SOSEN LED DRIVER

SOSEN LED Driver, Your Smart Choice

Specifications

SS-240VP Series LED Driver

Model: SS-240VP-XXX

Description: 240W LED Driver

Rev.: V06

Release Date: 2023-02-01

SS-240VP Series LED Driver

SOSEN
LED DRIVER

LED DRIVER
—
VP Series

Features:

- Efficiency up to 93.5%
- 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
- Optional Standby(STB) Function
- External NTC to Protect LED Module
- Standby Power＜0.5W
- IP67
- Communication Function With PC
- Type HL, suitable for hazardous locations
- Protections: SCP/OTP/OVP
- Warranty: 8 years

05 CB c UL us LISTED E360758

DALI 2 CE IP67 Class P

Description:

SS-240VP series are 240W 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-240VP-56*	90-305Vac	240W	22-56V	36-56V	0.7-6.67A	3.70-6.67A	10%	0.95	92%	90℃
SS-240VP-228*	90-305Vac	240W	114-218V	160-218V	0.35-1.5A	0.83-1.5A	10%	0.95	93%	90℃
SS-240VP-343*	90-305Vac	240W	171-343V	228-343V	0.1-1.05A	0.58-1.05A	10%	0.95	93.5%	90℃

Note:

1.Default Tested: at 220Vac, full load, Ta 25℃.

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.

SHENZHEN SOSEN ELECTRONICS CO.,LTD

: A3 Building,Gonghe Fourth Industrial Area, Shajing Street, Bao' an District, Shenzhen, China 518104

: 86-755-29358800

: 86-755-29358816

: info@sosen.com

: www.sosen.com

"*" 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			2.8A	100Vac, full load
Max Input Power			280W	100Vac, full load
Max Inrush Current(120Vac)			70A	Cold Start
Max Inrush Current(220Vac)			150A	Cold Start
Max Inrush Current(277Vac)			200A	Cold Start
Standby Power			0.5W	220Vac/50Hz, Dim to off or Enable STB
Power Factor	0.95	0.97		220Vac/50Hz, full load
	0.90			100-277Vac/50Hz, 70% load
THD		8%	10%	220Vac/50Hz, full load
			20%	100-277Vac/50Hz, 70% load

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Output Characteristics(SS-240VP-56*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	22V		56V	Power Derated @22-36V
Rated O/P Voltage	36V		56V	Po=Vo*Io=240W, full load
Rated O/P Current	4.28A		6.67A	6.67A for 36V,4.28A for 56V
Adj. O/P Current (AOC)Range	0.7A		6.67A	By Programming
	3.70A		6.67A	For DALI-2
No Load Voltage			60V	
Efficiency @120Vac	89.5%	90.0%		Output 56V/4.28A
Efficiency @220Vac	91.5%	92.0%		Output 56V/4.28A
Efficiency @277Vac	92.0%	92.5%		Output 56V/4.28A
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%/℃		+0.03%/℃	Tc:0℃~90℃
OTP	90℃	100℃	110℃	>Tc typ., Current Derating <Tc min., Operates Recovery
Short Circuit Protection			10W	Driver will not be damaged, Hiccup mode
			0.5W	Driver will not be damaged, Shut down for DALI-2

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Output Characteristics(SS-240VP-228*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	114V		228V	Power Derated @114-160V
Rated O/P Voltage	160V		218V	Po=Vo*Io=240W, full load
Rated O/P Current	1.1A		1.5A	1.5A for 160V,1.1A for 218V
Adj. O/P Current (AOC)Range	0.35A		1.5A	By Programming
	0.83A		1.5A	For DALI-2
No Load Voltage			250V	
Efficiency @120Vac	89.5%	90.0%		Output 218V/1.1A
Efficiency @220Vac	91.5%	92.5%		Output 218V/1.1A
Efficiency @277Vac	92.0%	93.0%		Output 218V/1.1A
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	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%/℃		+0.03%/℃	Tc:0℃~90℃
OTP	90℃	100℃	110℃	>Tc typ., Current Derating <Tc min., Operates Recovery
Short Circuit Protection			10W	Driver will not be damaged, Hiccup mode
			0.5W	Driver will not be damaged, Shut down for DALI-2

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Output Characteristics(SS-240VP-343*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	171V		343V	Power Derated @171-228V
Rated O/P Voltage	228V		343V	Po=Vo*Io=240W, full load
Rated O/P Current	0.7A		1.05A	1.05A for 228V,0.7A for 343V
Adj. O/P Current (AOC)Range	0.1A		1.05A	By Programming
	0.58A		1.05A	For DALI-2
No Load Voltage			370V	
Efficiency @120Vac	90%	91.0%		Output 343V/0.7A
Efficiency @220Vac	92.0%	93.0%		Output 343V/0.7A
Efficiency @277Vac	92.5%	93.5%		Output 343V/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%/℃		+0.03%/℃	Tc:0℃~90℃
OTP	90℃	100℃	110℃	>Tc typ., Current Derating <Tc min., Operates Recovery
Short Circuit Protection			10W	Driver will not be damaged, Hiccup mode
			0.5W	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	13.8V	
	O/P Current	0mA		200mA	
0-10VDimming (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%	
	Dim on	8%	9%	10%	
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℃)		71,000 hours			80% Load
MTBF		199,000 hours			220Vac,full load, Ta=25℃ (MIL-HDBK-217F)
IP Grade		IP67			
Tc		90℃			
Warranty		8 years			Tc : 75℃, 80% Load
Net Weight		1300g			
Dimension		254mm*71mm*39.6mm 10in*2.8in*1.56in			L x W x H

NOTE: 1,All the parameters above are tested Ta 25℃ 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℃	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
Ring Wave	IEC/EN 61000-4-12	DM: 6kV,CM: 6kV,Criterion B

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Safety Test Items:

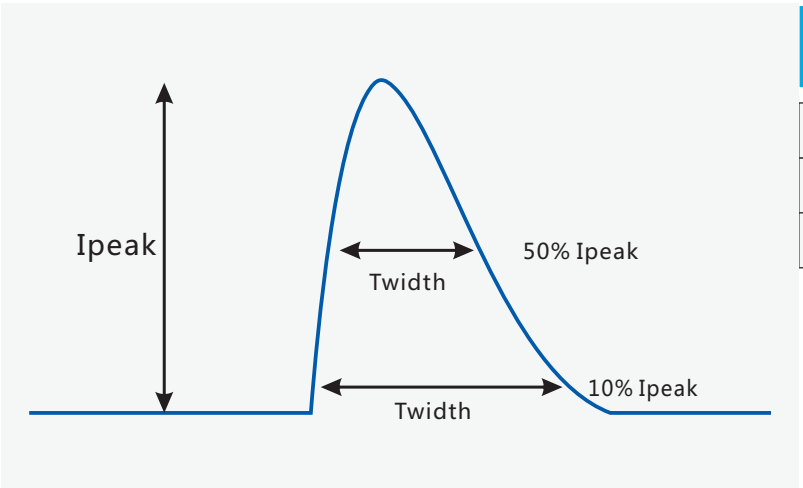
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Output	1600Vac	3000Vac	3750Vac	Reinforced insulation
Input-Case	1600Vac	1500Vac	1875Vac	Basic insulation
Input-Dim	1600Vac	3000Vac	3750Vac	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	≥10MΩ			Input-Output,Test voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min
Leakage Current	≤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	70A	650uS	
220Vac	150A		300uS
277Vac	200A	500uS	

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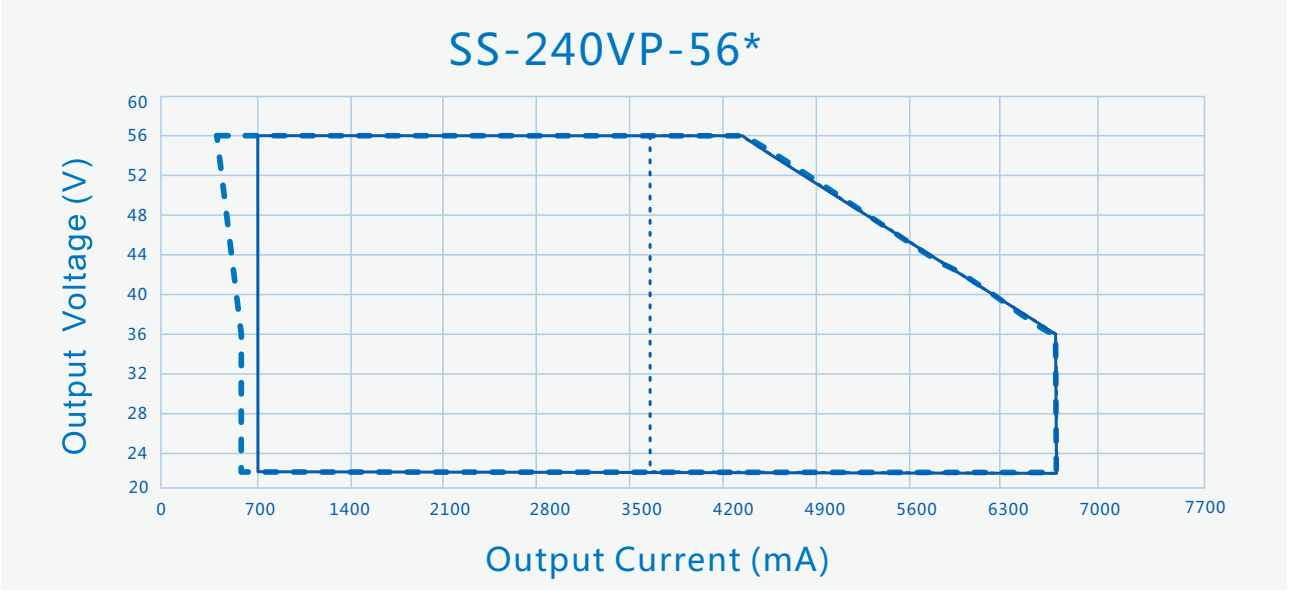
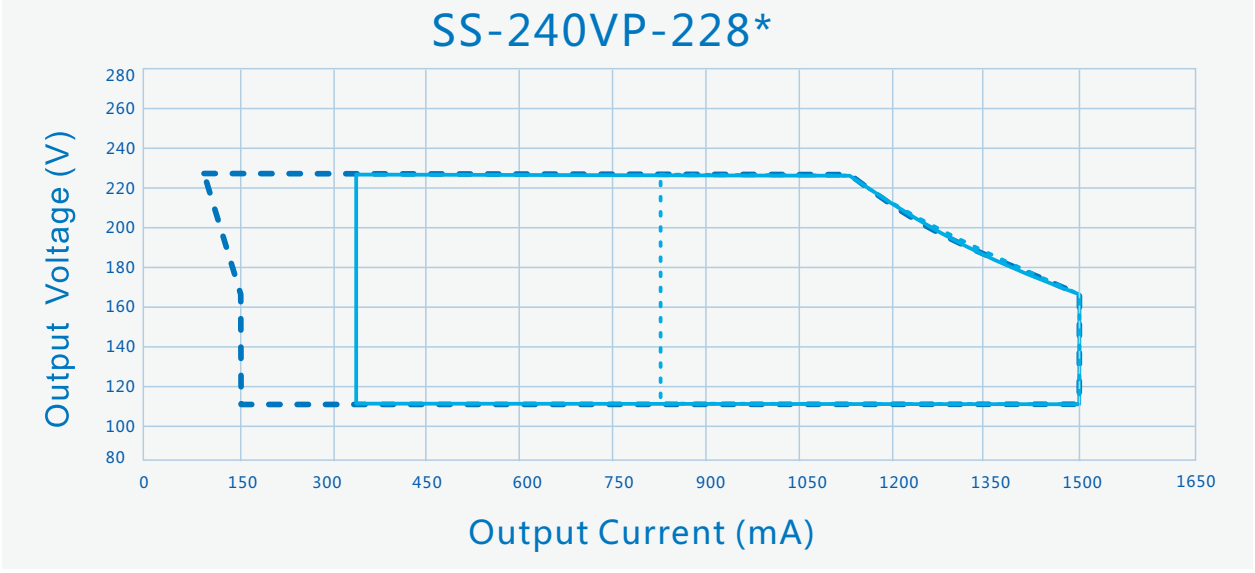
Performance Curves:

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



Dimming Window — AOC Window — AOC Window For DALI-2

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



Dimming Window — AOC Window — AOC Window For DALI-2

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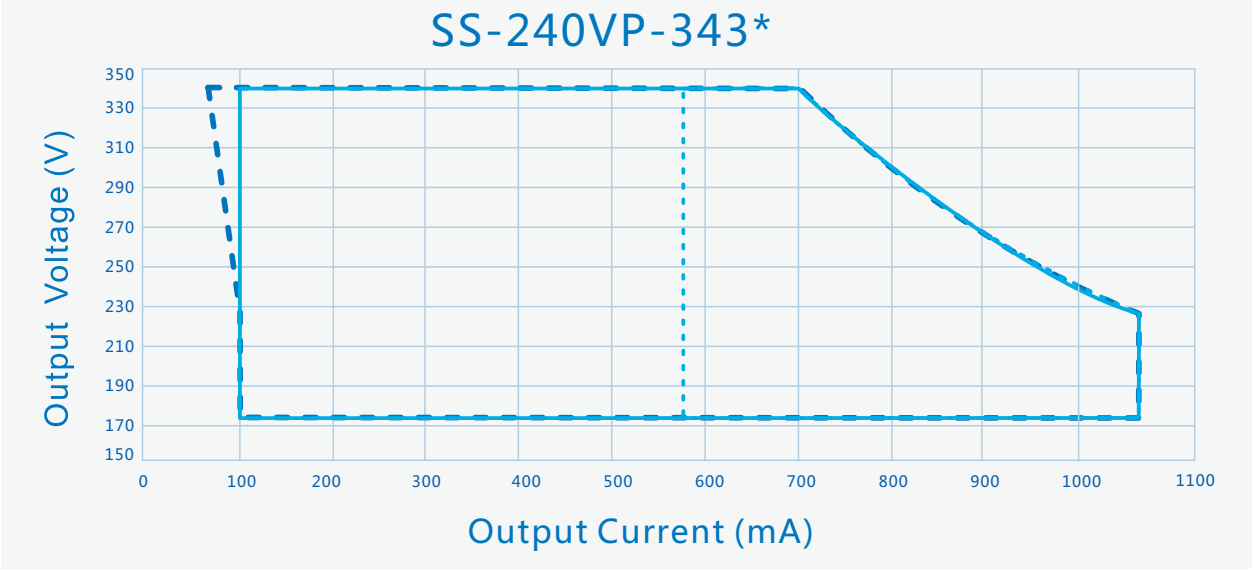
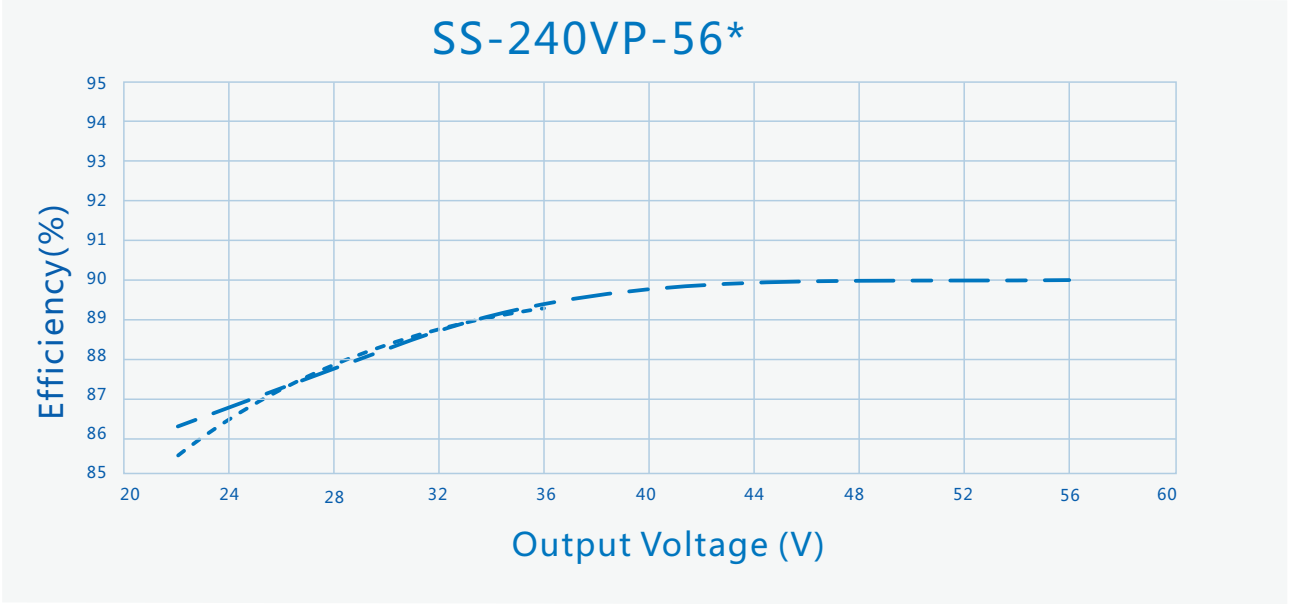
Performance Curves:

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



Efficiency Vs. Output Voltage (Vin=120Vac)



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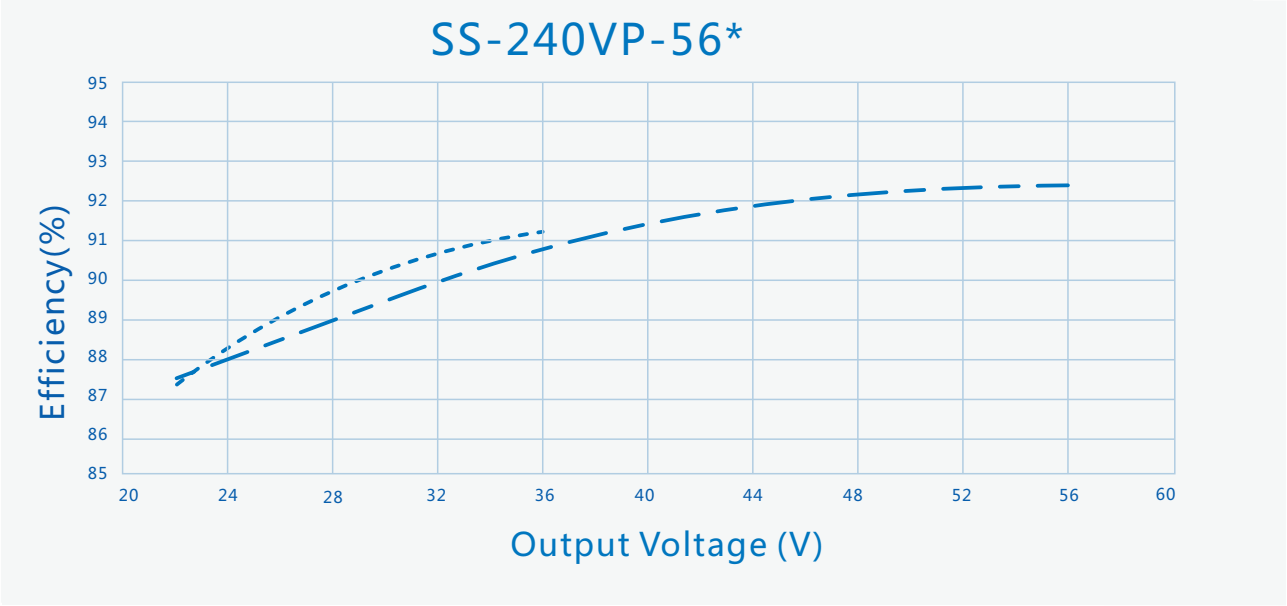
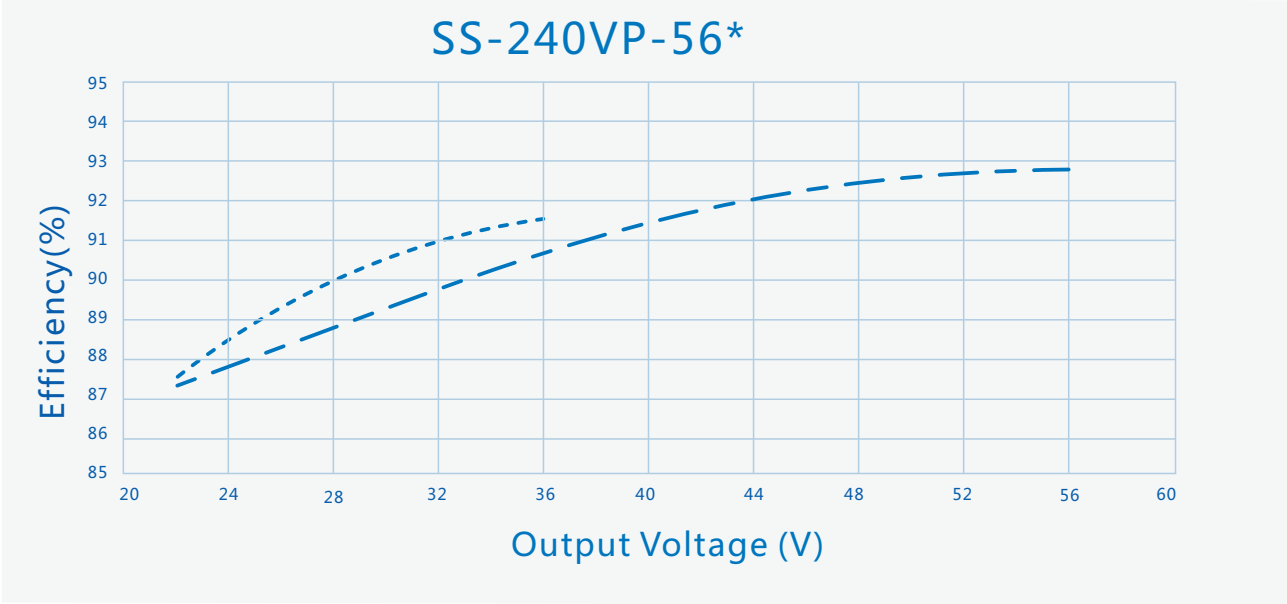
Performance Curves:

Efficiency Vs. Output Voltage (Vin=220Vac)



------- Io=6670mA — — — Io=4280mA

Efficiency Vs. Output Voltage (Vin=277Vac)



------- Io=6670mA — — — Io=4280mA

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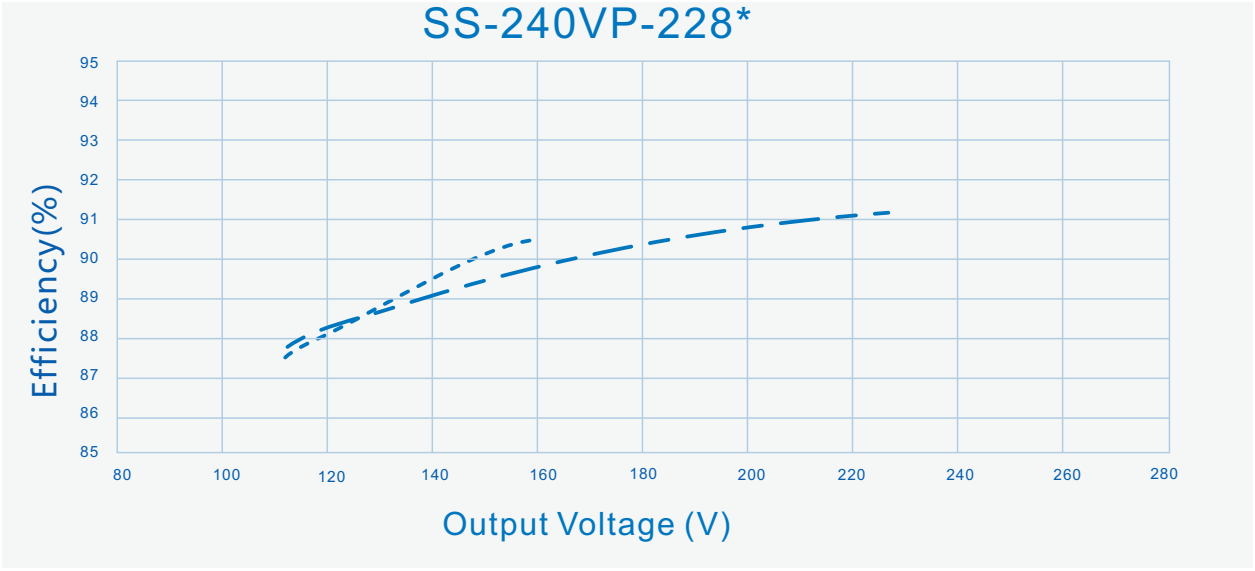
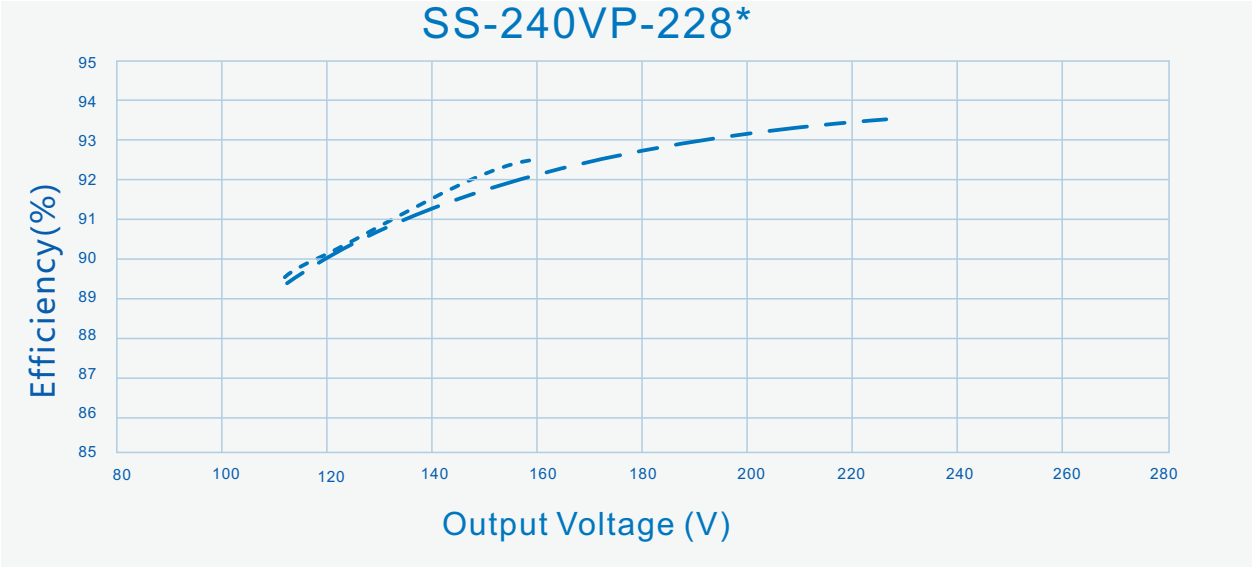
Performance Curves:

Efficiency Vs. Output Voltage (Vin=120Vac)



------- Io=1500mA — — — Io=1100mA

Efficiency Vs. Output Voltage (Vin=220Vac)



------- Io=1500mA — — — Io=1100mA

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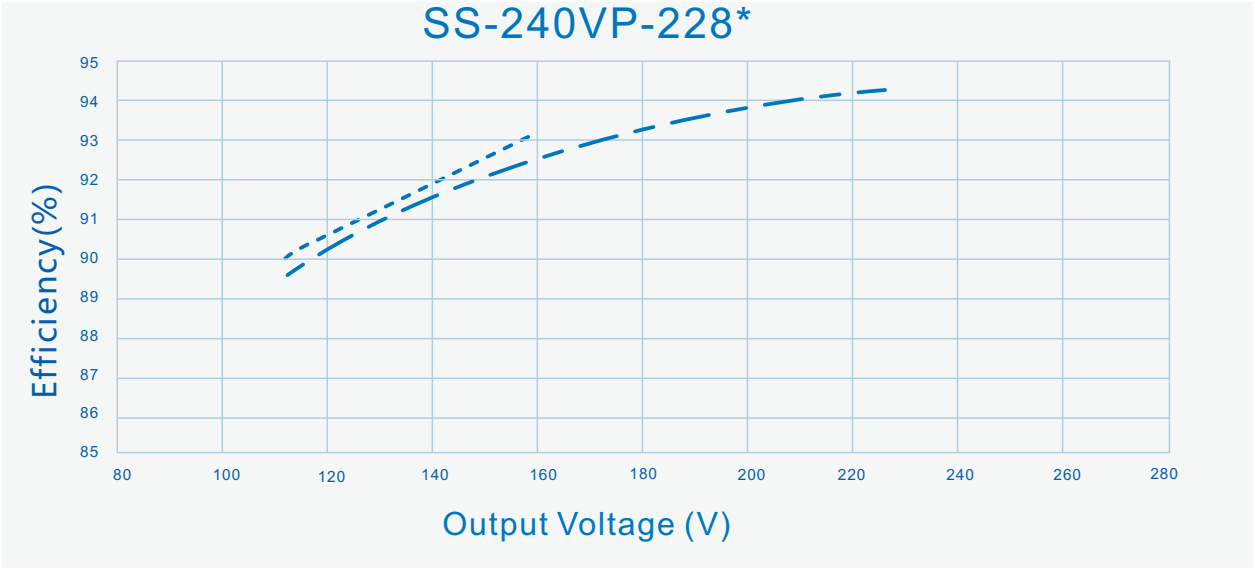
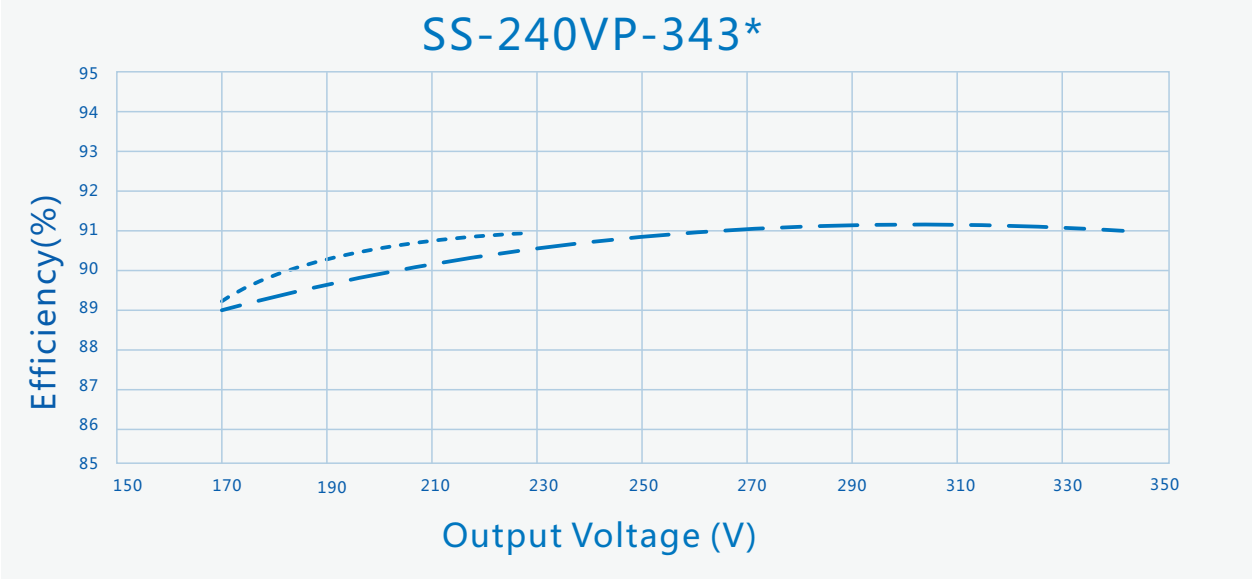
Performance Curves:

Efficiency Vs. Output Voltage (Vin=277Vac)



------- Io=1500mA — — — Io=1100mA

Efficiency Vs. Output Voltage (Vin=120Vac)



------- Io=1050mA — — — Io=700mA

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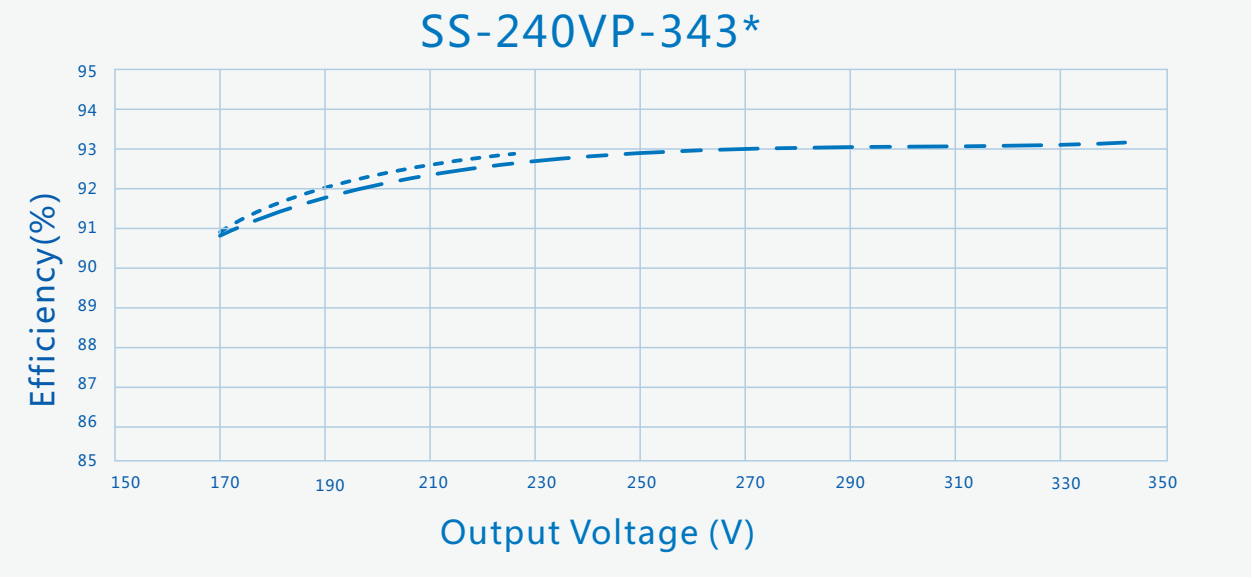
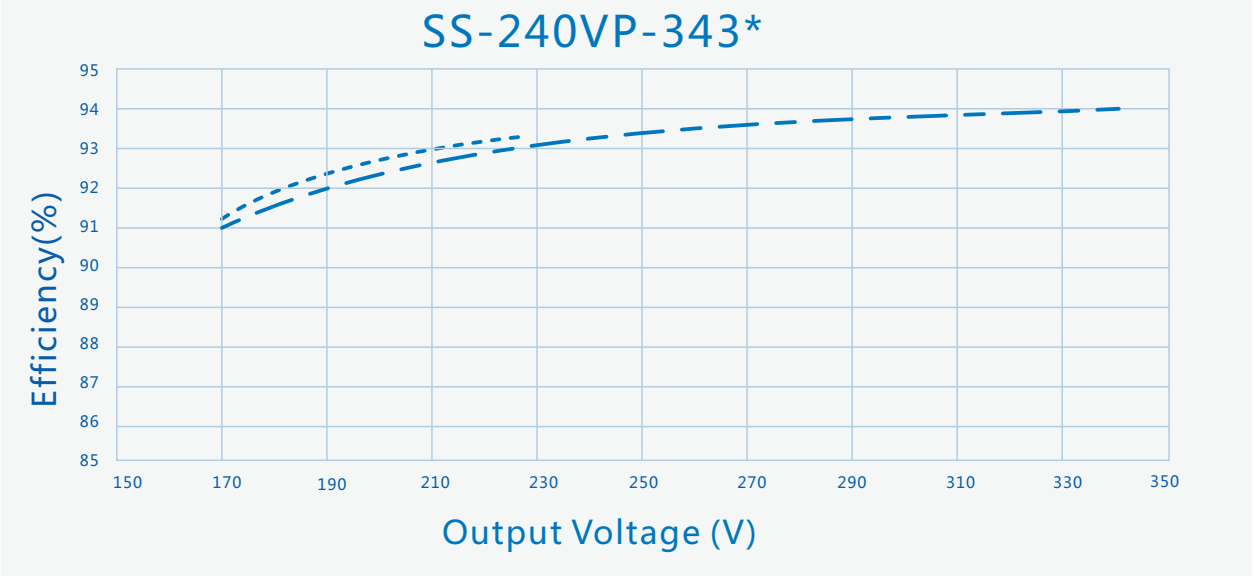
Performance Curves:

Efficiency Vs. Output Voltage (Vin=220Vac)



------- Io=1050mA — — — Io=700mA

Efficiency Vs. Output Voltage (Vin=277Vac)



------- Io=1050mA — — — Io=700mA

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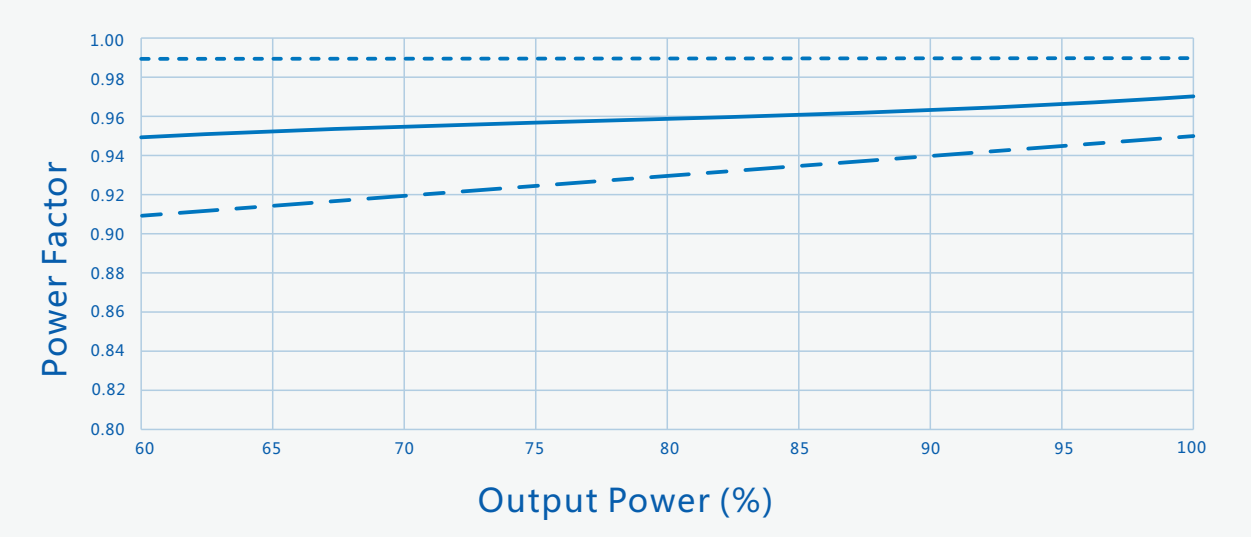
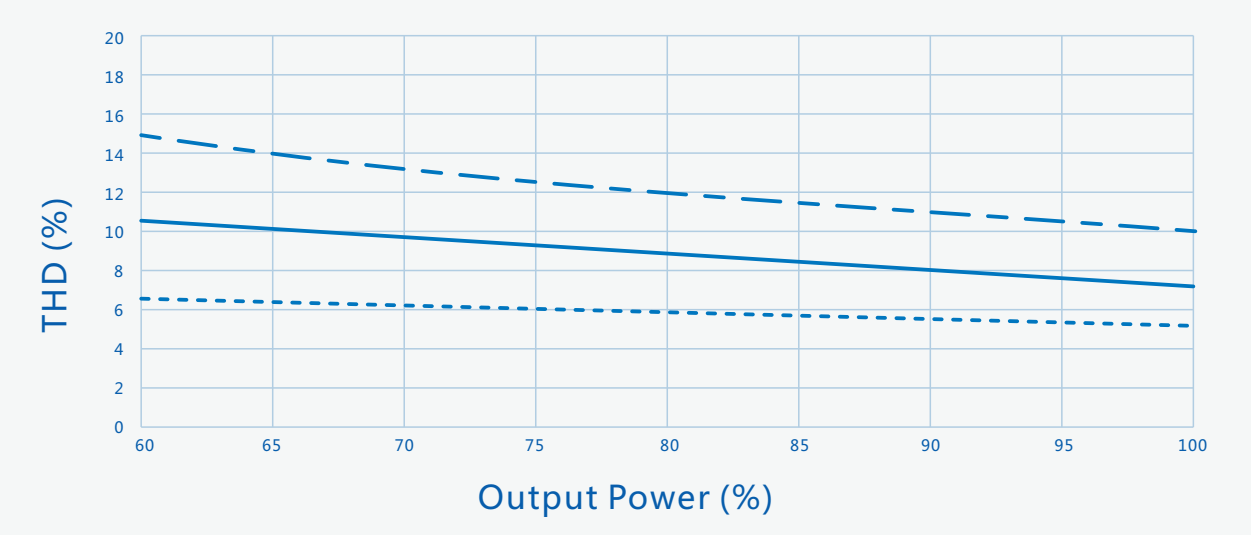
Performance Curves:

Power Factor Vs. Output Power



Vin=120Vac Vin=220Vac Vin=277Vac

THD Vs. Output Power



Vin=120Vac Vin=220Vac Vin=277Vac

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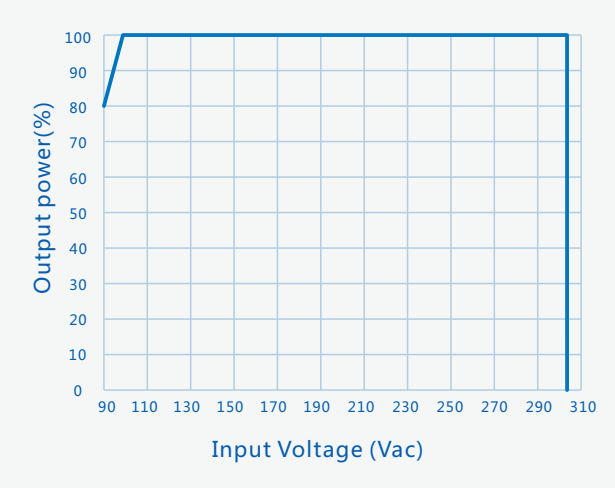
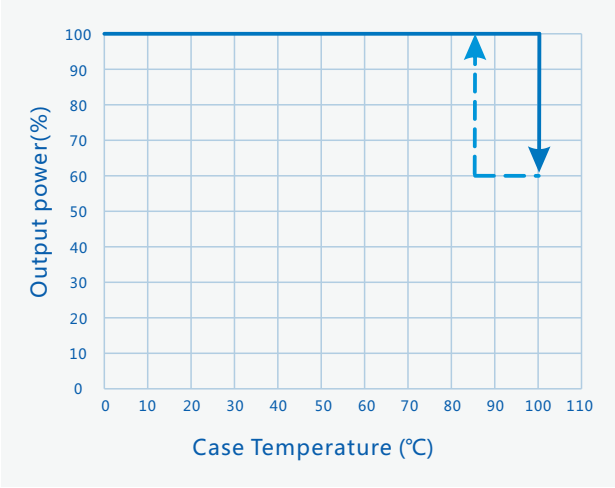
Performance Curves:

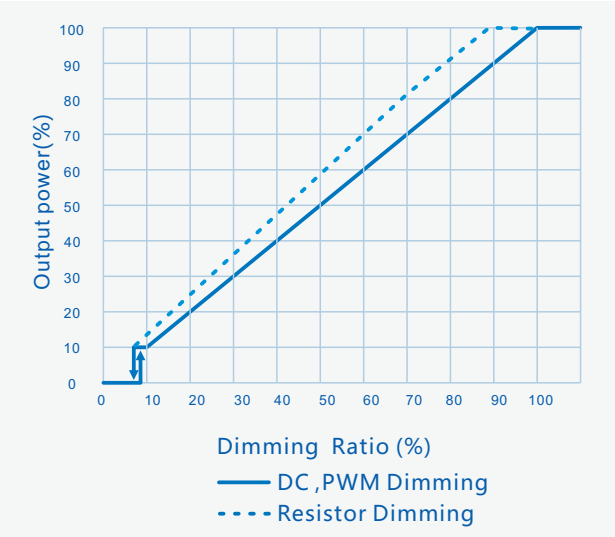
Output Power Vs. Input Voltage



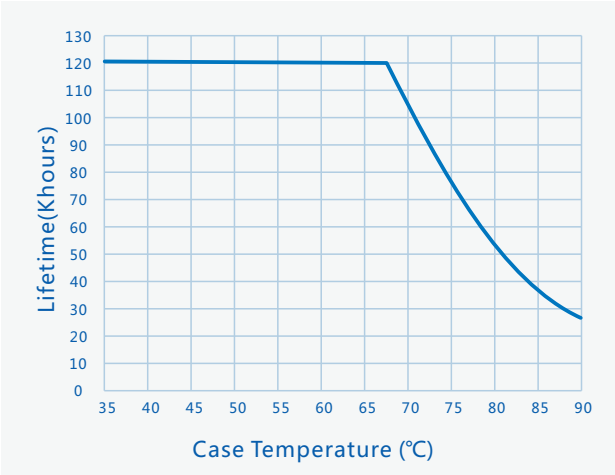
Output Power Vs. Case Temperature



Output Power Vs. Dimming



Life Time Vs. Case Temperature



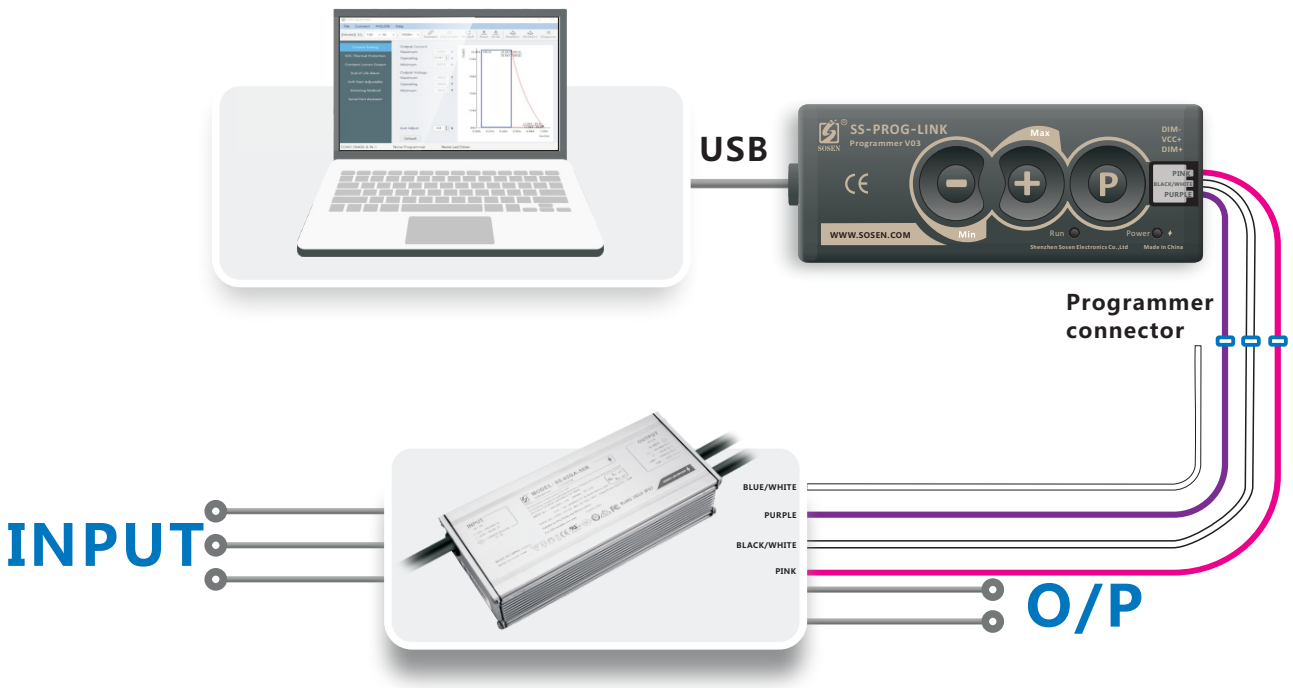
SHENZHEN SOSEN
ELECTRONICS CO.,LTD
: A3 Building,Gonghe Fourth Industrial Area, Shajing Street, Bao' an District, Shenzhen, China 518104
: 86-755-29358800
: 86-755-29358816
: info@sosen.com
: www.sosen.com

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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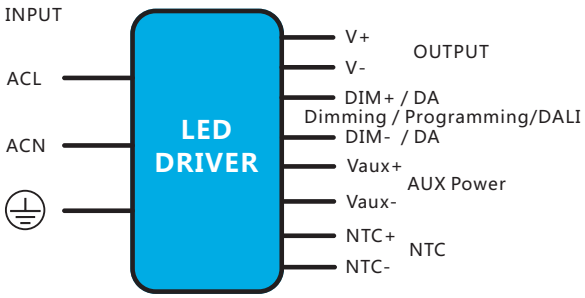
Mechanical Characteristics



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

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±10mm):

Global model: SJOW,2*17AWG,O.D: 7.7mm,Brown:V+ , Blue:V-
SS-240VP-56*:
UL model: SJTW,2*16AWG,O.D: 7.8mm,Red: V+ , Black: V-
SS-240VP-228*/SS-240VP-343*:
UL model: SJTW,2*18AWG,O.D: 7.3mm,Red: V+ , Black: V-

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

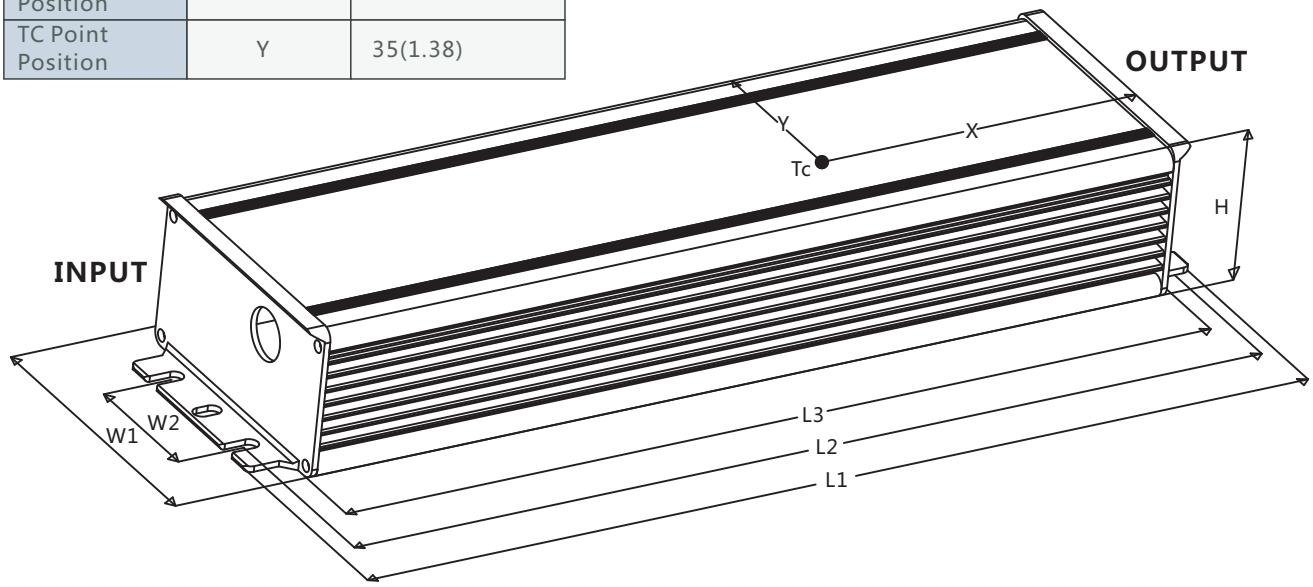
UL model: 21996 4*22AWG , O.D: 5.6mm , Purple : DIM+, Pink: DIM-, Black/White: Vaux+, Blue/White: Vaux-

NTC Cable(Exposed Length 300±10mm):

SS-240VP-56*:
UL model: 21996, 2*22AWG , O.D: 4.7mm, Red/White: NTC+, Blue/White: NTC-
SS-240VP-228*/SS-240VP-343*:
EU model: H05RN-F, 2*0.75mm² , O.D: 6.4mm, Brown: NTC+, Blue: NTC-

Name Description	Standard Code	mm(In.)
Case Length	L3	230(9.06)
Case Width	W1	71(2.8)
Case Height	H	39.6(1.56)
Overall Length	L1	254(10)
Mounting Hole Length	L2	241(9.49)
Mounting Hole Width	W2	34(1.34)
TC Point Position	X	95(3.74)
TC Point Position	Y	35(1.38)

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



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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 =493mm×380mm×116mm;
- 7PCS/Carton;
- Net weight/Piece: 1.3kg;Gross weight/Carton: 10kg;
- 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	2019/07/26	
V01	Update Programming Connection Diagram	2020/03/21	
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	Add Page Number	2023/02/01	

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