Features

- Compact Metal Case with Excellent Thermal Performance
- Input Over Voltage Protection at 440Vac with 48 Hours
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with Programmability
- Isolated 0-10V/10V PWM/3-Timer-Modes Dimmable
- Output Lumen Compensation
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: IOVP, OVP, SCP, OTP
- IP66/IP67
- SELV Output
- 5 Years Warranty

Description

The *EAM-200SxxxDB* series is a 200W, constant-current, programmable and IP66/IP67 rated LED driver that operates from 90-305Vac input with excellent power factor. It is created for many lighting applications including high bay, high mast and roadway, etc. 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, input over voltage, over voltage, short circuit, and over temperature.

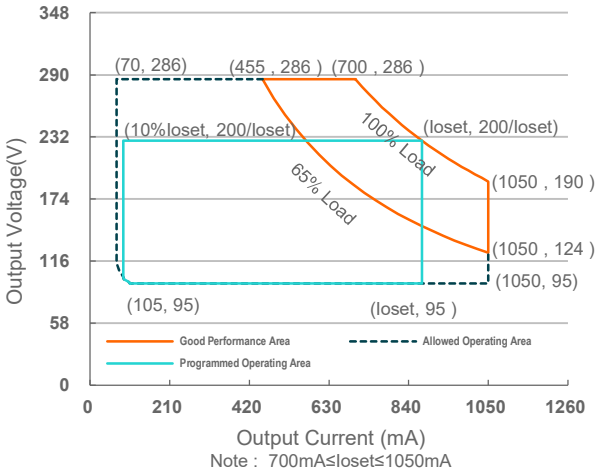
Models

Adjustable Output Current Range (mA)	Full-Power Current Range (mA)(1)	Default Output Current (mA)	Output Voltage Range (Vdc)	Max. Output Power (W)	Typical Efficiency(2)	Typical Power Factor		Model Number(3)
						120Vac	220Vac	
70-1050	700-1050	700	95-286	200	93.5%	0.99	0.96	EAM-200S105DB
105-1500	1050-1500	1050	67-190	200	93.5%	0.99	0.96	EAM-200S150DB
180-2800	1800-2800	2100	36-111	200	92.5%	0.99	0.96	EAM-200S280DB(4)
350-5600	3500-5600	4200	18-57	200	92.0%	0.99	0.96	EAM-200S560DB(4)

Notes: (1) Output current range with constant power at 200W.
(2) Measured at 100% load and 220Vac input (see below “General Specifications” for details).
(3) Certified input voltage range: 100-240/220-240/240Vac.
(4) SELV output.

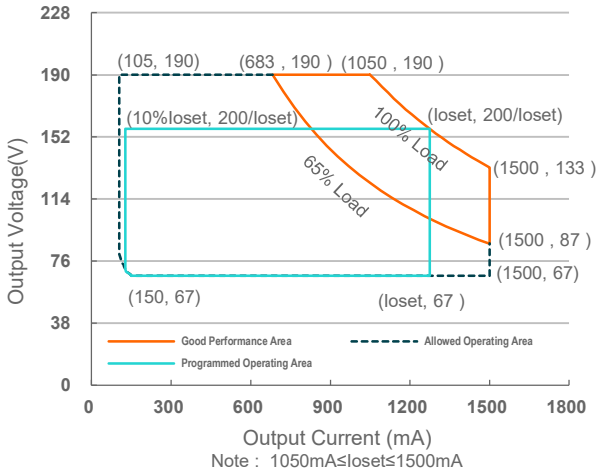
I-V Operation Area

EAM-200S105DB



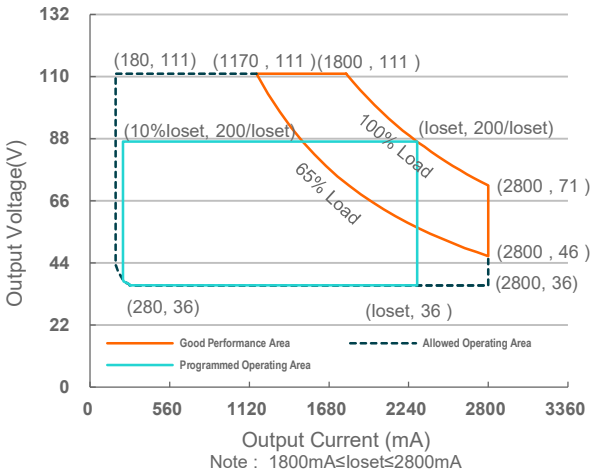
Note : 700mA≤Ioset≤1050mA

EAM-200S150DB



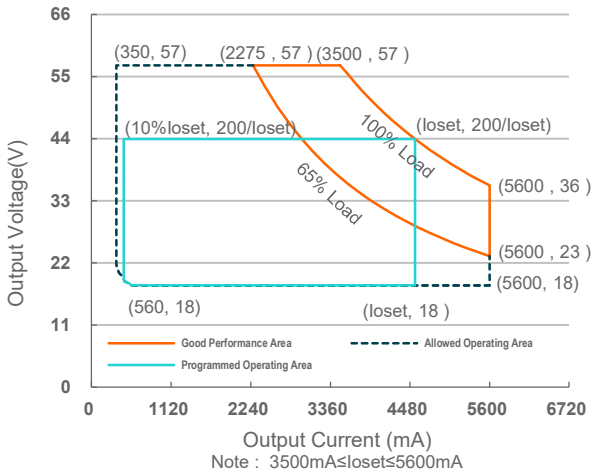
Note : 1050mA≤Ioset≤1500mA

EAM-200S280DB



Note : 1800mA≤Ioset≤2800mA

EAM-200S560DB



Note : 3500mA≤Ioset≤5600mA

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	305 Vac	
Input DC Voltage	127 Vdc	-	300 Vdc	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC 60598-1; 240Vac/ 60Hz
Input AC Current	-	-	2.02 A	Measured at 100% load and 120 Vac input.
	-	-	1.09 A	Measured at 100% load and 220 Vac input.
Inrush Current(I^2t)	-	-	2.50 A^2s	At 220Vac input, 25°C cold start, duration=784 μs, 10%Ipk-10%Ipk.

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Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
PF	0.9	-	-	At 100-277Vac, 50-60Hz, 65%-100% Load (130-200W)
THD	-	-	20%	
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 EAM-200S105DB EAM-200S150DB EAM-200S280DB EAM-200S560DB	 70 mA 105 mA 180 mA 350 mA	 - - - -	 1050 mA 1500 mA 2800 mA 5600 mA	
Output Current Setting Range with Constant Power EAM-200S105DB EAM-200S150DB EAM-200S280DB EAM-200S560DB	 700 mA 1050 mA 1800 mA 3500 mA	 - - - -	 1050 mA 1500 mA 2800 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 EAM-200S105DB EAM-200S150DB EAM-200S280DB EAM-200S560DB	 - - - -	 - - - -	 320 V 210 V 120 V 65 V	
Line Regulation	-	-	±0.5%	Measured at 100% load
Load Regulation	-	-	±1.5%	
Turn-on Delay Time	-	-	0.5 s	Measured at 120-277Vac input, 65%-100% Load
Temperature Coefficient of Ioset	-	0.03%/°C	-	Case temperature = 0°C ~Tc max

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input:				Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
EAM-200S105DB				
Io= 700 mA	89.0%	91.0%	-	
Io=1050 mA	89.5%	91.5%	-	
EAM-200S150DB				
Io=1050 mA	89.0%	91.0%	-	
Io=1500 mA	89.0%	91.0%	-	
EAM-200S280DB				
Io=1800 mA	88.0%	90.0%	-	
Io=2800 mA	88.5%	90.5%	-	
EAM-200S560DB				
Io=3500 mA	88.0%	90.0%	-	
Io=5600 mA	88.0%	90.0%	-	
Efficiency at 220 Vac input:				Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
EAM-200S105DB				
Io= 700 mA	91.5%	93.5%	-	
Io=1050 mA	91.5%	93.5%	-	
EAM-200S150DB				
Io=1050 mA	91.5%	93.5%	-	
Io=1500 mA	91.5%	93.5%	-	
EAM-200S280DB				
Io=1800 mA	90.5%	92.5%	-	
Io=2800 mA	90.5%	92.5%	-	
EAM-200S560DB				
Io=3500 mA	90.0%	92.0%	-	
Io=5600 mA	90.0%	92.0%	-	
Efficiency at 277 Vac input:				Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
EAM-200S105DB				
Io= 700 mA	91.5%	93.5%	-	
Io=1050 mA	92.0%	94.0%	-	
EAM-200S150DB				
Io=1050 mA	91.5%	93.5%	-	
Io=1500 mA	92.0%	94.0%	-	
EAM-200S280DB				
Io=1800 mA	91.0%	93.0%	-	
Io=2800 mA	91.0%	93.0%	-	
EAM-200S560DB				
Io=3500 mA	90.5%	92.5%	-	
Io=5600 mA	90.5%	92.5%	-	
MTBF	-	364,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	106,000 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	-20°C	-	+90°C	
Operating Case Temperature for Warranty Tc_w	-20°C	-	+80°C	Case temperature for 5 years warranty Humidity: 10%RH to 95%RH
Storage Temperature	-20°C	-	+85°C	Humidity: 5%RH to 95%RH
Dimensions				With mounting ear
Inches (L × W × H)	6.73 × 2.36 × 1.44			7.40 × 2.36 × 1.44
Millimeters (L × W × H)	171 × 60 × 36.5			188 × 60 × 36.5
Net Weight	-	750 g	-	

Dimming Specifications

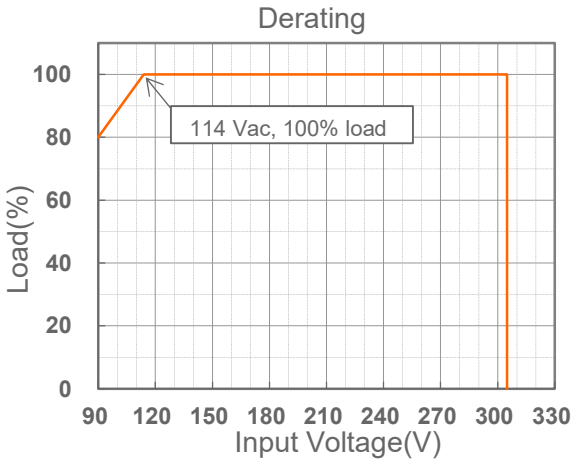
Parameter		Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin		-20 V	-	20 V	
Source Current on Vdim (+)Pin		200 μA	300 μA	450 μA	Vdim(+) = 0 V
Dimming Output Range	EAM-200S105DB EAM-200S150DB EAM-200S280DB EAM-200S560DB	10%Ioset	-	Ioset	700 mA ≤ Ioset ≤ 1050 mA 1050 mA ≤ Ioset ≤ 1500 mA 1800 mA ≤ Ioset ≤ 2800 mA 3500 mA ≤ Ioset ≤ 5600 mA
	EAM-200S105DB EAM-200S150DB EAM-200S280DB EAM-200S560DB	70 mA 105 mA 180 mA 350 mA	-	Ioset	70 mA ≤ Ioset < 700 mA 105 mA ≤ Ioset < 1050 mA 180 mA ≤ Ioset < 1800 mA 350 mA ≤ Ioset < 3500 mA
Recommended Dimming Range for 0-10V		1 V	-	9 V	Default 0-10V dimming mode with positive logic.
PWM_in High Level		-	10 V	-	
PWM_in Low Level		-	0 V	-	
PWM_in Frequency Range		200 Hz	-	2 KHz	
PWM_in Duty Cycle		0%	-	100%	

Safety &EMC Compliance

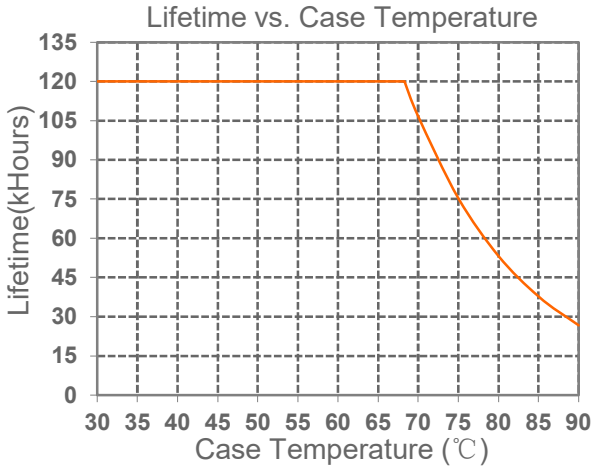
Safety Category	Standard
CE	EN 61347-1, EN 61347-2-13
BIS	IS 15885(Part2/Sec13)
EMI Standards	**Notes**
EN IEC 55015 (1)	Conducted emission Test &Radiated emission Test
EN IEC 61000-3-2	Harmonic current emissions
EN 61000-3-3	Voltage fluctuations & flicker
EMS Standards	**Notes**
EN 61000-4-2	Electrostatic 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 4 kV, Common 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

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.

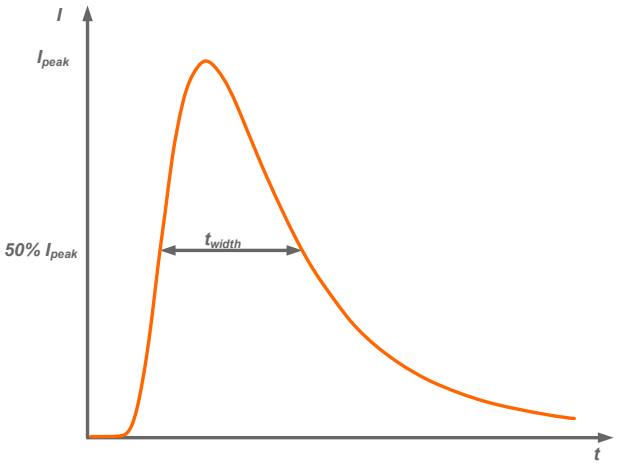
Derating



Lifetime vs. Case Temperature



Inrush Current Waveform



Input AC Voltage	I_{peak}	t_{width} (@ 50% Ipeak)
120Vac	36.6A	248μs
220Vac	65.2A	264μs
277Vac	86.5A	288μs

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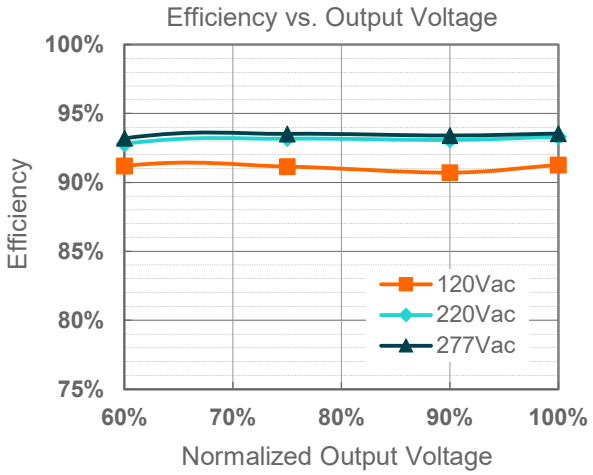
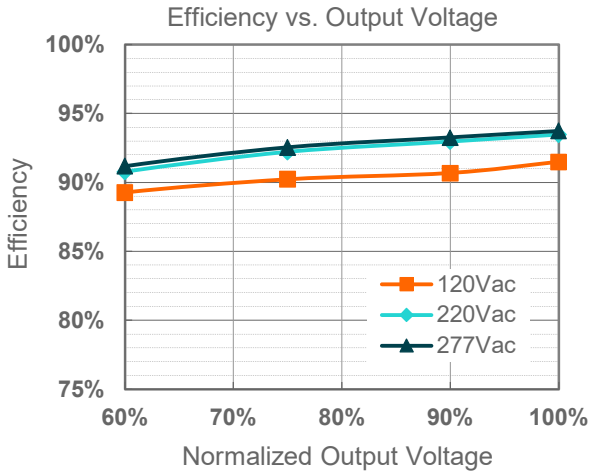
Efficiency vs. Load

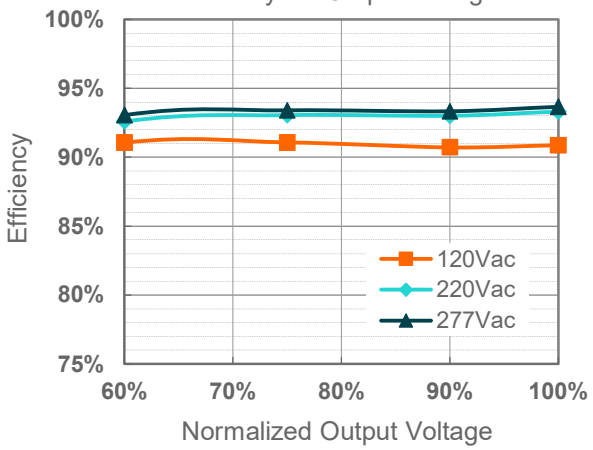
EAM-200S105DB(Io=700mA)



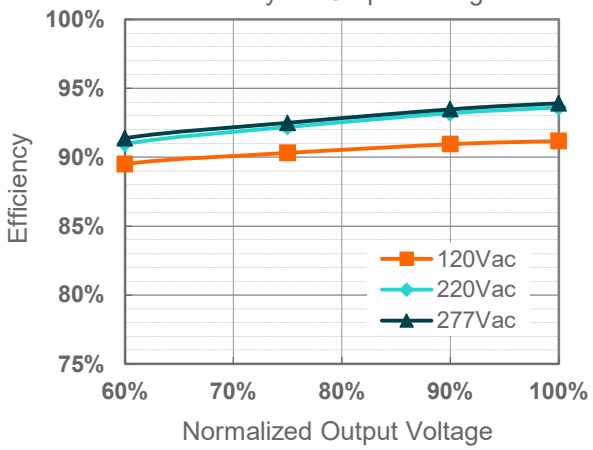
EAM-200S105DB(Io=1050mA)



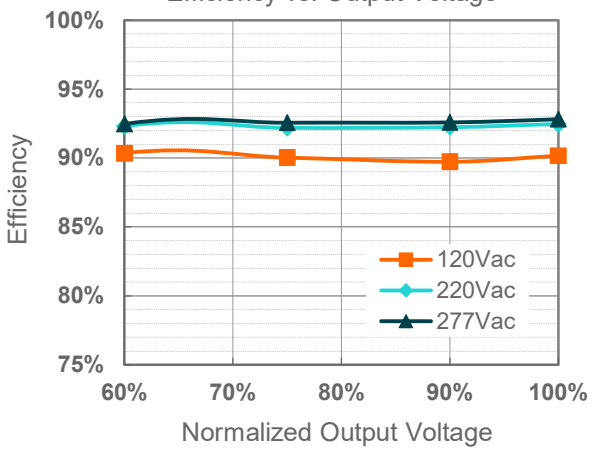
EAM-200S150DB(Io=1050mA)



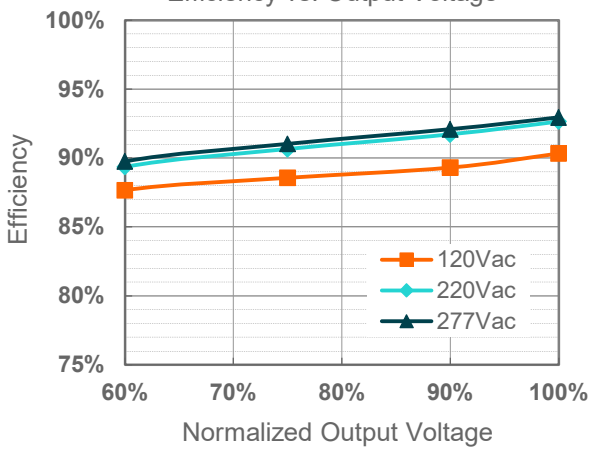
EAM-200S150DB(Io=1500mA)

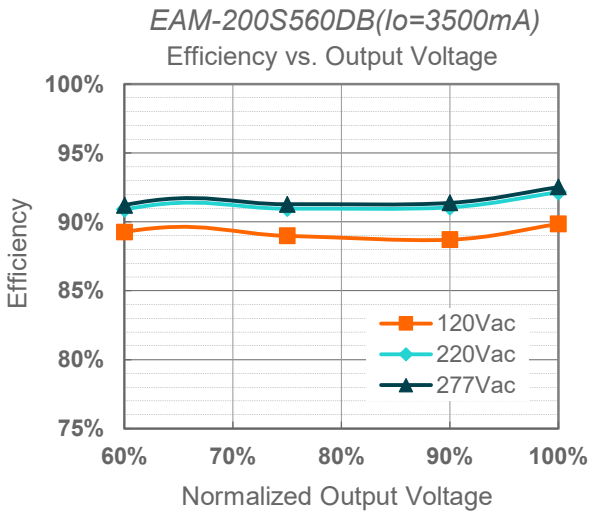


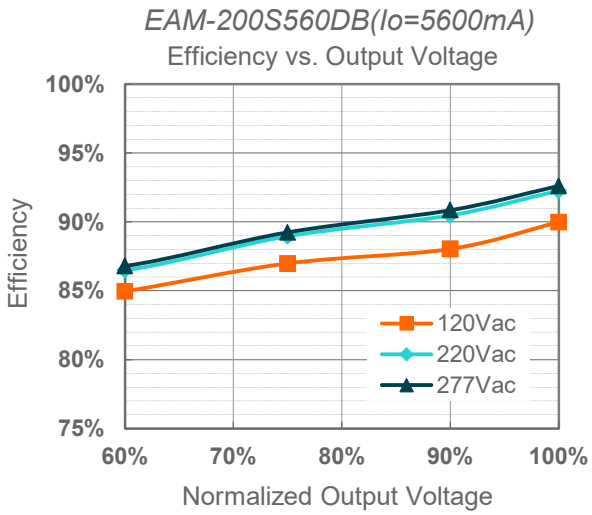
EAM-200S280DB(Io=1800mA)



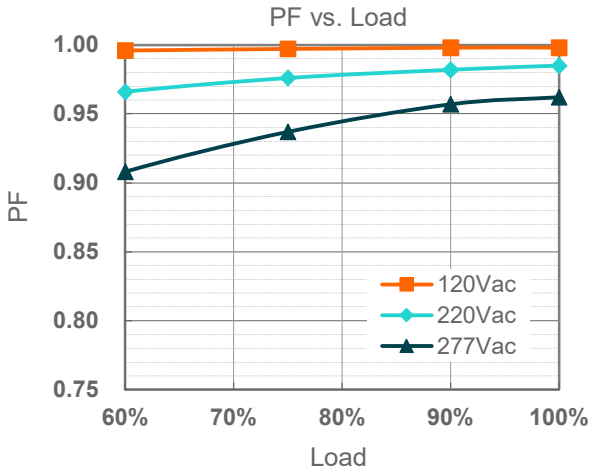
EAM-200S280DB(Io=2800mA)



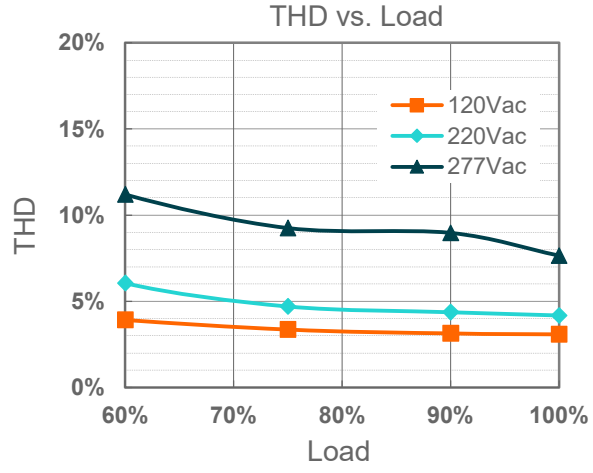




Power Factor



Total Harmonic Distortion



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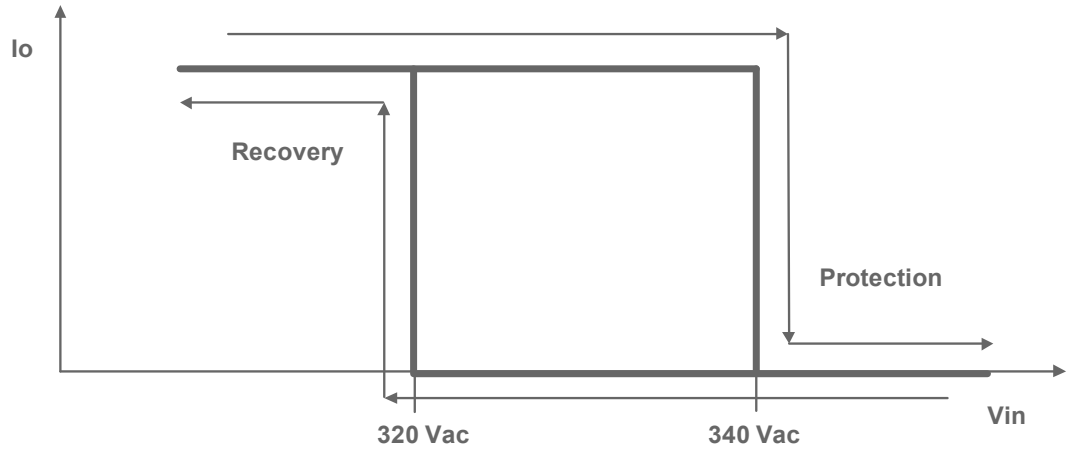
Protection Functions

Parameter		Min.	Typ.	Max.	Notes
Over Voltage Protection		Limits output voltage at no load and in case the normal voltage limit fails.			
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 Temperature Protection		Decreases output current, returning to normal after over temperature is removed.			
Input Over Voltage Protection	Input Over Voltage Protection	320 Vac	340 Vac	360 Vac	Turn off the output when the input voltage exceeds protection voltage.
	Input Over Voltage Recovery	300 Vac	320 Vac	340 Vac	Auto Recovery. The driver will restart when the input voltage falls below recovery voltage.
	Max. of Input Over Voltage	-	-	440 Vac	The driver can survive for 48 hours with input voltage stress of 440Vac.

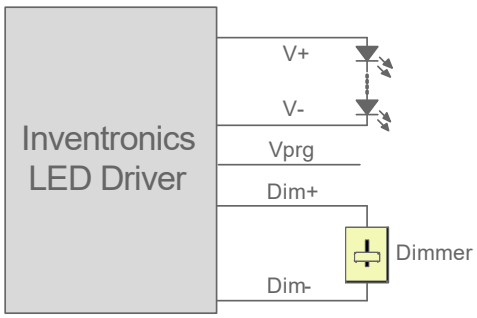
Input Over Voltage Protection Diagram

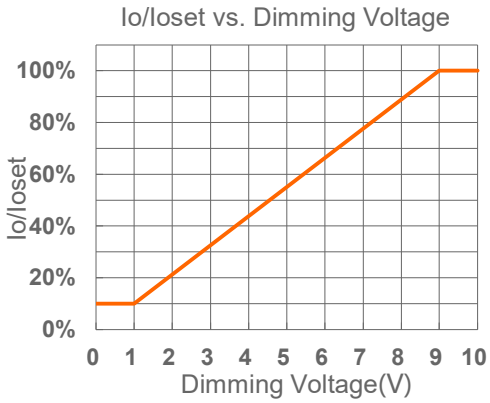


Dimming

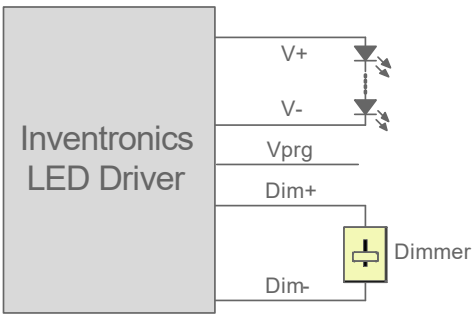
0-10V Dimming

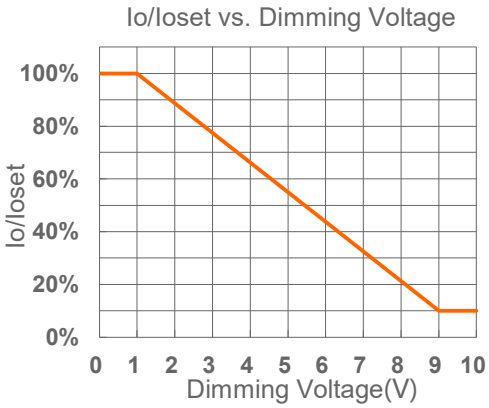
The recommended implementation of the dimming control is provided below.





Implementation 1: Positive logic



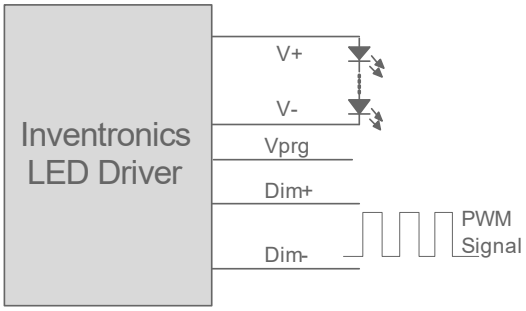


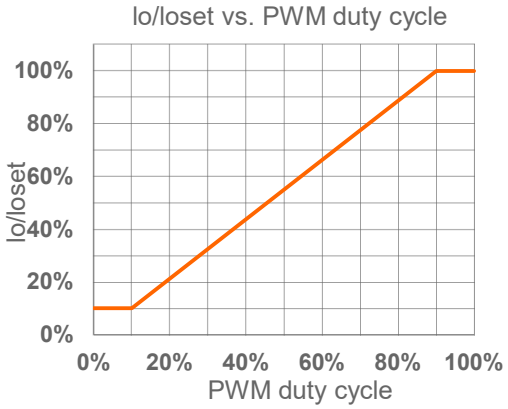
Implementation 2: Negative logic

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 0-10V 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.

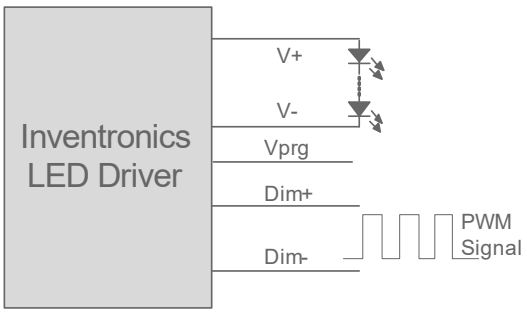
● 10V PWM Dimming

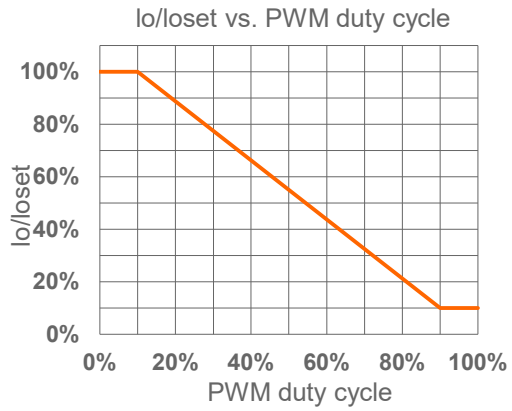
The recommended implementation of the dimming control is provided below.





Implementation 3: Positive logic





Implementation 4: Negative logic

Note:
1. Do NOT connect Dim− to the output V− or V+, otherwise the driver will not work properly.
2. When 10V PWM negative logic dimming mode and Dim+ is open, the driver will output minimum current.

Time Dimming

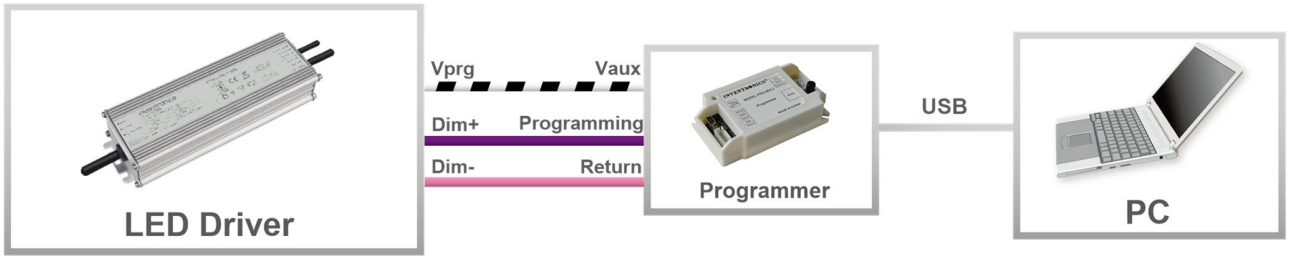
Time dimming control includes 3 kinds of modes, they are Self Adapting-Midnight, Self Adapting-Percentage and Traditional Timer.

- **Self Adapting-Midnight**: Automatically adjusts the dimming curve based on the on-time of past two days (if difference <15 minutes), assuming that the center point of the dimming curve is midnight local time.
- **Self Adapting-Percentage**: Automatically adjusts the on-time of each step by a constant percentage = (actual on-time for the past 2 days if difference <15 min) / (programmed on-time from the dimming curve).
- **Traditional Timer**: Follows the programmed timing curve after power on with no changes.

Output Lumen Compensation

Output Lumen Compensation (OLC) may be used to maintain constant light output over the life of the LEDs by driving them at a reduced current when new, then gradually increasing the drive current over time to counteract LED lumen degradation.

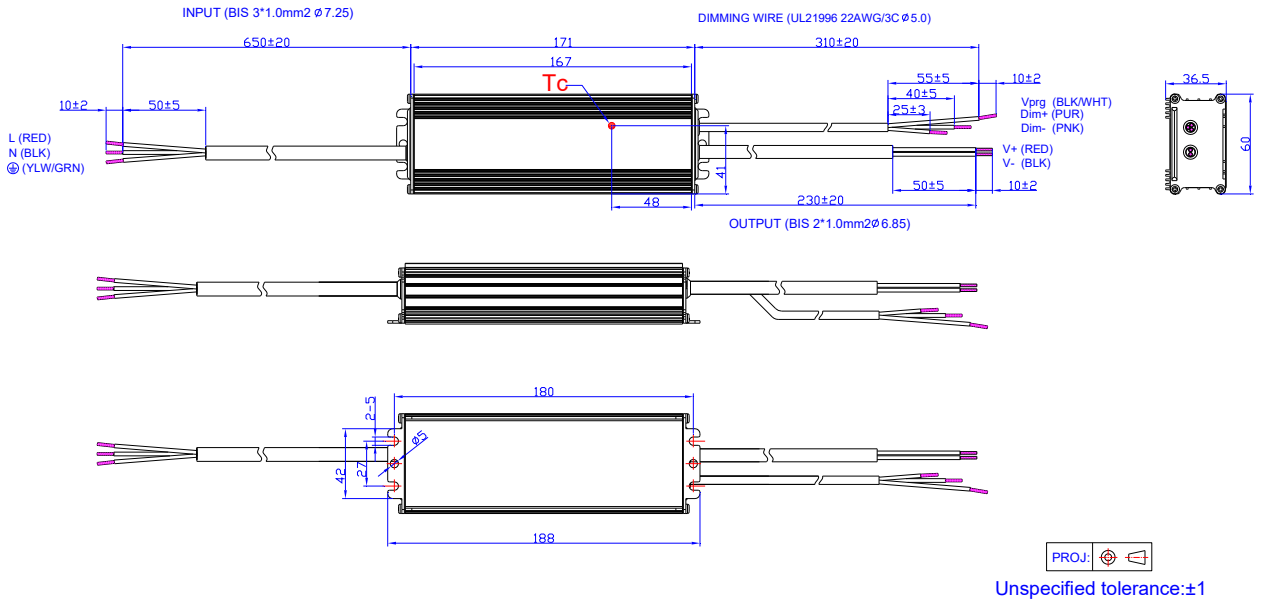
Programming Connection Diagram



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



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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
2023-06-15	A	Datasheet Release	/	/
2026-03-30	B	Format	/	Updated
		Product photograph	/	Updated
		Inrush Current Waveform	/	Updated

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

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