SOSEN

SPECIFICATIONS

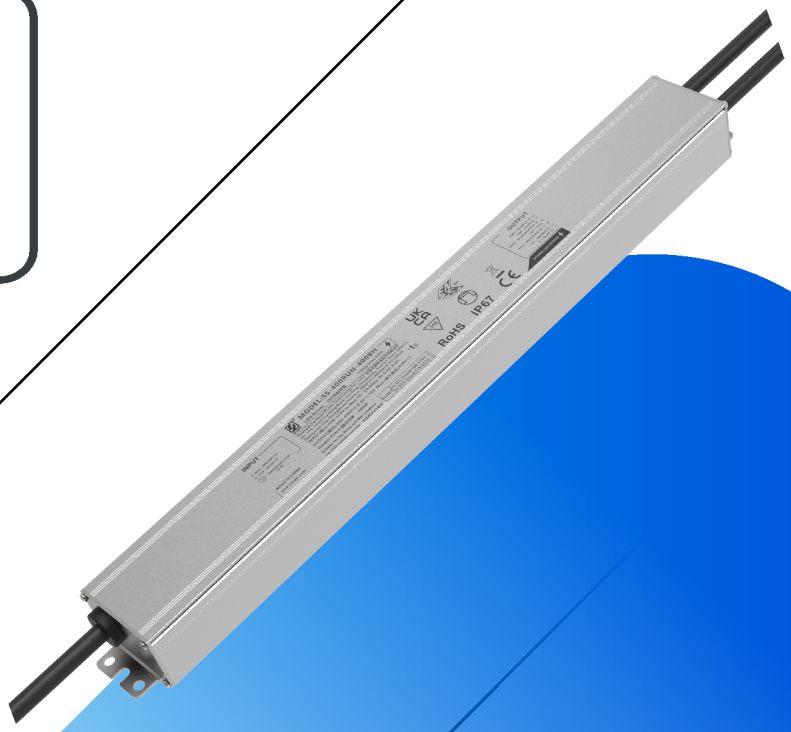
SS-400RUN-400BH
CC DRIVER

Model: SS-400RUN-400BH

Power: 400W

Rev.: V01

Release date: 2025-04-15



SS-400RUN-400BH LED DRIVER

Features

- Efficiency up to 96.5%
- Dimming: 0-10V,PWM,Resistor,Timing
- Surge protection: CM: 6kV, DM: 6kV
- AUX Power：12V/0.2A
- IP67
- Communication with PC
- Protections: SCP/OTP
- Warranty: 5 years

E360758 CB IP67 RoHS

Description

SS-400RUN-400BH is 400W non isolated waterproof LED constant current driver, suitable for 90-305Vac range input voltage, with wide range output characteristics, output current can be adjusted through software programming, and having isolation dimming and auxiliary power supply is beneficial for the design of LED lights and reduces the cost of LED lighting fixtures. Having all sides bit protection, including SCP and OTP.

Applications:

Horticulture lighting, High pole lighting, Fish lighting

Model List

Model	AC Input Range	Max. Pout	Vout Range	Recommended Volltage	Iout	THD (Typ.)	PF (Typ.)	Eff. (Typ.)	Max.Tc
SS-400RUN-400BH	90-305Vac	400W	200-400V	230V-400V	0.35-1.74A	8%	0.98	95.5%	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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Input Characteristics

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	100Vac		277Vac	Ref. derating curve
AC Input Range	90Vac		305Vac	Ref. derating curve
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			4.8A	100Vac, Full load
Max Input Power			480W	100Vac, Full load
Max Inrush Current(120Vac)			20A	Cold start
Max Inrush Current(220Vac)			22A	Cold start
Max Inrush Current(277Vac)			25A	Cold start
Standby Power			1W	220Vac/50Hz, Dim-off
Power Factor	0.95	0.98		220Vac/50Hz, Full load
	0.90			100-277Vac, 70-100% load
THD		8%	10%	220Vac/50Hz, Full load, Ta=25°C
			15%	100-277Vac, 70-100% load, Ta=25°C

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Output Characteristics

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	200V		400V	Power derated @200-230V
Rated O/P Voltage	230V		400V	Po=Vo*Io=400W, Full load
Rated O/P Current	1.0A		1.74A	1.74A for 230V,1.0A for 400V
Adj. O/P Current (AOC)Range	0.35A		1.74A	Adjustable by program
No Load Voltage			422V	
Efficiency @120Vac	89.5%	91.5%		O/P 400V/1.0A
Efficiency @220Vac	93.5%	95.5%		O/P 400V/1.0A
Efficiency @277Vac	94.0%	96.0%		O/P 400V/1.0A
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	Drop current when OTP, and it can be automatically restored after the abnormality is removed Reference over-temperature protection curve
Short Circuit Protection				Driver will not be damaged, Constant current mode

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Other Characteristics

Parameter		Min.	Typ.	Max.	Remark
AUX Power	O/P Voltage	10.8V	12V	13.8V	
	O/P Current			200mA	
10-0V Negative Dimming (Optional)	Rec.Dim Range	0V		10V	DIM+ sink current Imax 40uA. Dimming prohibits reverse connection
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	0Kohm		100Kohm	
	Dim Range	10%loset		100%loset	DIM+ source current 110uA .
Dim to Off	Dim-off	7%	8%	9%	By DC voltage, PWM,dimming ratio
	Dim-on	8.5%	9.5%	10.5%	By DC voltage, PWM,dimming ratio
10-0V Dim to Off	Dim-off	9.0V	9.2V	9.4V	By DC voltage, PWM,dimming ratio
	Dim-on	8.8V	9.0V	9.2V	By DC voltage, PWM,dimming ratio

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Other Characteristics

Parameter	Min.	Typ.	Max.	Remark
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)	50,000 hours			80% Load
MTBF	200,000 hours			220Vac,Full load, Ta=25°C (MIL-HDBK-217F)
IP Grade	IP67			
Tc	90°C			
Warranty	5 years			Tc 75°C
Net Weight	1080g			
Dimension	390mm*43.5mm*32mm			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 EN 61347-2-13 EN IEC62384	✓	
UKCA	EN 61347-1 EN 61347-2-13 EN 62493	✓	
RCM	AS/NZS61347.2.13		
CCC	GB19510.1;GB19510.14		
CE	EN 61347-1 EN 61347-2-13 EN 62493	✓	

EMI/EMS	Criterion	Remark
Conduction Emission	EN IEC 55015	
Radiation Emission	EN IEC 55015	
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC/EN61000-4-5	DM: 6kV,CM: 6kV,Criterion B
	ANSI/C82.77-5-	DM: 6kV,CM: 6kV,Criterion B
Ring Wave	IEC/EN 61000-4-12;ANSI/C82.77-5	DM: 6kV,CM: 6kV,Criterion B

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Safety Test Items

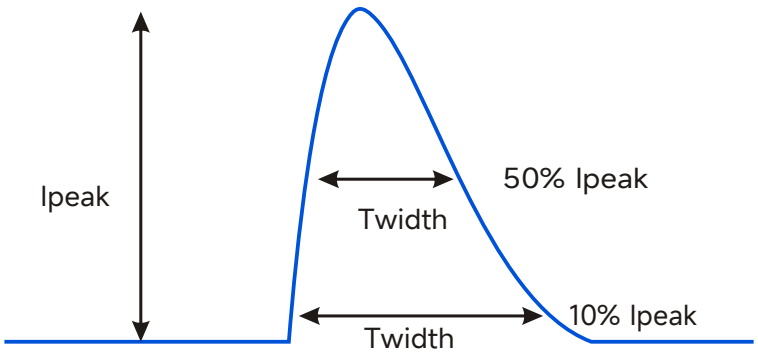
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	1600Vac	1500Vac	/	Basic insulation
Input-Dim	1600Vac	3000Vac	/	Reinforced insulation
Dim-Case	500Vac	500Vac	/	Basic insulation
Insulation Resistance	≥10MΩ			Primary-DIM,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 and V+ and V-), (Dim+ and Dim - and Vaux+)when Hi-pot test.

Performance Curves

Input Inrush Current



Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
120Vac	20A	5.5mS	
220Vac	22A		2mS
277Vac	25A	5.5mS	

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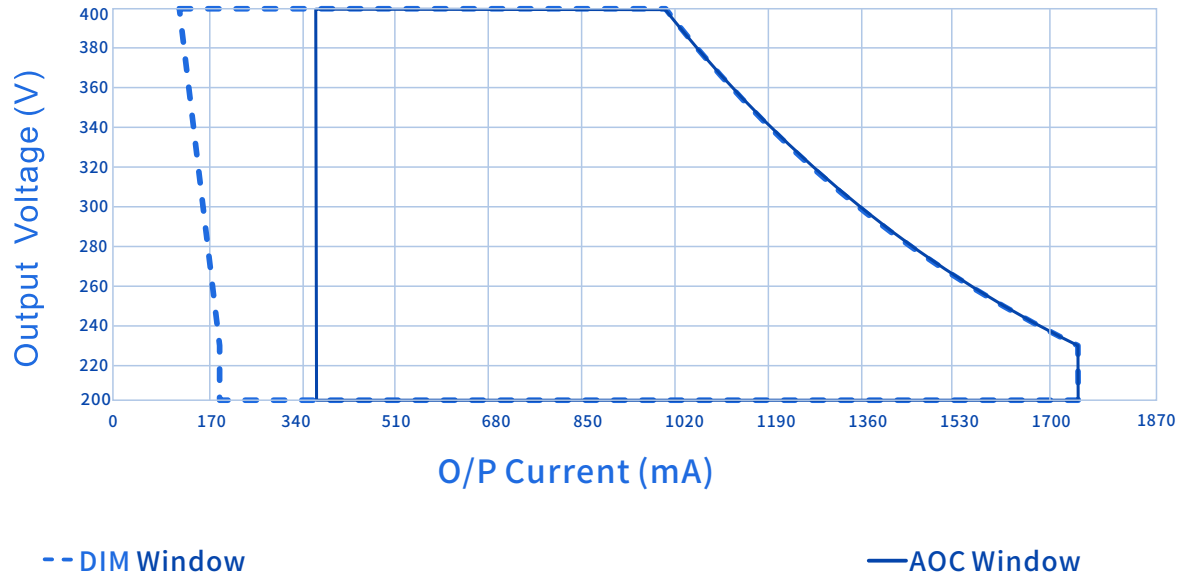
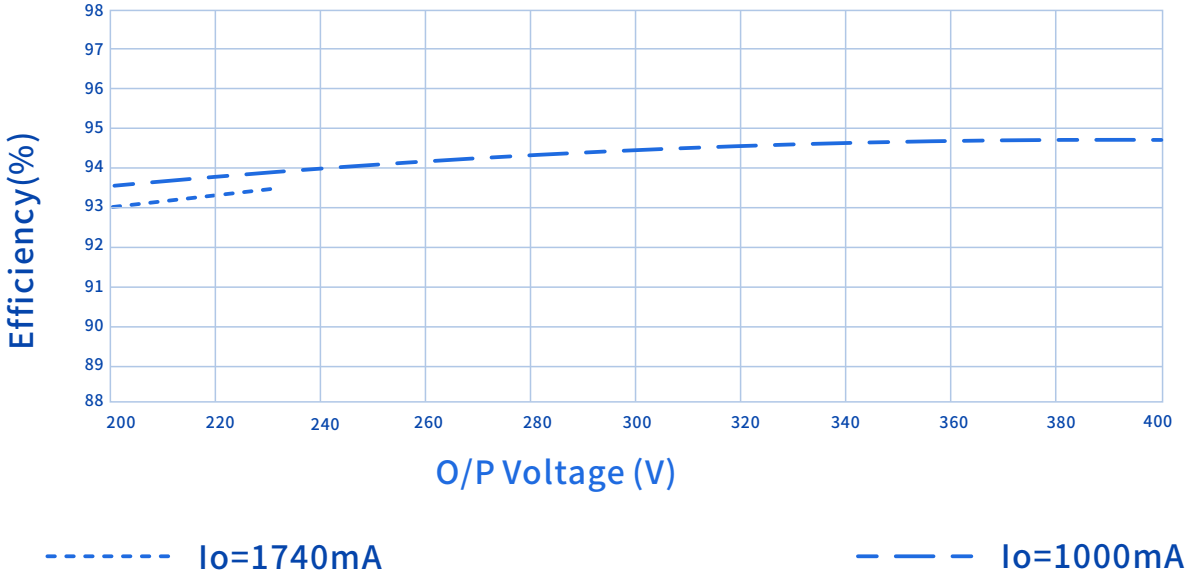
Performance Curves

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



Efficiency Vs. Output Voltage(Vin=120Vac)



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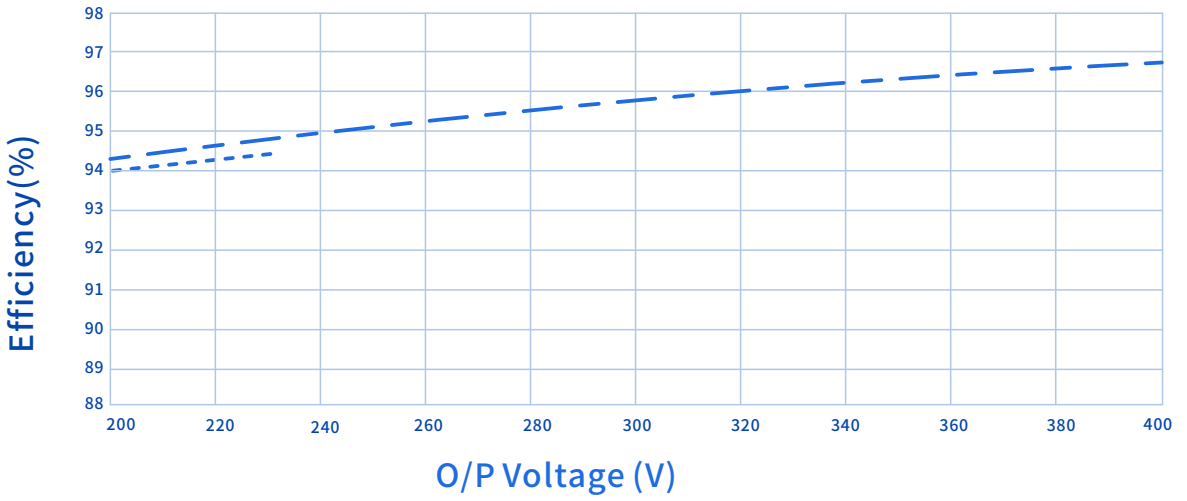
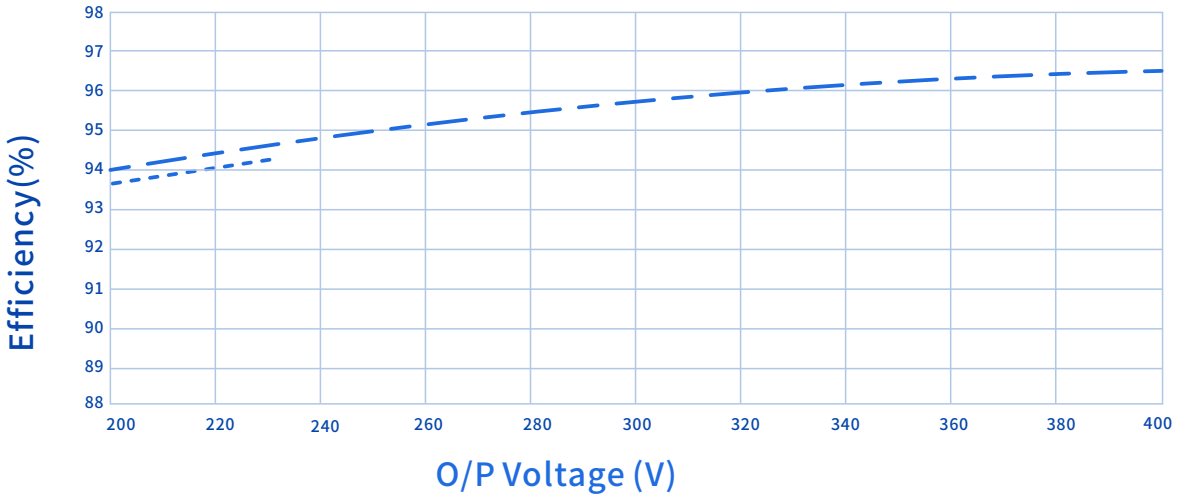
Performance Curves

Efficiency Vs. Output Voltage (Vin=220Vac)



Efficiency Vs. Output Voltage(Vin=277Vac)



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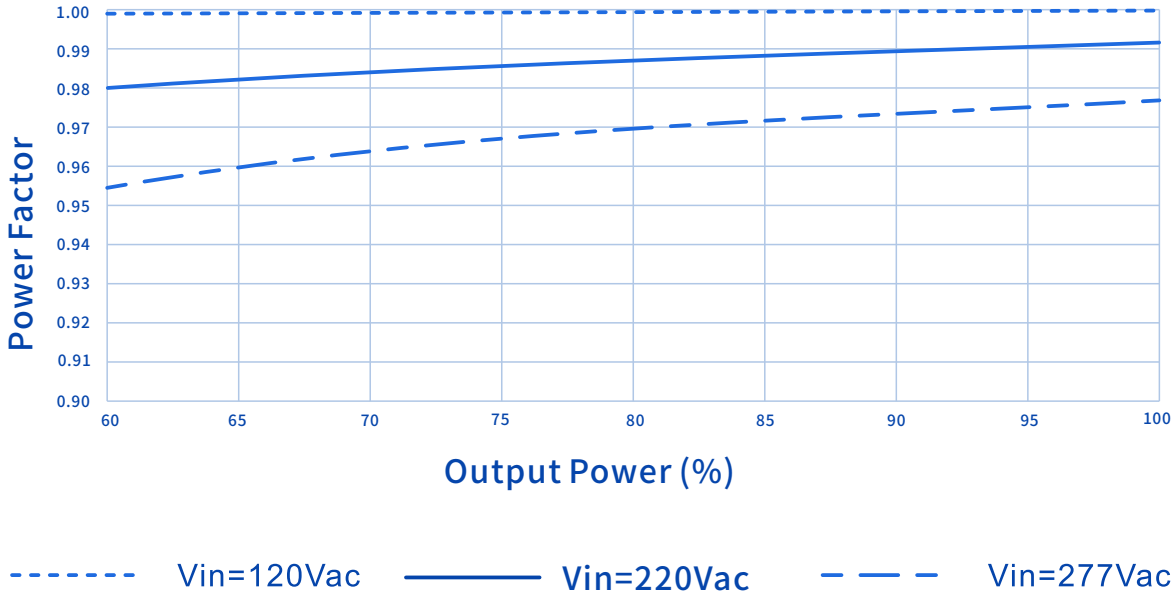
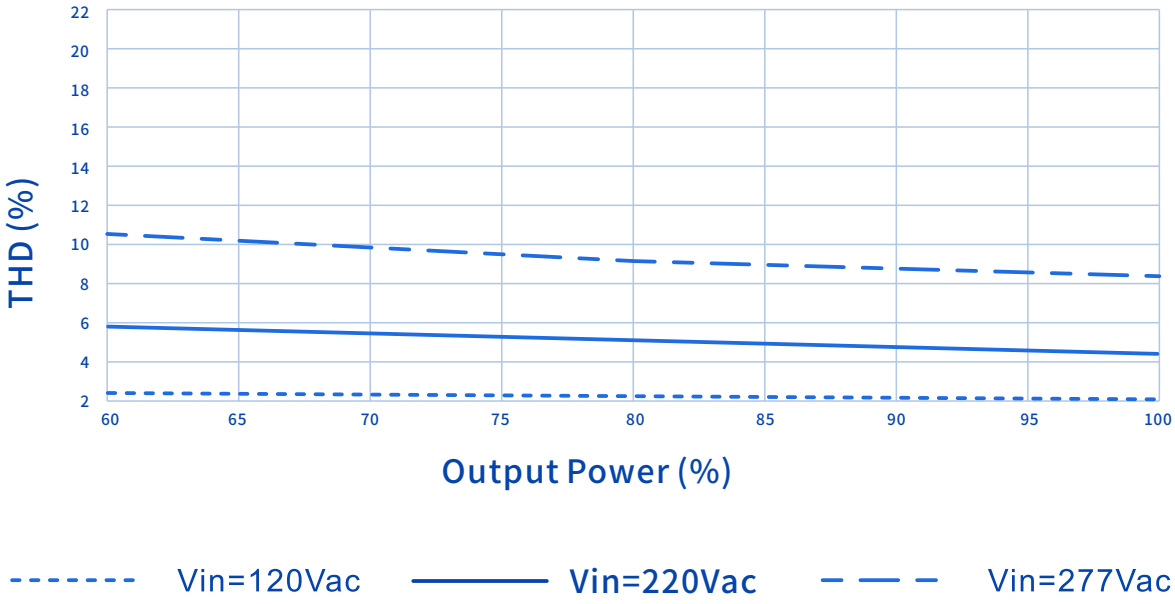
Performance Curves

Power Factor Vs. Output Power



THD Vs. Output Power



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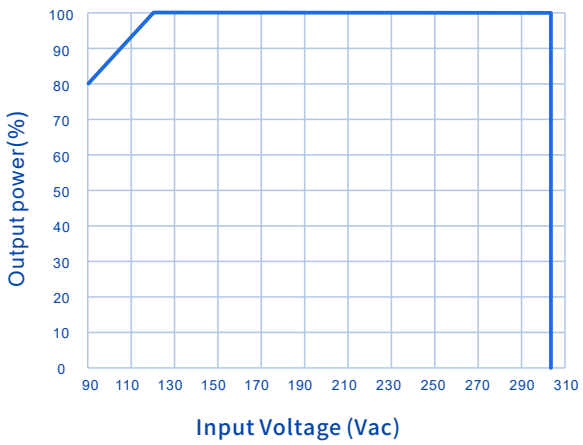
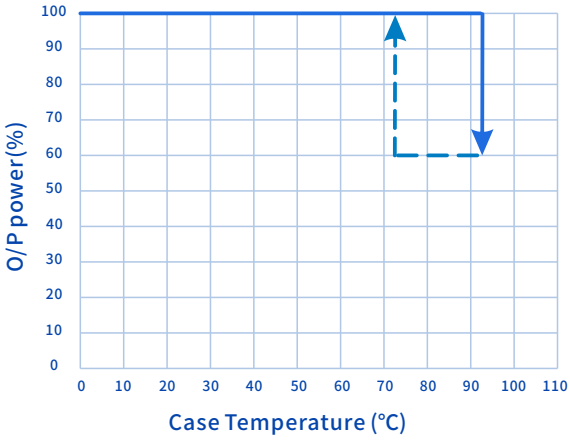
Performance Curves

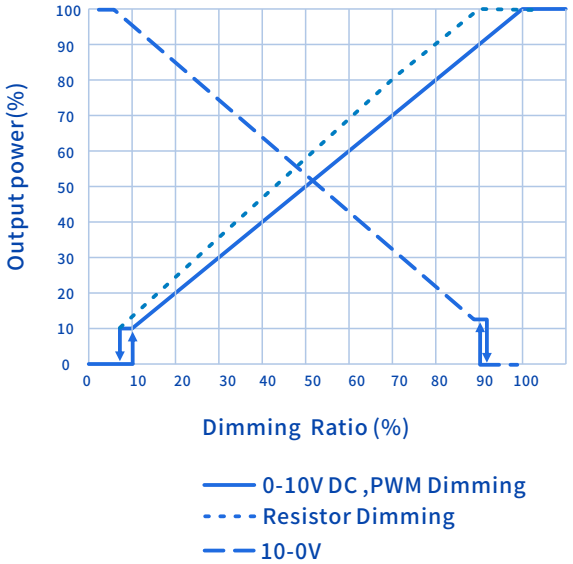
Output Power Vs. Input Voltage



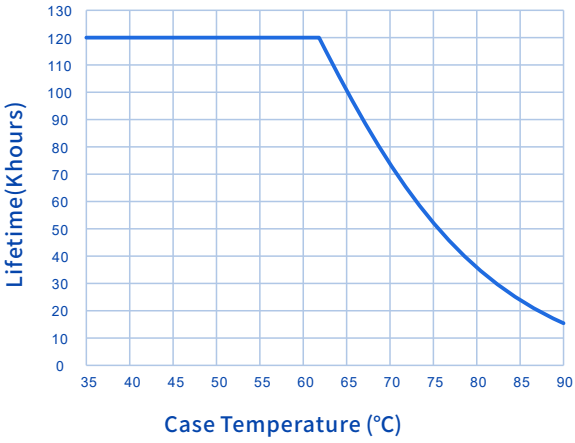
Output Power Vs. Case Temperature



Output Power Vs. Dimming



Lifetime Vs. Case Temperature



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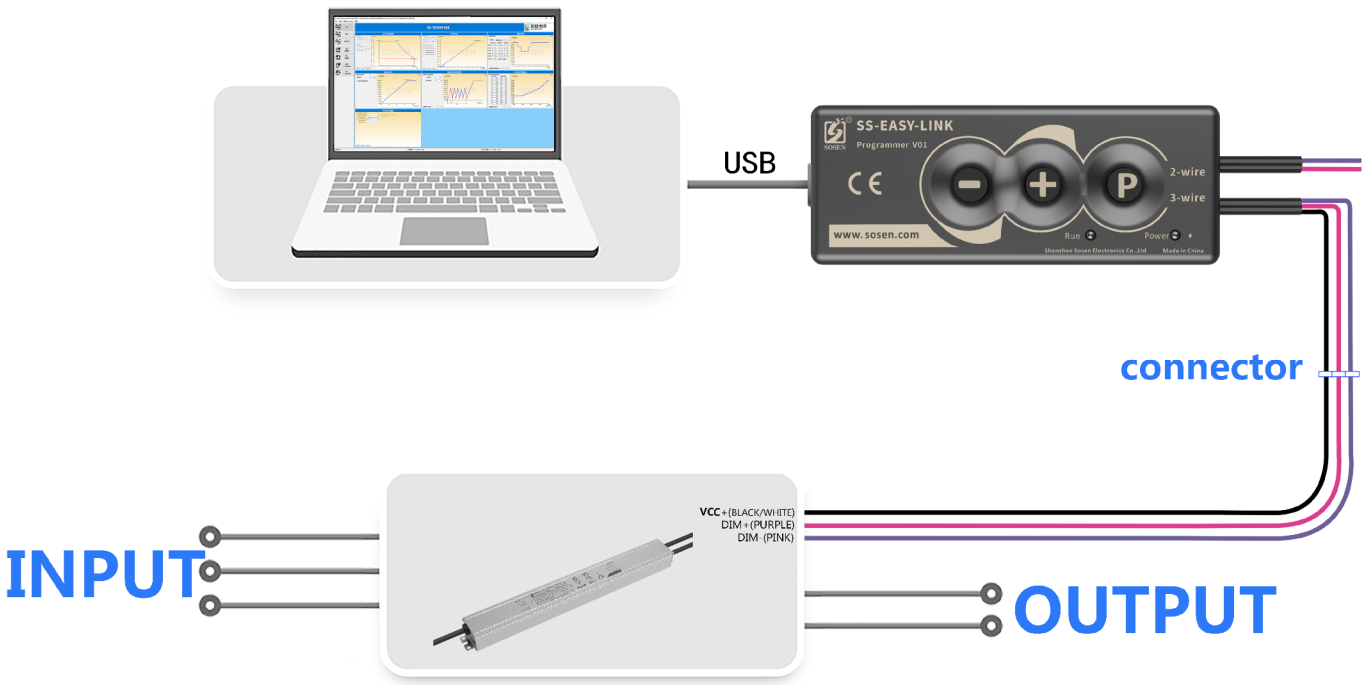
Constant Lumen Output

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

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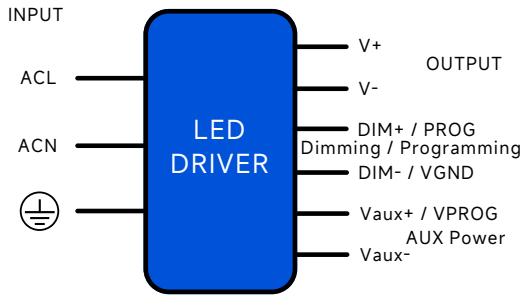
SS-400RUN-400BH LED DRIVER

Mechanical Characteristic



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

UL model: SJTW,3*18AWG,O.D: 7.8mm,Black:ACL,White:ACN,Green: ⏚
EU model: H05RN-F,3*1.0mm²,O.D: 7.3mm,Brown:ACL,Blue:ACN,
Yellow/Green: ⏚

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

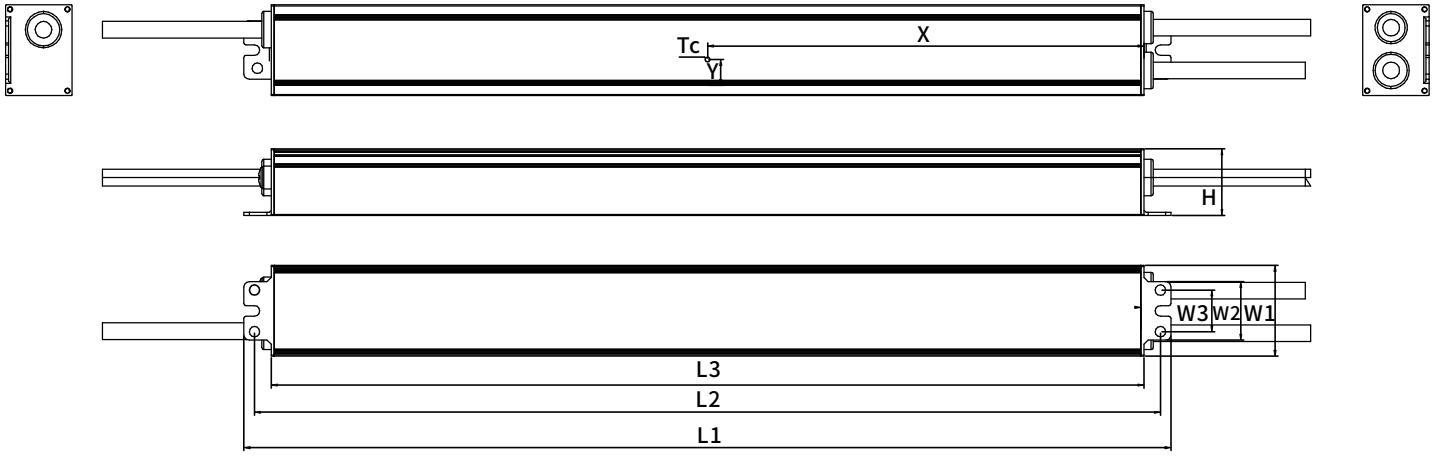
UL model: SJTW,2*18AWG,O.D: 7.3mm,Red: V+ Black: V-
EU model: H05RN-F,2*1.0mm²,O.D: 7.0mm,Brown: V+ Blue: V-

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

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

Name Description	Standard Code	mm(In.)
Case Width	W1	43.5(1.71)
Mounting Hole Width	W2	28(1.1)
Mounting Hole Width	W3	20(0.79)
Overall Length	L1	390(15.35)
Mounting Hole Length	L2	380(14.96)
Case Length	L3	364(14.35)
Case Height	H	32(1.26)
TC Point Position	X	182(7.17)
TC Point Position	Y	15(0.59)

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. 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 the maximum case temperature of 90°C, an auxiliary heat sink must be added. It is recommended that the heat sink has a heat dissipation area of 770cm² and volume of 231cm³.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. Safety space between aluminum base and LED coppers >5mm.
4. Safety space/coppers between LED+ and LED- ≥3.6mm.
5. Minimize the copper area on the aluminum PCB to reduce parasitic capacitance and leakage current.
6. The insulation level of LED light panels should meet the reliability design requirements.
7. For other precautions, please refer to the "LED Driver User Manual".
8. It's recommended to add resistors or capacitors in parallel with the LED on PCB to reduce the risk of surge when a non isolated LED driver is used for the luminaire
9. It is recommended to design LED beads in parllel first and then in series.

Package

- Outside carton dimension: L×W×H =577mm×385mm×116mm;
- 10PCS/Carton;
- Net weight/Piece: 1.08kg;Gross weight/Carton: 12.74kg;
- 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	2023/10/17	
V01	Version Upgrade	2025/04/15	

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