

SOSEN LED Driver, Your Smart Choice

Specifications

SS-650VP Series LED Driver

Model: SS-650VP-XX

Description: 650W LED Driver

Rev.: V03

Release Date: 2021-12-21

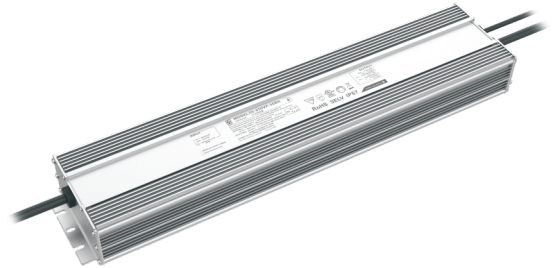
SS-650VP Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

VP Series



Features:

- Efficiency up to 96%
- Dimming: 0-10V,PWM,Resistor,Timing
- Dim-to-Off
- Surge Protection: CM: 10kV, DM: 6kV
- AUX Power : 12V/0.3A
- Constant Lumen, Life Warning
- Standby Power <1W
- IP67
- Communication Function With PC
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/OVP
- Warranty: 8 years



Description:

SS-650VP series are 650W 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 light, Stadium light, Square light, Plant light, Fish light

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vout Range	Iout	THD(Typ.)	PF(Typ.)	Eff.(Typ.)	Max.Tc
SS-650VP-56*	90-305Vac	650W	28-56V	48-56V	1.4-13.5A	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;

SS-650VP 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		✓		✓	✓	

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			7.8A	100Vac, full load
Max Input Power			780W	100Vac, full load
Max Inrush Current(120Vac)			35A	Cold Start
Max Inrush Current(220Vac)			70A	Cold Start
Max Inrush Current(277Vac)			90A	Cold Start
Standby Power			1W	220Vac/50Hz, Dim to off
Power Factor	0.95	0.97		220Vac/50Hz, full load
	0.90			100-277Vac/50Hz, 70-100% load
THD		8%	10%	220Vac/50Hz, full load
			20%	100-277Vac/50Hz, 70-100% load

SS-650VP Series LED Driver

O/P Characteristics(SS-650VP-56*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	28V		56V	Power Derated @28-48V
Rated O/P Voltage	48V		56V	$P_o = V_o \cdot I_o = 650W$, full load
Rated O/P Current	11.6A		13.5A	13.5A for 48V, 11.6A for 56V
Adj. O/P Current (AOC) Range	1.4A		13.5A	By Programming
No Load Voltage			60V	
Efficiency @120Vac	90.5%	92.0%		O/P 56V/11.6A
Efficiency @220Vac	93.5%	95.2%		O/P 56V/11.6A
Efficiency @277Vac	94.0%	95.5%		O/P 56V/11.6A
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
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., Operates Recovery
Short Circuit Protection			10W	Driver not be damaged, Hiccup mode

SS-650VP Series LED Driver

Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
AUX Power	O/P Voltage	11.6V	12V	12.4V	Peak Power:6W
	O/P Current	0mA	300mA	400mA	Operate max 15min at 400mA
0-10V Dimming (Optional)	Dim Vcc	0V		12V	Negative dimming by programming
	Dim Range	10%Ioset		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	0K		100K	Negative dimming by programming
	Dim Range	10%		100%	DIM+ source current 110uA .
Dim to Off	Dim off	7%	8%	9%	
	Dim on	8%	9%	10%	
Timing Curve(Optional)		By programming			Set by program
Constant Lumen(Optional)		By programming			Set by program
Life Warning(Optional)		By programming			Set by program
Life Time(Tc≤75°C)		71,000 hours			80% Load
MTBF		198,200 hours			220Vac,full load, Ta=25°C (MIL-HDBK-217F)
IP Grade		IP67			
Tc		90°C			
Warranty		8 years			Tc : 75°C
Net Weight		3300g			
Dimension		430mm*89.5mm*44.5mm 16.93in*3.52in*1.75in			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.

SS-650VP Series LED Driver

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	✓	
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
	ANSI/C82.77-5-2017	DM: 6kV,CM: 6kV,Criterion B
Ring Wave	IEC/EN 61000-4-12	DM: 6kV,CM: 6kV,Criterion B

SS-650VP Series LED Driver

Safety Test Items:

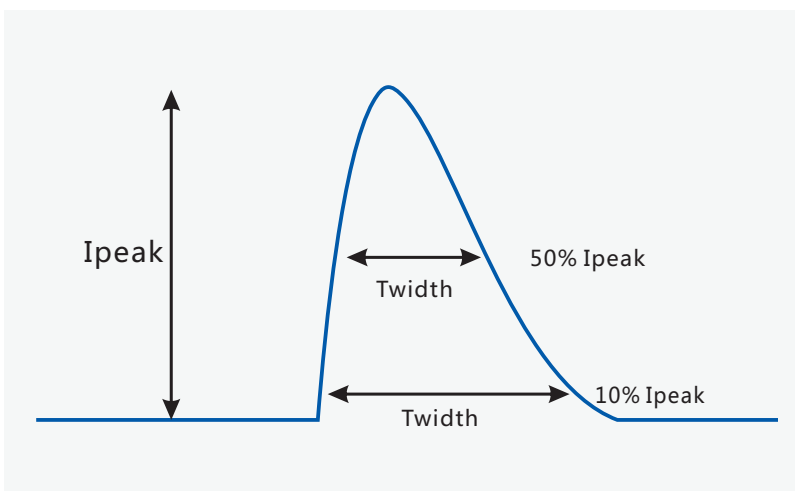
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Output	1600Vac	3000Vac	3750Vac	Reinforced insulation
Input-Case	1600Vac	1500Vac	1875Vac	Basic insulation
Input-Dim	1600Vac	3000Vac	3750Vac	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

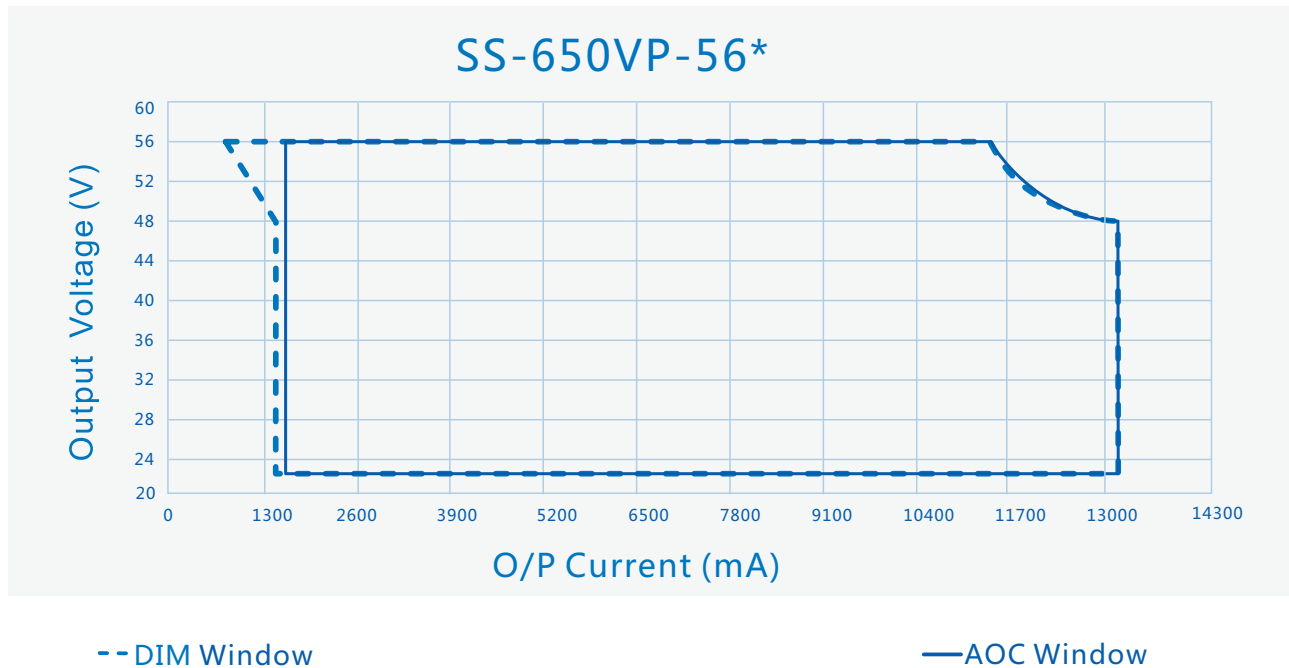


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	35A	3000uS	
220Vac	70A		1300uS
277Vac	90A	2500uS	

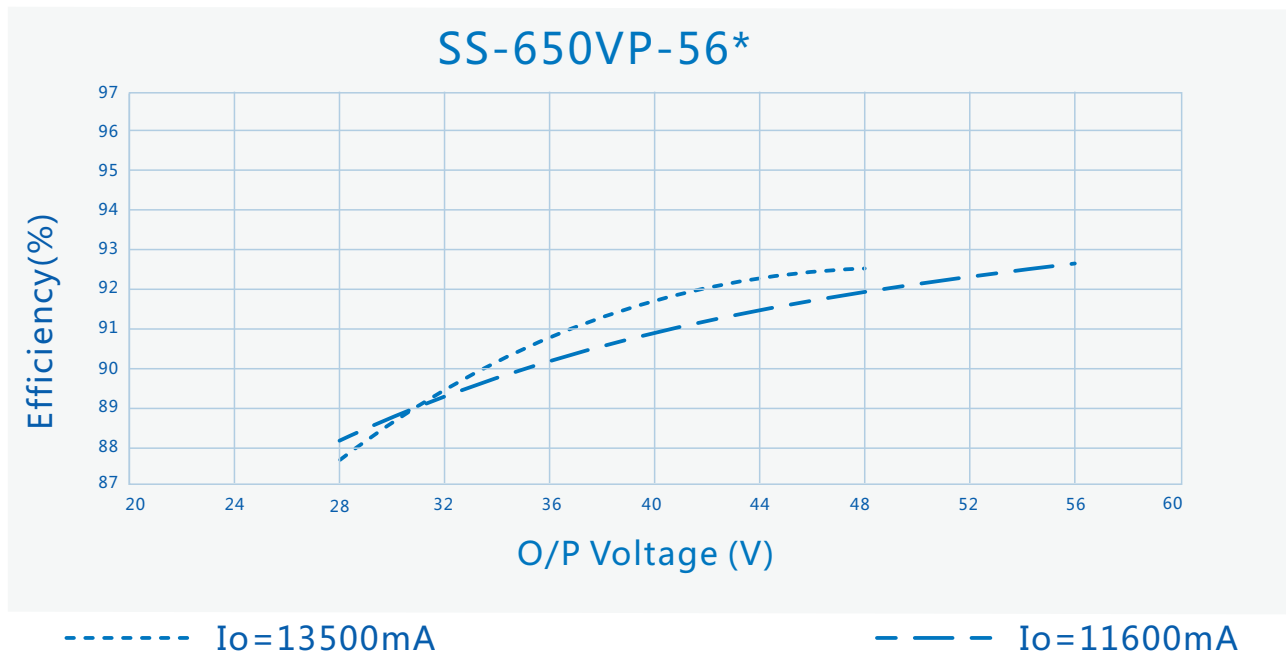
SS-650VP Series LED Driver

Performance Curves:

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



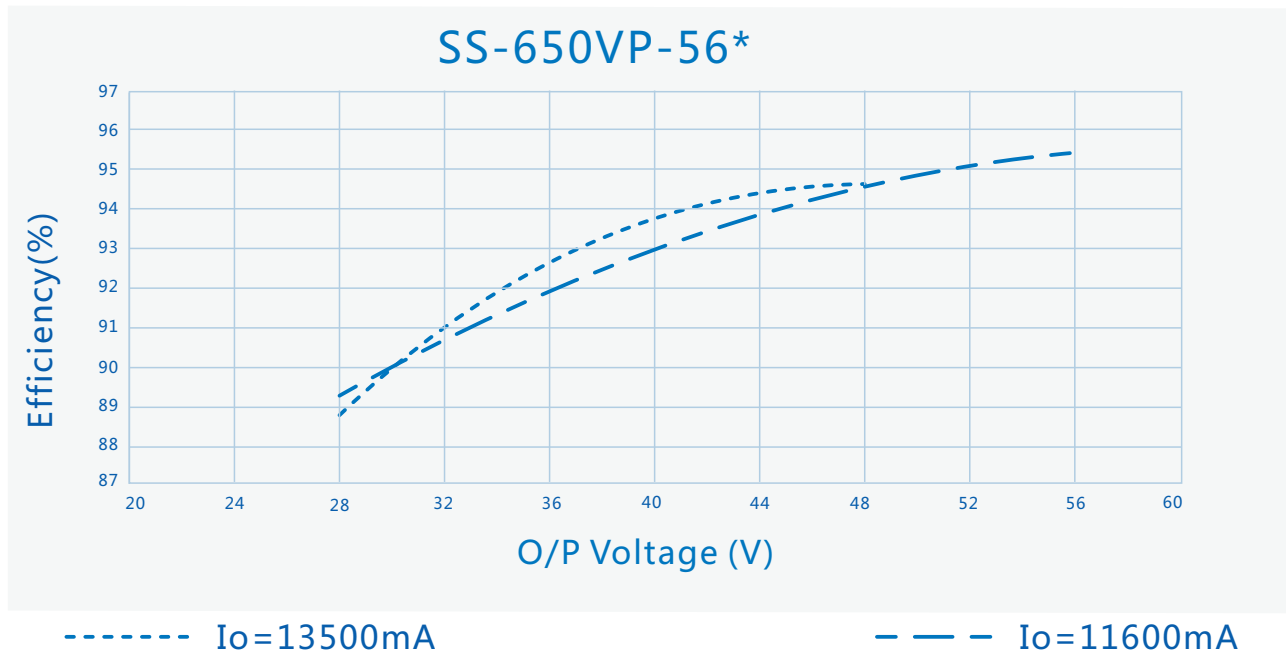
Efficiency Vs. O/P Voltage (Vin=120Vac)



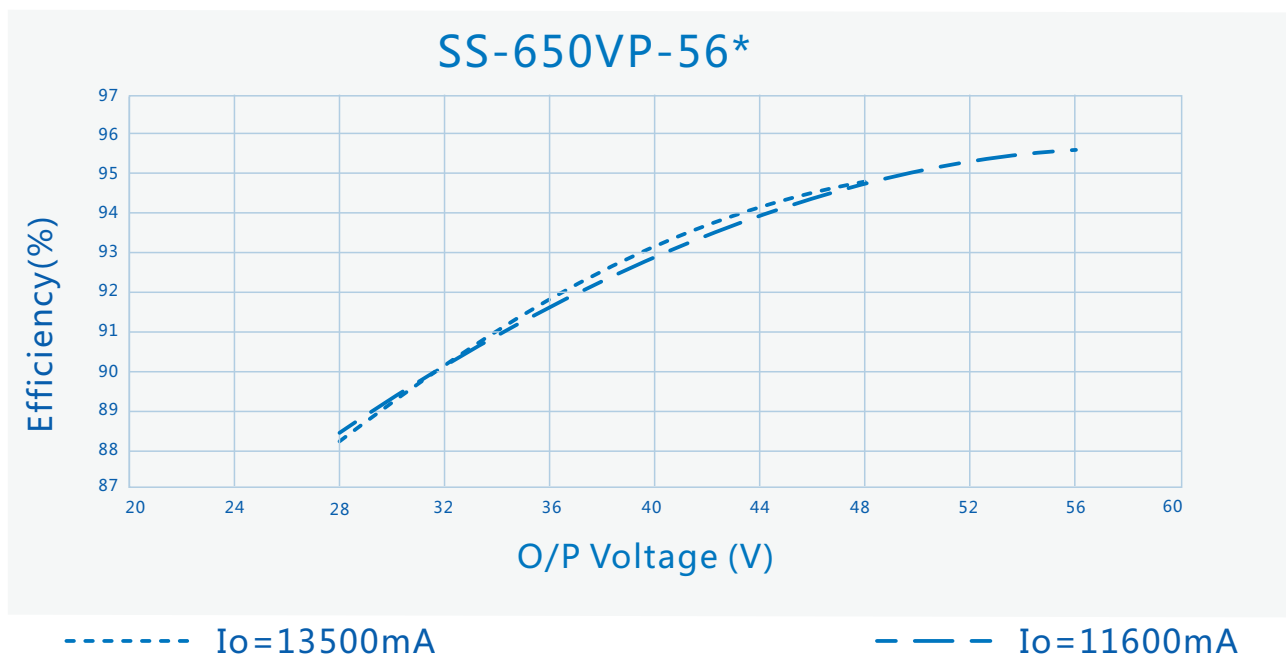
SS-650VP Series LED Driver

Performance Curves:

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



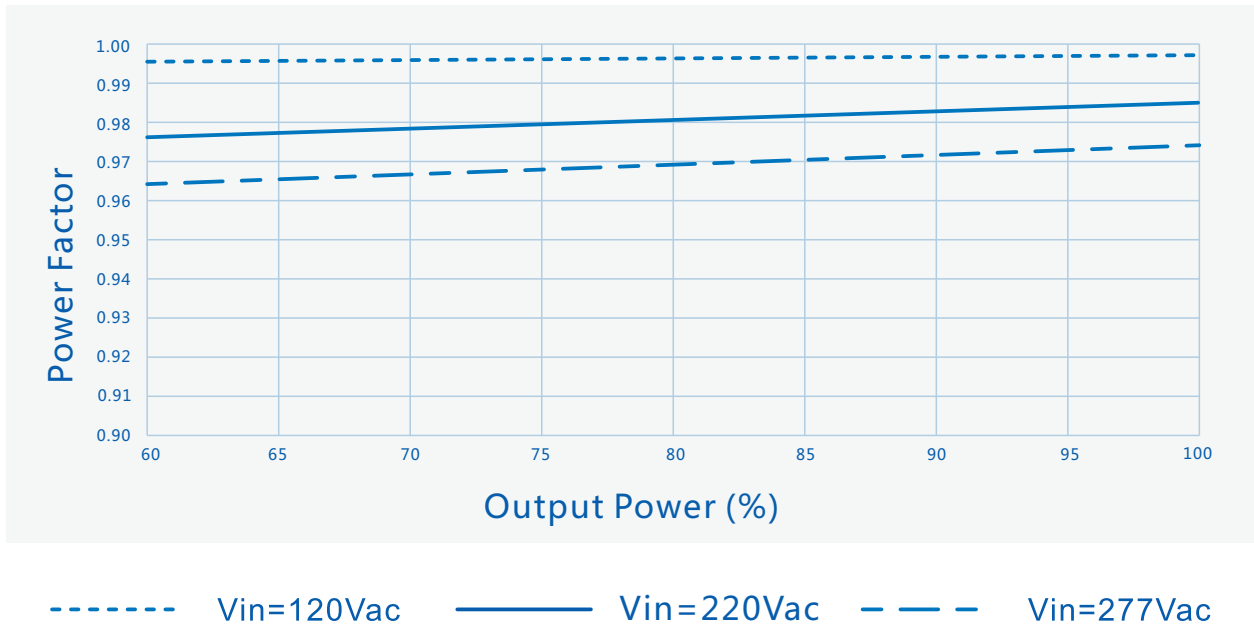
Efficiency Vs. O/P Voltage ($V_{in}=277V_{ac}$)



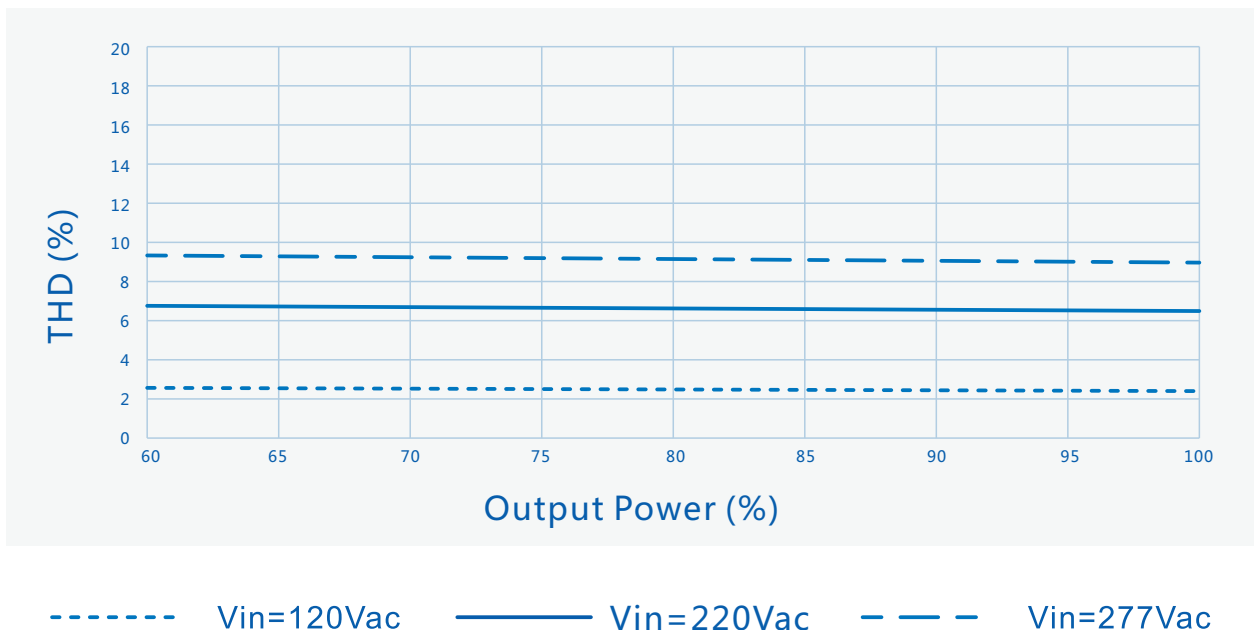
SS-650VP Series LED Driver

Performance Curves:

Power Factor Vs. O/P Power



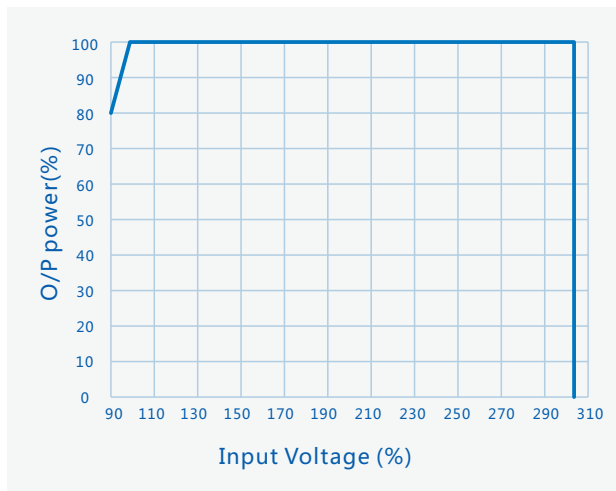
THD Vs. O/P Power



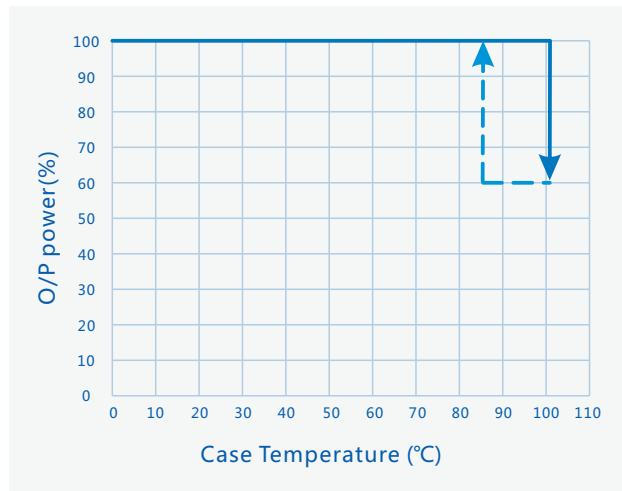
SS-650VP Series LED Driver

Performance Curves:

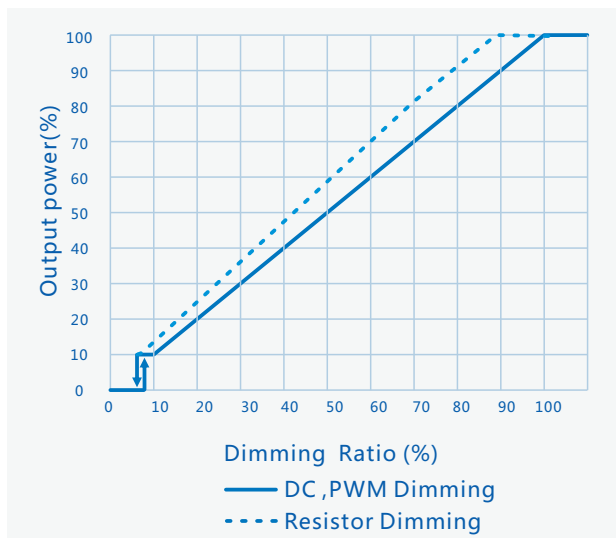
O/P Power Vs. Input Voltage



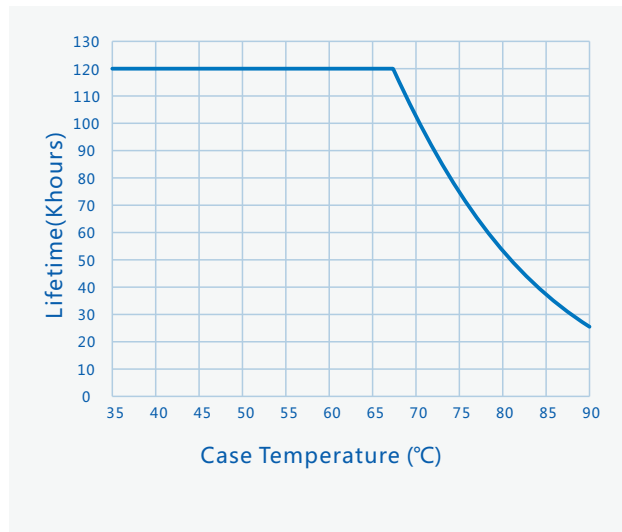
O/P Power Vs. Case Temperature



O/P Power Vs. Dimming



Life Time Vs. Case Temperature



SS-650VP Series LED Driver

Constant Lumen Output

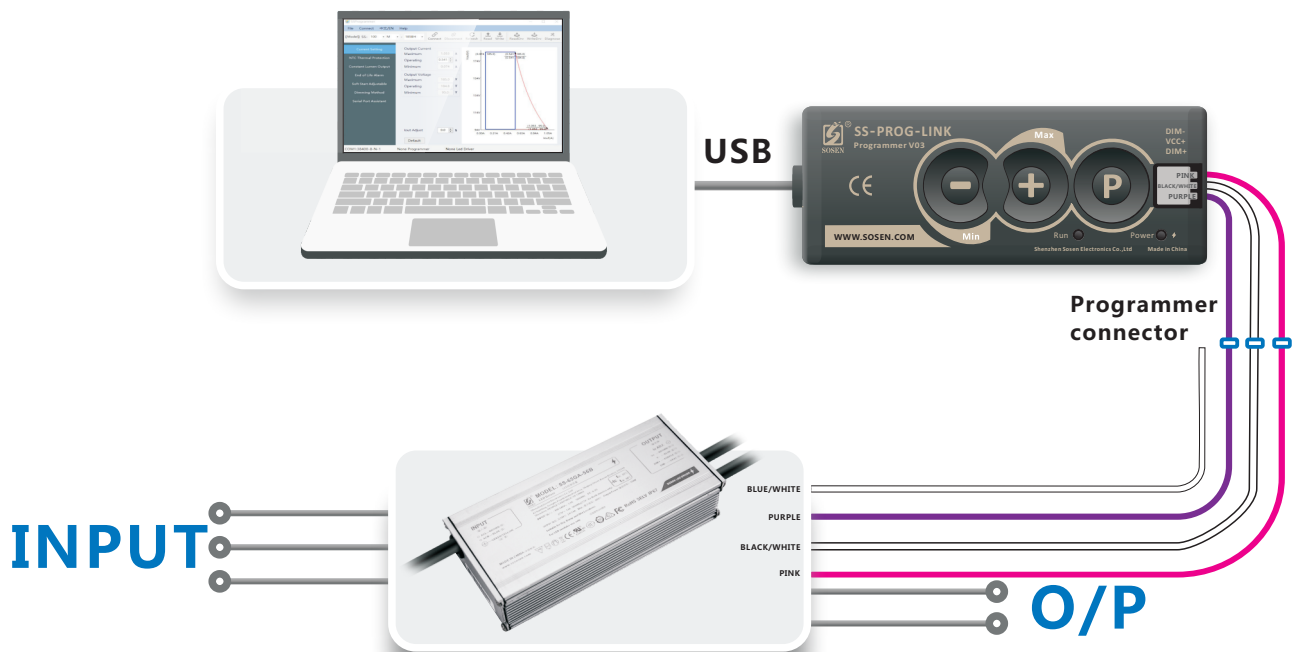
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

Programming Connection Diagram :

Legacy Timer: Driver's 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.

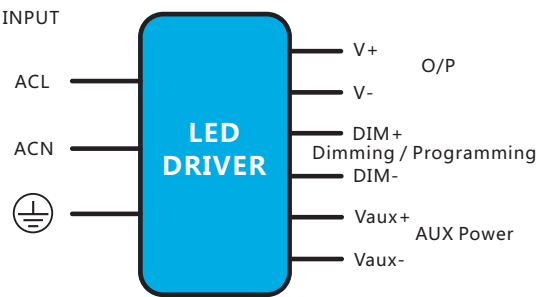


Note:

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

SS-650VP Series LED Driver

Mechanical Characteristics



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

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±10mm):

SS-650VP-56*:
Global model: SJOW, 2*14AWG, O.D: 8.8mm, Brown: V+ , Blue: V-
UL model: SJTW, 2*14AWG, O.D: 9.0mm, Red: V+ , Black: V-

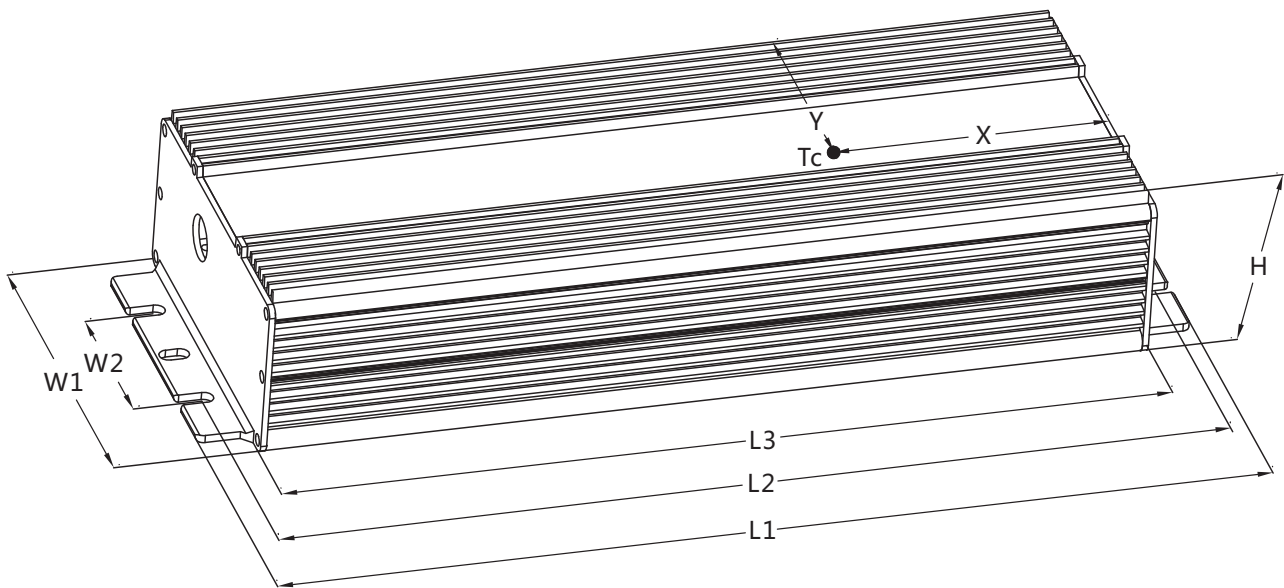
DIM/AUX Power/Programming Cable (Exposed Length 220±10mm):

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)



SS-650VP 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×W×H = 495mm×385mm×162mm;
- 5PCS/Carton;
- Net weight/Piece: 3.3kg; Gross weight/Carton: 17.7kg;
- 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	2020/12/23	
V01	Update Tinned Length Of Wire	2021/07/02	
V02	Update DIM Cable Color	2021/09/02	
V03	Increase ENEC Certification	2021/12/21	