SOSEN

SPECIFICATIONS

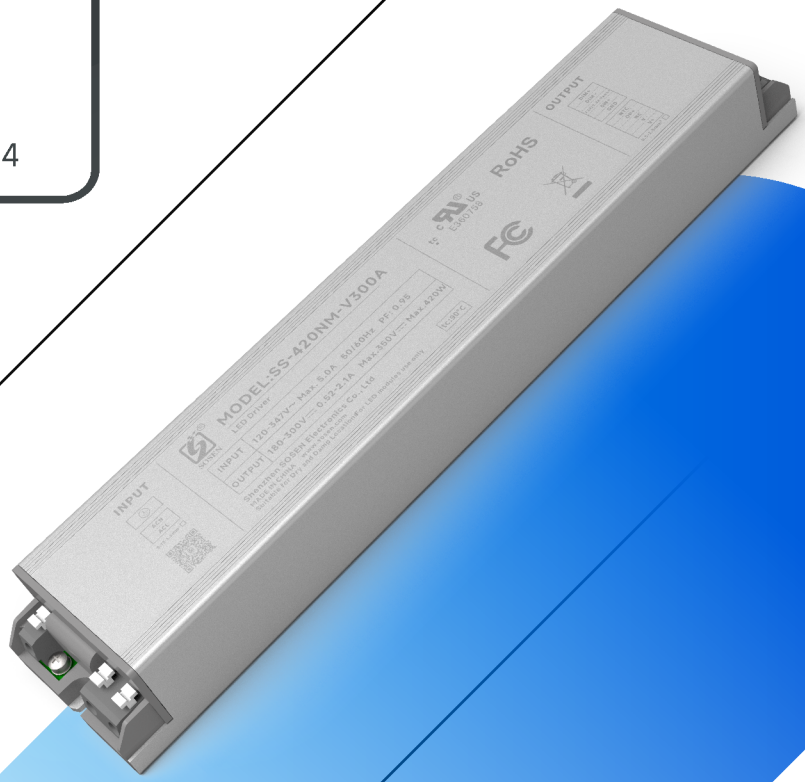
SS-420NM-V300A
CC DRIVER

Model: SS-420NM-V300A

Power: 420W

Rev.: V01

Release date: 2026-06-24



SS-420NM-V300A LED Driver

Features

- Efficiency up to 97%
- Isolated dimming: 0-10V, PWM, Resistor
- Optional aux: 12V/0.2A
- Time-controlled programmable
- Standby Power<0.5W
- Protections: OTP/OVP/UVP
- Compatible with intelligent emergency controls
- Wide output voltage range
- NTC, Optical, Dial Power Range Programmable
- Surge protection: CM: 6kV,DM: 6kV
- Long lifetime
- Warranty: 5 years

c US E360758 RoHS

Description

SS-420NM-V300A are 420W non-isolated constant current LED Driver with 108-382VAC. It has DIM to Off, high efficiency, isolated auxiliary power supply, Compatible with intelligent emergency controls,compact housing ,fullypotted , high reliability, high cost performance and other advantages.

Applications:

Shoebox Light, Linear high bay light, Flood lighting, Wall lamp

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Recommended Volltage	Iout	Default Current	THD (Typ.)	PF (Typ.)	Eff. (Typ.)	Max.Tc
SS-420NM-V 300A	108-382Vac	420W	180-300V	260V-300V	0.525-2.1A	1.4A	8%	0.97	97%	90°C

Note:

1.Default Tested: at 277Vac, full load, Ta 25°C.

2.The performance of the LED Driver can be guaranteed within the full power Vo range.The voltage lower than full power Vo range, it is need to test the performance with the LED module.

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“A” Means Additional Function

"*"	AUX 12V	Dimming off 0-10V/PWM/Resisto	adjust power (Single DIP)	Photosensitive control	NTC	Remark
A	✓	✓	✓	✓	✓	

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	120Vac		200Vac	Ta<45℃
	200Vac		347Vac	Ta<55℃
AC Input Range	108Vac		382Vac	Reference derating curve
Input DC Voltage Range	140Vdc		300Vdc	
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			4.2A	120Vac, Full load
Max Input Power			500W	120Vac, Full load
Max Inrush Current(120Vac)			100A	Cold start
Max Inrush Current(220Vac)			150A	Cold start
Max Inrush Current(347Vac)			230A	Cold start
Standby Power			0.5W	230Vac/50Hz, Dim-to-off
Power Factor	0.95	0.97		277Vac, Full load
	0.90			120-347Vac, 70%-100% load
THD		8%	10%	277Vac, Full load
			20%	120-347Vac,70%-100% load

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Output Characteristics:

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	180V		300V	Power derated @180-200V
Rated O/P Voltage	200V		300V	Po=Vo*Io=420W, Full load
Rated O/P Current	1.4A		2.1A	1.4A for 300V,2.1A for 200V
Adj. O/P Current (AOC)Range	0.525A		2.1A	
No Load Voltage			350V	
Efficiency @120Vac	92.0%	94.0%		Output 300V/1.4A
Efficiency @220Vac	94.0%	96.0%		Output 300V/1.4A
Efficiency @347Vac	95.0%	97.0%		Output 300V/1.4A
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			1.0S	120Vac,Full load
			0.75S	220Vac,Full load
Line Regulation	-5%		+5%	Full load
Load Regulation	-5%		+5%	
OTP	90°C	95°C	100°C	Drop current when OTP, and it can be automatically restored after the abnormality is removed.

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Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
Aux Power	O/P Voltage	10.8V	12V	13.2V	
	O/P Current			200mA	
0-10V Dimming (Optional)	Dim Vmax	0V		12V	DIM+ source current 110uA.
	Dim Range	10%Iomax		100%Ioset	Dimming prohibits reverse connection
	Rec.Dim Range	0V		10V	
10-0V Dimming (Optional)	Rec.Dim Range	0V		10V	DIM+ Maximum sink current is 40uA Dimming prohibits reverse connection. 5-0V by programming
PWM Dimming (Optional)	PWM High	9.8V		10.2V	DIM+ source current 110uA.
	PWM Low	0V		0.3V	Dimming prohibits reverse connection
	Frequency	1KHz		2KHz	
	PWM Duty	0%		100%	
Resistor Dimming (Optional)	Resistance	0Kohm		100Kohm	DIM+ source current 110uA.
	Dim Range	10%Iomax		100%Ioset	
0-10V Dim to Off	Dim off	0.7V	0.8V	0.9V	By DC voltage, PWM, resistance dimming ratio DIM-OFF without afterglow (Optional)
	Dim on	0.8V	0.9V	1.0V	
10-0V Dim to Off	Dim off	9.0V	9.2V	9.4V	
	Dim on	8.8V	9.0V	9.2V	
Dial adjustment	Current range	0.525A		2.1A	Dialing range can be set via PC software
Default light control	Shutdown Voltage	0V	1.0V	1.2V	Default: 5S action; time/voltage on, off can be set by PC software
	Turn-On Voltage	3.2V	3.5V	5.0V	
Intelligent Emergency Control (Optional, off by default)	Emergency switchover time	3S			AC power failure switching to battery power supply time
	Output Current		8%	10%	Emergency output current can be set via PC software
	Auto-exit time			2H	When the sensor does not detect a signal; configurable
	Access to emergency communications	4Hz duty cycle 25%, high level: 4-10V, low level: 0-0.3V			Duration 30S
	Withdrawal from emergency communications	1Hz duty cycle 25%, high level: 4-10V, low level: 0-0.3V			Duration 2H; configurable

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Other Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Timing Curve(Optional)	By programming			Set by program
Lifetime(Tc≤85°C)	≥50,000 hours			80% load
MTBF	200,450 hours			220Vac,Full load, Ta=25°C (MIL-HDBK-217F)
Tc	90°C			
Warranty	5 years			Tc 85°C
Net Weight	940g			
Dimension	275mm*55mm*34mm			L x Wx H

NOTE: All the parameters above are tested Ta 25°C and LED load, unless specified.

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Environmental Requirements

Parameter	Min.	Typ.	Max.	Remark
Operating Temperature(Tcase)	-40℃	25℃	+90℃	
Storage Temperature	-40℃	25℃	+90℃	
Operation Humidity	10%RH		90%RH	
Storage Humidity	5%RH		95%RH	
Altitude	-65m		4000m	

Safety and EMI/EMS Standards

Certification	Standard	Status	Remark
UL/cUL	UL8750	✓	
TUV	EN 61347-2-13 EN61347-1 EN62493		
RCM	AS/NZS61347.2.13		
BIS	IS15885:2012 Part 2 Sec 13		
CCC	GB 19510.14		
CE	EN 61347-2-13 EN61347-1		

EMI/EMS	Criterion	Remark
Conduction Emission	FCC Part15: Subpart B ANSI 63.4	Class B
Radiation Emission	FCC Part15: Subpart B ANSI 63.4	Class B
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	ANSI/C82.77-5	DM: 6kV,CM: 6kV,Criterion B
Ring Wave	ANSI/C82.77-5	DM: 6kV,CM: 6kV,Criterion B

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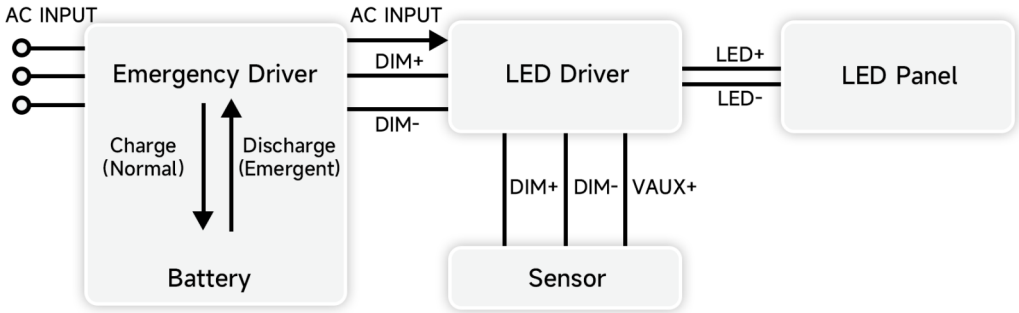
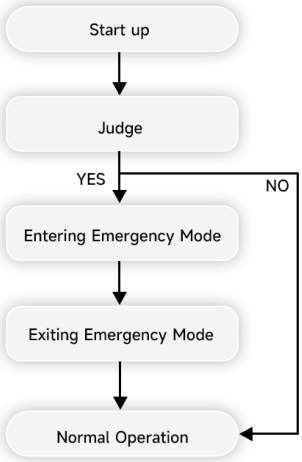
IEC (Intelligent Emergency Control) Description:

Connection Diagram



Emergency control logical diagram



Technical Specifications for Emergency Lighting Communication Protocol

(1) Definition of Communication Levels:Active High Level: 4V - 10V (ON); Active Low Level: 0V - 0.3V (OFF).
(2) Positive Duty Cycle of Communication Signal: 25%.
(3) Entering Emergency Mode:The emergency driver supply will send a signal with 4Hz and a duty cycle of 25% after entering the emergency state. The LED diver supply must continuously detect this signal four times (signal duration of 30 seconds) before entering the emergency mode.
(4) Exiting Emergency Mode:
Scenario 1: Upon restoration of AC driver, the emergency driver supply sends a signal with 1Hz and a duty cycle of 25%,The LED driver supply must continuously detect this signal four times to exit the emergency mode.Scenario 2: If it's timeout in the emergency state, the LED driver supply automatically exits the emergency mode after a default period of 2 hours (can be set) .

Notes:
In the absence of a detected signal from the sensor (dimming line is a short circuit), the LED driver supply automatically exits the emergency mode after 2 hours.To ensure timely exit from the emergency mode, upon sensor signal detection (releasing the short circuit on the dimming line), the emergency driver supply continues to send the 1Hz exit signal for 2 hours after detecting the restoration of AC driver.
The LED driver supply is equipped with an emergency function switch that can be enabled through our proprietary PC software (default setting is "off"). For obtaining relevant emergency certifications, compatibility with the emergency driver supply system during certification is required.
When the emergency function is used, and the system is operating under no-load conditions or with the "Dim-off" function enabled, the system should delay switching to battery for 15 seconds after AC power loss.

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Safety Test Items:

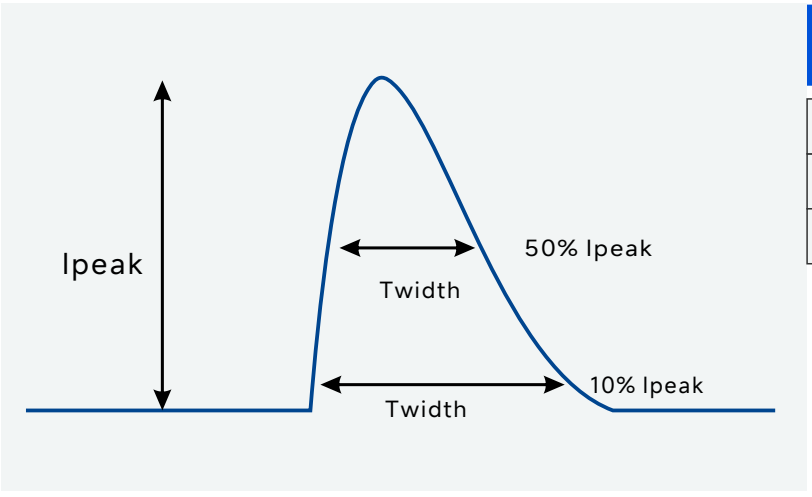
Safety Test Items	Technical Indicators			
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	TUV Insulation Requirements	
Input-Case	2U+1000Vac	/	/	Basic insulation
Input-Dim	2U+1000Vac	/	/	Basic insulation
Dim-Case	500Vac	/	/	Basic insulation
Insulation Resistance	≥10MΩ			Input-Dim,Test voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min
Leakage Current	≤0.75mA			347Vac

NOTE:

1. SOSEN warrants the LED Driver itself complies with EMC standard. However, LED Driver's EMC should be re-checked when integrated into lighting systems due to unexpected interference of components.
2. Please short (ACL and ACN), (V+ and V-), (Dim+ and Dim - and Vaux+ and Vaux-)when Hi-pot test.

Performance Curves:

Input Inrush Current



Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	100A	420uS	200uS
220Vac	150A	420uS	200uS
347Vac	230A	420uS	200uS

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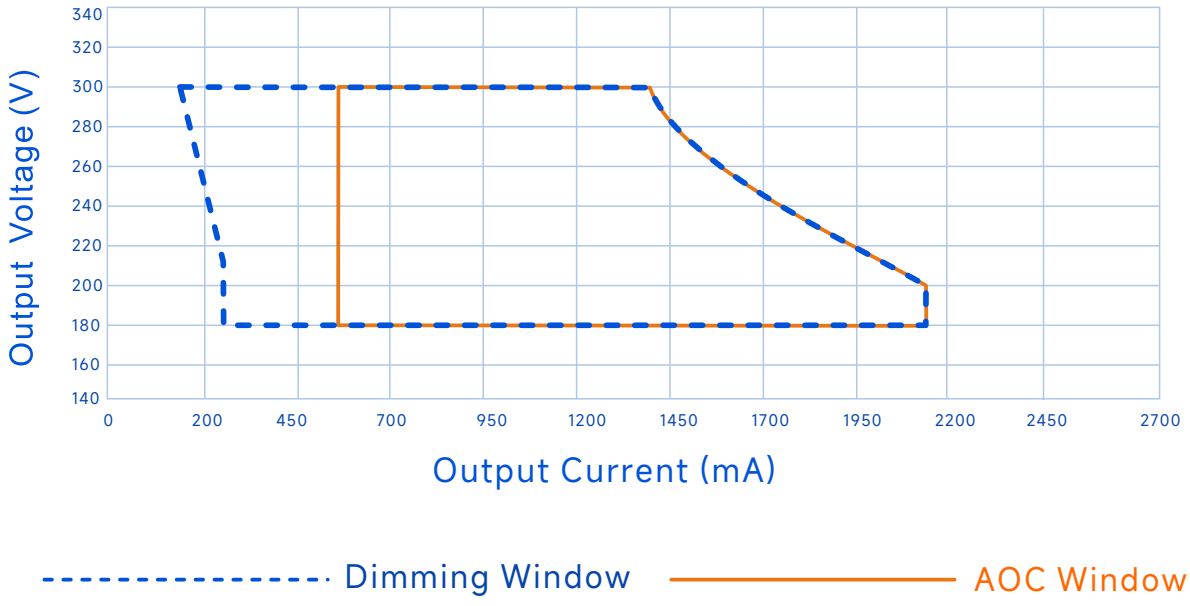
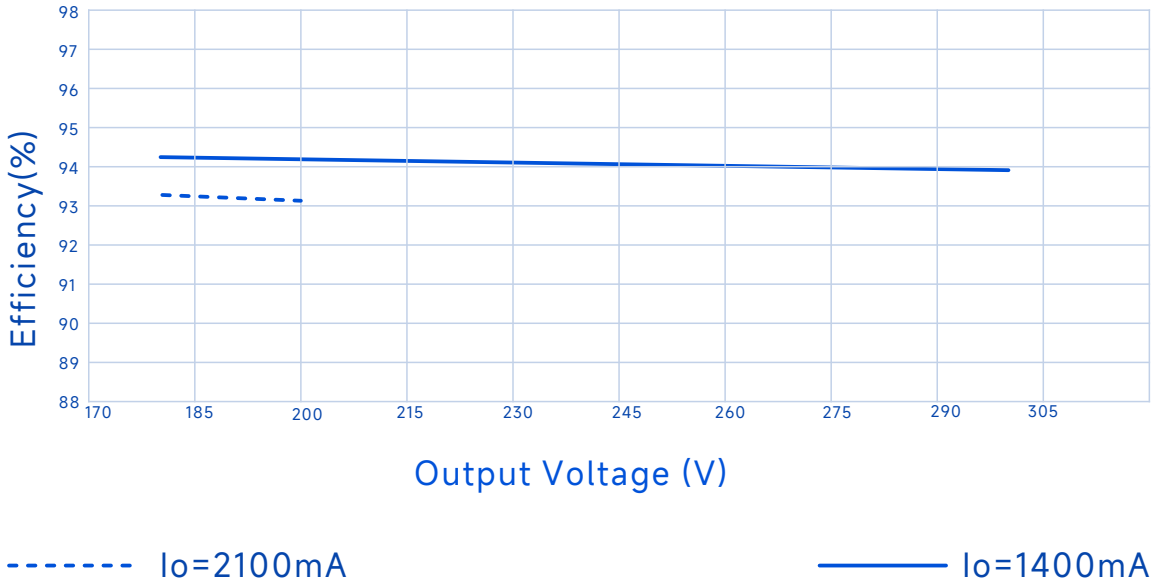
Performance Curves:

Output Voltage Vs. Output Current(Dim/AOC Window)



Efficiency Vs. Output Voltage (Vin=120Vac)



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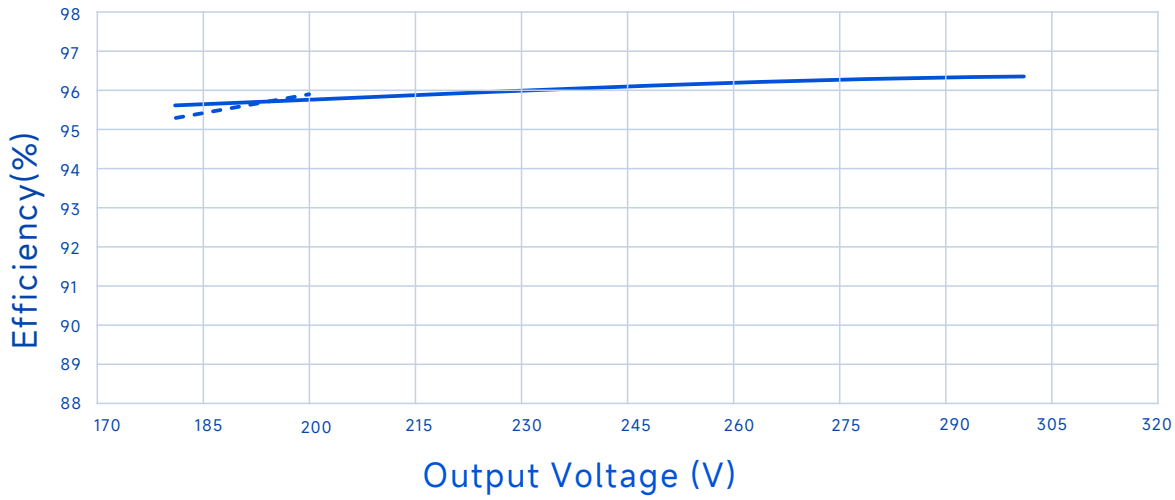
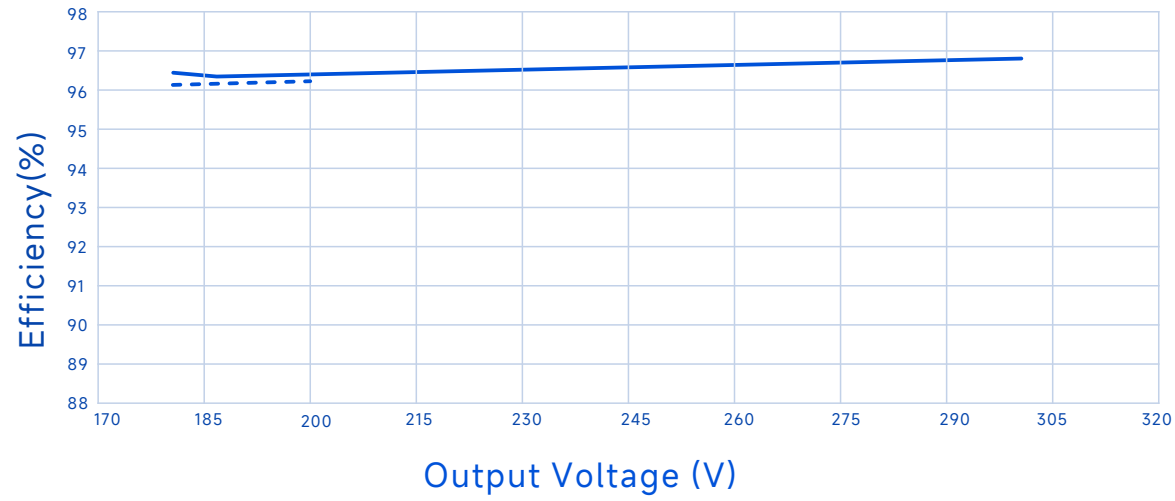
Performance Curves:

Efficiency Vs. Output Voltage (Vin=220Vac)



------- Io=2100mA ——— Io=1400mA

Efficiency Vs. Output Voltage (Vin=347Vac)



------- Io=2100mA ——— Io=1400mA

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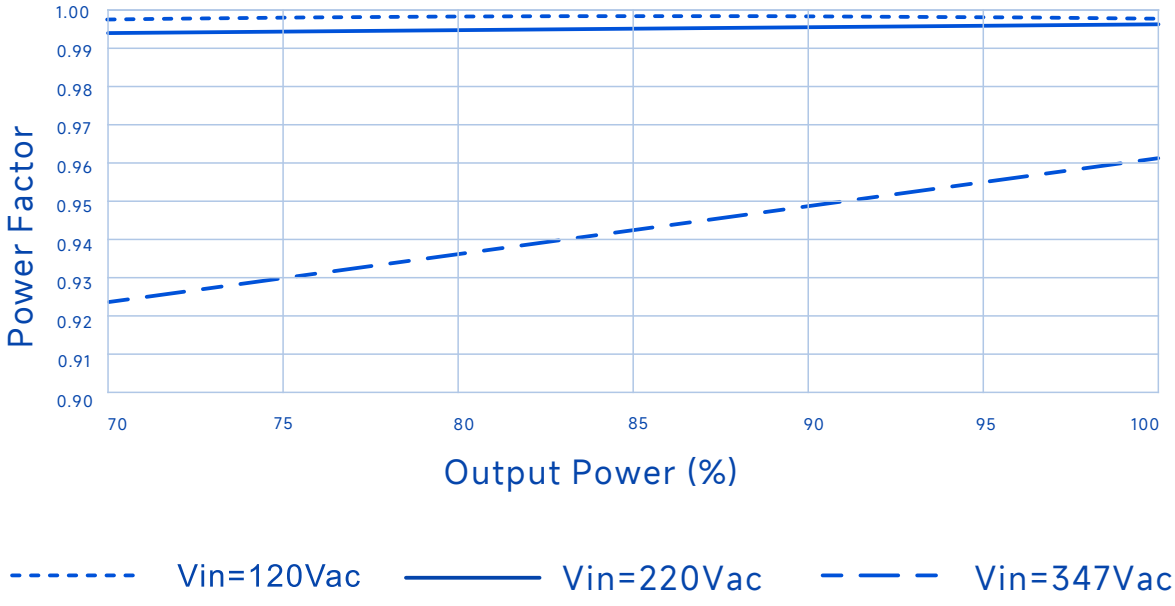
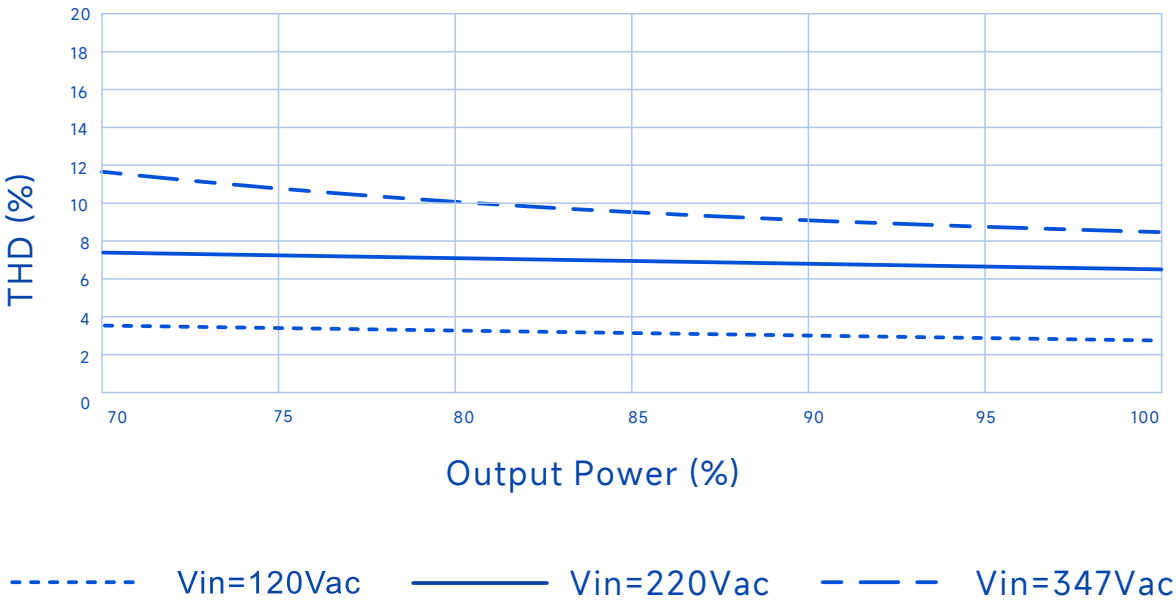
Performance Curves:

Power Factor Vs. Output Power



THD Vs. Output Power



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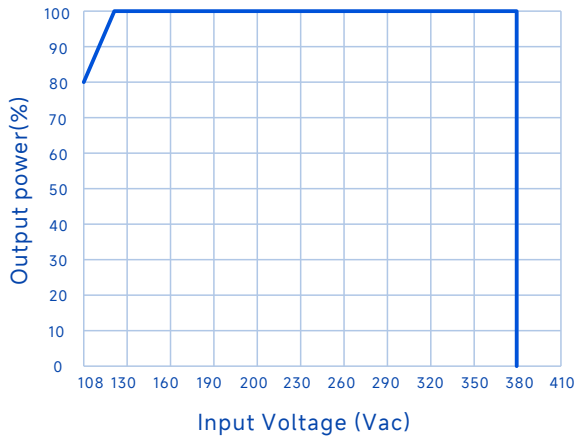
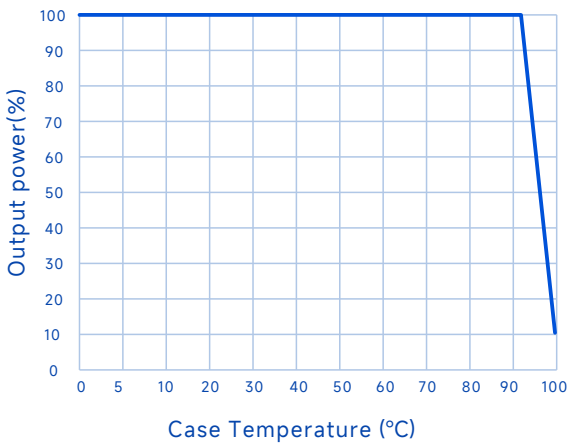
Performance Curves:

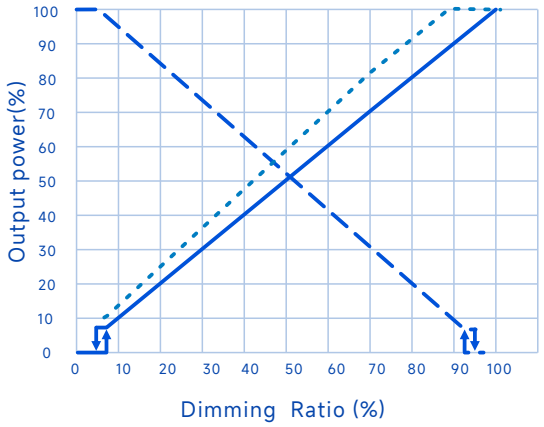
Output Power Vs. Input Voltage



Output Power Vs. Case Temperature

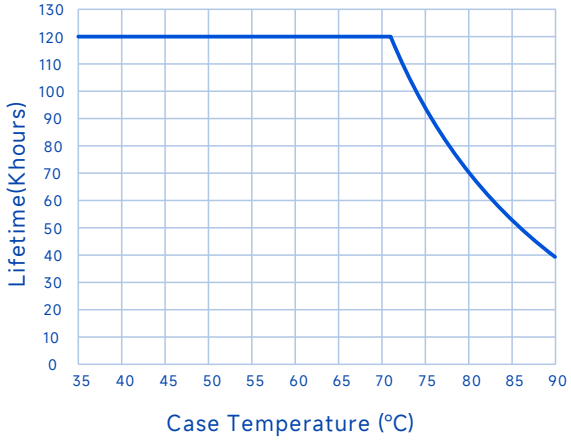


Output Power Vs. Dimming



0-10V,PWM
10-0V
Resistor Dimming

Lifetime Vs. Case Temperature



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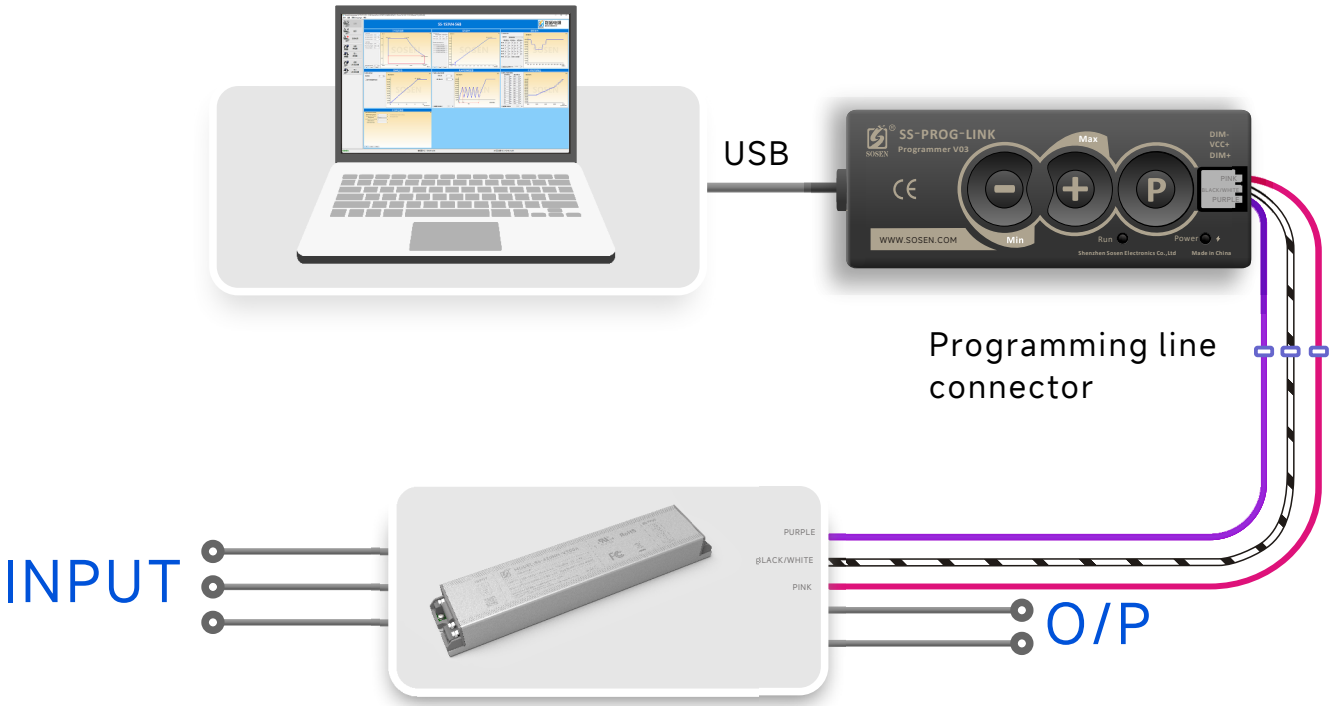
Programming connection diagram

Legacy Timer: Driver's O/P follows the pre-programmed timing curve after turn-on.
Auto-Adjust by Percentage: Driver's O/P will be adjusted by automatically changed dimming curve by the period percentage based on the latest 5 dimming curve.
Auto-Adjust by Mid-point: Driver's O/P will be adjusted by automatically changed dimming curve by mid-point based on the latest 5 dimming curve.



Note:

For details, please refer to the Sosen SS-PROG-LINK Programmer Manual.

Note:

1. During the programming process, all programming functions can be realized without powering on the driver.
2. All programming functions can be realized without powering off the drive that is currently in use.
3. It can be disconnected from the PC and offline programming can be implemented.

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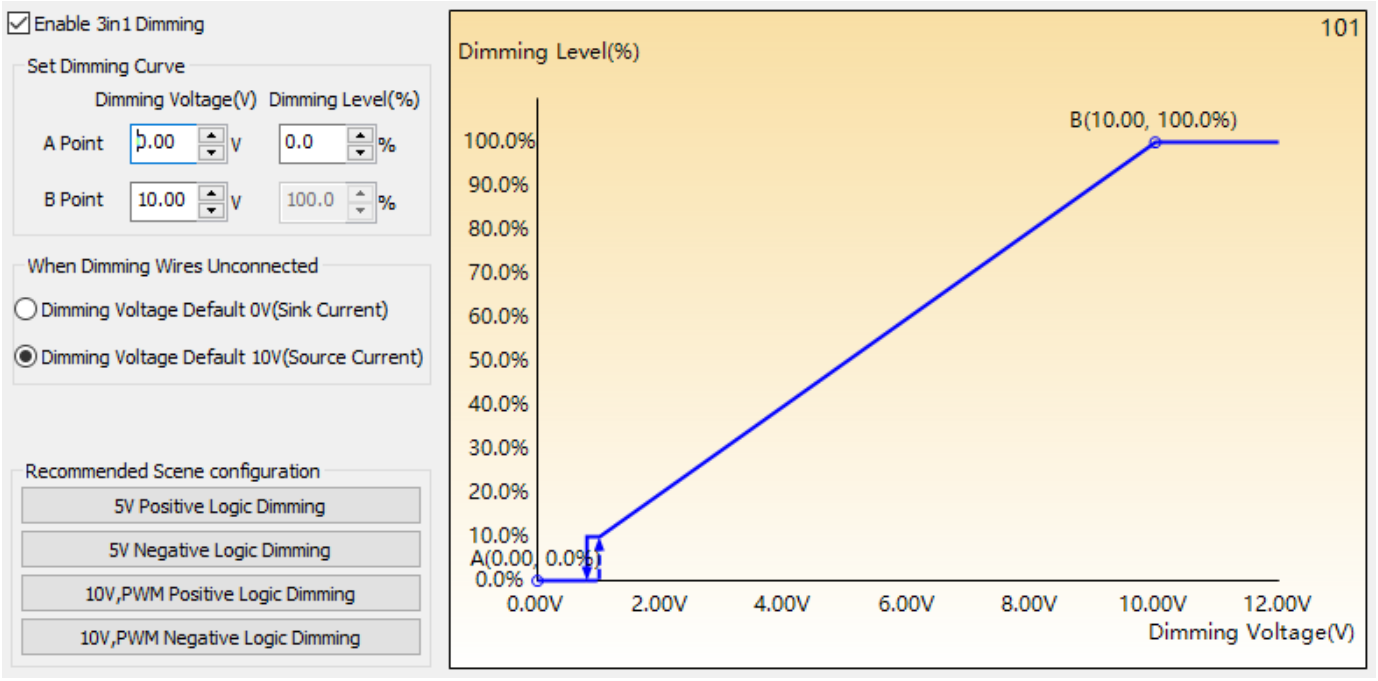
Parameter			Remark
Default setting	Positive logic dimming (0-10V)	Dimming voltage default 10V (source current)	
	Negative logic dimming (10-0V)	Dimming voltage default 0V (sink current)	
Dimming optional function	Positive logic dimming (0-10V)	Dimming voltage default 0V (sink current) Resistance dimming not available	When the dimming wire is not connected, the LED driver output is in the DIMOFF state
			For parallel dimming applications with multiple LED drivers, it is recommended to use the sink current mode (to be noted in the order)

Note:
Select "Dimming voltage defaults to 10V (source current)" / "Dimming voltage defaults to 0V (sink current)", which needs to be set according to the dimmer used by the end user.

Settings Interface



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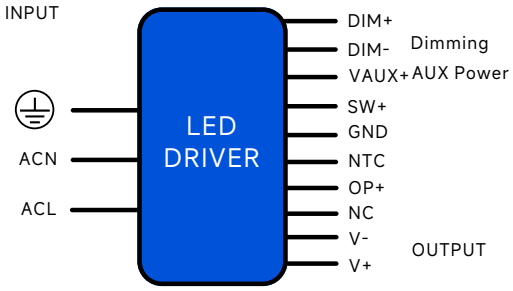
Mechanical Characteristics



AC Input Terminal

ACL: connect to L wire, ACN: connect to N wire,
⏚ :connect to earth wire

DC Input Terminal

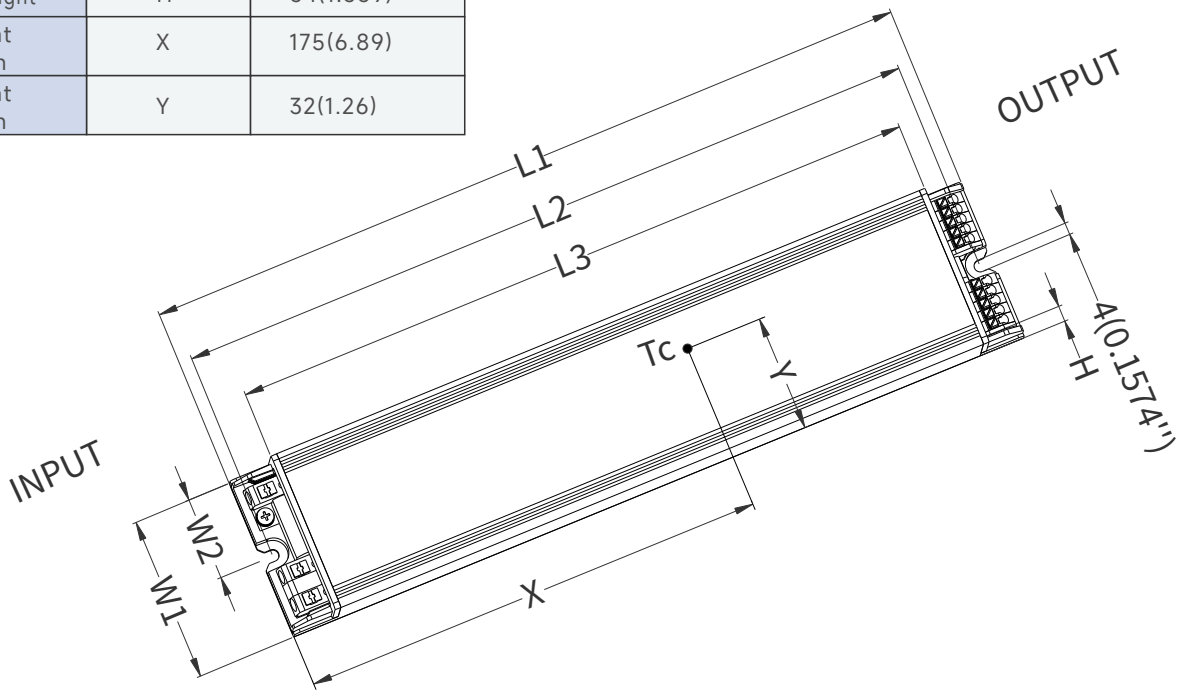
V+: light source board positive, V-: light source board negative

Function Terminal

DIM+:Dimming Positive, DIM-:Dimming Negative, VAUX+:Auxiliary Source, SW+:Dialing Power, GND:Negative, NTC:LED Over-temperature Protection, OP+:Light Sensing Function

Name Description	Standard Code	mm(In.)
Overall Length	L1	275(10.83)
Mounting Hole Length	L2	267(10.51)
Case Length	L3	248(9.76)
Case Width	W1	55(2.165)
Mounting Hole Width	W2	27.5(1.083)
Case Height	H	34(1.339)
TC Point Position	X	175(6.89)
TC Point Position	Y	32(1.26)

Note
1,Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.



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Assembly Tips

1. Please take isolation and waterproof measures if the dimming cable is not in use.
2. The withstand voltage between the LED chips and the aluminum substrate >3 kV.
3. Safety space between aluminum base and LED coppers >5mm.
4. Safety space/coppers between LED+ and LED- >1.8mm.
5. Minimize the copper area on the aluminum PCB to reduce parasitic capacitance and leakage current.
6. It is recommended to design LED beads in parllel first and then in series.
7. When using non-isolated power supplies, it is recommended to incorporate resistors or capacitors connected in parallel with the LED chips in the lamp board design to mitigate the risk of surge impacts.

Warning

Insufficient or compromised insulation voltage resistance in LED light panels may cause breakdown and short circuits to earth, resulting in damage to the luminaire and LED driver, and posing significant safety hazards. It is recommended to install a residual current device (RCD) during application.

Package

- Outside carton dimension: L×W×H =335mm×260mm×137mm;
- 12PCS/Carton;
- Net weight/Piece: 0.94kg;Gross weight/Carton: 12.155kg;
- Please refer to the product name, model number, manufacturer identification, QC PASS, manufacturing date on the package.

Transportation

Packaging is designed suitable for transportation by trucks, vessels and flights. The products should be avoided direct sunlight and rain, loaded/unloaded with caution.

Storage

The product storage meets the standard of the GB 3873-83.
Products should be rechecked if stored for over 1 year before assembly.

RoHS

Products comply with RoHS Directive (2011/65/EU) and amendment 2015/863/EU.

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Revision History

Version	Description of Update	Updated Date	Remark
V00	Original Release	2025/09/12	
V01	Add warning statements	2026/06/24	

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