

INVENTRONICS

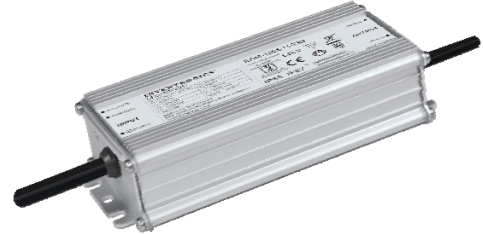
EAM-100SxxxSB

Rev. A

100W AOC IP66/IP67 Driver with 440Vac Protection

Features

- Input Over Voltage Protection at 440Vac with 48 Hours
- Full Power at Wide Output Current Range (Constant Power)
- Adjustable Output Current (AOC) with Potentiometer
- Non-dimming Control
- Input Surge Protection: DM 4kV, CM 6kV
- All-Around Protection: IOVP, OVP, SCP, OTP
- IP66 / IP67
- 5 Years Warranty



Description

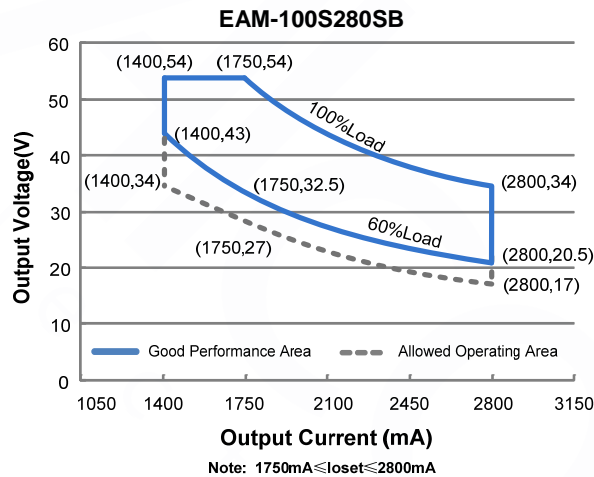
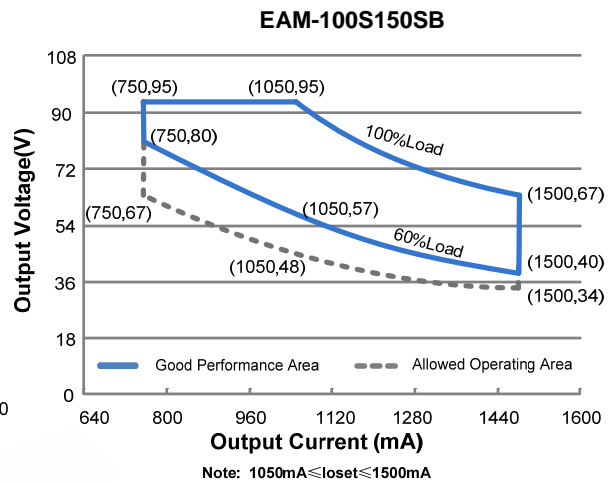
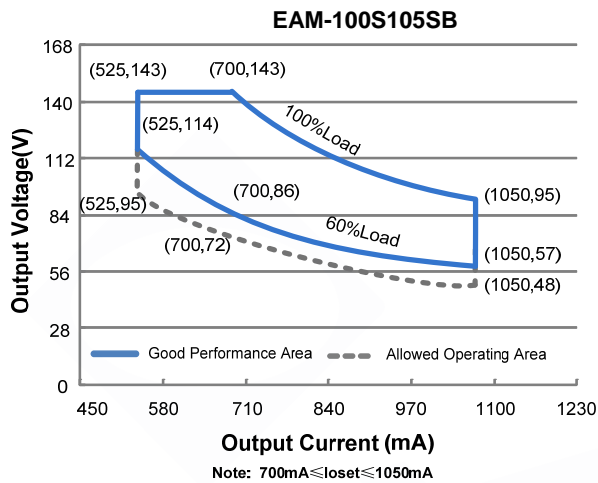
The EAM-100SxxxSB series is a 100W, constant-current, AOC LED driver that operates from 90-305Vac input with excellent power factor. It is created for many lighting applications including high bay, tunnel and roadway lights, etc. The high efficiency of these drivers and compact metal case enables them to run cooler, significantly improving reliability and extending product life. To ensure trouble-free operation, protection is provided against input surge, input over voltage, 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(5)
							120Vac	220Vac	
525-1050mA	700-1050mA	700mA	90~305 Vac/ 127~300 Vdc	48~143 Vdc	100 W	92.0%	0.99	0.96	EAM-100S105SB
750-1500mA	1050-1500mA	1050mA	90~305 Vac/ 127~300 Vdc	34~95 Vdc	100 W	91.5%	0.99	0.96	EAM-100S150SB ⁽⁴⁾
1400-2800mA	1750-2800mA	2100mA	90~305 Vac/ 127~300 Vdc	17~54 Vdc	96 W	90.5%	0.99	0.96	EAM-100S280SB ⁽⁴⁾

- Notes:** (1) Output current range with constant power at 100W
 (2) Certified input voltage range: 100-240Vac.
 (3) Measured at 100% load and 220Vac input (see below "General Specifications" for details).
 (4) SELV output.
 (5) To order CB approved model, please use suffix "SG" in place of "SB" (ex: EAM-100S105SG).

I-V Operation Area



Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	90 Vac	-	305 Vac	127~300 Vdc
Input DC Voltage	127 Vdc	-	300 Vdc	
Input Frequency	47 Hz	-	63 Hz	
Leakage Current	-	-	0.70 mA	IEC60598-1; 240Vac/ 60Hz,
Input AC Current	-	-	1.06 A	Measured at 100% load and 120 Vac input.
	-	-	0.56 A	Measured at 100% load and 220 Vac input.
Inrush Current(I ² t)	-	-	0.89 A ² s	At 220Vac input, 25°C cold start, duration=136 μs, 10%I _{pk} -10%I _{pk} . See Inrush Current Waveform for the details.

Input Specifications (Continued)

Parameter	Min.	Typ.	Max.	Notes
PF	0.9	-	-	At 100-240Vac, 50-60Hz, 60%-100%load (60-100W)
THD	-	-	20%	
THD	-	-	10%	At 220-240Vac, 50-60Hz, 75%-100%load (75-100W)

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%loset	-	5%loset	At 100% load condition
Output Current Setting(loset) Range				
EAM-100S105SB	525 mA	-	1050 mA	
EAM-100S150SB	750 mA	-	1500 mA	
EAM-100S280SB	1400 mA	-	2800 mA	
Output Current Setting Range with Constant Power				
EAM-100S105SB	700 mA	-	1050 mA	
EAM-100S150SB	1050 mA	-	1500 mA	
EAM-100S280SB	1750 mA	-	2800 mA	
Total Output Current Ripple (pk-pk)	-	5%lomax	10%lomax	At 100% load condition. 20 MHz BW
Output Current Ripple at < 200 Hz (pk-pk)	-	2%lomax	-	At 100% load condition. Only this component of ripple is associated with visible flicker.
Startup Overshoot Current	-	-	10%lomax	At 100% load condition
No Load Output Voltage				
EAM-100S105SB	-	-	170 V	
EAM-100S150SB	-	-	120 V	
EAM-100S280SB	-	-	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 loset	-	0.03%/°C	-	Case temperature = 0°C~Tc max

General Specifications

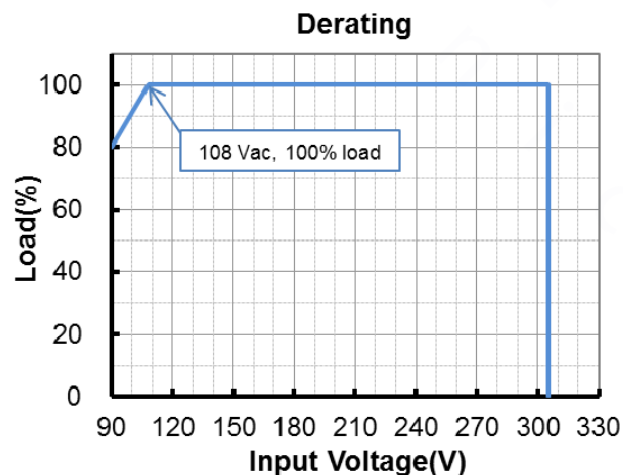
Parameter	Min.	Typ.	Max.	Notes
Efficiency at 120 Vac input: EAM-100S105SB I _o = 700 mA I _o =1050 mA EAM-100S150SB I _o =1050 mA I _o =1500 mA EAM-100S280SB I _o =1750 mA I _o =2800 mA	86.0% 87.0% 86.0% 86.5% 86.0% 86.0%	88.0% 89.0% 88.0% 88.5% 88.0% 88.0%	- - - - - -	Measured at 100% load and steady-state temperature in 25°C ambient; (Efficiency will be about 2.0% lower if measured immediately after startup.)
Efficiency at 220 Vac input: EAM-100S105SB I _o = 700 mA I _o =1050 mA EAM-100S150SB I _o =1050 mA I _o =1500 mA EAM-100S280SB I _o =1750 mA I _o =2800 mA	89.0% 90.0% 89.0% 89.5% 88.5% 88.0%	91.0% 92.0% 91.0% 91.5% 90.5% 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 277 Vac input: EAM-100S105SB I _o = 700 mA I _o =1050 mA EAM-100S150SB I _o =1050 mA I _o =1500 mA EAM-100S280SB I _o =1750 mA I _o =2800 mA	89.5% 90.0% 89.0% 89.5% 88.5% 88.5%	91.5% 92.0% 91.0% 91.5% 90.5% 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.)
MTBF	-	426,000 Hours	-	Measured at 220Vac input, 80%Load and 25°C ambient temperature (MIL-HDBK-217F)
Lifetime	-	114,000 Hours	-	Measured at 220Vac input, 80%Load and 70°C case temperature; See lifetime vs. T _c curve for the details
Operating Case Temperature for Safety T _{c_s}	-20°C	-	+90°C	
Operating Case Temperature for Warranty T _{c_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 Inches (L × W × H) Millimeters (L × W × H)	5.16 × 2.36 × 1.44 131 × 60 × 36.5			With mounting ear 5.83 × 2.36 × 1.44 148 × 60 × 36.5
Net Weight	-	590 g	-	

Safety & EMC Compliance

Safety Category	Standard
CE	EN 61347-1, EN 61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
BIS	IS 15885(PART2/SEC13)
EAC	ГОСТ Р МЭК 61347-1, ГОСТ IEC 61347-2-13
EMI Standards	Notes
EN 55015 ⁽¹⁾	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: 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

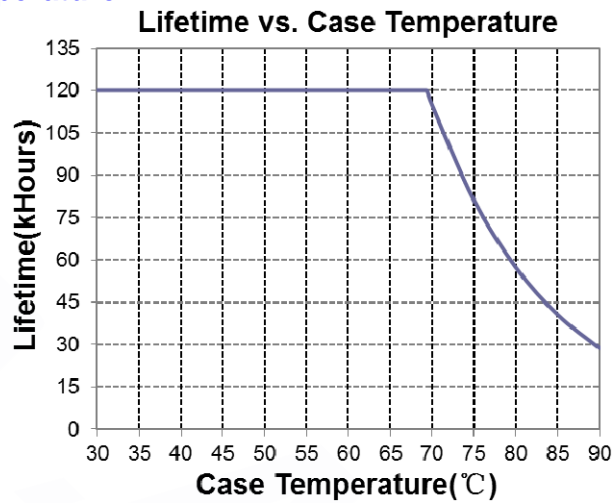
Note: (1) This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

Derating

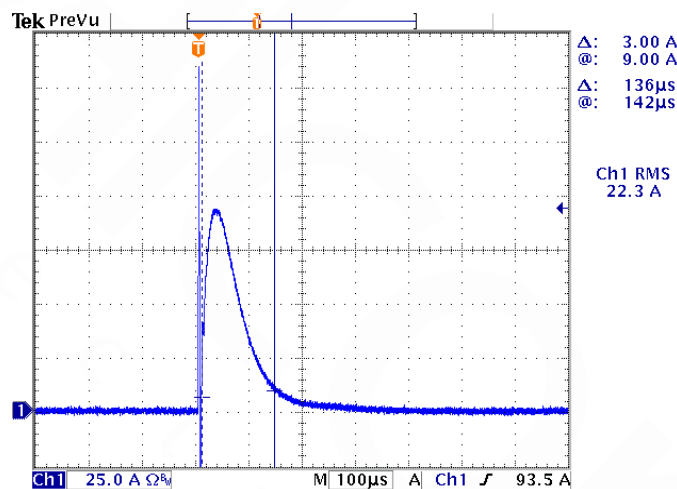


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Lifetime vs. Case Temperature

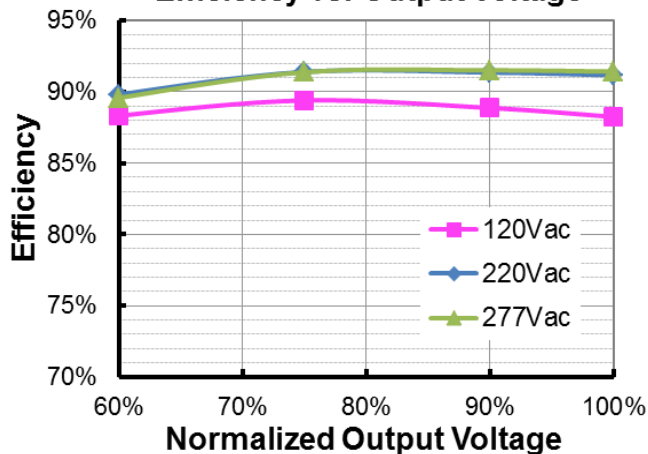


Inrush Current Waveform

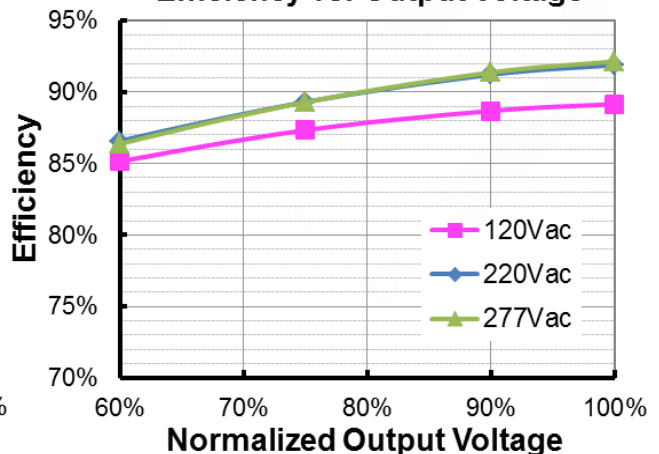


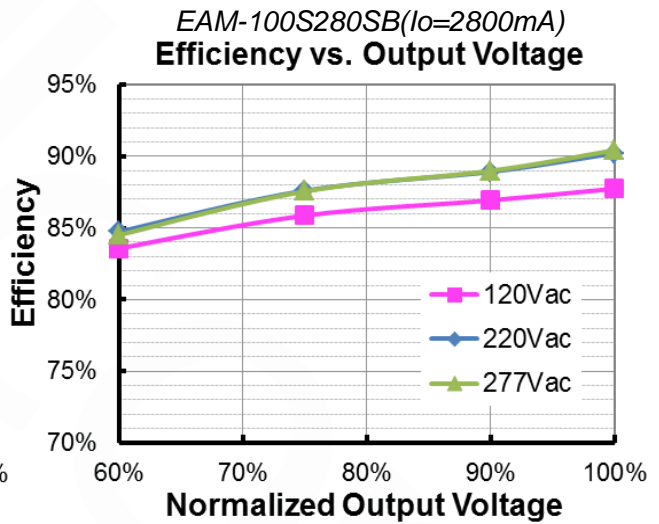
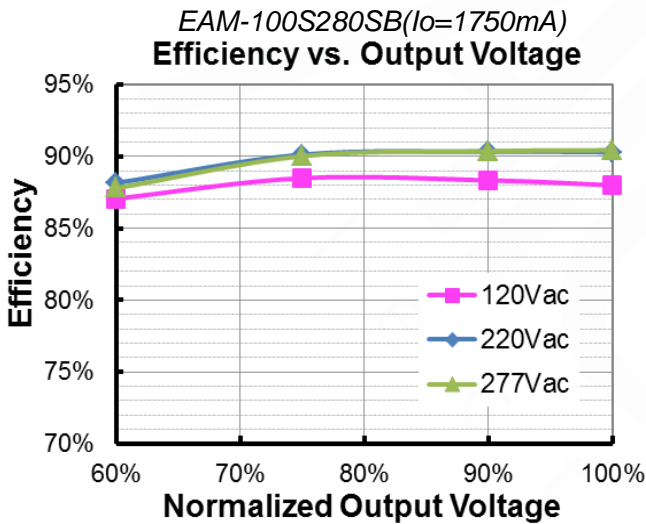
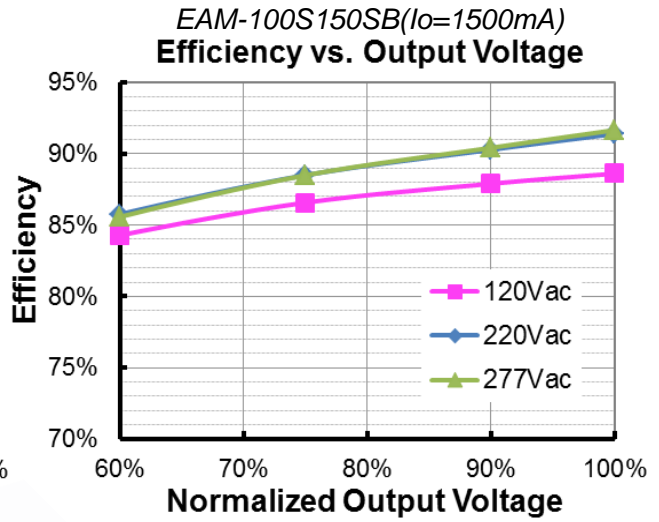
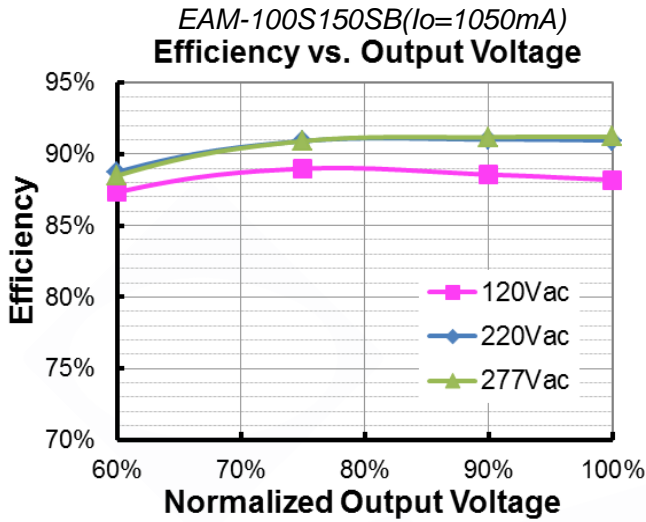
Efficiency vs. Load

EAM-100S105SB(I_o=700mA)
Efficiency vs. Output Voltage

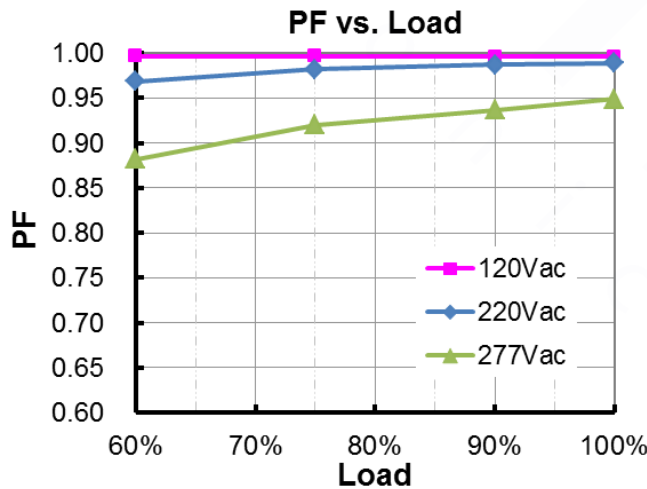


EAM-100S105SB(I_o=1050mA)
Efficiency vs. Output Voltage

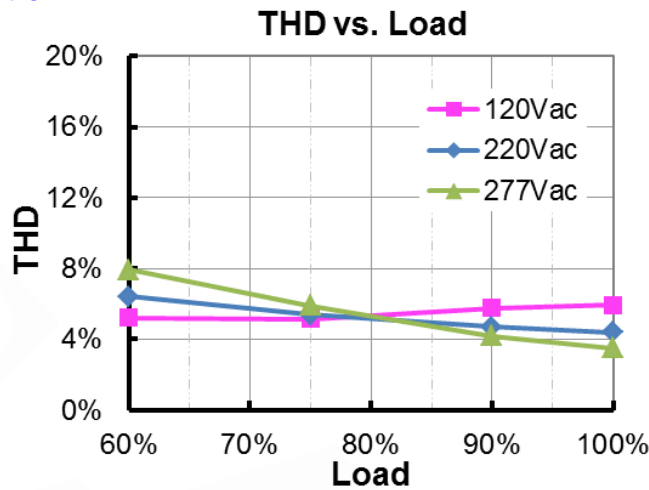




Power Factor



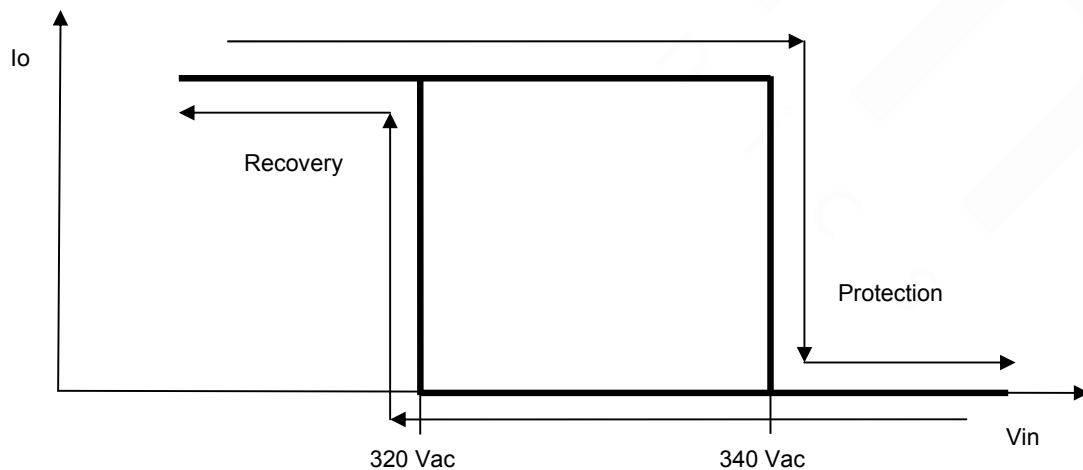
Total Harmonic Distortion



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



Output Current vs. Potentiometer Setting

● EAM-100S105SB

Output Current Setting (loset)	Output Voltage Range		Notes
	Min.	Max.	
Typ.			/
1050mA	48V	95V	Output Current Setting with Constant Power.
...	
700mA	72V	143V	
...	Output Current Setting with Power Derating.
525mA	95V	143V	

● EAM-100S150SB

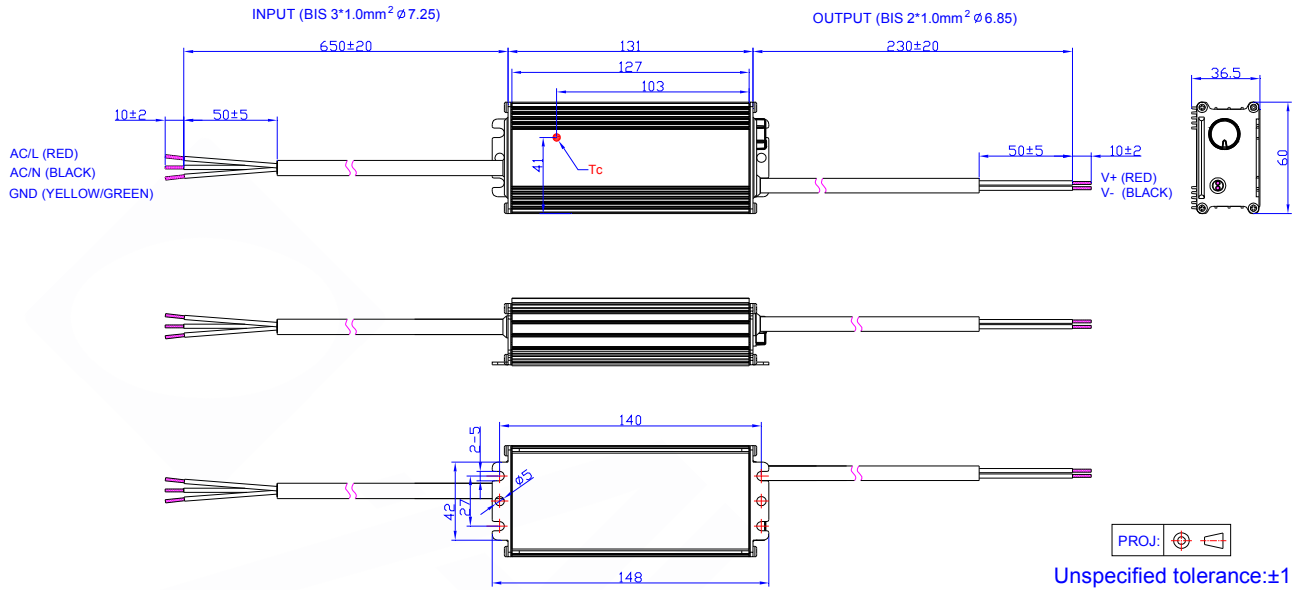
Output Current Setting (loset)	Output Voltage Range		Notes
	Min.	Max.	
Typ.			/
1500mA	34V	67V	Output Current Setting with Constant Power.
...	
1050mA	48V	95V	
...	Output Current Setting with Power Derating.
750mA	67V	95V	

● EAM-100S280SB

Output Current Setting (loset)	Output Voltage Range		Notes
	Min.	Max.	
Typ.			/
2800mA	17V	34V	Output Current Setting with Constant Power.
...	
1750mA	27V	54V	
...	Output Current Setting with Power Derating.
1400mA	34V	54V	

Note: Endcap covering potentiometer must be tight to insure IP67 rating.

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
2020-06-17	A	Datasheet Release	/	/

