

SOSEN LED Driver, Your Smart Choice

Specifications

SS-1500VP Series LED Driver

Model: SS-1500VP-XX

Description: 1500W LED Driver

Rev.: V02

Release Date: 2024-03-29

SS-1500VP Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

VP Series



Features:

- Efficiency up to 96%
- Dimming: 0-10V,PWM,Resistor
- Dim-to-Off
- Surge Protection: CM: 10kV, DM: 6kV
- AUX Power : 12V/0.3A
- Standby Power<0.5W
- IP67
- Communication Function With PC
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/OVP
- Warranty: 5 years



RoHS

IP67

Description:

SS-1500VP series are 1500W constant current LED Driver with wide O/P voltage range and adjustable O/P current by program. LED luminaries manufactures can easily design luminaries and reduce cost.

Application:

Horticulture lighting

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vout Range	Iout	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-1500VP-56*	90-305Vac	1500W	36-56V	48-56V	3.15-31.25A	10%	0.95	95%	90°C

Note:

- 1.Default Tested: at 220Vac, 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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“★” Means Additional Function

“★”	DALI (suffix:D)	AUX 12V (suffix:H)	NTC (suffix:N)	Timing	0-10V/PWM Dim /Resistor (suffix:B)	Remark
BH		✓			✓	

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	100Vac		200Vac	Ta: 40°C
Rated AC Input Range	200Vac		277Vac	Ta: 45°C
AC Input Range	90Vac		305Vac	90-180Vac Automatic Power Reduction
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			9.8A	180Vac, full load
Max Input Power			1764W	180Vac, full load
Max Inrush Current(120Vac)			38A	Cold Start
Max Inrush Current(220Vac)			45A	Cold Start
Max Inrush Current(277Vac)			55A	Cold Start
Standby Power			0.5W	220Vac/50Hz, Dim to off
Power Factor	0.95	0.97		220Vac/50Hz, full load
	0.90			180-277Vac/50Hz, 60-100% load
THD		8%	10%	220Vac/50Hz, full load
			20%	180-277Vac/50Hz, 60-100% load

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O/P Characteristics(SS-1500VP-56*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	36V		56V	Power Derated @36-48V
Rated O/P Voltage	48V		56V	Po=Vo*Io=1500W, full load
Rated O/P Current	26.78A		31.25A	31.25A for 48V,26.78A for 56V
Adj. O/P Current (AOC)Range	3.15A		31.25A	By Programming
No Load Voltage			60V	
Efficiency @120Vac	90.5%	92.0%		O/P 56V/17.9A, 66.6% load(1000W)
Efficiency @220Vac	93.5%	95.2%		O/P 56V/26.78A
Efficiency @277Vac	94.0%	95.5%		O/P 56V/26.78A
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			0.5S	120Vac,66.6% load(1000W)
			0.5S	220Vac,Full load
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	90°C	100°C	110°C	Drop current when OTP, and it can be automatically restored after the abnormality is removed.
Short Circuit Protection				Driver not be damaged, Hiccup mode

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Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
AUX Power	O/P Voltage	11.4V	12V	12.6V	
	O/P Current	0mA		300mA	The maximum output is 400mA after start-up, and the operation time does not exceed 15 minutes
0-10V Dimming (Optional)	Dim Vcc	0V		12V	Negative dimming by programming
	Dim Range	10%loset		100%loset	DIM+ source current 110uA .
	Rec.Dim Range	0V		10V	Dimming prohibits reverse connection.
PWM Dimming (Optional)	PWM High	9.8V		10.2V	Negative dimming by programming
	PWM Low	0V		0.3V	DIM+ source current 110uA .
	Frequency	1KHz		2KHz	Dimming prohibits reverse connection.
	PWM Duty	0%		100%	
Resistor Dimming (Optional)	Resistance	0K		100K	Not available with negative logic
	Dim Range	10%		100%	DIM+ source current 110uA .
Dim to Off	Dim off	7%	8%	9%	
	Dim on	8%	9%	10%	
Life Time($T_c \leq 75^\circ\text{C}$)		62,000 hours			80% Load
MTBF		198,200 hours			220Vac,full load, $T_a=25^\circ\text{C}$ (MIL-HDBK-217F)
IP Grade		IP67			
T_c		90°C			
Warranty		5 years			$T_c: 75^\circ\text{C}$
Net Weight		4200g			
Dimension		489mm*90mm*49mm			L x W x H

NOTE: 1,All the parameters above are tested $T_a 25^\circ\text{C}$ and LED load, unless specified.

2. When using resistor dimming (parallel connection of dimming wires), if the number of parallels is: N, the dimming resistor should be realized 0-100% dimming range, resistance value: $91\text{K}\Omega/\text{N}$.

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Environmental Requirements

Parameter	Min.	Typ.	Max.	Remark
Operating Temperature(Tcase)	-40°C	25°C	+90°C	
Storage Temperature	-40°C	25°C	+90°C	
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	✓	
ENEC	EN 61347-1:2015/A1:2021 EN 61347-2-13:2014/A1:2017 EN IEC62384:2020	✓	
UKCA	EN 61347-1:2015/A1:2021 EN 61347-2-13:2014/A1:2017 EN 62493:2015	✓	
RCM	AS/NZS61347.2.13		
CCC	GB19510.1-2009;GB19510.14-2009		
CE	EN 61347-1:2015/A1:2021 EN 61347-2-13:2014/A1:2017 EN 62493:2015	✓	

EMI/EMS	Criterion	Remark
Conduction Emission	EN55015:2013+A1:2015 FCC Part 15 Subpart B; ANSI C63.4:2014	Class B
Radiation Emission	EN55015:2013+A1:2015 FCC Part 15 Subpart B; ANSI C63.4:2014	Class B
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC/EN 61000-4-5	DM: 6kV,CM: 10kV,Criterion B
	ANSI/C82.77-5-2017	DM: 6kV,CM: 6kV,Criterion B
Ring Wave	IEC/EN 61000-4-12	DM: 6kV,CM: 6kV,Criterion B

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Safety Test Items:

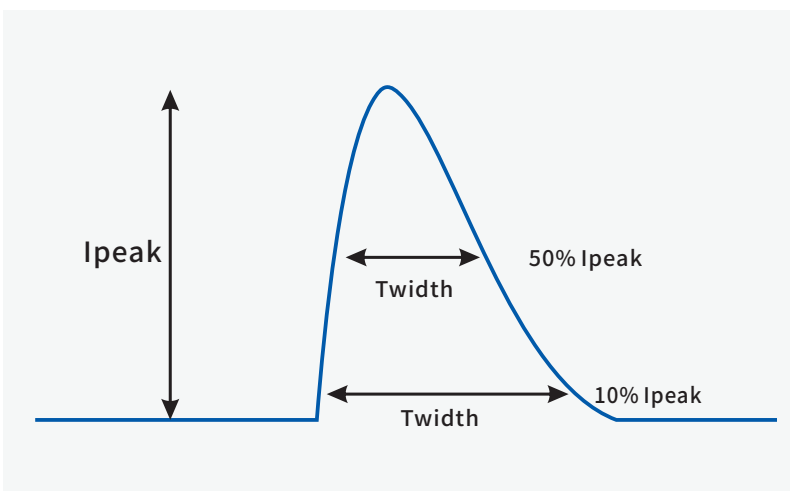
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-O/P	1600Vac	3000Vac	/	Reinforced insulation
Input-Case	1600Vac	1500Vac	/	Basic insulation
Input-Dim	1600Vac	3000Vac	/	Reinforced insulation
O/P-Dim	1600Vac	1000Vac	/	Basic insulation
O/P-Case	1600Vac	1000Vac	/	Basic insulation
Dim-Case	500Vac	500Vac	/	Basic insulation
Insulation Resistance	$\geq 10M\Omega$			Input-O/P,Test voltage:500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min
Leakage Current	$\leq 0.75mA$			277Vac

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 as component.
2. Please short (ACL and ACN), (V+ and V-), (Dim+ and Dim - and Vaux+ and Vaux-) when Hi-pot test.
3. The CCC withstand voltage test needs to disconnect the built-in lightning protection tube.According to the IEC 60598-1:14 standard section 10.2, the “built-in lightning protection tube” can be marked on the nameplate to disconnect the discharge tube on testing.

Performance Curves:

Input Inrush Current

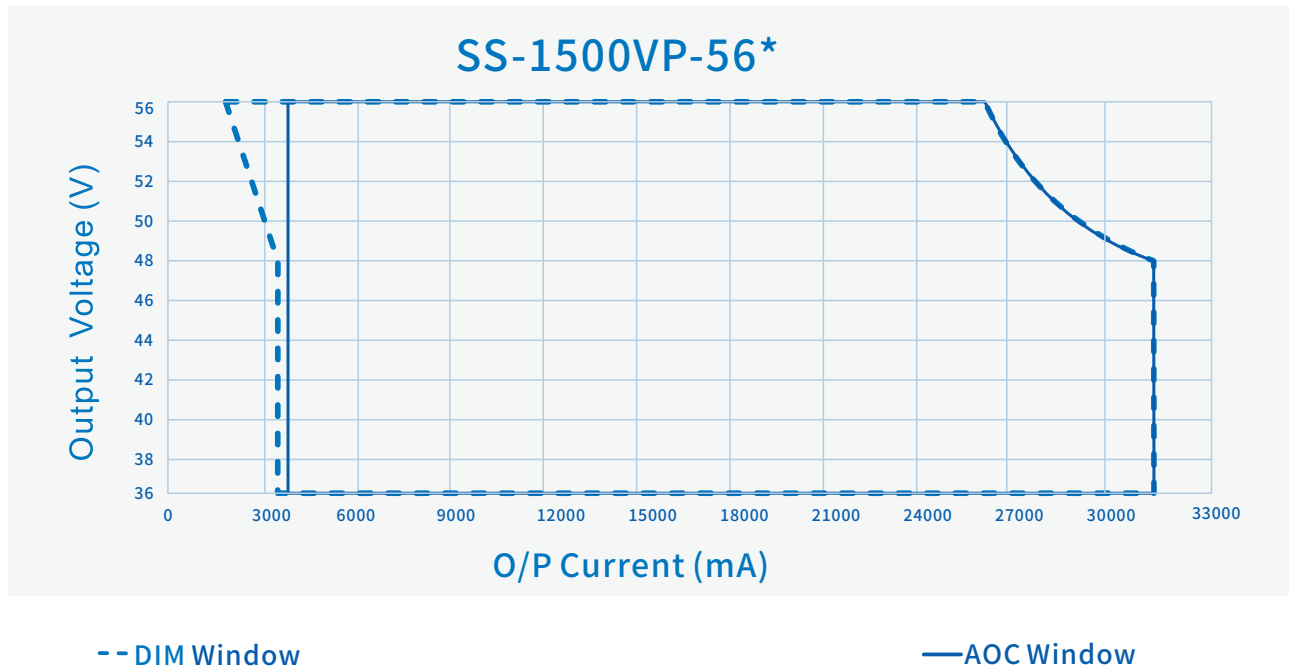


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	38A	13mS	3mS
220Vac	45A	15mS	4mS
277Vac	55A	16mS	4mS

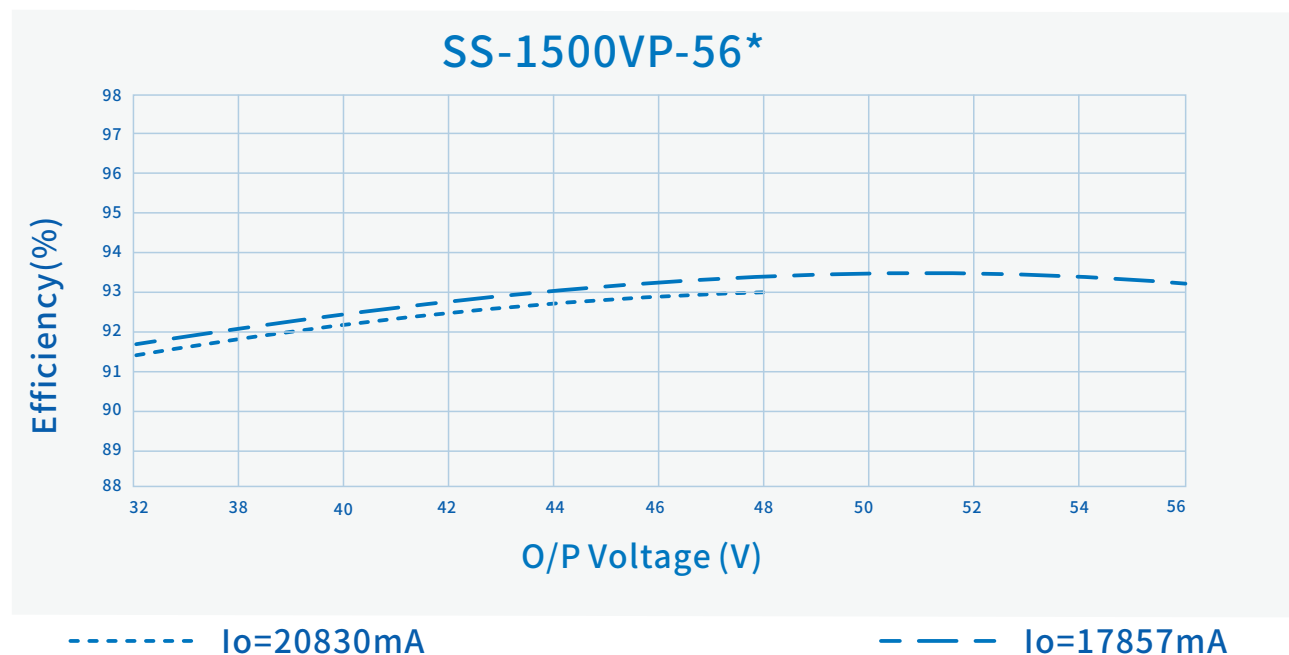
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Performance Curves:

O/P Voltage Vs. O/P Current(DIM/AOC Window)



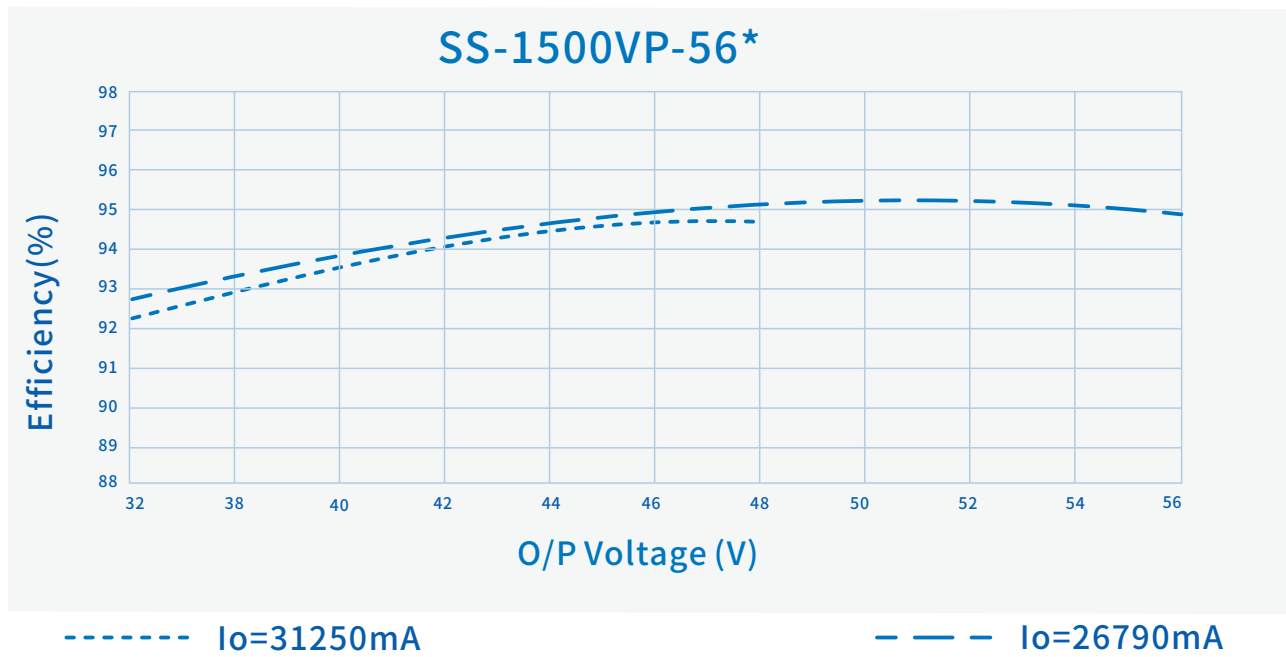
Efficiency Vs. O/P Voltage (Vin=120Vac)



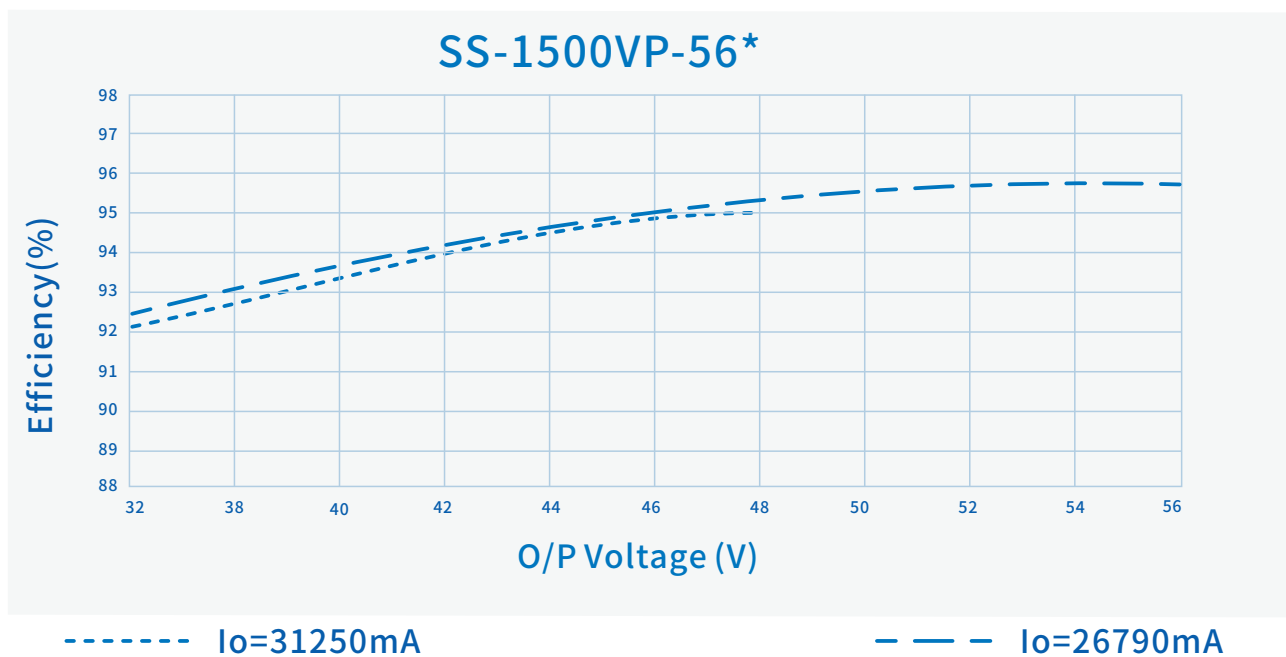
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Performance Curves:

Efficiency Vs. O/P Voltage ($V_{in}=220V_{ac}$)



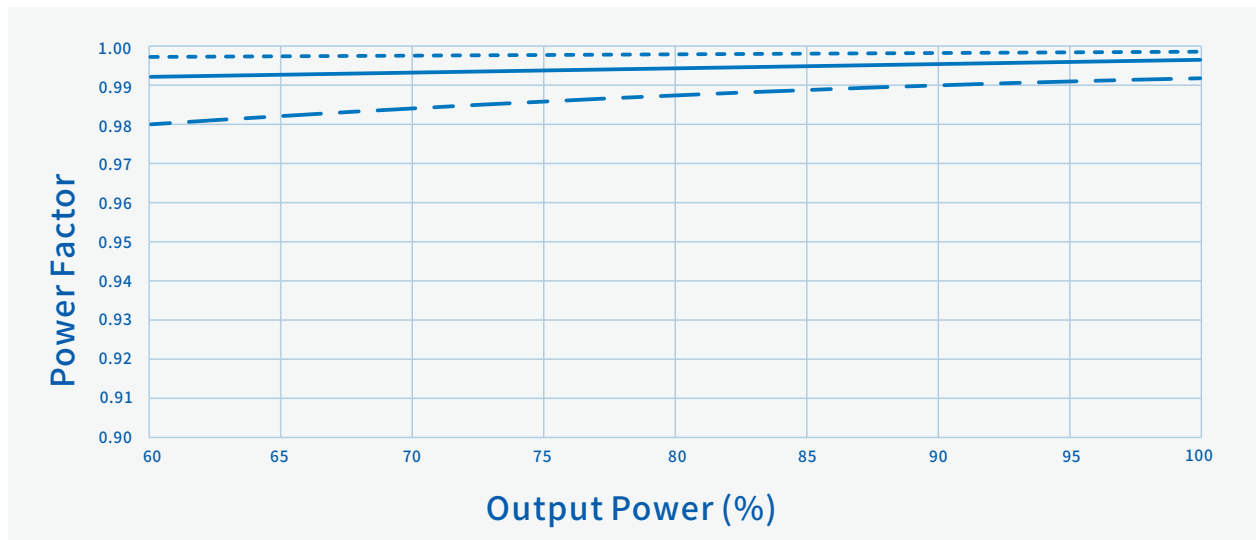
Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



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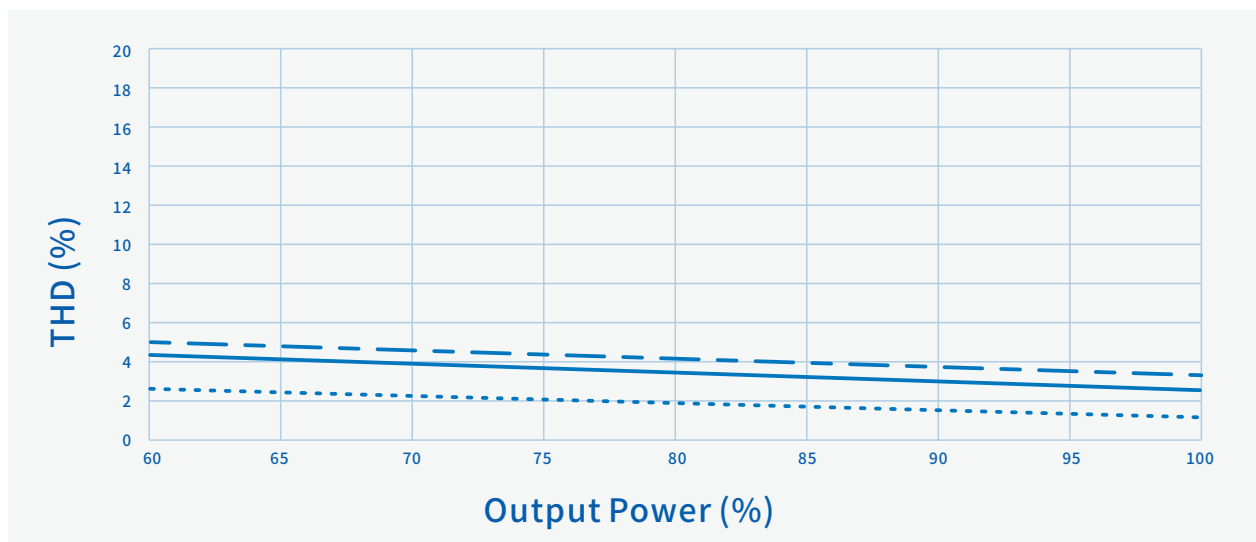
Performance Curves:

Power Factor Vs. O/P Power



----- Vin=120Vac ————— Vin=220Vac - - - - Vin=277Vac

THD Vs. O/P Power



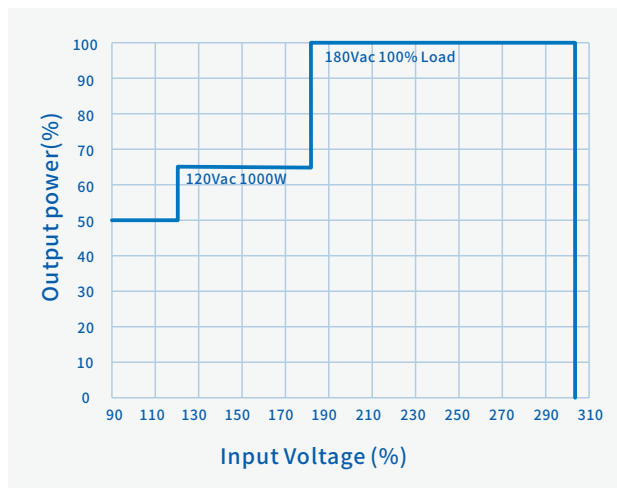
----- Vin=120Vac ————— Vin=220Vac - - - - Vin=277Vac

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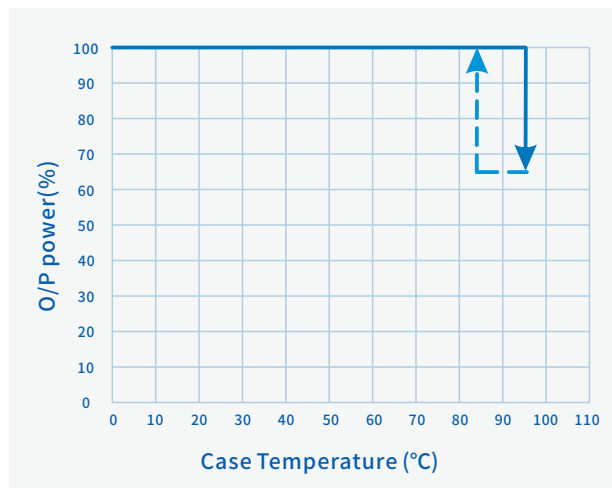
Performance Curves:

O/P Power Vs. Input Voltage

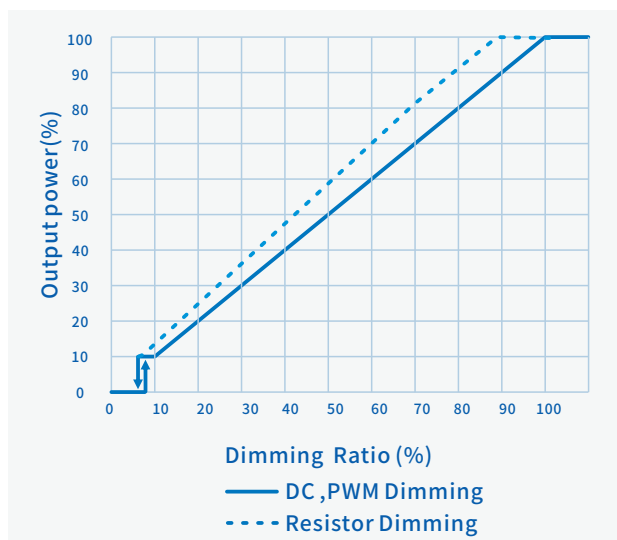
Note: Low voltage 90-180Vac automatic power reduction



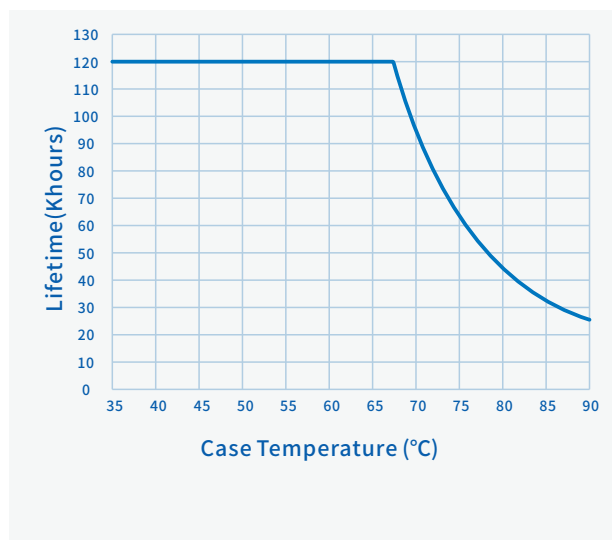
O/P Power Vs. Case Temperature



O/P Power Vs. Dimming



Life Time Vs. Case Temperature



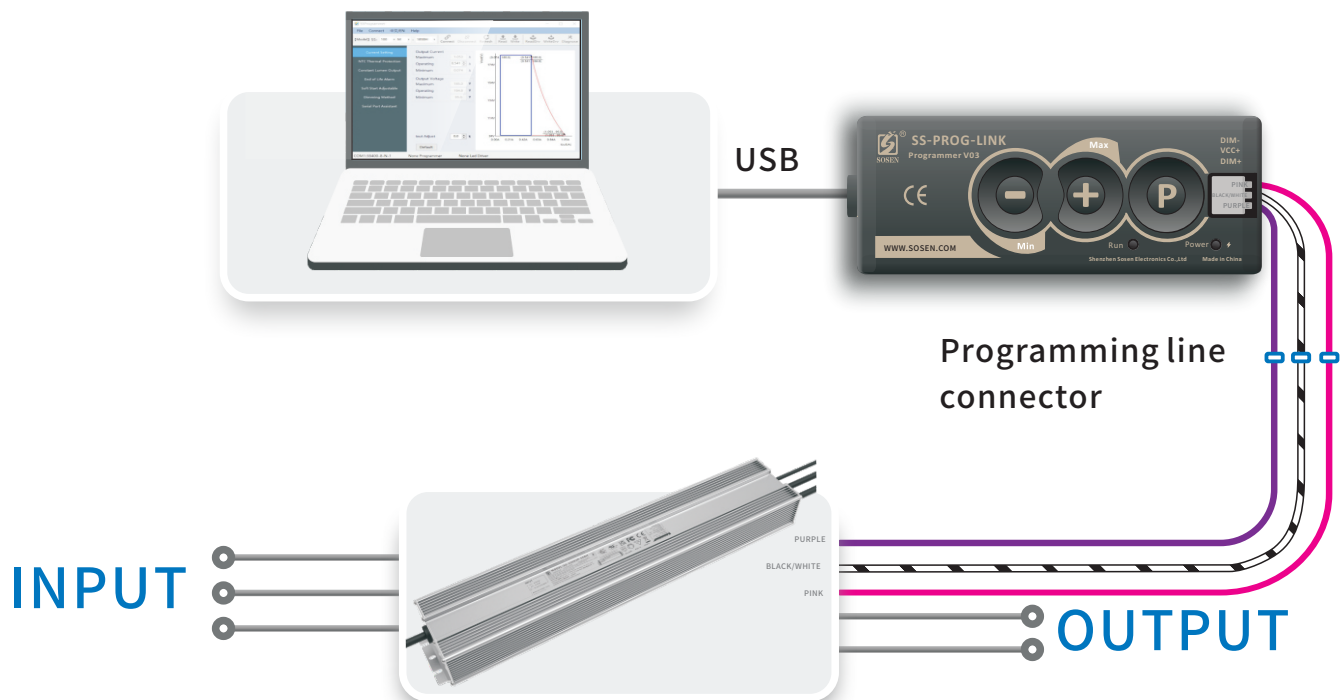
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Programming Connection Diagram:

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:

Programming could be completed by off-line mode either without turn on the Driver nor without PC, other than the traditional on-line mode.

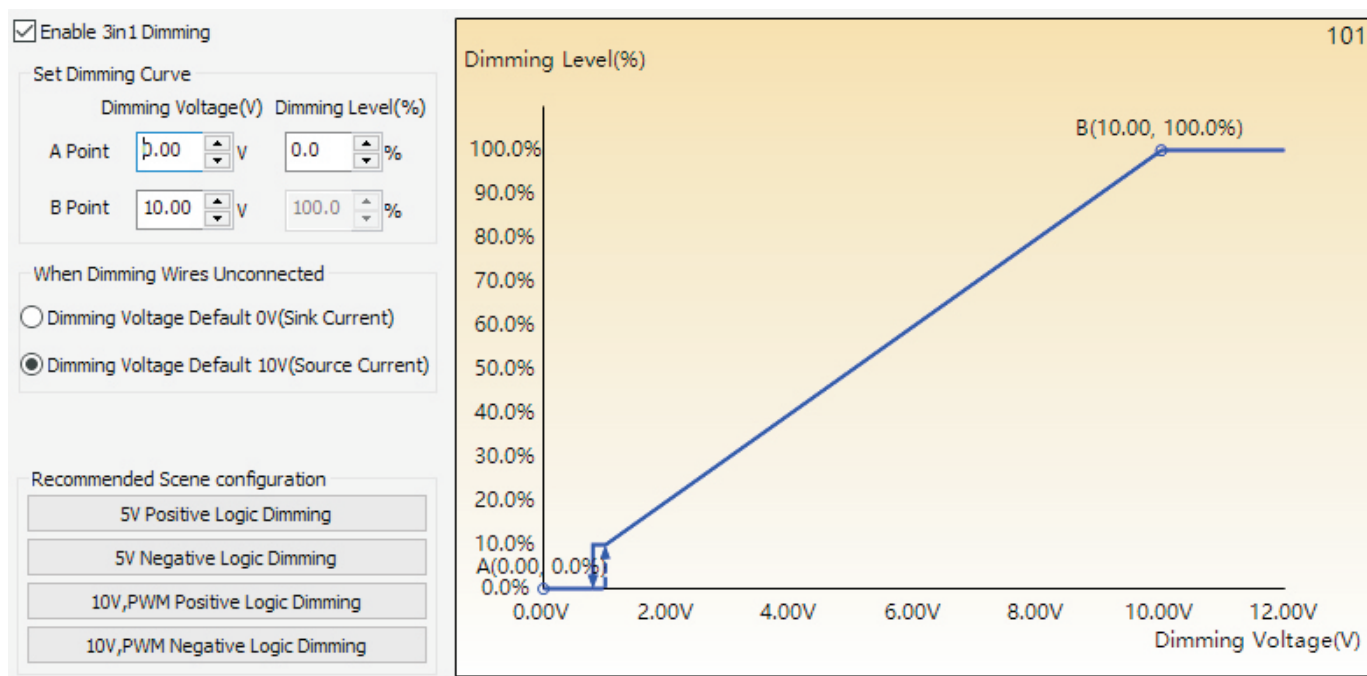
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Parameter			Remark
Default setting	Positive logic dimming (0-10V)	Dimming voltage default 10V (source current)	
	Negative logic dimming (10-0V)	Dimming voltage default 0V (sink current)	
Dimming optional function	Positive logic dimming (0-10V)	Dimming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

Note:

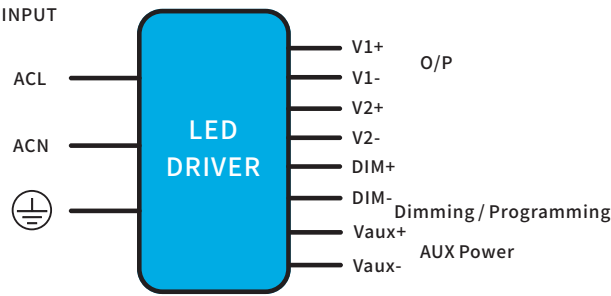
Select "Dimming voltage defaults to 10V (source current)" / "Dimming voltage defaults to 0V (sink current)", which needs to be set according to the dimmer used by the end user.

Settings Interface



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Mechanical Characteristics



AC Input Cable(Exposed Length $450\pm10\text{mm}$):

Global model: SJOW, 3*17AWG, O.D: 8.0mm, Brown: L, Blue: N, Yellow/Green: $\oplus$
UL model: SJTW, 3*16AWG, O.D: 8.5mm, Black:L, White:N, Green: $\oplus$

DC O/P Cable(Exposed Length $250\pm10\text{mm}$):

SS-1500VP-56*:
Global model: SJOW, 4*14AWG, O.D: 8.8mm, Brown: V+, Blue: V-
UL model: SJTW, 4*14AWG, O.D: 9.0mm, Red: V+, Black: V-

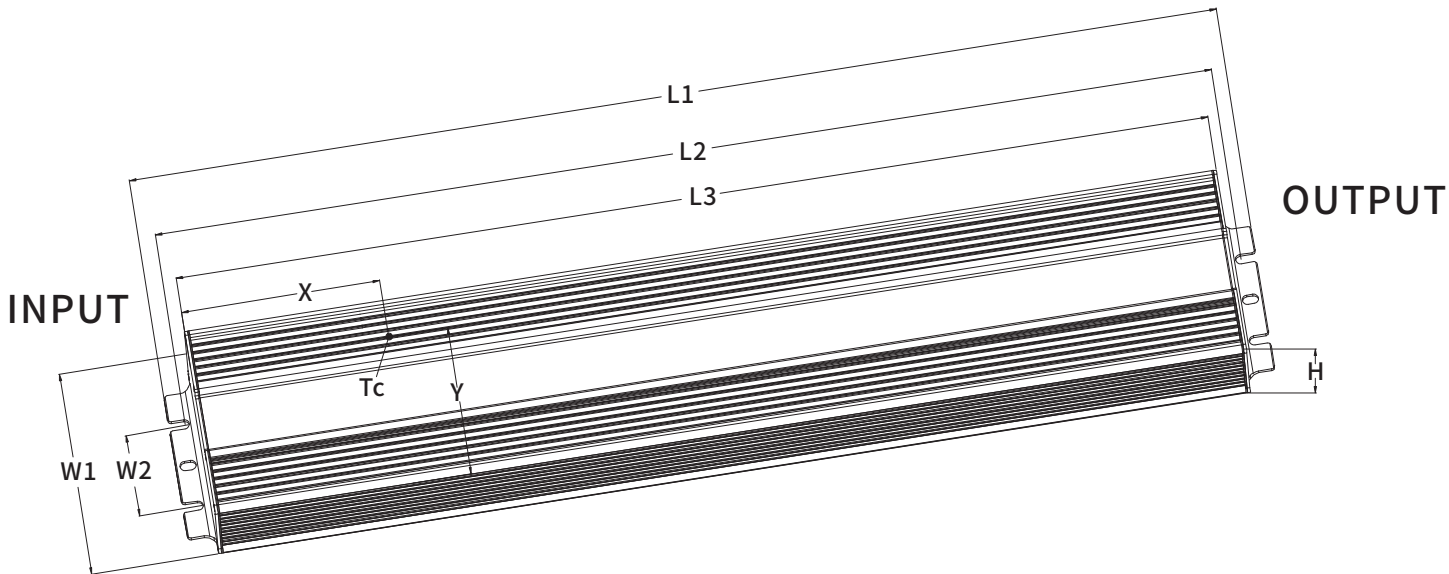
DIM/AUX Power/Programming Cable (Exposed Length $220\pm10\text{mm}$):

UL model: 21996, 4*22AWG, O.D: 5.6mm, Purple: DIM+, Pink: DIM-,
Black/White: Vaux+, Blue/White: Vaux-

Name Description	Standard Code	mm(In.)
Overall Length	L1	489(19.25)
Mounting Hole Length	L2	475(18.7)
Case Length	L3	464(18.27)
Case Height	H	49(1.93)

Note:
1, Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.
2, AC Input Cable, DC O/P Cable, DIM/AUX Power/Programming Cable: Peeled length of cable: $43\pm5\text{mm}$, Tinned length of wire: $10\pm2\text{mm}$
3, Two outputs V1/V2+, V1/V2- need to be installed and used simultaneously.

Name Description	Standard Code	mm(In.)
Case Width	W1	90(3.54)
Mounting Hole Width	W2	40(1.57)
TC Point Position	X	134(5.28)
TC Point Position	Y	76.5(3.01)



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Assembly Tips

1. Please take isolation and waterproof measures if the dimming cable is not in use.
2. In order to meet the requirements of the power derating and temperature performance, an auxiliary heat sink must be added. It is recommended that the heat sink has a heat dissipation area of 1650cm^2 and volume of 825cm^3 . Thermal grease should be applied between led driver and the auxiliary heat sink to ensure the bottom of housing is in close contact with the heat sink.
3. Two outputs V1/V2+, V1/V2- need to be installed and used simultaneously.

Package

- Outside carton dimension: $L \times W \times H = 577\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 5PCS/Carton;
- Net weight/Piece: 4.2kg; Gross weight/Carton: 23kg;
- 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.

Revision History

Version	Description of Update	Updated Date	Remark
V00	Original Release	2023/12/11	
V01	Update Assembly Tips	2024/02/29	
V02	Update Weight	2024/03/29	