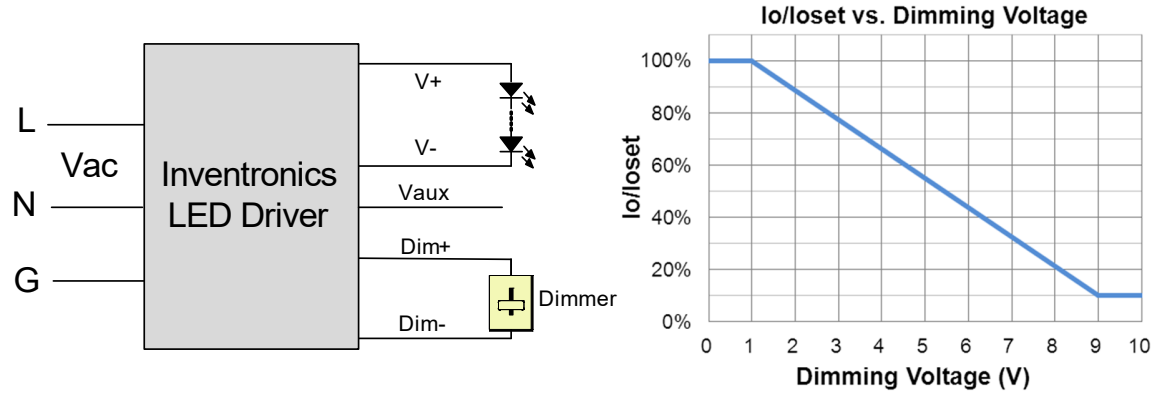
1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. The dimmer can also be replaced by an active 0-5V voltage source signal or passive components like zener.
3. When 0-5V negative logic dimming mode and Dim+ is open, the driver will output maximum current.

● 0-10V Dimming

The recommended implementation of the dimming control is provided below.



Implementation 3: Positive logic

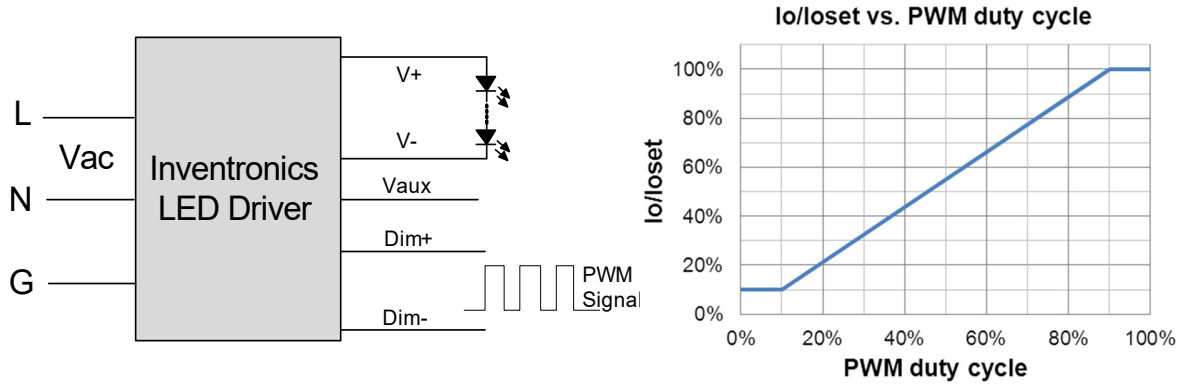


Implementation 4: Negative logic

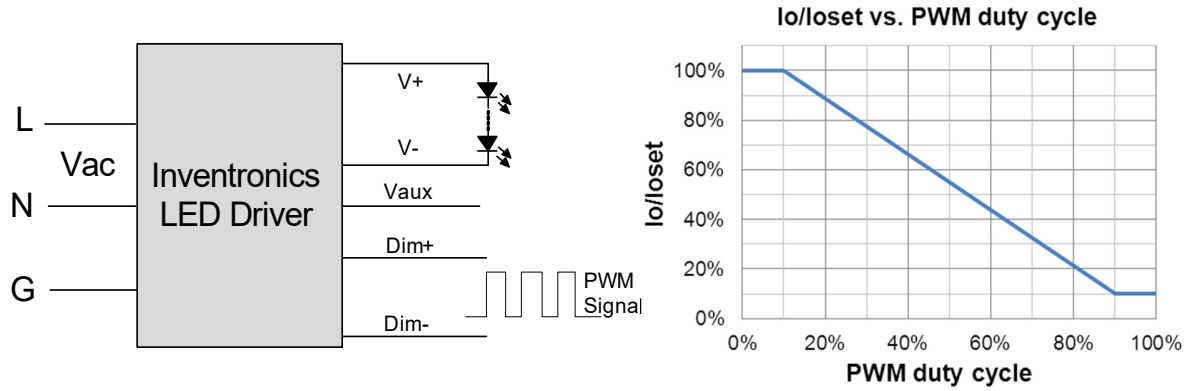
Notes:

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. When 0-10V negative logic dimming mode and Dim+ is open, the driver will output minimum current.

● PWM Dimming



Implementation 5: Positive logic

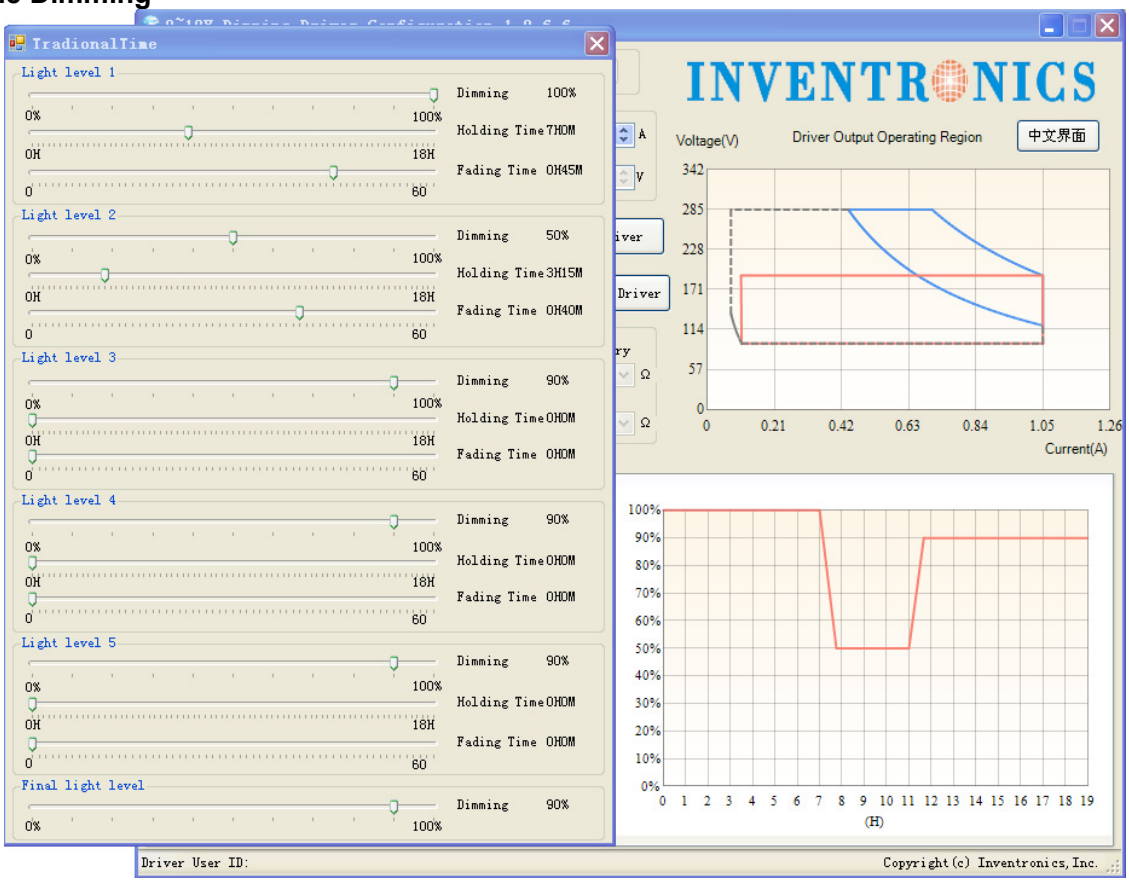


Implementation 6: Negative logic

Notes:

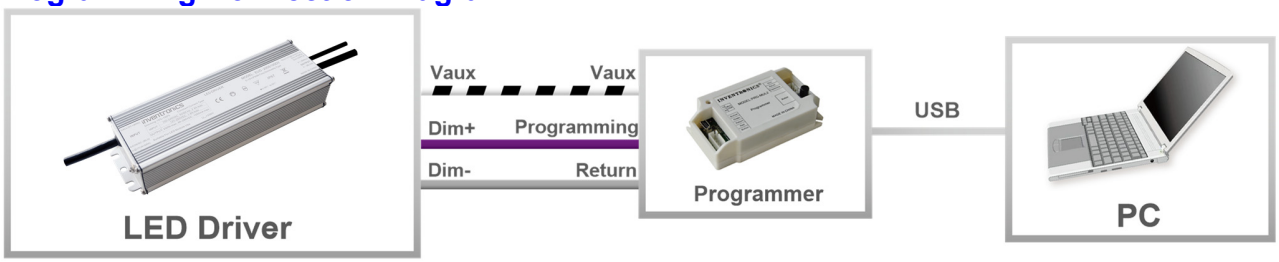
1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. When PWM negative logic dimming mode and Dim+ is open, the driver will output minimum current.

● Time Dimming



Set the timing curve by pulling the sliders.

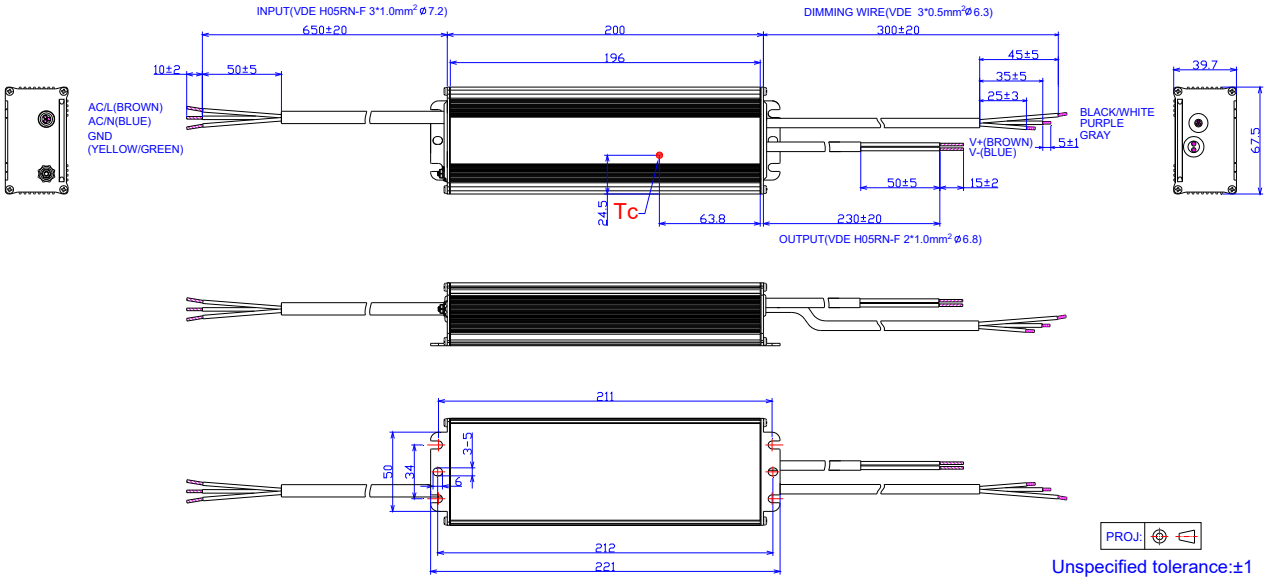
Programming Connection Diagram



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

- **Please refer to PRG-MUL2 (Programmer) datasheet for details.**

Mechanical Outline



Note: Waterproof connectors certified to CCC & CE are also available for these drivers; please contact Inventronics Sales.

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
2016-01-05	A	Datasheets Release	/	/
2016-04-08	B	General Specifications	With mounting ear	Added
		General Specifications	Net Weight	Updata
		Safety &EMC Compliance	/	Updata
		Mechanical Outline	/	Updata
2017-07-28	C	Input Specifications	PF/THD	Updated
		Output Specifications	Temperature Coefficient of Ioset	Updated
		General Specifications	Dimensions	Updated
		Safety &EMC Compliance	/	Updated
		Mechanical Outline	/	Updated
2017-10-26	D	Features	7 Years Warranty	Added
		Operating Case Temperature for Warranty Tc_w	/	Updated
2022-08-27	E	SAA/KC/KCC/NOM logo	/	Added
		CCC logo	/	Updated
		PSE logo	/	Deleted
		Features	/	Updated
		Models	/	Updated
		Safety &EMC Compliance	/	Updated
		Dimming	/	Updated
		RoHS Compliance	/	Updated
2023-08-28	F	Product Photograph	/	Updated
		TUV logo	/	Deleted
		Safety &EMC Compliance	/	Updated
		Programming Connection Diagram	/	Updated
2024-05-15	G	Product Photograph	/	Updated
		ENEC logo	/	Deleted
		Safety &EMC Compliance	/	Updated