

SOSEN LED Driver, Your Smart Choice

Specifications

SS-680M Series LED Driver

Model: SS-680M-XXX

Description: 680W LED Driver

Rev.: V02

Release Date: 2025-12-16

SS-680M Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

M Series



Features:

- Efficiency up to 95%
- Dimming: 0-10V, PWM, Resistor, Timing
- Dim-to-Off
- Surge protection: CM: 10kV, DM: 6kV
- AUX Power: 12V/0.3A
- Constant Lumen O/P
- Standby Power < 1.5W
- IP67
- Communication function with PC
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/UVP
- Warranty: 5 years



CE IP67 Class P

Description:

SS-680M series are 680W constant current LED Driver with 180-528Vac input and wide O/P voltage range and adjustable O/P current by program. LED luminaries manufacturers can easily design luminaries and reduce cost.

Applications:

Stadium lighting, Square lighting, Plant lighting, Fish lighting,

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vo Range	Iout	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-680M-56BH	180-528Vac	680W	36-56V	48-56V	1.4-14.2A	8%	0.98	95%	90°C

Note:

1. Default Tested: at 347Vac, 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	200Vac		277Vac	<Ta:45°C
	277Vac		480Vac	<Ta:55°C
AC Input Range	180Vac		528Vac	Reference Derating Curve
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			4.1A	200Vac, Full load
Max Input Power			775W	200Vac, Full load
Max Inrush Current(220Vac)			25A	Cold start
Max Inrush Current(347Vac)			28A	Cold start
Max Inrush Current(480Vac)			32A	Cold start
Standby Power			1.5W	347Vac/60Hz, Dim-off
Power Factor	0.95	0.98		347Vac/60Hz, Full load
	0.90			220-480Vac, 80-100% load
THD		8%	10%	347Vac/60Hz, Full load
			20%	220-480Vac, 80-100% load

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O/P Characteristics(SS-680M-56BH):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	36V		56V	Power derated @36-48V
Rated O/P Voltage	48V		56V	$P_o = V_o \cdot I_o = 680W$, Full load
Rated O/P Current	12.1A		14.2A	14.2A for 48V, 12.1A for 56V
Adj. O/P Current (AOC) Range	1.4A		14.2A	Adjustable by program
No Load Voltage			60V	
Efficiency @220Vac	92.0%	94.0%		O/P 56V/12.1A
Efficiency @347Vac	92.5%	94.5%		O/P 56V/12.1A
Efficiency @480Vac	93.0%	95.0%		O/P 56V/12.1A
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	220-480Vac, 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	>Tc Typ., Current derating <Tc Min., Current recovery
Short Circuit Protection				Driver will 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			300mA	Operate max 15min at 400mA
0-10V Dimming (Optional)	Dim Vmax	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	Negative dimming by programming
	Dim Range	10%		100%	DIM+ source current 110uA .
Dim to Off	Dim off	6.5%	8%	9%	
	Dim on	7%	9%	10%	
Timing Curve(Optional)		By programming			
Life Time($T_c \leq 75^\circ\text{C}$)		62,000 hours			80% Load
MTBF		200,000 hours			347Vac, Full load, $T_a = 25^\circ\text{C}$ (MIL-HDBK-217F)
IP Grade		IP67			
Tc		90°C			
Warranty		5 years			Tc: 75°C
Net Weight		3105g			
Dimension		430mm*89.5mm*44.5mm			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	✓	
TUV	EN 61347-2-13:2014/A1:2017 EN 61347-1:2015 EN 62493:2015		
RCM	AS/NZS61347.2.13		
CCC	GB 19510.14-2009		
CE	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013	✓	

EMI/EMS	Criterion	Remark
Conduction Emission	EN55015:2013+A1:2015	Class B
Radiation Emission	EN55015:2013+A1:2015	Class B
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC/EN61000-4-5	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:

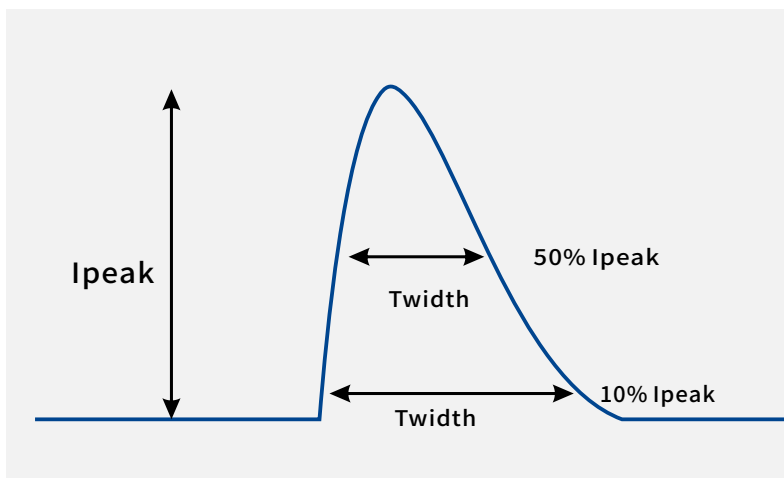
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	TUV Insulation Requirements	CCC Insulation Requirements	
Input-O/P	2U+1000	3000Vac	/	Reinforced insulation
Input-Case	2U+1000	1500Vac	/	Basic insulation
Input-Dim	2U+1000	3000Vac	/	Reinforced insulation
O/P-Dim	2U+1000	1000Vac	/	Basic insulation
O/P-Case	2U+1000	1000Vac	/	Basic insulation
Dim-Case	500	250Vac	/	Basic insulation
Insulation Resistance	$\geq 10M\Omega$			Input-O/P, Test voltage: 500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min
Leakage Current	$\leq 0.75mA$			480Vac

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- and STB) when Hi-pot test.
3. "U" means the maximum working voltage between testing terminals.

Performance Curves:

Input Inrush Current

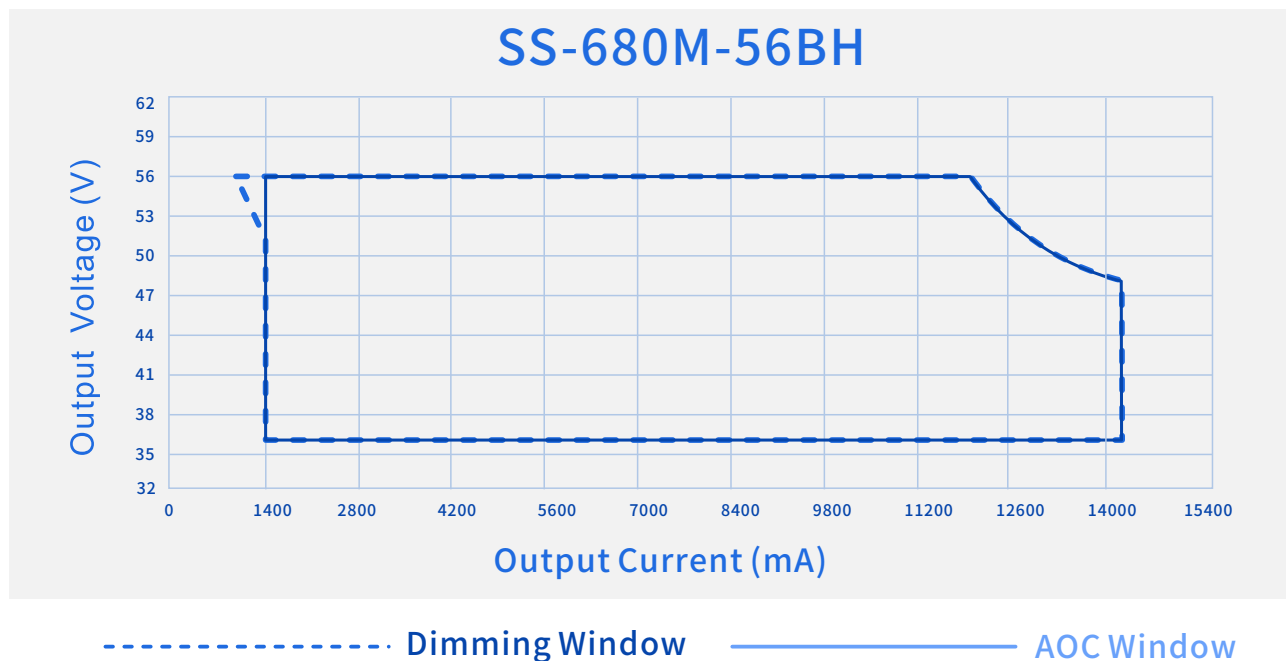


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	25A	3.9mS	
347Vac	28A	4.1mS	
480Vac	32A	4.3mS	

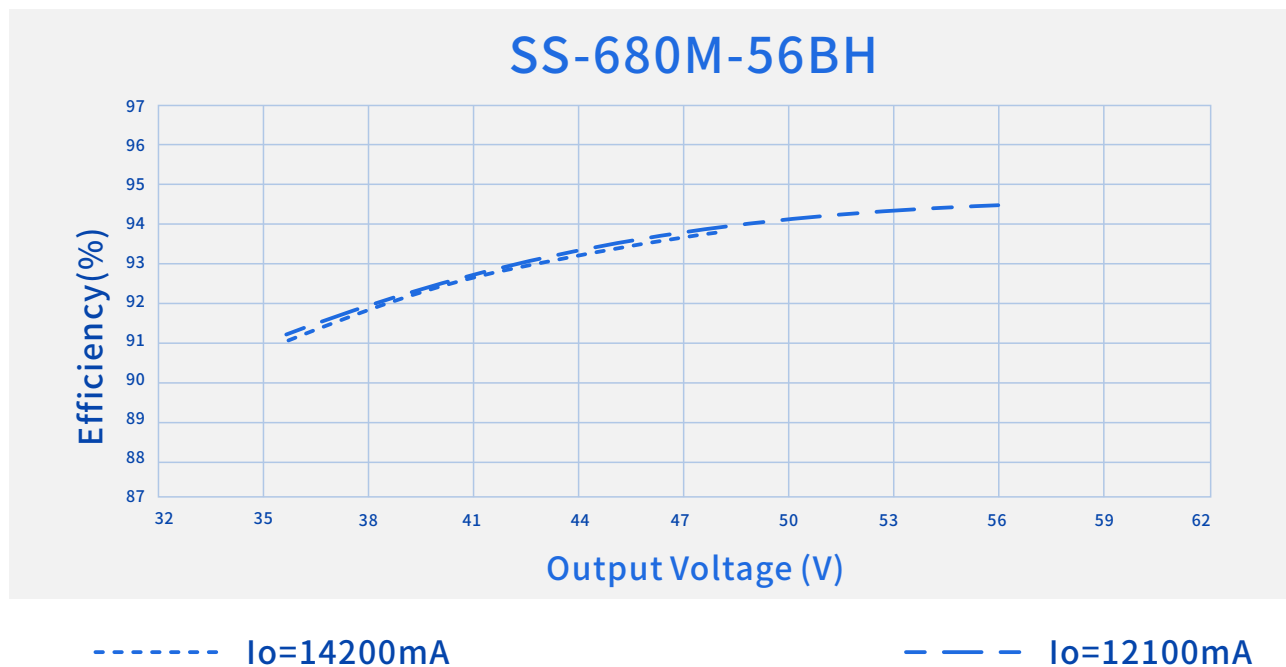
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Performance Curves:

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



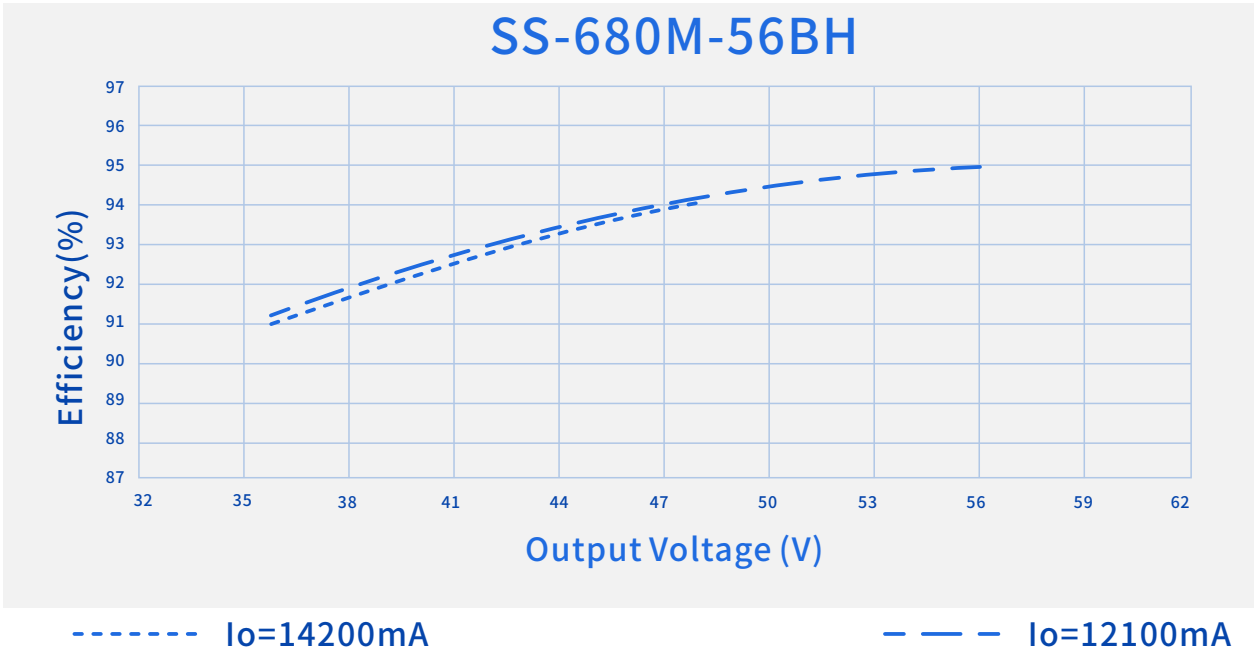
Efficiency Vs. O/P Voltage (Vin=220Vac)



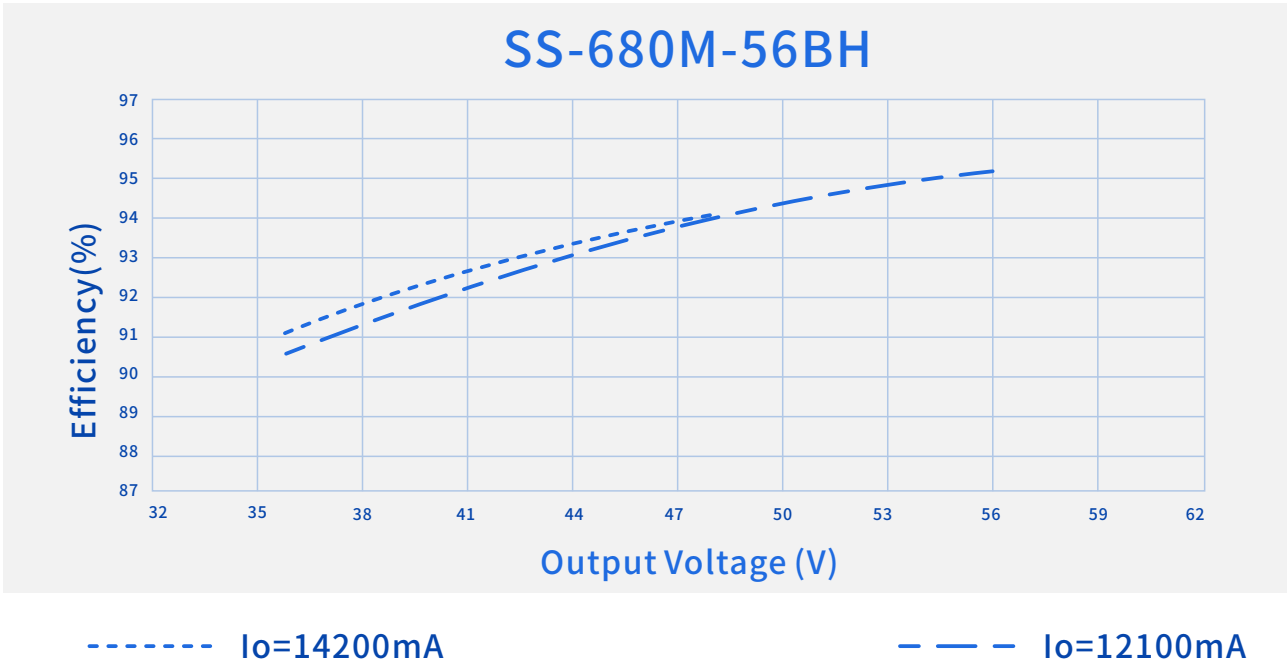
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Performance Curves:

Efficiency Vs. O/P Voltage (Vin=347Vac)



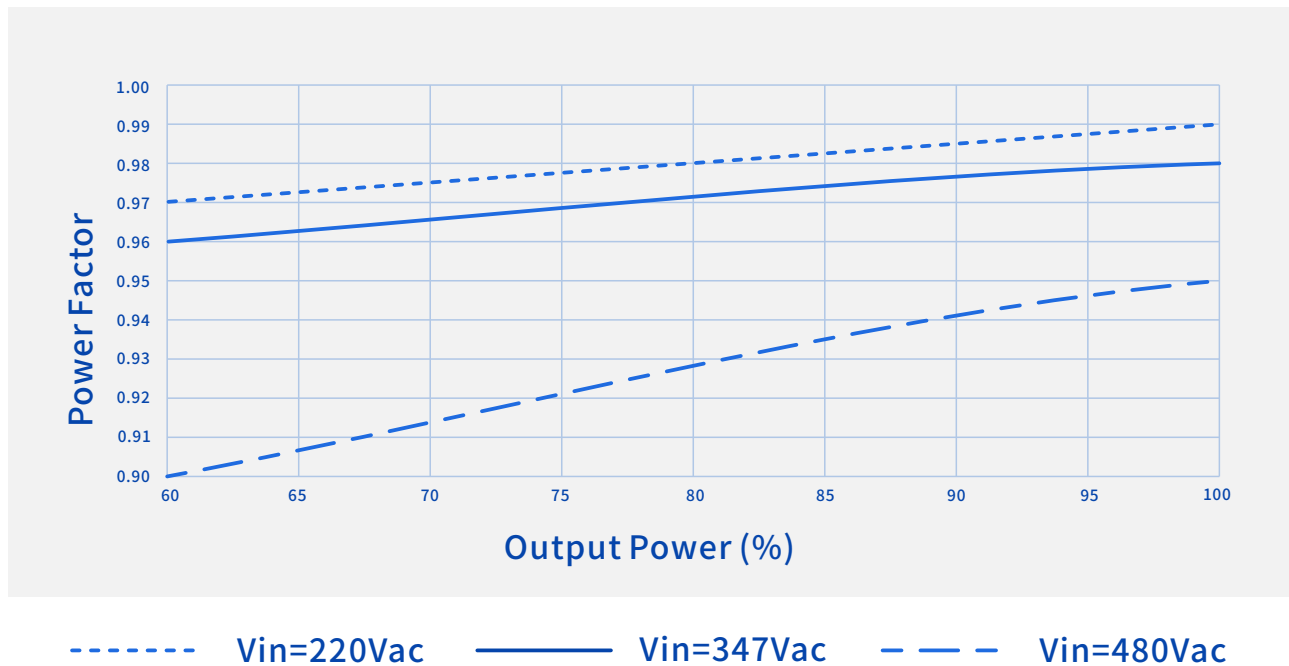
Efficiency Vs. O/P Voltage (Vin=480Vac)



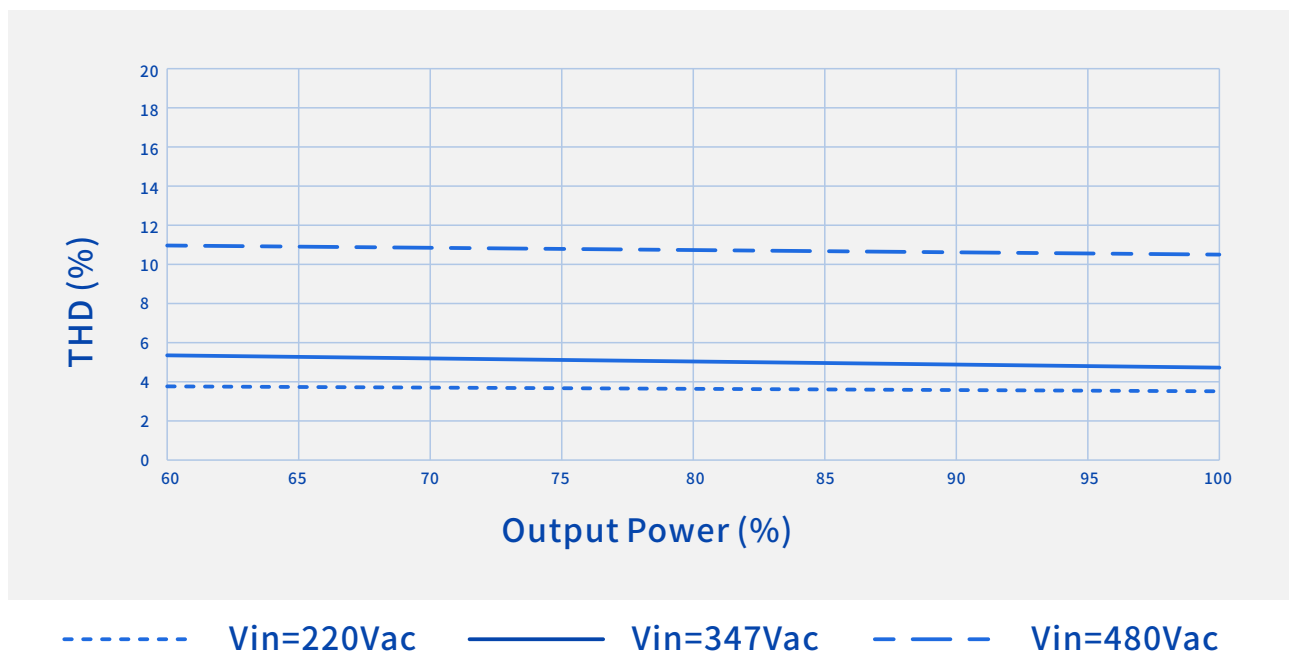
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Performance Curves:

Power Factor Vs. O/P Power



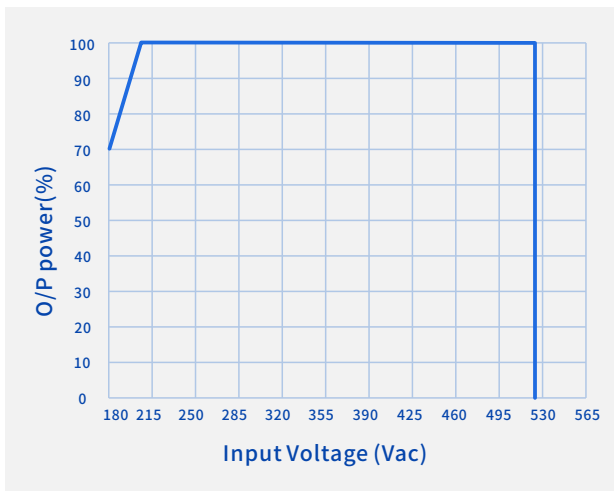
THD Vs. O/P Power



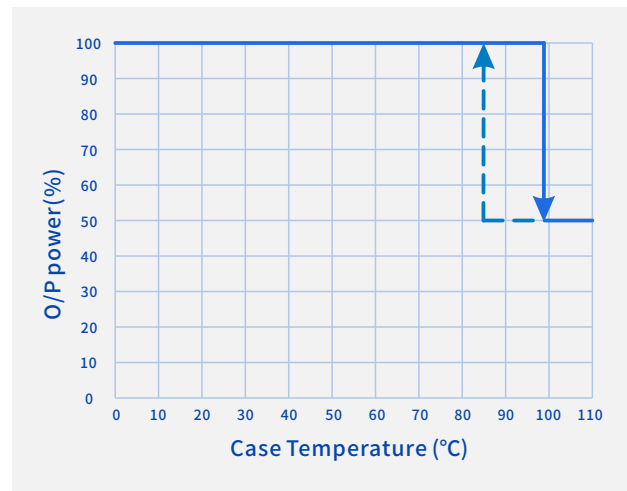
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Performance Curves:

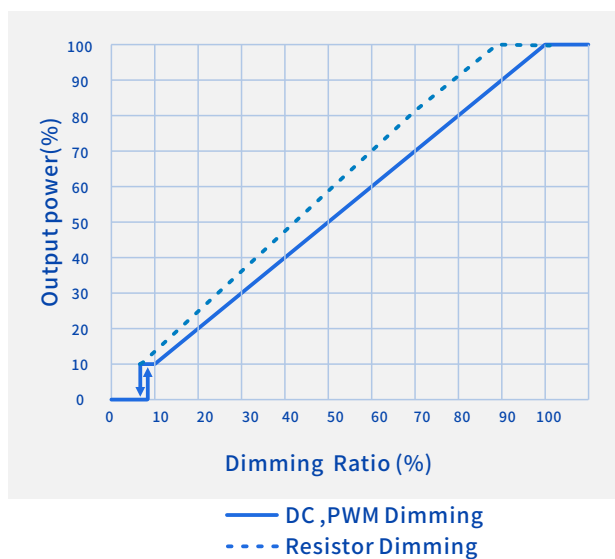
O/P Power Vs. Input Voltage



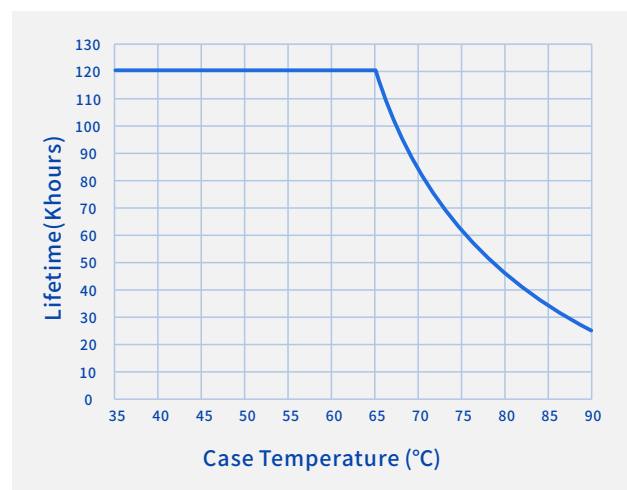
O/P Power Vs. Case Temperature



O/P Power Vs. Dimming



Lifetime Vs. Case Temperature



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Constant Lumen O/P

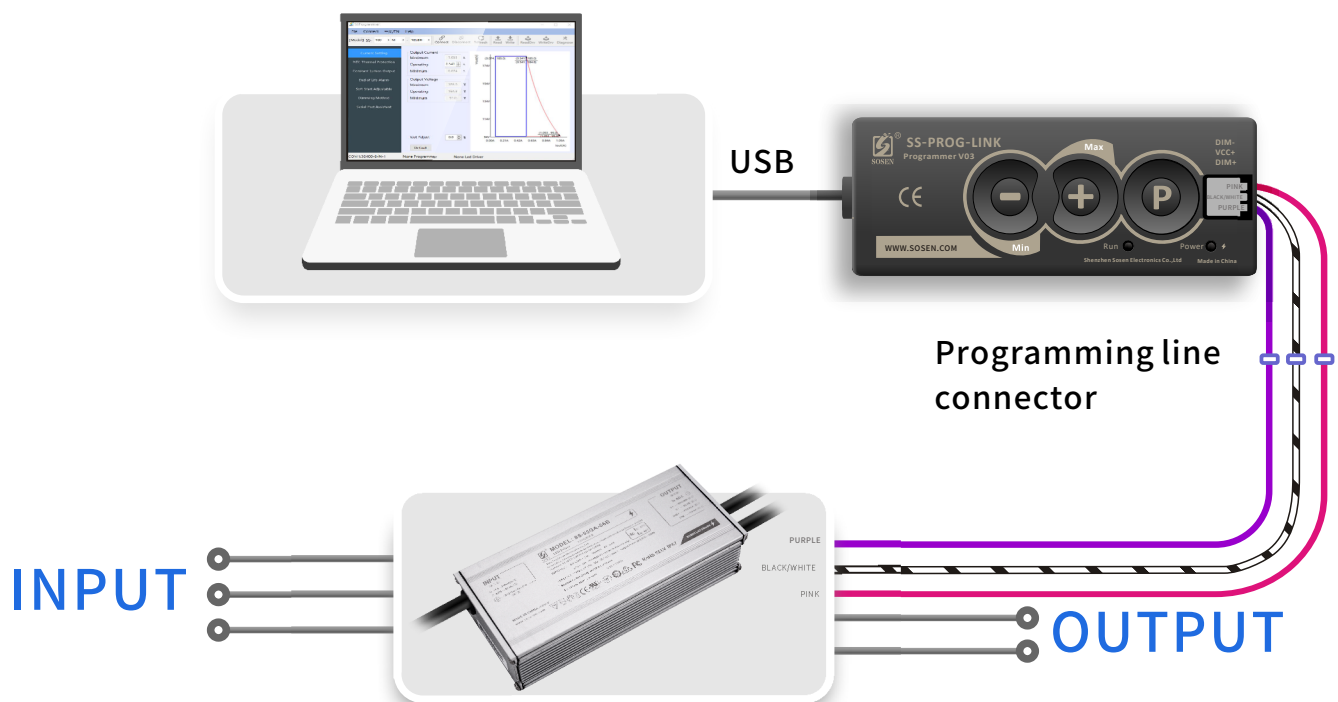
Constant Lumen O/P are design to maintain fixture's stable O/P lumen by increasing driver's O/P current within driver's life span to counteract LED lumen degradation.

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 or without PC, other than the traditional on-line mode.

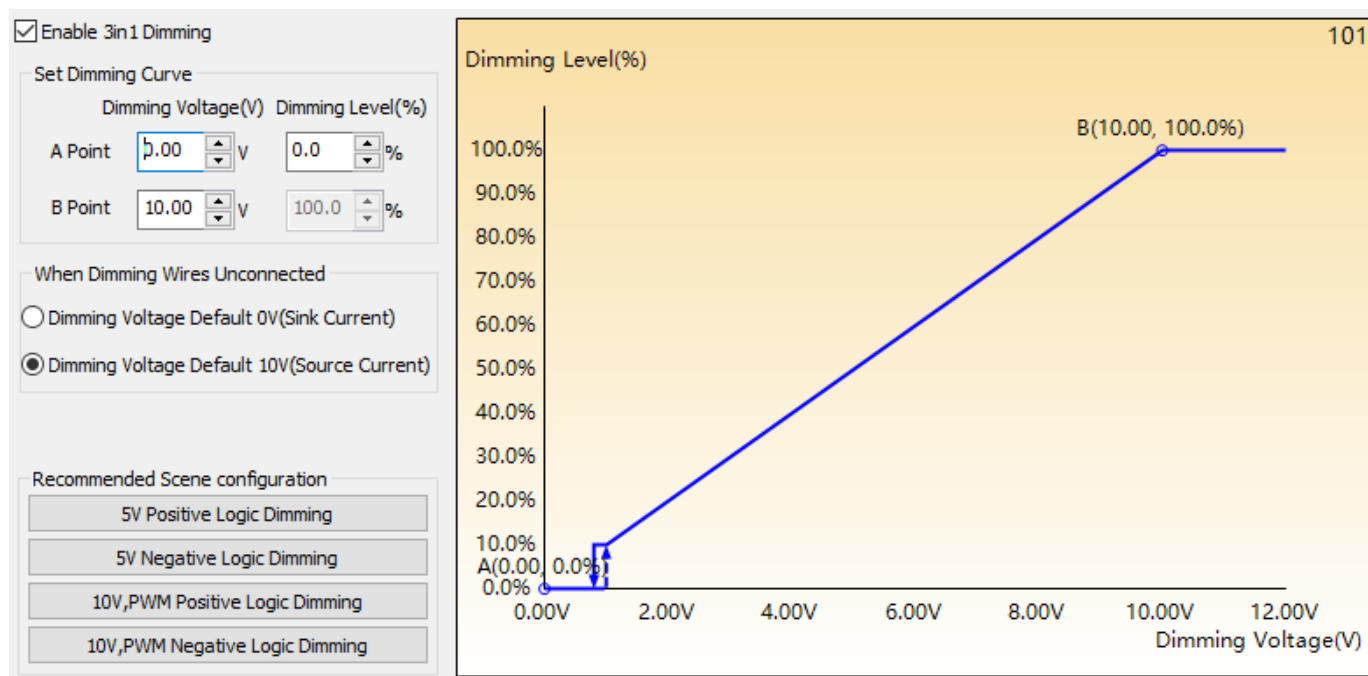
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Parameter			Remark
Default setting	Positive logic dimming (0-10V)	Dimming voltage default 10V (source current)	
	Negative logic dimming (10-0V)	Dimming voltage default 0V (sink current)	
Dimming optional function	Positive logic dimming (0-10V)	Dimming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

Note:

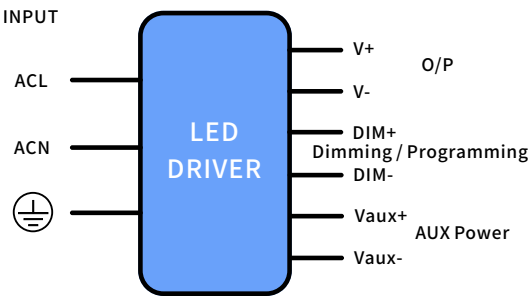
Select "Dimming voltage defaults to 10V (source current)" / "Dimming voltage defaults to 0V (sink current)", which needs to be set according to the dimmer used by the end user.

Settings Interface



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Mechanical Characteristics



AC Input Cable(Exposed Length 450±10mm):

UL model: STW,3*18AWG,O.D: 9.4mm,Black:L,White:N,Green:⊕
Global model: SQOW/H07RN-F,3*17AWG,O.D: 9.8mm,Brown:L,Blue:N,
Yellow/Green:⊕

DC O/P Cable(Exposed Length 250±10mm):

UL model: SJTW, 2*14AWG, O.D: 9.0mm, Red: V+, Black: V-
Global model: SJOW,2*14AWG,O.D: 8.8mm,Brown: V+, Blue: V-

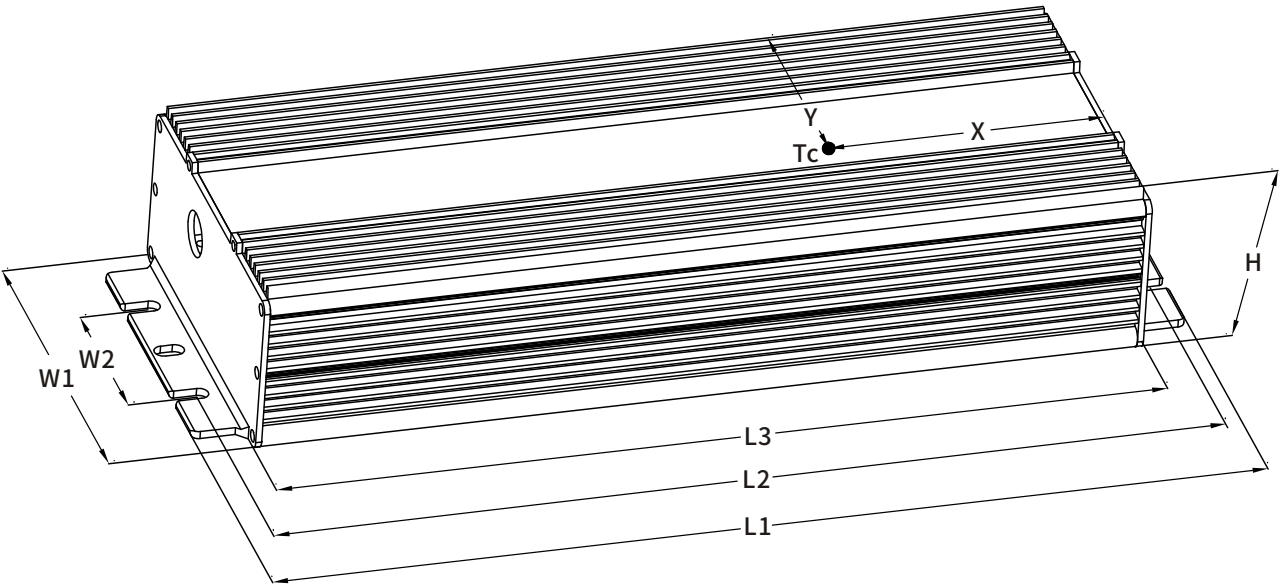
DIM/AUX Power/Programming Cable (Exposed Length 220±10mm):

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	430(16.93)
Mounting Hole Length	L2	416.5(16.4)
Case Length	L3	403.2(15.87)
Case Height	H	44.5(1.75)

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±5mm, Tinned length of wire:10±2mm

Name Description	Standard Code	mm(In.)
Case Width	W1	89.5(3.52)
Mounting Hole Width	W2	40(1.57)
TC Point Position	X	161(6.34)
TC Point Position	Y	46(1.81)



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Assembly Tips

1. Please take isolation and waterproof measures if the dimming cable is not in use.

Package

- Outside carton dimension: $L \times W \times H = 495\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 5PCS/Carton;
- Net weight/Piece: 3.105kg; Gross weight/Carton: 16.89kg;
- 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	2022/09/01	
V01	Add Page Number	2023/02/01	
V02	Update Maximum Input Power	2025/12/16	