SOSEN

SPECIFICATIONS

SS-400RUN-M400BH*
CC DRIVER

Model: SS-400RUN-M400BH*

Power: 400W

Rev.: V02

Release date: 2026-01-04

SS-400RUN-M400BH* LED DRIVER

Features

- Efficiency up to 97%
- Dimming: 0-10V,PWM,Resistor,Timing
- Surge protection: CM: 6kV, DM: 6kV
- AUX Power：12V/0.2A
- IP67
- Communication with PC
- Protections: SCP/OTP
- Standby power consumption 0.5W
- Warranty: 5 years

E360758 IP67 RoHS

Description

SS-400RUN-M400BH* is 400W non isolated waterproof LED constant current driver, suitable for 180-528Vac 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, 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-M400BH*	180-528Vac	400W	200-400V	230V-400V	0.35-1.74A	8%	0.97	97%	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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Input Characteristics

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	200Vac		480Vac	Ref. derating curve
AC Input Range	180Vac		528Vac	Ref. derating curve
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			2.6A	200Vac, Full load
Max Input Power			520W	200Vac, Full load
Max Inrush Current(220Vac)			30A	Cold start
Max Inrush Current(347Vac)			40A	Cold start
Max Inrush Current(480Vac)			50A	Cold start
Standby Power			0.5W	230Vac/50Hz, Dim-off
Power Factor	0.95	0.97		220Vac, Full load
	0.90			200-480Vac, 70-100% load
THD		8%	10%	240Vac/60Hz, Full load, Ta=25℃
			20%	200-480Vac 60%-100% load, Ta=25℃

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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			500V	
Efficiency @220Vac	94.5%	96.5%		O/P 400V/1.0A
Efficiency @347Vac	94.5%	96.5%		O/P 400V/1.0A
Efficiency @480Vac	95.0%	97.0%		O/P 400V/1.0A
O/P Current Tolerance	-5%		+5%	230Vac/50Hz
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load(Current steady state current value)
Start-up Time			0.5S	220Vac~480Vac,Full load
Line Regulation	-3%		+3%	Full load
Load Regulation	-3%		+3%	
Temperature Coefficient	-0.03%/°C		+0.03%/°C	Tc:0°C~90°C
OTP	93°C	95°C	100°C	Drop current when OTP, and it can be automatically restored after the abnormality is removed
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	
0-10V positive logic 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.
10-0V Negative Dimming (Optional)	Rec.Dim Range	0V		12V	DIM+ sink current Imax 40uA. Dimming prohibits reverse connection Programmable to 5-0V
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	Not available with negative logic
	Dim Range	10%loset		100%loset	DIM+ source current 110uA .
0-10V Dim to Off	Dim-off	0.7V	0.8V	0.9V	By DC voltage, PWM,dimming ratio
	Dim-on	0.8V	0.9V	1.0V	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			347Vac,Full load, Ta=25°C (MIL-HDBK-217F)
IP Grade	IP67			
Tc	90°C			
Warranty	5 years			Tc 75°C
Net Weight	1320g			
Dimension	390.5mm*43.5mm*38mm			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	FCC Part15:Subpart B ANSI63.4	Class A
	EN IEC 55015	
Radiation Emission	FCC Part15:Subpart B ANSI63.4	Class A
	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

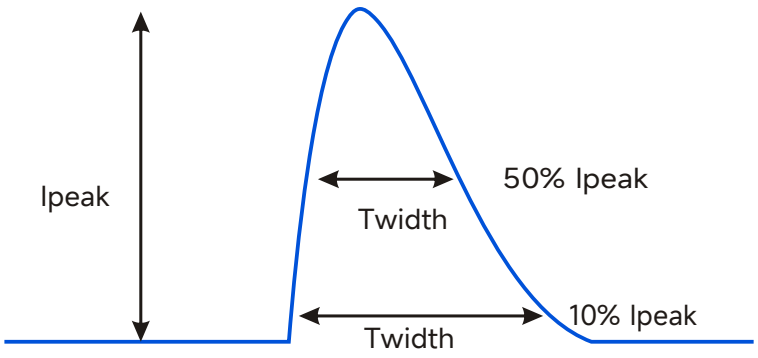
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	2U+1000	2U+1000	/	Basic insulation
Input-Dim	2U+1000	4U+2000	/	Reinforced insulation
Dim-Case	500Vac	500Vac	/	Basic insulation
Insulation Resistance	≥10MΩ			Primary-DIM,Test voltage:500Vdc
Ground Resistance	≤0.1Ω			25A/1min
Leakage Current	≤0.75mA			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. During the withstand voltage test, the input and output wires are shorted together to withstand voltage to ground.
3. When hitting the withstand voltage to ground, it is necessary to short the input and output wires together.

Performance Curves

Input Inrush Current



Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	30A	5.5mS	2mS
347Vac	40A	5.5mS	2mS
480Vac	50A	5.5mS	2mS

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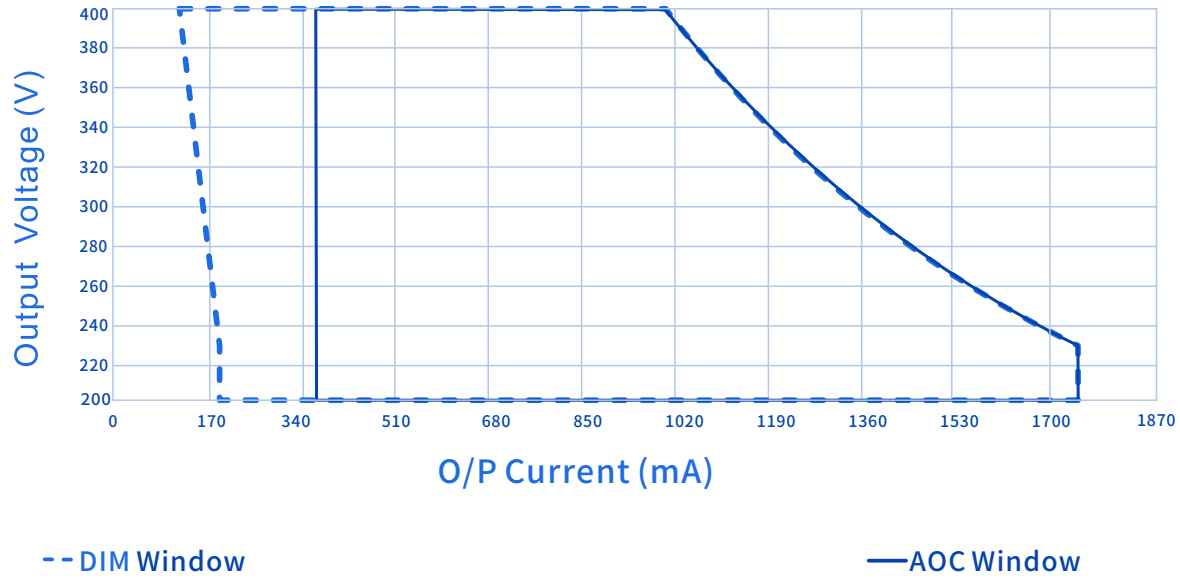
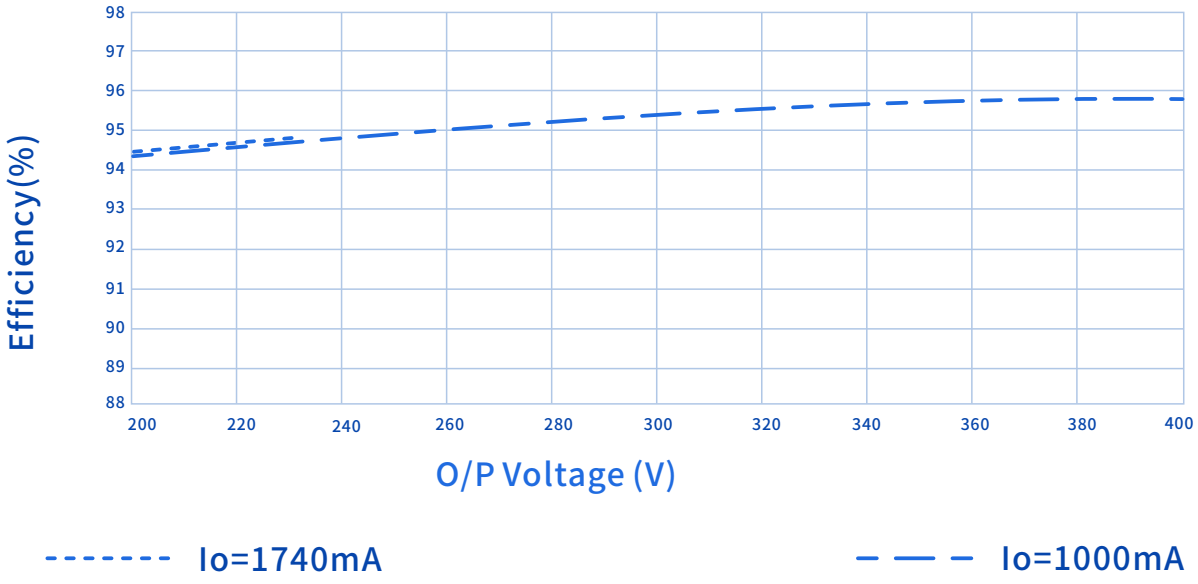
Performance Curves

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



Efficiency Vs. Output Voltage(Vin=220Vac)



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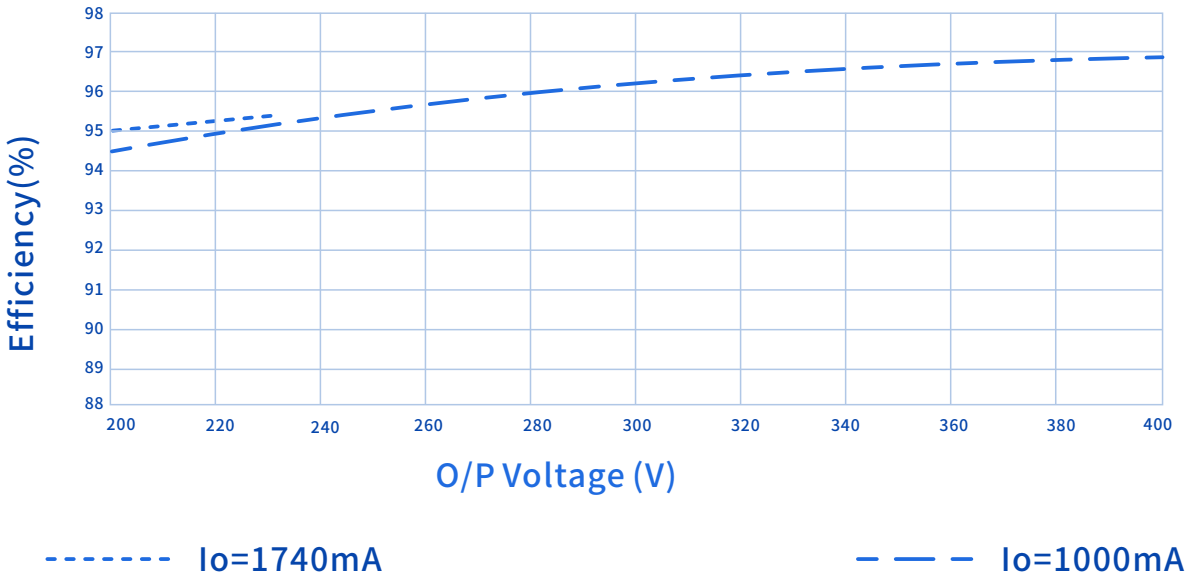
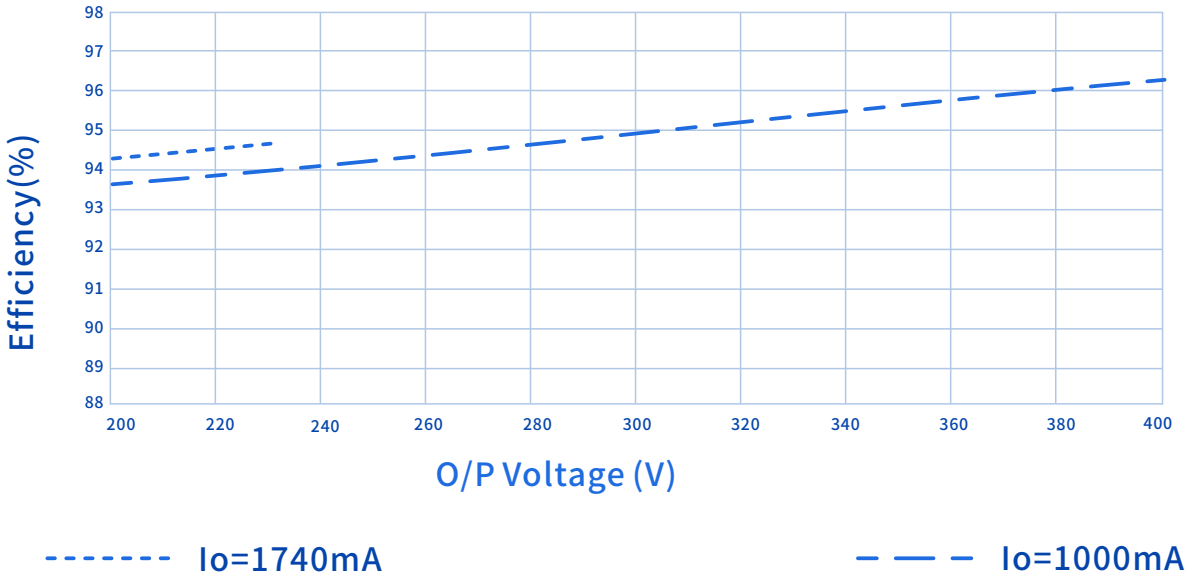
Performance Curves

Efficiency Vs. Output Voltage (Vin=347Vac)



Efficiency Vs. Output Voltage(Vin=480Vac)



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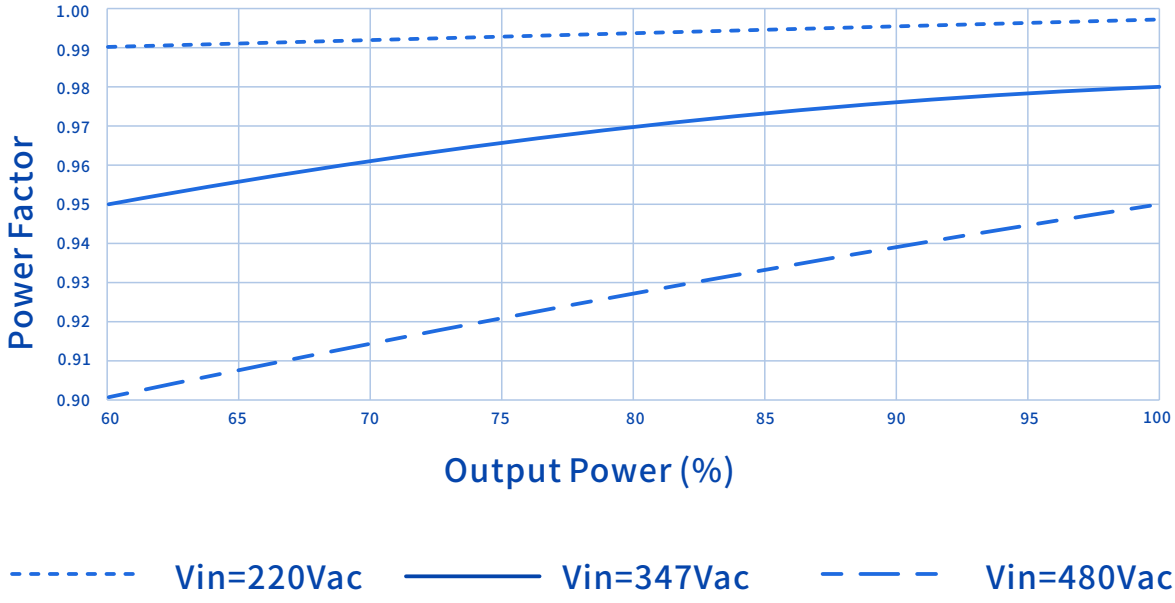
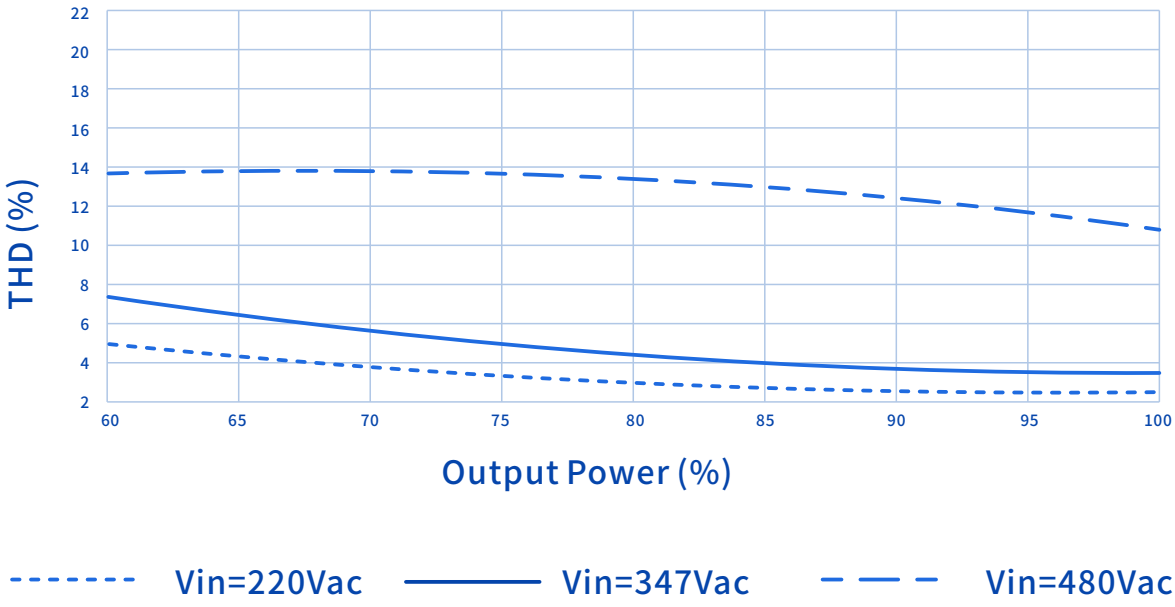
Performance Curves

Power Factor Vs. Output Power



THD Vs. Output Power



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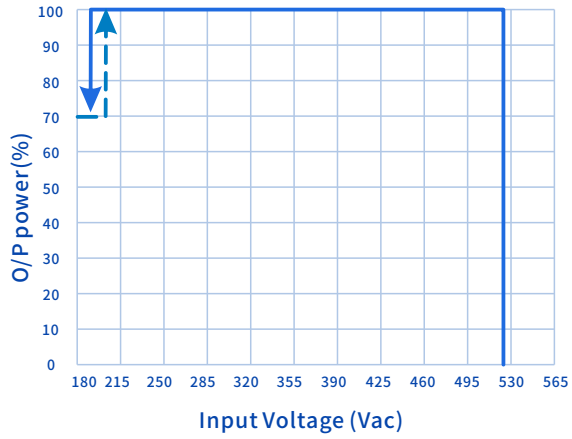
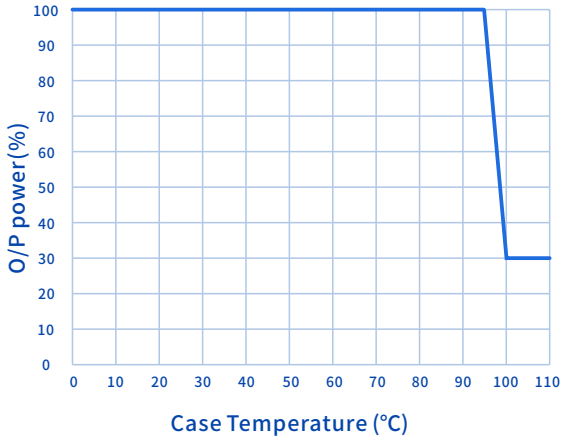
Performance Curves

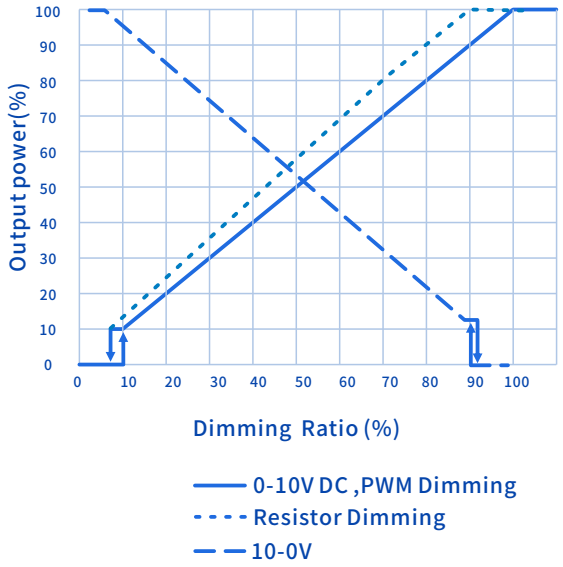
Output Power Vs. Input Voltage



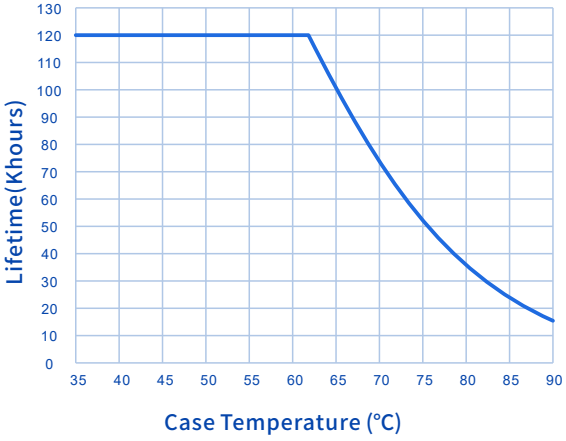
Output Power Vs. Case Temperature



Output Power Vs. Dimming



Lifetime Vs. Case Temperature



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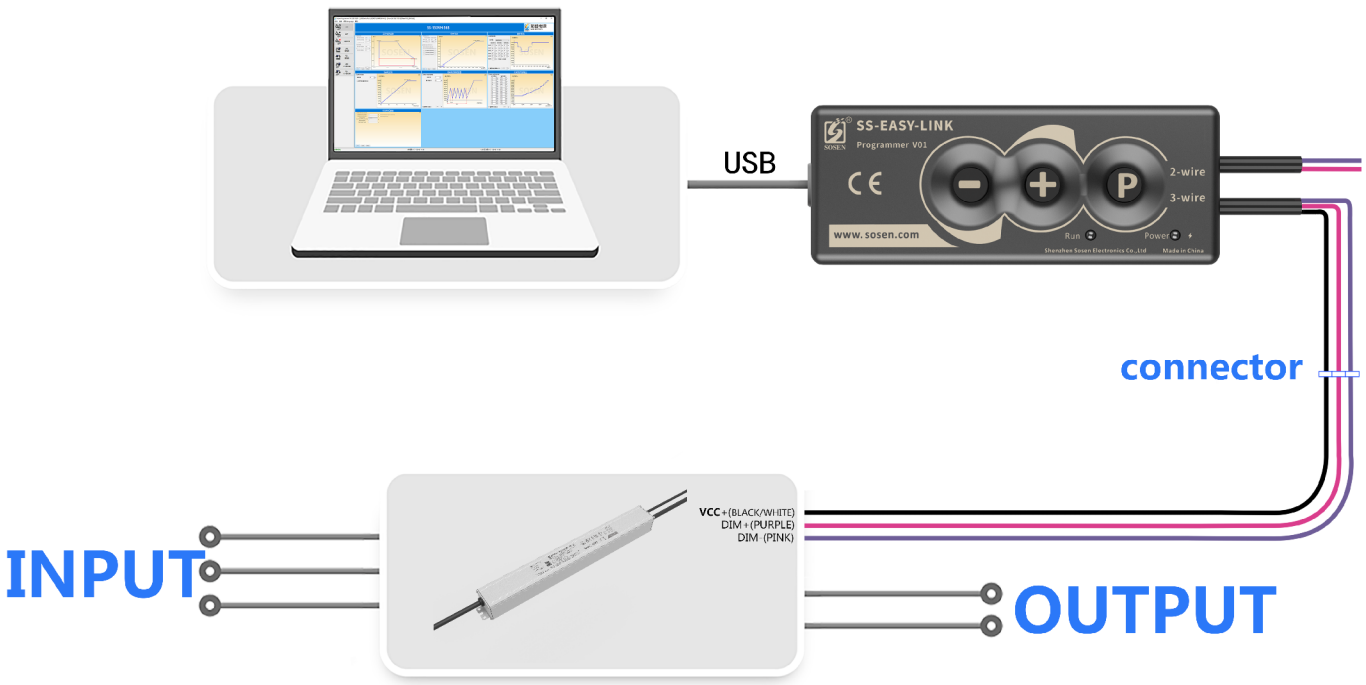
Constant Lumen Output

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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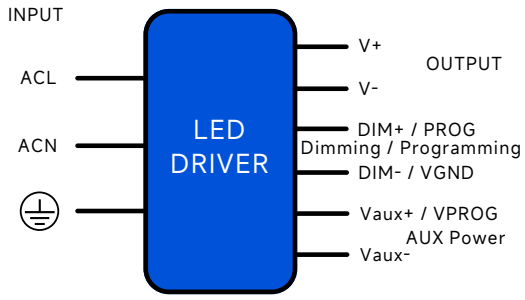
SS-400RUN-M400BH* LED DRIVER

Mechanical Characteristic



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

UL model: STW,3*18AWG,O.D:9.4mm,Black:ACL,White:ACN,Green:⏚
Global model: H07RN-F 3*17AWG,O.D: 9.8mm,Brown:ACL,Blue:ACN,
Yellow/Green:⏚

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

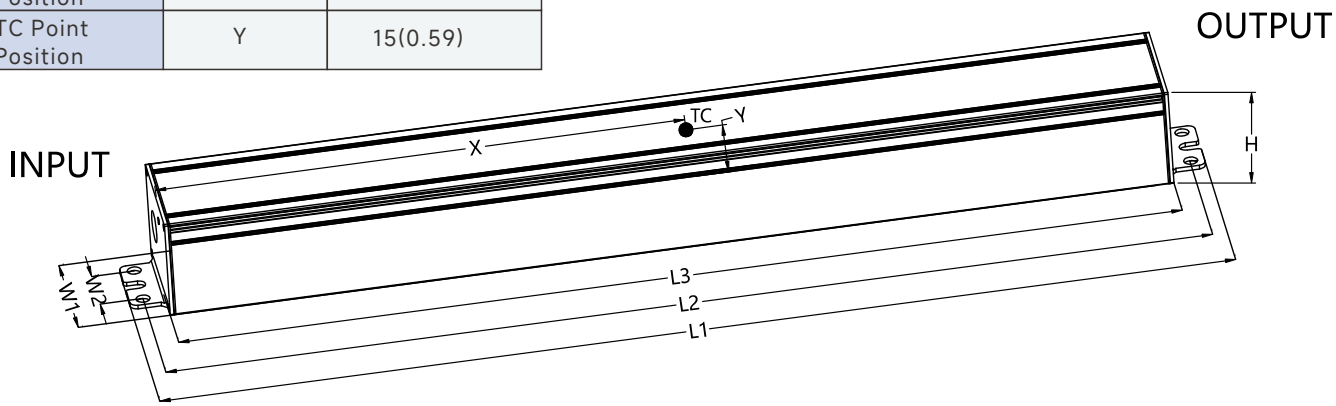
UL model: SJTW,3*16AWG,O.D: 8.5mm,Black: V+ White: V- Green:⏚
UL model: SJTW,2*18AWG,O.D: 9.0mm,Red: V+ Black: V-
Global model: H05RN-F,3*17AWG,O.D: 8.0mm,Brown: V+ Blue: V-,
Yellow/Green:⏚
Global model: H05RN-F,2*1.0mm²,O.D: 7.0mm,Brown: V+ Blue: V-,

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

Global model:STYLE 21996, 4*22AWG,O.D:5.6mm,purple: DIM+, Pink: DIM-,
Black/White: Vaux+, Blue/White: Vaux-,
Global model:STYLE 21996, 3*22AWG,O.D:4.9mm,purple: DIM+, Pink: DIM-/Vaux-,
Black/White: Vaux+,

Name Description	Standard Code	mm(In.)
Case Width	W1	43.5(1.71)
Mounting Hole Width	W2	20(0.78)
Overall Length	L1	390(15.35)
Mounting Hole Length	L2	380(14.96)
Case Length	L3	364(14.33)
Case Height	H	38(1.5)
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. The trace routing on aluminum substrates is designed in compliance with creepage distance requirements specified by relevant certification regulations.
3. The creepage distance between LED+ and LED- on the aluminum substrate is designed in compliance with the relevant certification regulations.
4. Minimize the copper area on the aluminum PCB to reduce parasitic capacitance and leakage current.
5. The insulation level of LED light panels should meet the reliability design requirements.
6. For other precautions, please refer to the "LED Driver User Manual".
7. 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
8. It is recommended to design LED beads in parllel first and then in series.

Warning

Warning: Insufficient or compromised insulation voltage resistance in LED light panels may cause breakdown and short circuits to earth, resulting in damage to the luminaire and LED driver, and posing significant safety hazards. It is recommended to install a residual current device (RCD) during application.

Package

- Outside carton dimension: L×W×H =610mm×385mm×162mm;
- 8PCS/Carton;
- Net weight/Piece: 1.32kg;Gross weight/Carton: 12.48kg;
- 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	2025/04/15	
V01	Modify no-load voltage	2025/05/22	
V02	Add warning statements	2026/01/04	

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