

SOSEN LED Driver, Your Smart Choice

Specifications

SS-50VP Series LED Driver

Model: SS-50VP-XX

Description: 50W LED Driver

Rev: V07

Release Date: 2024-02-27

SS-50VP Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

VP Series



Features:

- Efficiency up to 87%
- Dimming: DALI-2, 0-10V, PWM, Resistor, Timing
- Dim-to-Off
- Surge Protection: CM: 10kV, DM: 6kV
- AUX Power : 12V/0.2A
- Constant Lumen, Life Warning
- External NTC to Protect LED Module
- Standby Power < 0.5W
- IP67
- Communication Function With PC
- Type HL, suitable for hazardous locations
- Protections: SCP
- Warranty: 8 years



Description:

SS-50VP series are 50W 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:

High bay lighting, Stadium lighting, Square lighting, Plant lighting, Fish lighting

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Working Voltage	Iout	Iout (DALI-2)	THD (Typ.)	PF (Typ.)	Eff. (Typ.)	Max.Tc
SS-50VP-56*	90-305Vac	50W	22-56V	32-56V	0.35-1.56A	0.87-1.56A	8%	0.95	86%	90°C
SS-50VP-72*	90-305Vac	50W	28-72V	36-72V	0.35-1.4A	0.78-1.4A	8%	0.95	87%	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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SS-50VP Series LED Driver

“★” Means Additional Function

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

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	100Vac		277Vac	
AC Input Range	90 Vac		305Vac	
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			0.7A	100Vac, full load
Max Input Power			70W	100Vac, full load
Max Inrush Current(120Vac)			60A	Cold Start
Max Inrush Current(220Vac)			140A	Cold Start
Max Inrush Current(277Vac)			180A	Cold Start
Standby Power			0.5W	220Vac/50Hz, Dim to off
Power Factor	0.95	0.97		220Vac/50Hz, full load
	0.90			277Vac/50Hz, 70-100% load
THD		8%	10%	220Vac/50Hz, full load
			20%	277Vac/50Hz, 70-100% load

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Output Characteristics(SS-50VP-56*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	22V		56V	Power Derated @22-32V
Rated O/P Voltage	32V		56V	Po=Vo*Io=50W, full load
Rated O/P Current	0.89A		1.56A	1.56A for 32V,0.89A for 56V
Adj. O/P Current (AOC)Range	0.35A		1.56A	By Programming
	0.87A		1.56A	For DALI-2
No Load Voltage			60V	
Efficiency @120Vac	84.5%	85.0%		Output 56V/0.89A
Efficiency @220Vac	85.5%	86.5%		Output 56V/0.89A
Efficiency @277Vac	85.5%	86.5%		Output 56V/0.89A
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, Full load
			0.5S	220Vac, Full load
			0.7S	230Vac,For DALI-2
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
Short Circuit Protection				Driver will not be damaged, Hiccup mode
				Driver will not be damaged, Shut down for DALI-2

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Output Characteristics(SS-50VP-72*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	28V		72V	Power Derated @28-36V
Rated O/P Voltage	36V		72V	Po=Vo*Io=50W, full load
Rated O/P Current	0.7A		1.4A	1.4A for 36V,0.7A for 72V
Adj. O/P Current (AOC)Range	0.35A		1.4A	By Programming
	0.78A		1.4A	For DALI-2
No Load Voltage			80V	
Efficiency @120Vac	84.0%	85.5%		Output 72V/0.7A
Efficiency @220Vac	85.0%	87.0%		Output 72V/0.7A
Efficiency @277Vac	85.5%	87.5%		Output 72V/0.7A
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, Full load
			0.5S	220Vac, Full load
			0.7S	230Vac,For DALI-2
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
Short Circuit Protection				Driver will not be damaged, Hiccup mode
				Driver will not be damaged, Shut down for DALI-2

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Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
Aux Power	O/P Voltage	10.8V	12V	13.2V	
	O/P Current	0mA		200mA	400mA≤OCP≤800mA; Can work continuously for 24H at 300mA
0-10V Dimming (Optional)	Dim Vmax	0V		12V	Negative dimming by programming
	Dim Range	10%Iomax		100%Ioset	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	0Kohm		100Kohm	Negative dimming by programming
	Dim Range	10%Iomax		100%Ioset	DIM+ source current 110uA.
Dim to Off	Dim off	7%	8%	9%	By DC voltage, PWM, resistance dimming ratio
	Dim on	8%	9%	10%	By DC voltage, PWM, resistance dimming ratio
DALI Dimming Level		1-170(10%)		254(100%)	Logarithmic dimming curve
Timing Curve(Optional)		By programming			DALI models does not support this function
DALI Dimming(Optional)		Meet DALI-2			
Constant Lumen(Optional)		By programming			DALI models does not support this function
Life Warning(Optional)		By programming			DALI models does not support this function
Life Time(Tc≤75°C)		71,000 hours			80% Load,220V input
MTBF		198,900 hours			220Vac,full load, Ta=25°C (MIL-HDBK-217F)
IP		IP67			
Tc		90°C			
Warranty		8 years			Tc: 75°C
Net Weight		560g			
Dimension		138mm*66mm*35.5mm 5.43in*2.6in*1.4in			L x W x H

NOTE: 1,All the parameters above are tested Ta 25°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: 91KΩ/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 EN 61347-2-13:2014 EN 61347-2-13:2014/A1:2017	✓	
RCM	AS/NZS61347.2.13	✓	
BIS	IS15885:2012 Part 2 Sec 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 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
Ring Wave	IEC/EN 61000-4-12	DM: 6kV,CM: 6kV,Criterion B

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Safety Test Items:

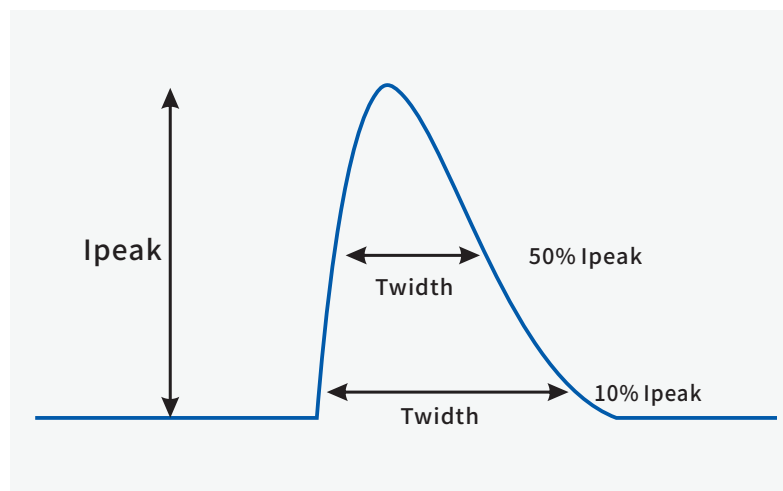
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Output	1600Vac	3000Vac	3750Vac	Reinforced insulation
Input-Case	1600Vac	1500Vac	1875Vac	Basic insulation
Input-Dim	1600Vac	3000Vac	3750Vac	Reinforced insulation
Output-Dim	1600Vac	1000Vac	1000Vac	Basic insulation
Output-Case	1600Vac	1000Vac	1000Vac	Basic insulation
Dim-Case	500Vac	500Vac	500Vac	Basic insulation
Insulation Resistance	$\geq 10M\Omega$			Input-Output, 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- and NTC+ and NTC-), (Dim+ and Dim - and Vaux+ and Vaux- and STB) 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

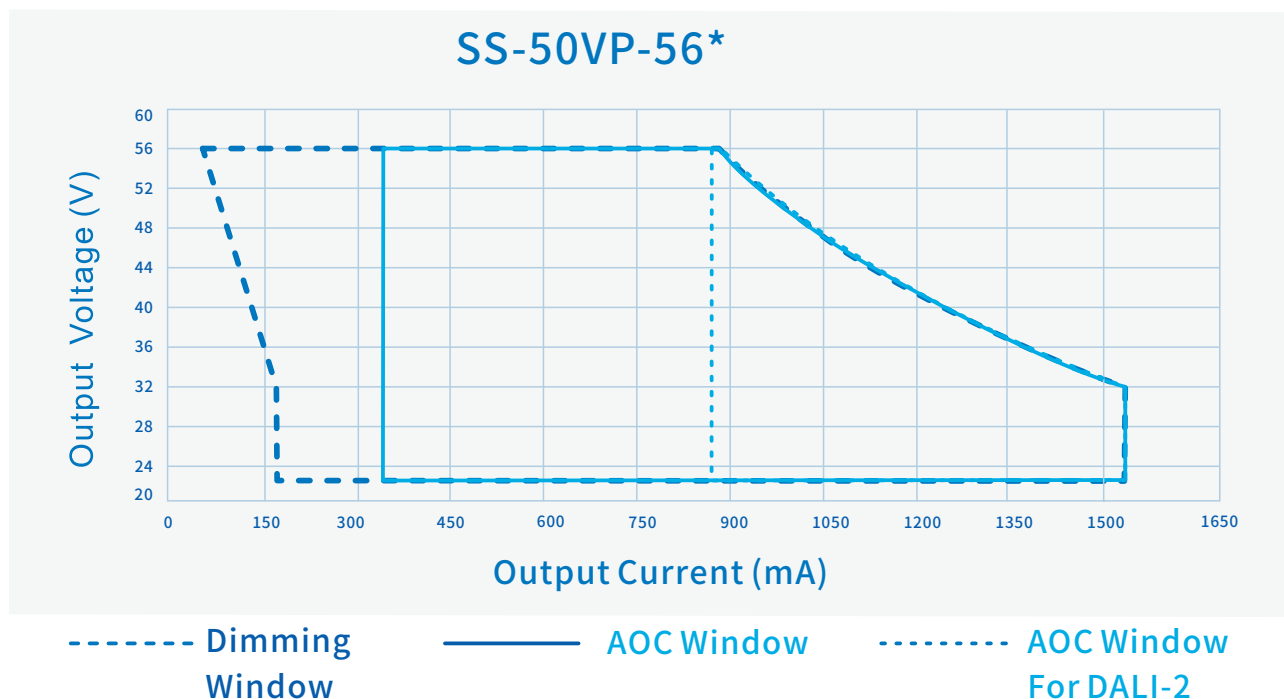


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	60A	210uS	
220Vac	140A		80uS
277Vac	180A	160uS	

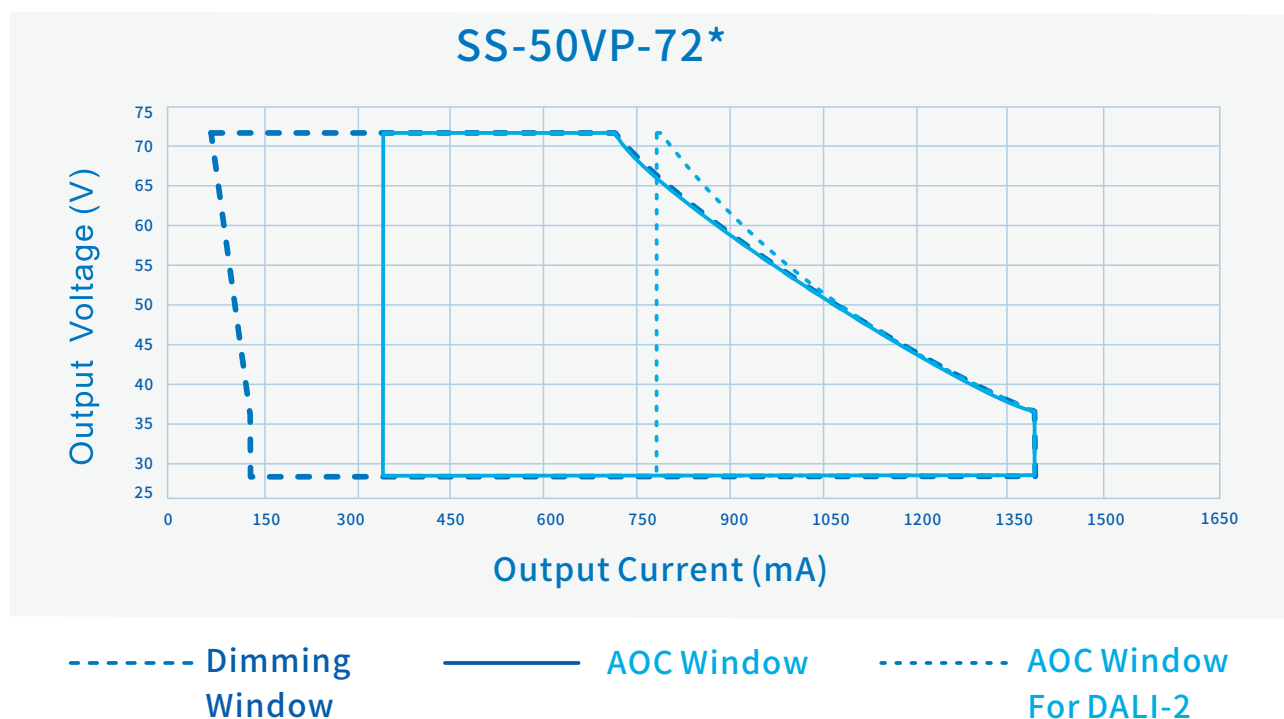
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Performance Curves:

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



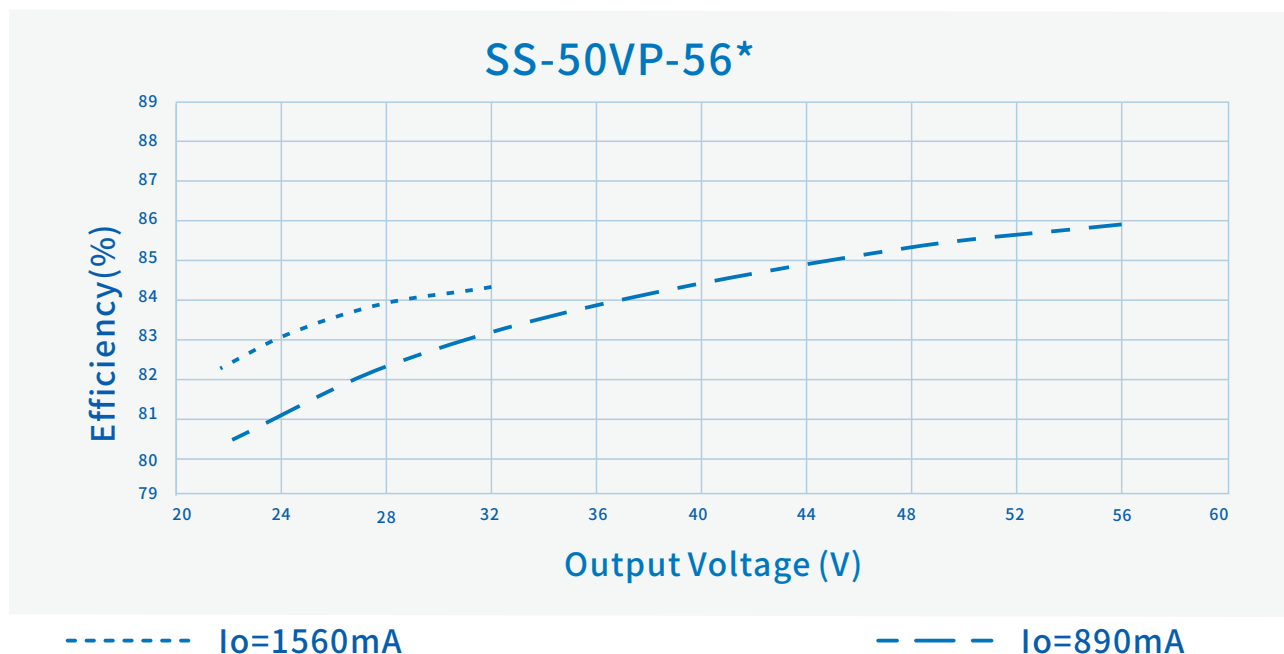
Output Voltage Vs. Output Current(DIM/AOC Window)



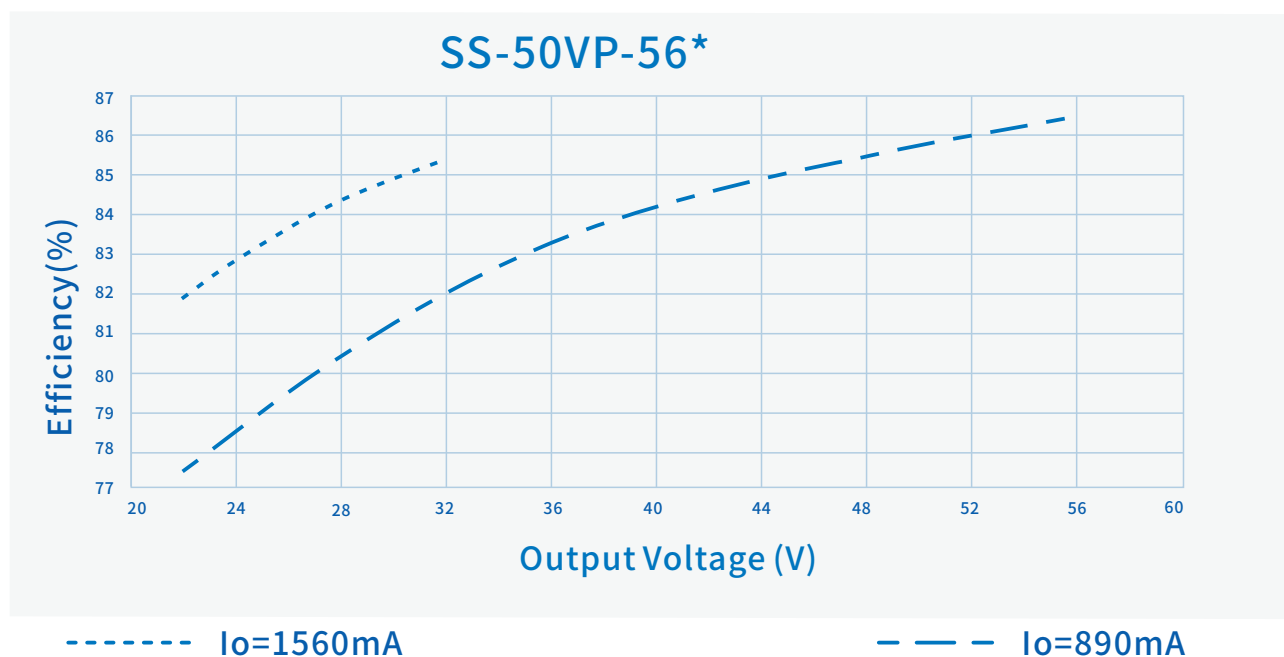
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Performance Curves:

Efficiency Vs. Output Voltage ($V_{in}=120Vac$)



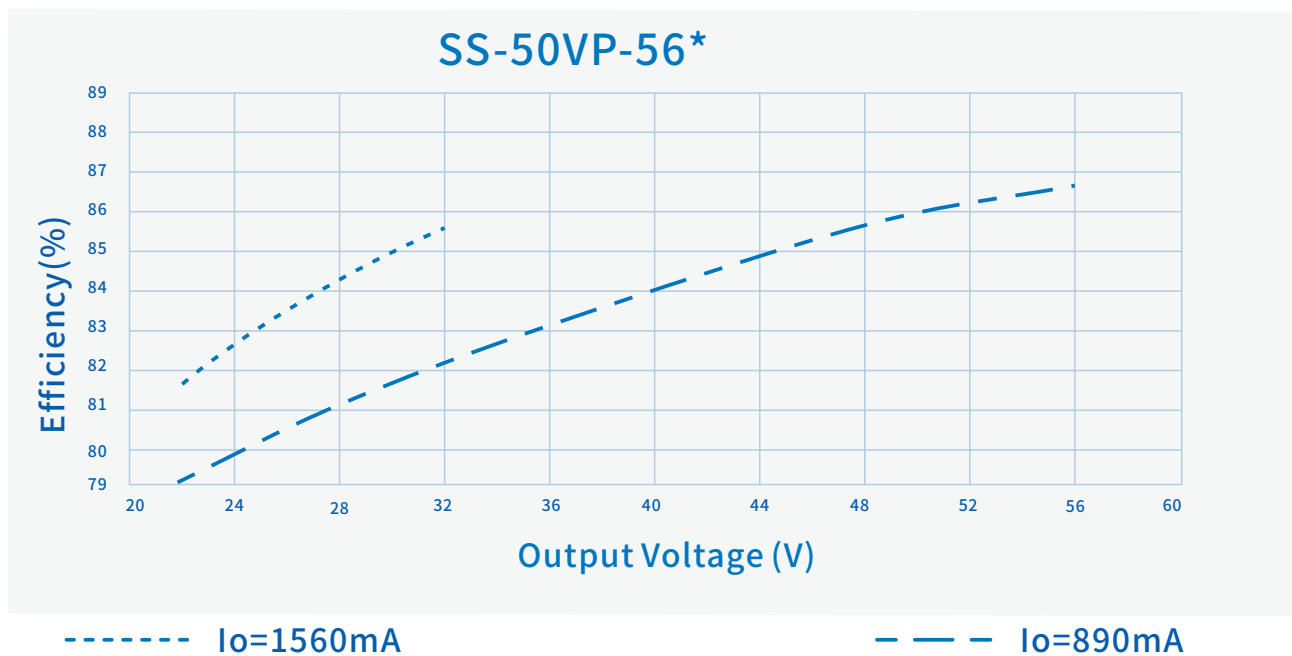
Efficiency Vs. Output Voltage ($V_{in}=220Vac$)



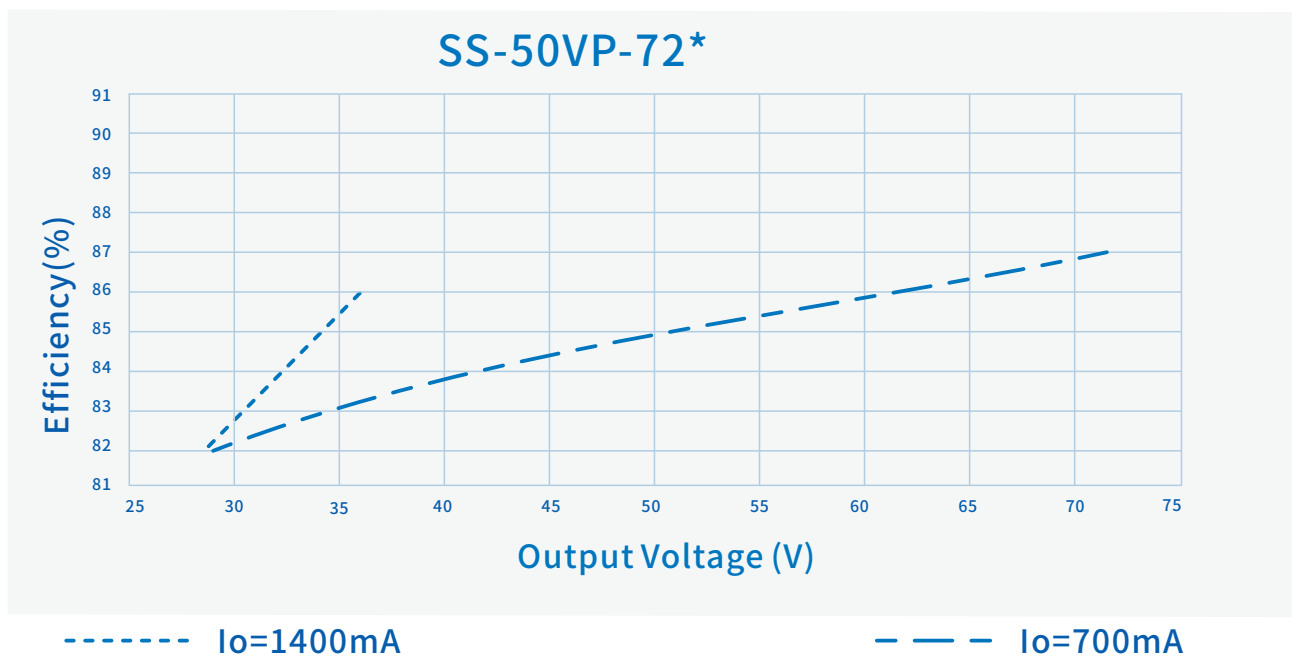
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Performance Curves:

Efficiency Vs. Output Voltage ($V_{in}=277V_{ac}$)



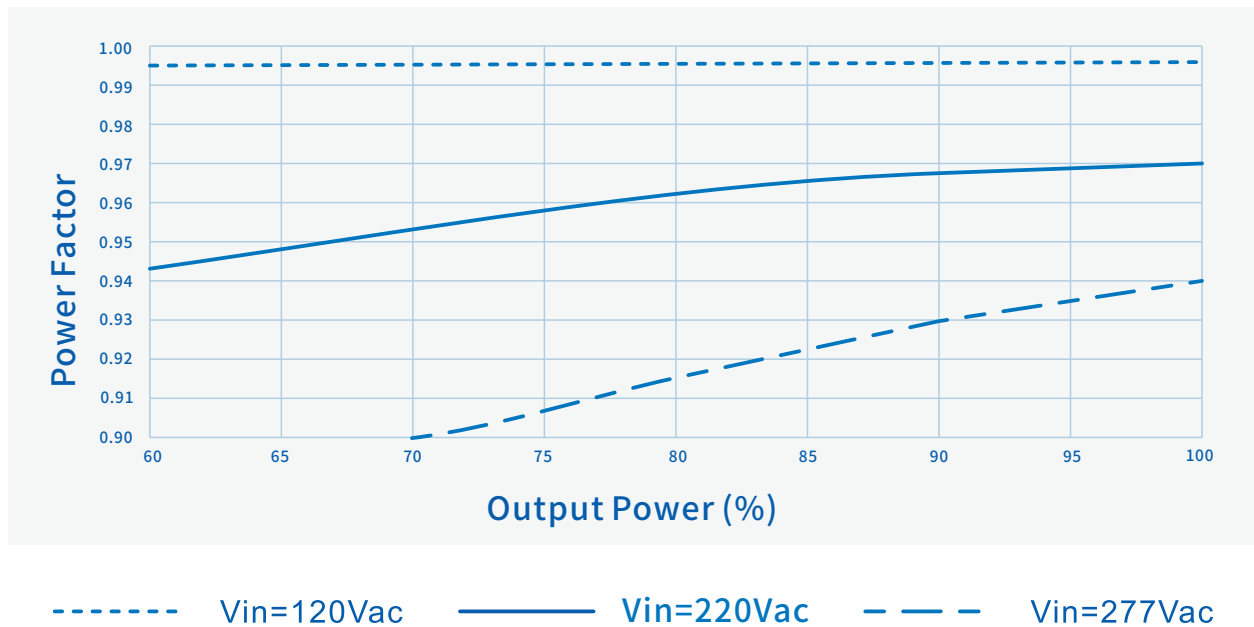
Efficiency Vs. Output Voltage ($V_{in}=120V_{ac}$)



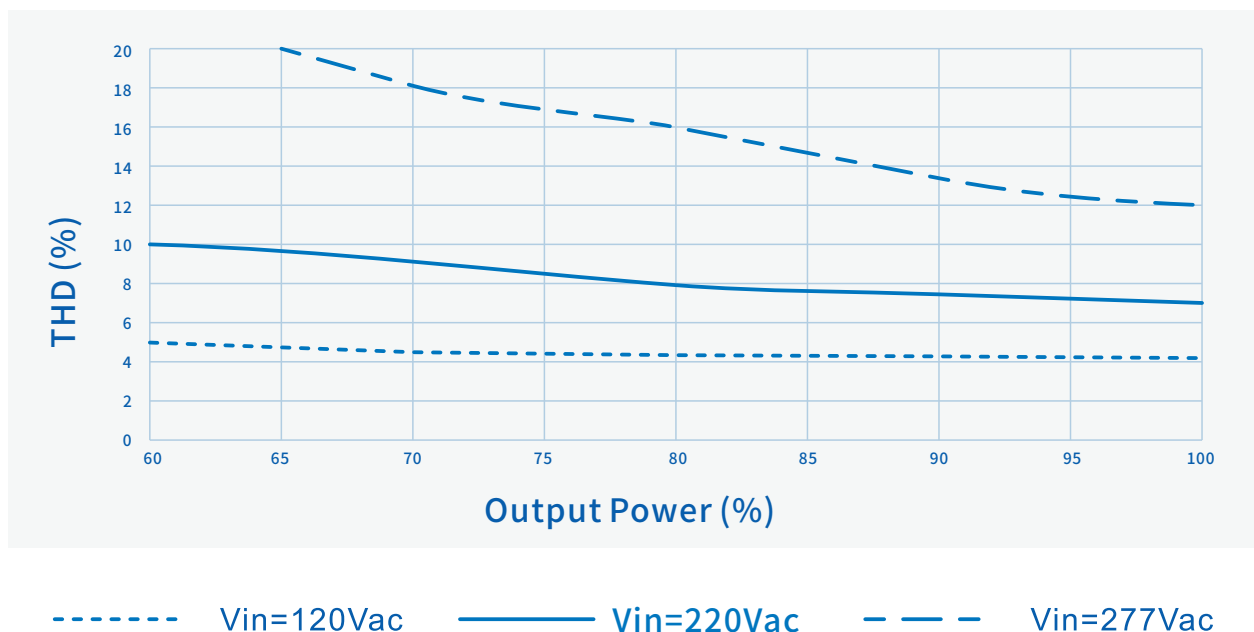
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Performance Curves:

Power Factor Vs. Output Power



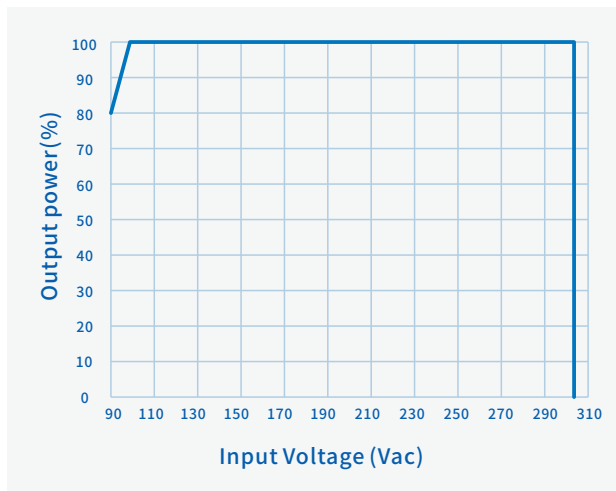
THD Vs. Output Power



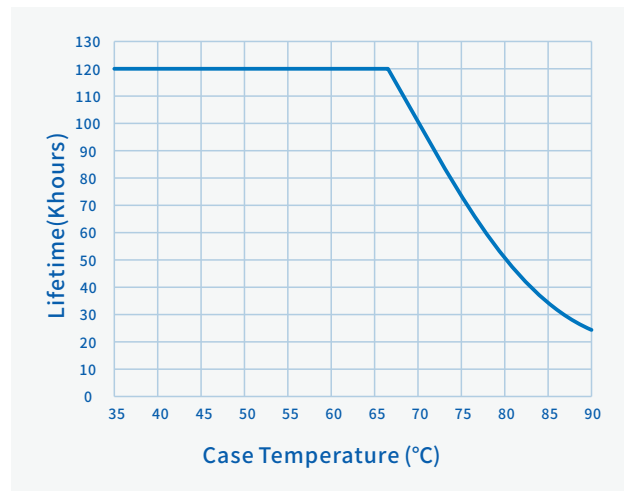
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Performance Curves:

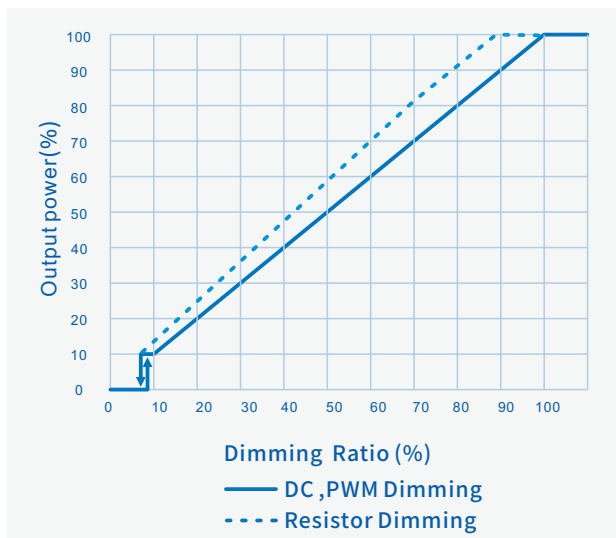
Output Power Vs. Input Voltage



Life Time Vs. Case Temperature



Output Power Vs. Dimming



Constant Lumen Output

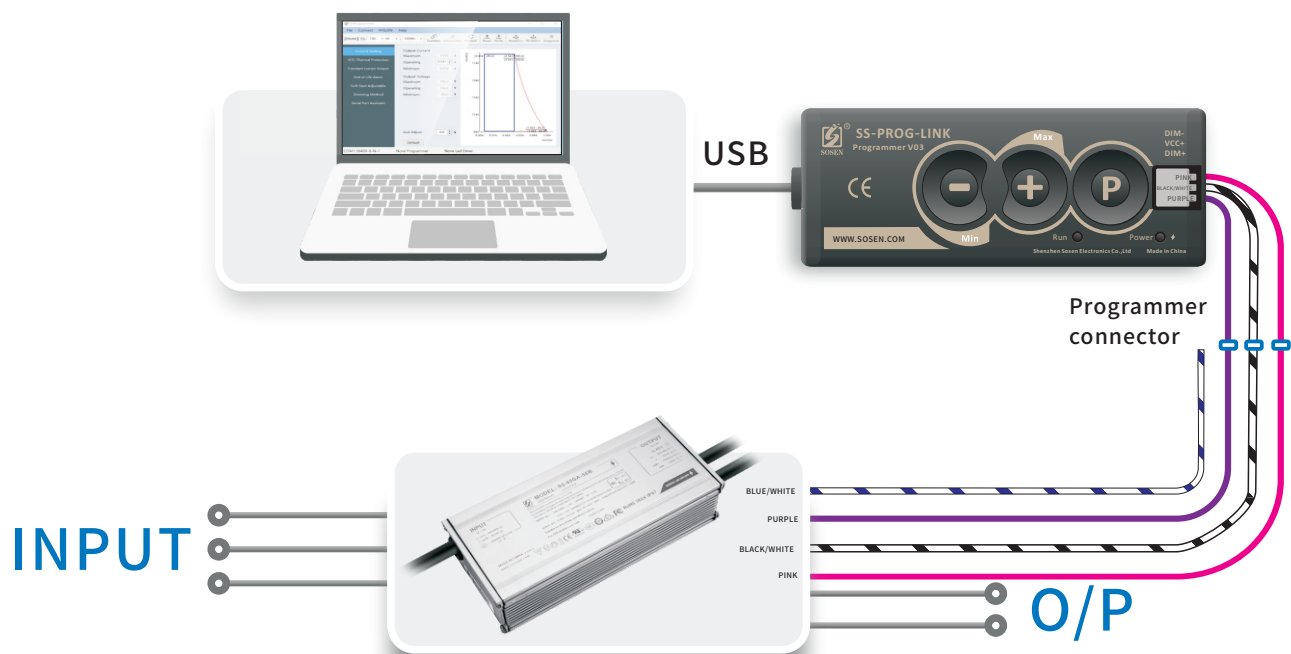
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

Programming connection diagram:

Legacy Timer: Driver's output follows the pre-programmed timing curve after turn-on.

Auto-Adjust by Percentage: Driver's output 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 output will be adjusted by automatically changed dimming curve by mid-point based on the latest 5 dimming curve.



Note:

1. Programming could be completed by off-line mode either without turn on the driver nor without PC, other than the traditional on-line mode.
2. The DALI-2 models only support setting the rated output current through SS-DALI-PUSH and does not support programming through SS-PROG-LINK with PC.

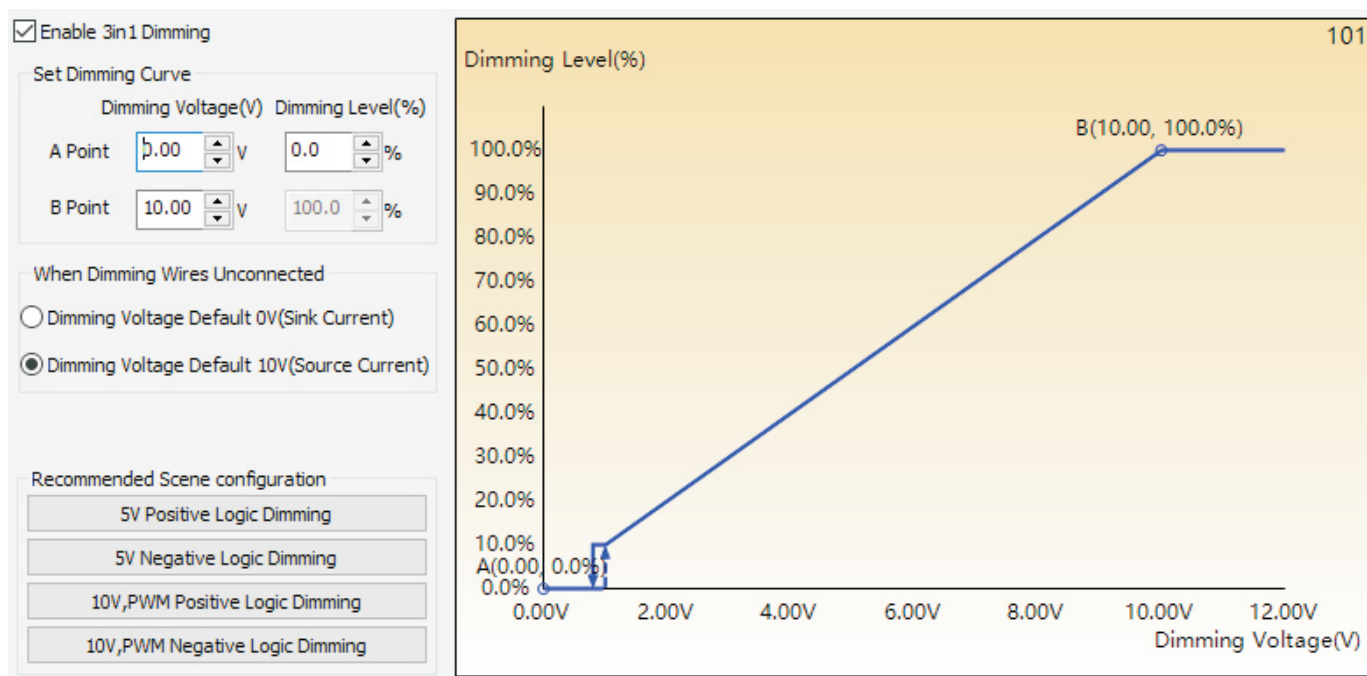
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Parameter			Remark
Default setting	Positive logic dimming (0-10V)	Dimming voltage default 10V (source current)	
	Negative logic dimming (10-0V)	Dimming voltage default 0V (sink current)	
Dimming optional function	Positive logic dimming (0-10V)	Dimming 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:

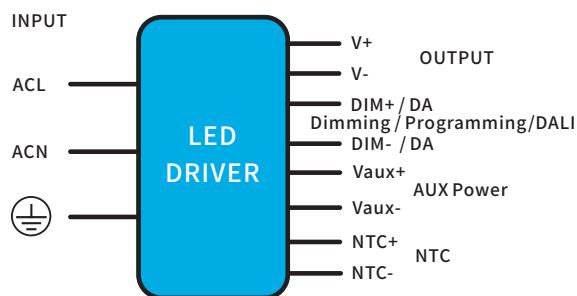
Select "Dimming voltage defaults to 10V (source current)" / "Dimming voltage defaults to 0V (sink current)", which needs to be set according to the dimmer used by the end user.

Settings Interface



SS-50VP Series LED Driver

Mechanical Characteristics



AC Input Cable(Exposed Length $450\pm 10\text{mm}$):

Global model: SJOW,3*17AWG,O.D: 8.2mm,Brown:L,Blue:N,Yellow/Green:⊕

UL model: SJTW,3*18AWG,O.D: 7.8mm,Black:L,White:N,Green:⊕

DC Output Cable(Exposed Length $250\pm 10\text{mm}$):

Global model: SJOW,2*17AWG,O.D: 7.7mm,Brown:V+, Blue:V-

UL model: SJTW,2*18AWG,O.D: 7.3mm,Red:V+, Black:V-

DIM/AUX Power/Programming Cable (Exposed Length $220\pm 10\text{mm}$):

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

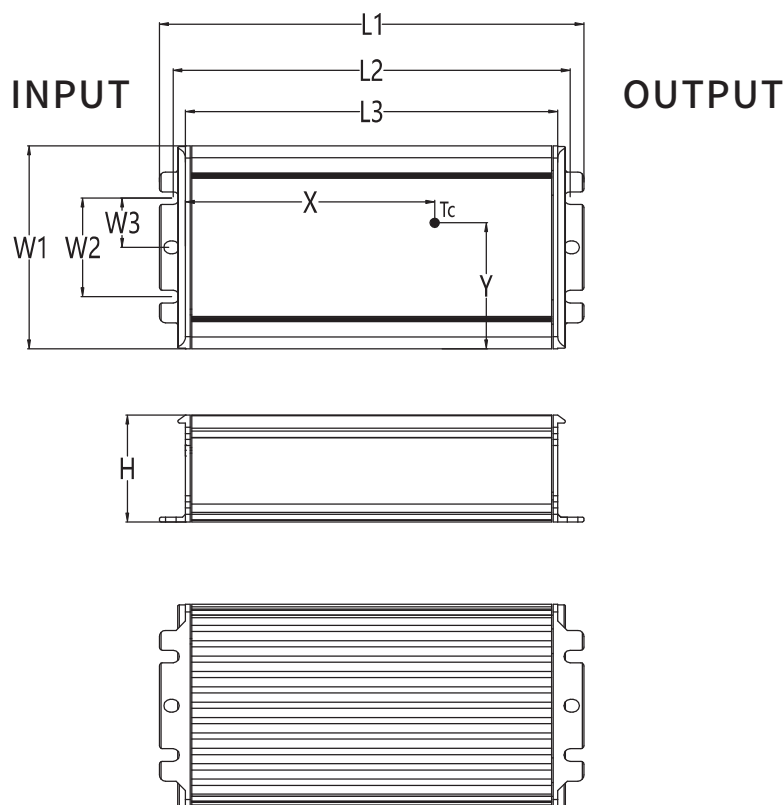
NTC Cable(Exposed Length $300\pm 10\text{mm}$):

UL model:STYLE 21996#22AWG , O.D: 4.7mm, Red/White: NTC+, Blue/White: NTC-

Name Description	Standard Code	mm(In.)
Case Length	L3	121(4.76)
Case Width	W1	66(2.6)
Case Height	H	35.5(1.4)
Overall Length	L1	138(5.43)
Mounting Hole Length	L2	129(5.08)
Mounting Hole Width	W2	32(1.26)
TC Point Position	X	81(3.19)
TC Point Position	Y	41(1.61)

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: $43\pm 5\text{mm}$, Tinned length of wire: $10\pm 2\text{mm}$



SS-50VP Series LED Driver



Assembly Tips

1. Dimming or AUX Power tinned connectors should be capped if not used to avoid dimming or AUX Power parts damage from external signals.

Package

- Outside carton dimension: $L \times W \times H = 495\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 14PCS/Carton;
- Net weight/Piece: 0.56kg; Gross weight/Carton: 9.1kg;
- 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	2020/01/10	
V01	Update Lifetime Curve	2020/04/25	
V02	Update Dim to Off Point	2021/02/24	
V03	Update Tinned Length Of Wire	2021/07/02	
V04	Update DIM Cable Color	2021/09/02	
V05	Increase The Content Of DALI-2	2022/01/18	
V06	Update TC Point Position	2023/02/01	
V07	Delete OTP	2024/02/27	

