SOSEN
LED DRIVER

SOSEN LED Driver, Your Smart Choice

Specifications

SS-150GA-E Series LED Driver

Model: SS-150GA-EXXX*

Description: 150W LED Driver

Rev.: V04

Release Date: 2024-12-23

SS-150GA-E Series LED Driver

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—
GA-E Series

RoHS IP66 IP67

Features:

- Efficiency up to 93.5%
- Output current adjustment method:
  NFC programming (D/DE models)
  Dimmer line programming (B/BE models)
- Isolated dimming:DALI-2,0-10V,PWM,Resistor
- DALI-2 certification (Part 251, 252, 253)
- TIM，ELA，CLO
- Suitable for Class I /II lamps
- Protections: SCP/OTP/OVP/OPP
- Surge protection: CM: 10kV, DM: 6kV
- IP66/IP67
- Warranty: 5 years

Description:

GA-E Series are 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.

Applications:

High Pole lighting, High bay lighting, Stadium lighting, Plant lighting, Fish lighting, Street lighting, Tunnel lighting , Stage lighting

Model List:

Model	AC Input Range	Max. Pout	Vout Range	Full Power Vo Range	Iout	Default Current	THD (Typ.)	PF (Typ.)	Eff. (Typ.)	Max.Tc
SS-150GA-E62*	100-305Vac	150W	30-62V	40-62V	0.35-3.75A	3.125A	8%	0.98	91.5%	90℃
SS-150GA-E143*	100-305Vac	150W	72-143V	100-143V	0.35-1.5A	1.05A	8%	0.98	92.5%	90℃
SS-150GA-E215*	100-305Vac	150W	107-215V	143-215V	0.1-1.05A	0.7A	8%	0.98	93.0%	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.

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"*" Means Additional Function

Suffix	0-10V/PWM /Resistor Or 10-0V (suffix:B)	DALI (suffix:D)	NFC	Class I	Class II	Remark
B	✓			✓		
BE	✓				✓	
D		✓	✓	✓		
DE		✓	✓		✓	

Model	Suffix:B	Suffix:BE	Suffix:D	Suffix:DE
SS-150GA-E62*	✓	✓	✓	✓
SS-150GA-E143*	✓	✓		
SS-150GA-E215*	✓	✓	✓	✓

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
AC Input Range	100Vac	220-240Vac	305Vac	Reference Derating Curve
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			1.1A	220Vac, Full load
Max Input Power			170W	220Vac, Full load
Max Inrush Current(220Vac)			75A	Cold start
No Load Power			7.5W	220Vac/50Hz, No load
Standby Power			0.5W	D/DE models, 220Vac/50Hz, Dimming off
Power Factor	0.95	0.97		220Vac/50Hz, Full load
	0.90			220-277Vac, 70-100% load
THD		8%	10%	220Vac/50Hz, Full load
			20%	220-277Vac, 70-100% load

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Output Characteristics(SS-150GA-E62*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	30V		62V	Power derated @30-40V
Rated O/P Voltage	40V		62V	Po=Vo*Io=150W, Full load
Rated O/P Current	2.4A		3.75A	3.75A for 40V,2.4A for 62V
Adj. O/P Current (AOC)Range	0.35A		3.75A	
No Load Voltage			80V	
Efficiency @220Vac	89.5%	91.5%		Output 40V/3.75A, Test after burn-in
Efficiency @277Vac	90.0%	92.0%		Output 40V/3.75A, Test after burn-in
O/P Current Tolerance	-5%		+5%	Full load
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	B/BE models 220Vac, Full load
			0.8S	D/DE models 220Vac, Full load
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient		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.
Short Circuit Protection				Driver will not be damaged

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Output Characteristics(SS-150GA-E143*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	72V		143V	Power derated @72-100V
Rated O/P Voltage	100V		143V	Po=Vo*Io=150W, Full load
Rated O/P Current	1.05A		1.5A	1.5A for 100V,1.05A for 143V
Adj. O/P Current (AOC)Range	0.35A		1.5A	
No Load Voltage			200V	
Efficiency @220Vac	90.5%	92.5%		Output 100V/1.5A, Test after burn-in
Efficiency @277Vac	91.0%	93.0%		Output 100V/1.5A, Test after burn-in
O/P Current Tolerance	-5%		+5%	Full load
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	B/BE models 220Vac, Full load
			0.8S	D/DE models 220Vac, Full load
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient		0.03%/℃		Tc:0℃~90℃
OTP	90℃	100℃	110℃	Drop current when OTP, and it can be automatically restored after the abnormality is removed.
Short Circuit Protection				Driver will not be damaged

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Output Characteristics(SS-150GA-E215*):

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	107V		215V	Power derated @107-143V
Rated O/P Voltage	143V		215V	Po=Vo*Io=150W, Full load
Rated O/P Current	0.7A		1.05A	1.05A for 143V,0.7A for 215V
Adj. O/P Current (AOC)Range	0.1A		1.05A	
No Load Voltage			250V	
Efficiency @220Vac	91.0%	93.0%		Output 143V/1.05A, Test after burn-in
Efficiency @277Vac	91.5%	93.5%		Output 143V/1.05A, Test after burn-in
O/P Current Tolerance	-5%		+5%	Full load
O/P Current Ripple(PK-AV)		5%	10%	Full load
Start-up Current Overshoot			10%	Full load
Start-up Time			0.5S	B/BE models 220Vac, Full load
			0.8S	D/DE models 220Vac, Full load
Line Regulation	-2%		+2%	Full load
Load Regulation	-2%		+2%	
Temperature Coefficient		0.04%/°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.
Short Circuit Protection				Driver will not be damaged

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Other Characteristics:

Parameter		Min.	Typ.	Max.	Remark
0-10V Positive Dimming (Configurable)	Dim Vmax	0V		12V	DIM+ source current 110uA. Dimming prohibits reverse connection Configurable to 0-5V
	Dim Range	10%Iomax		100%Ioset	
	Rec.Dim Range	0V		10V	
10-0V Negative Dimming (Configurable)	Rec.Dim Range	0V		10V	DIM+ sink current Imax 40uA. Dimming prohibits reverse connection Configurable to 5-0V
PWM Dimming (Optional)	PWM High	9.8V		10.2V	DIM+ source current 110uA. Dimming prohibits reverse connection
	PWM Low	0V		0.3V	
	Frequency	1KHz		2KHz	
	PWM Duty	0%		100%	
Resistor Dimming (Optional)	Resistance	0Kohm		100Kohm	Not available with negative logic
	Dim Range	10%Iomax		100%Ioset	DIM+ source current 110uA .
0-10V Dim to Off	Dim off	0.7V	0.8V	0.9V	If the led is less than maximum rated output voltage of 75%,the luminaries may possibly have slight light when dim-to-off. Thus the whole lighting system needs to be tested
	Dim on	0.8V	0.9V	1.0V	
10-0V Dim to Off	Dim off	9.0V	9.2V	9.4V	
	Dim on	8.8V	9.0V	9.2V	
DALI-2	DA+, DA- High Level	9.5V	16V	22.5V	
	DA+, DA- Low Level	-6.5V	0V	6.5V	
	DA+, DA- Current	0mA		2mA	
Lifetime(Tc≤80℃)		≥50,000 hours			80% load
MTBF		201,680 hours			220Vac,Full load, Ta=25℃ (MIL-HDBK-217F)
IP Grade		IP66/IP67			
Tc		90℃			
Warranty		5 years			Tc：80℃
Net Weight		680g			
Dimension		165mm*66mm*34.75mm			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
ENEC	EN 61347-1:2015/A1:2021 EN 61347-2-13:2014/A1:2017	✓	
UKCA	EN 61347-1:2015+A1:2021 EN 61347-2-13:2014+A1:2017 EN 62493:2015 BS EN 61347-1:2015+A1:2021 BS EN 61347-2-13:2014+A1:2017 BS EN 62493:2015	✓	
EAC	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013 TP TC 004/2011，TP TC 020/2011	✓	
CCC	GB 19510.14-2009	✓	
CE	EN 61347-2-13:2014 EN61347-1:2008+A1:2011+A2:2013	✓	

Certification	Standard	Status	Remark
DALI-2 (1)	IEC62386-101,102 & 207	✓	D/DE models

Note:（1）DALI Parts: 101, 102, 207, 251, 252, 253

EMI/EMS	Criterion	Remark
Conduction Emission	EN55015:2013+A1:2015 GB/T 17743	
Radiation Emission	EN55015:2013+A1:2015 GB/T 17743	
Harmonic Current Emissions	IEC/EN 61000-3-2 GB/T 17625.1	Class C
Surge	IEC/EN61000-4-5	DM: 6kV,CM: 8kV,Criterion B
	EN61547	DM: 6kV,CM: 10kV,Criterion B

Note: For BE/DE models, to ensure surge protection performance, the casing must be reliably grounded.

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Safety Test Items

B/D Models

Safety Test Items	Technical Indicators		Remark
Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	2U+1000Vac	2U+1000Vac	Basic insulation
Input-Dim	4U+2000Vac	4U+2750Vac	Reinforced insulation，B model
	2U+1000Vac	2U+1000Vac	Basic insulation，D model
Insulation Resistance	⩾10MΩ		Test voltage:500Vdc
Ground Resistance	⩽0.1Ω		25A/1min
Leakage Current	⩽0.75mA		240Vac

BE/DE Models

Safety Test Items	Technical Indicators		Remark
Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	4U+2000Vac	4U+2750Vac	Reinforced insulation
Input-Dim	4U+2000Vac	4U+2750Vac	Reinforced insulation，BE model
	2U+1000Vac	2U+1000Vac	Basic insulation，DE model
Insulation Resistance	⩾10MΩ		Test voltage:500Vdc
Ground Resistance	⩽0.1Ω		25A/1min
Leakage Current	⩽0.75mA		240Vac

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 of components.
2. Please short (ACL and ACN), (V+ and V-), (Dim+ and Dim -)when Hi-pot test.

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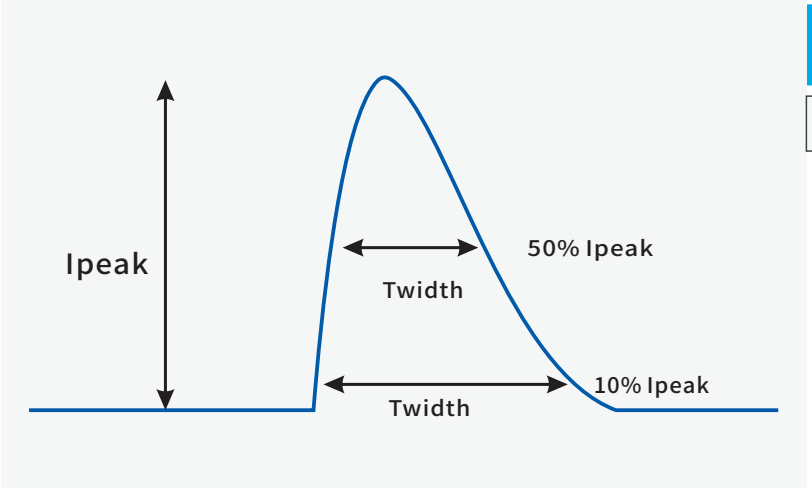
Performance Curves:

Input Inrush Current



Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	75A	600uS	300uS

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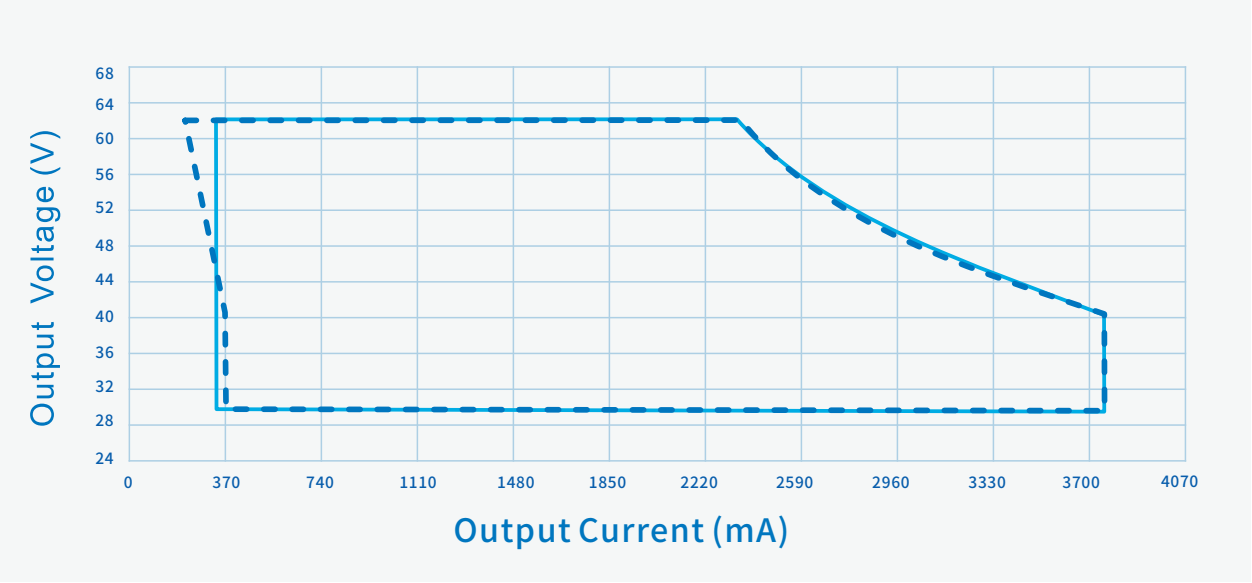
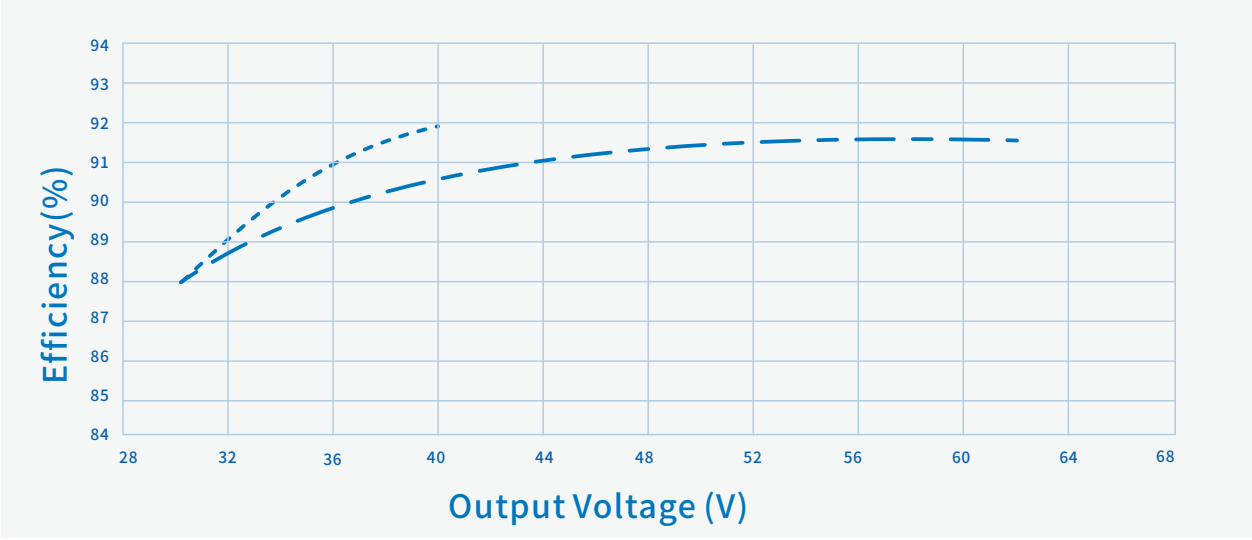
Performance Curves(SS-150GA-E62*):

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



Efficiency Vs. Output Voltage (Vin=220Vac)



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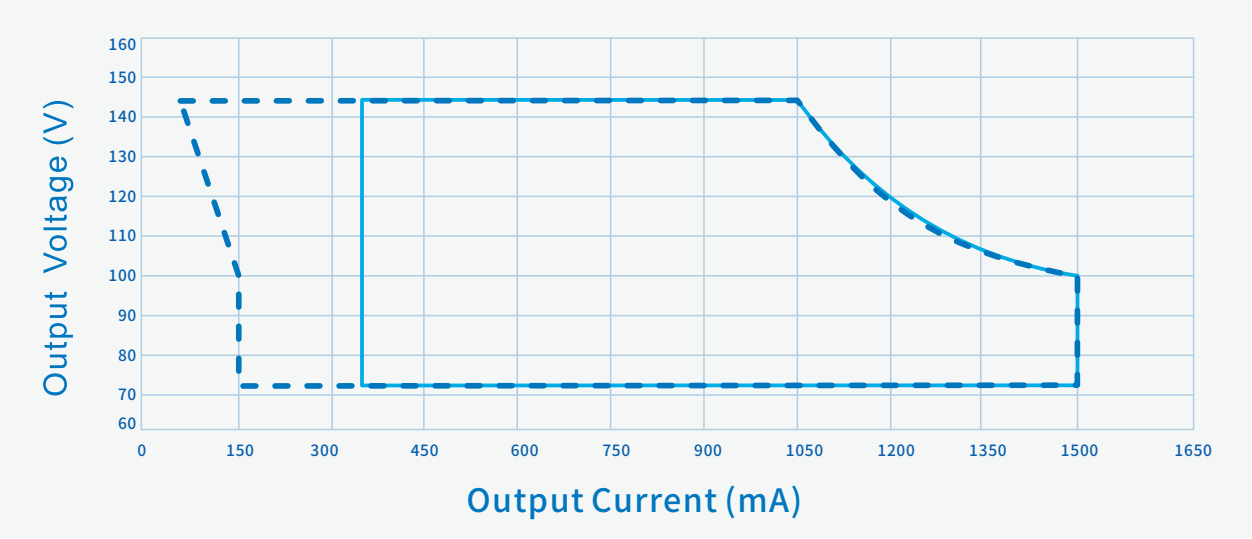
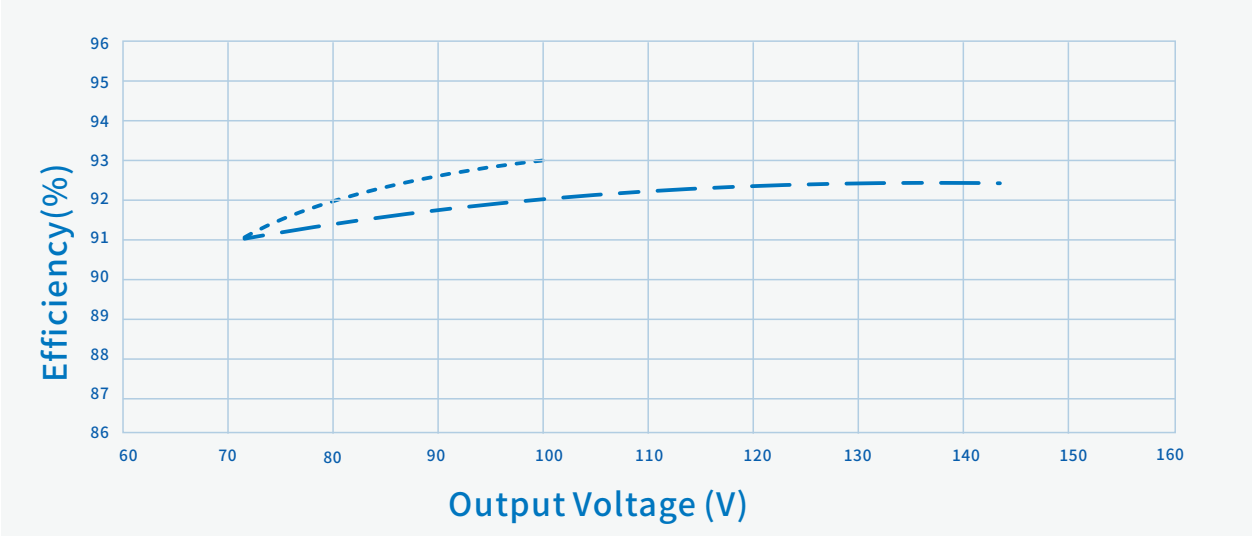
Performance Curves(SS-150GA-E143*):

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



Dimming Window AOC Window

Efficiency Vs. Output Voltage (Vin=220Vac)



Io=1500mA Io=1050mA

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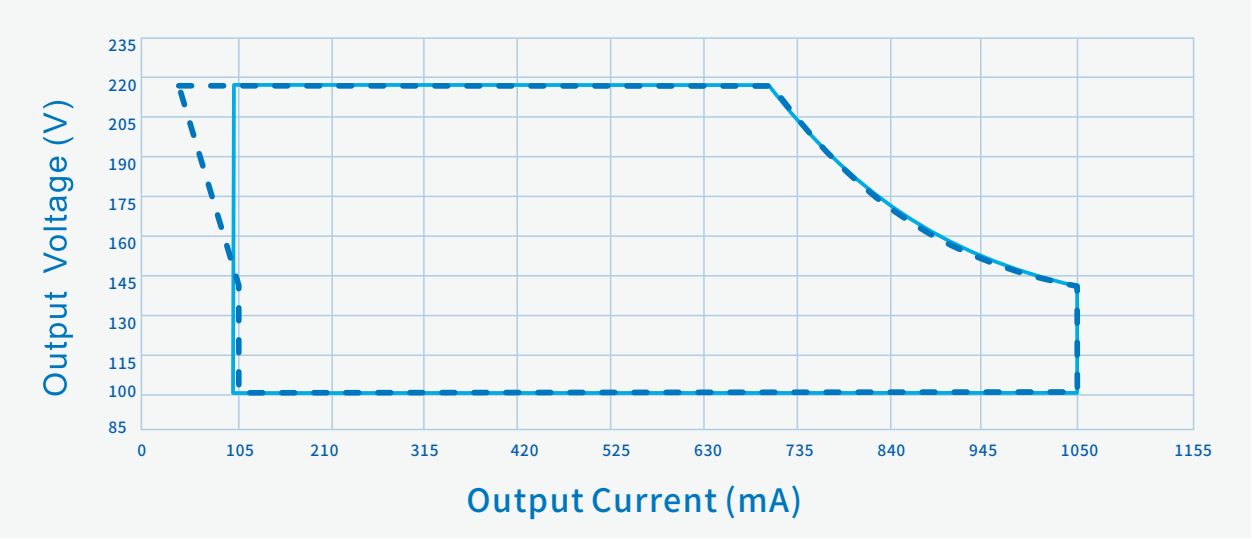
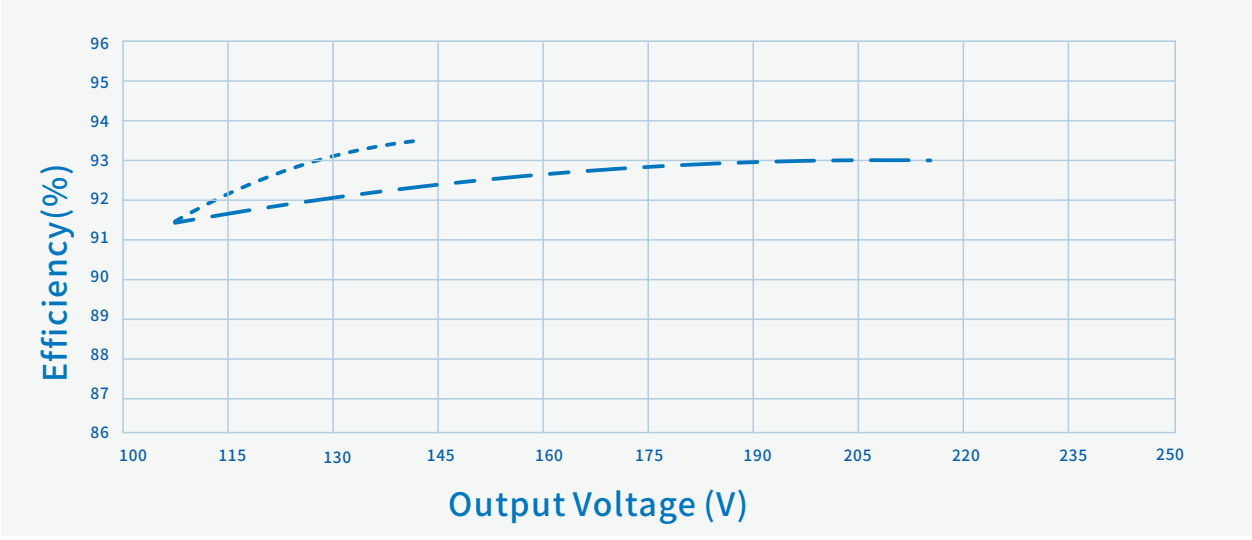
Performance Curves(SS-150GA-E215*):

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



Dimming Window AOC Window

Efficiency Vs. Output Voltage (Vin=220Vac)



Io=1050mA Io=700mA

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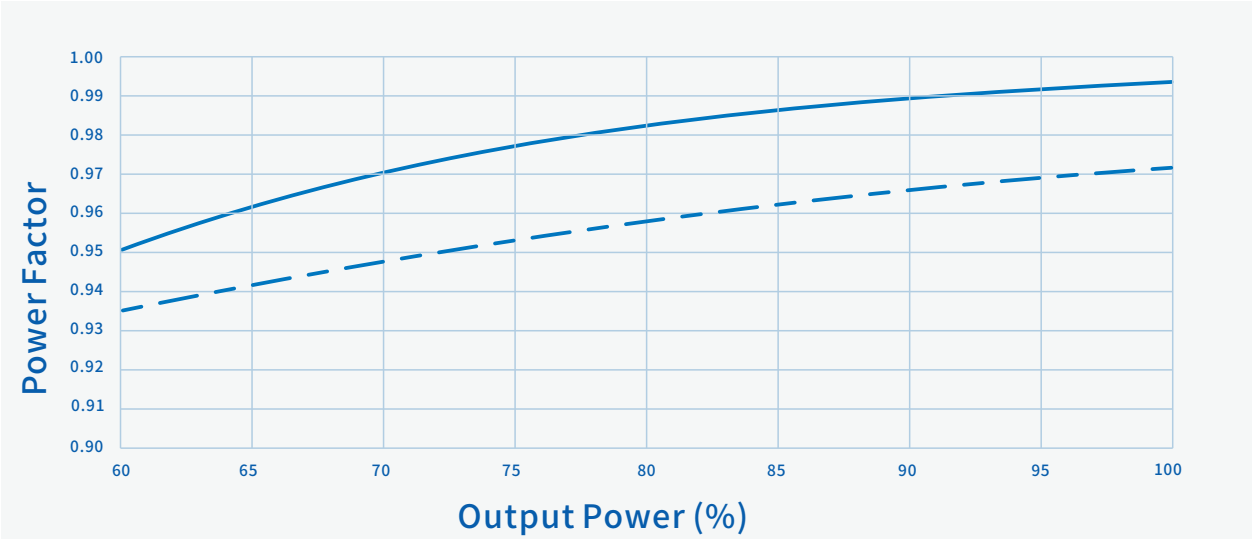
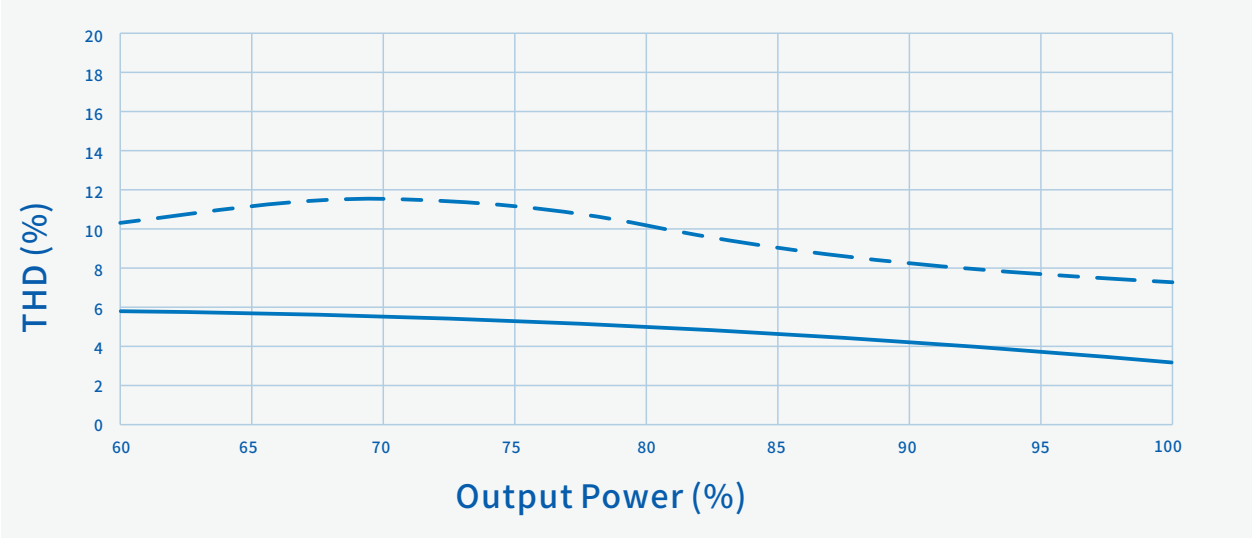
Performance Curves:

Power Factor Vs. Output Power



Vin=220Vac Vin=277Vac

THD Vs. Output Power



Vin=220Vac Vin=277Vac

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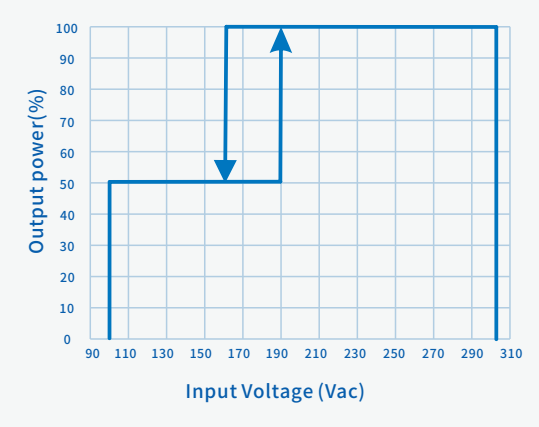
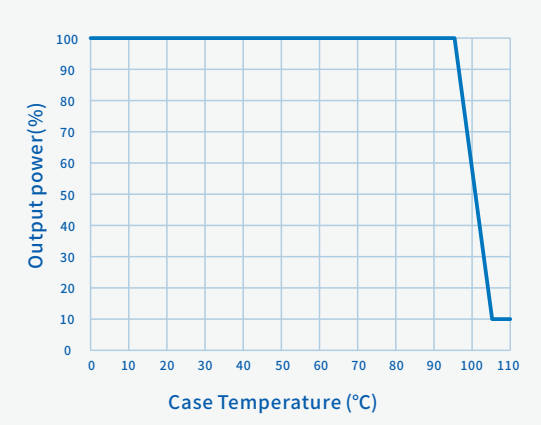
Performance Curves:

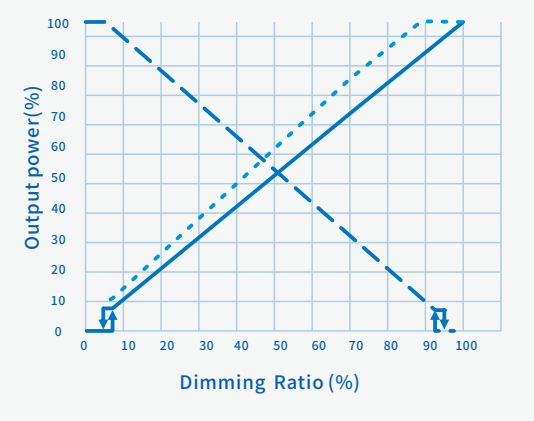
Derating Curve (Output power Vs. Input Voltage)



Output power Vs. Case Temperature



O/P Power Vs. Dimming(B/BE)

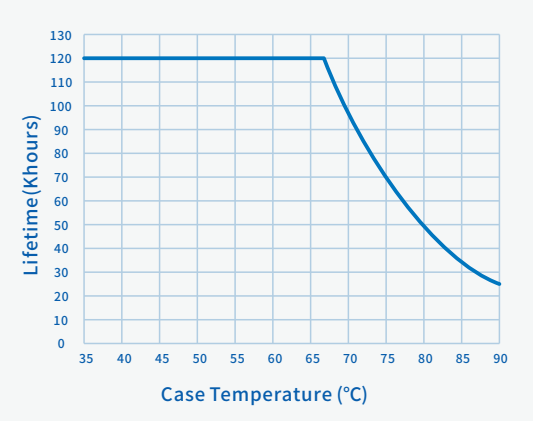


0-10V,0-5V,PWM

10-0V,5-0V

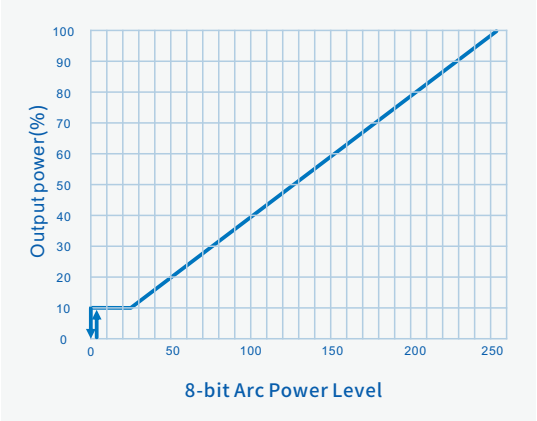
Resistor Dimming(100KΩ)

Lifetime Vs. Case Temperature

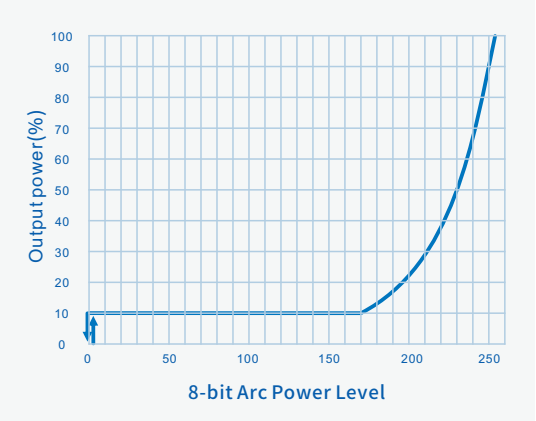


O/P Power Vs. Dimming(D/DE)

Linear Dimming Curve



Logarithmic Dimming Curve



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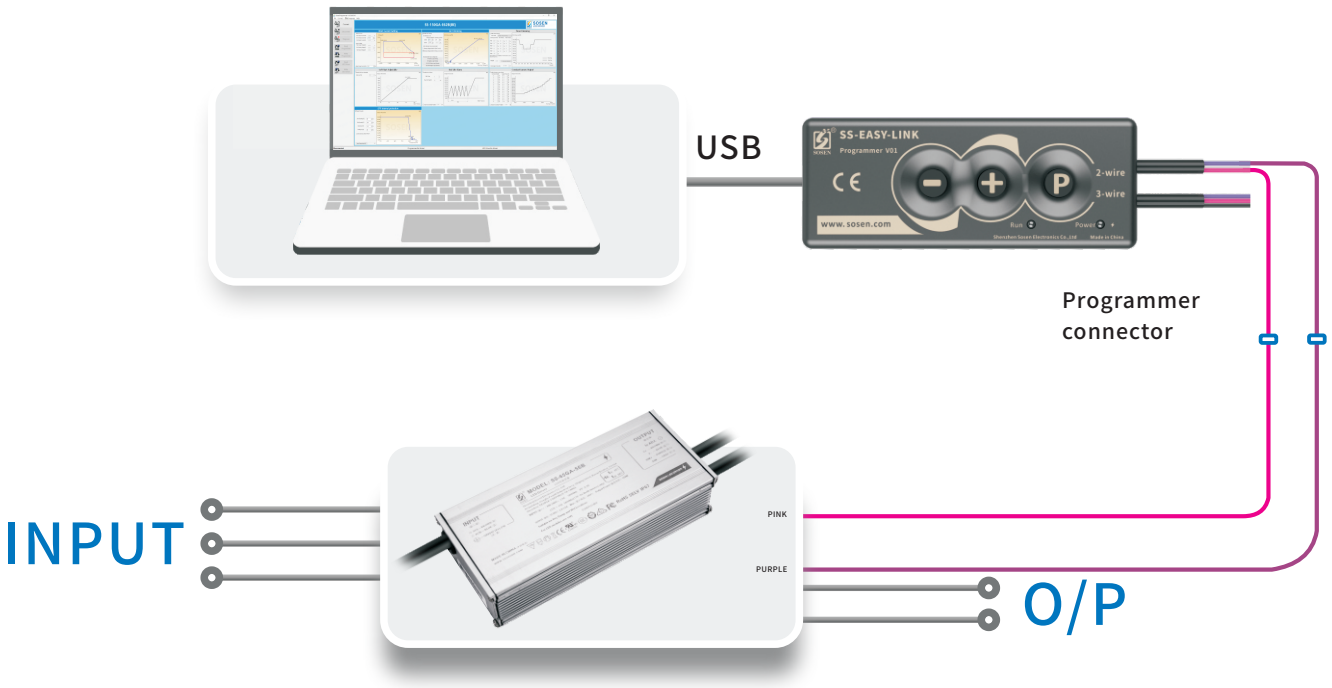
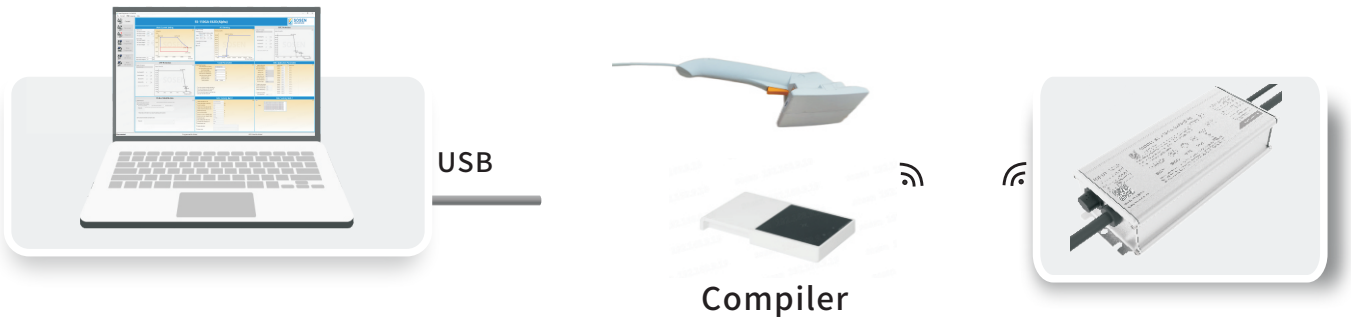
Programming connection diagram(B/BE Model):

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.



NFC Programming connection diagram(D/DE Model):

1. The driver does not need to be powered on during NFC programming.
2. The driver needs to be powered on during DALI dimming line programming.
3. Please refer to “SosenProgrammer-Help-Quick Operation Guide” for specific operation instructions.



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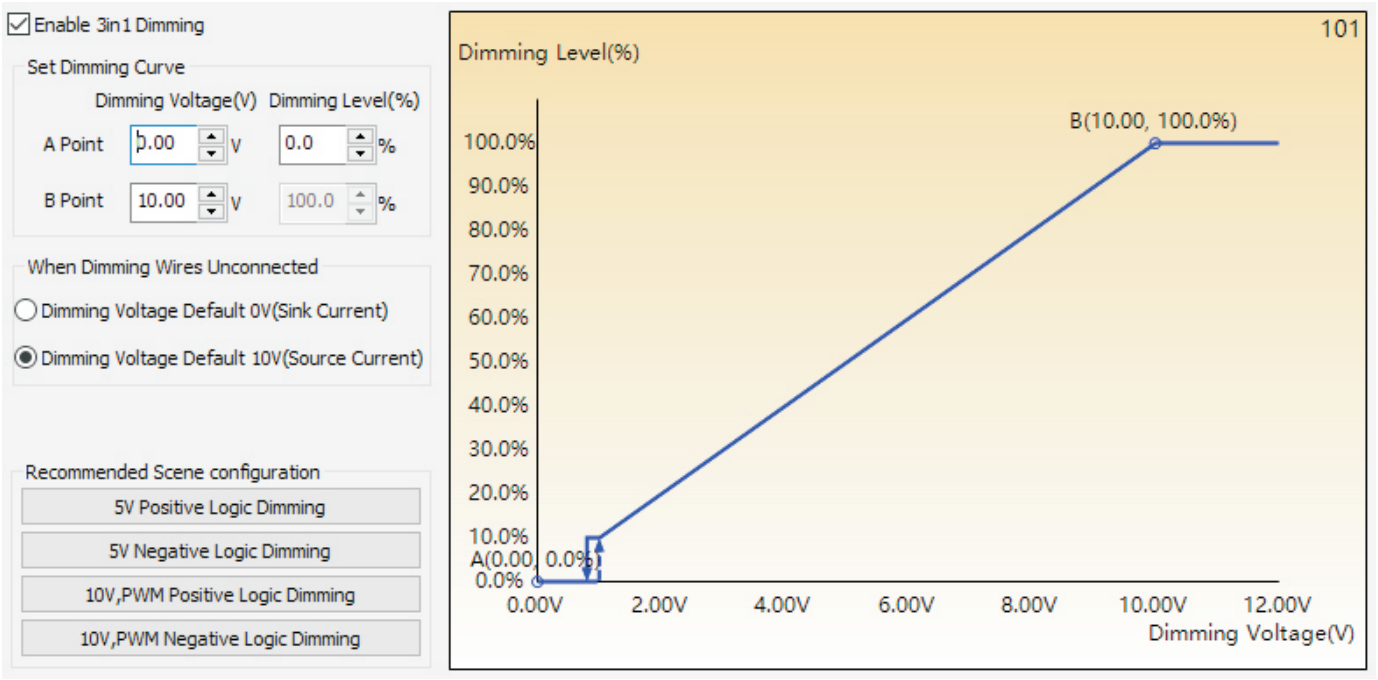
Dimming parameter settings

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) Resistance dimming not available	When the dimming wire is not connected, the LED driver output is the minimum (to be noted in the order)
			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



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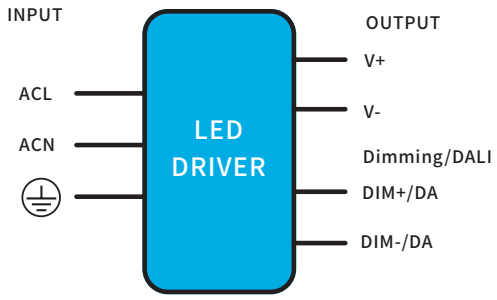
Mechanical Characteristics

Wire gauge (B/D models)



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

EU model: H05RN-F,3*1.0mm², O.D:7.3mm,Brown:L, Blue:N,Yellow/Green: ⏚

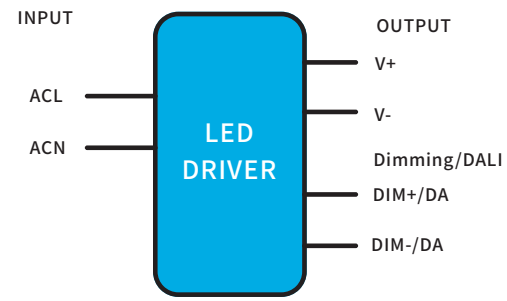
DC Output Cable(Exposed Length 250±10mm):

EU model: H05RN-F,2*1.0mm², O.D:7.0mm, Brown:V+, Blue:V-

DIM Cable(Exposed Length 220±10mm):

UL model: STYLE 21996,2*22AWG , O.D: 4.9mm，Purple：DIM+/DA, Pink: DIM-/DA

Wire gauge (BE/DE models)



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

EU model: H05RN-F,2*1.0mm², O.D:7.0mm, Brown:L, Blue:N

DC Output Cable(Exposed Length 250±10mm):

EU model: H05RN-F,2*1.0mm², O.D:7.0mm, Brown:V+, Blue:V-

DIM Cable(Exposed Length 220±10mm):

UL model: STYLE 21996,2*22AWG , O.D: 4.9mm，Purple：DIM+/DA, Pink: DIM-/DA

NOTE:

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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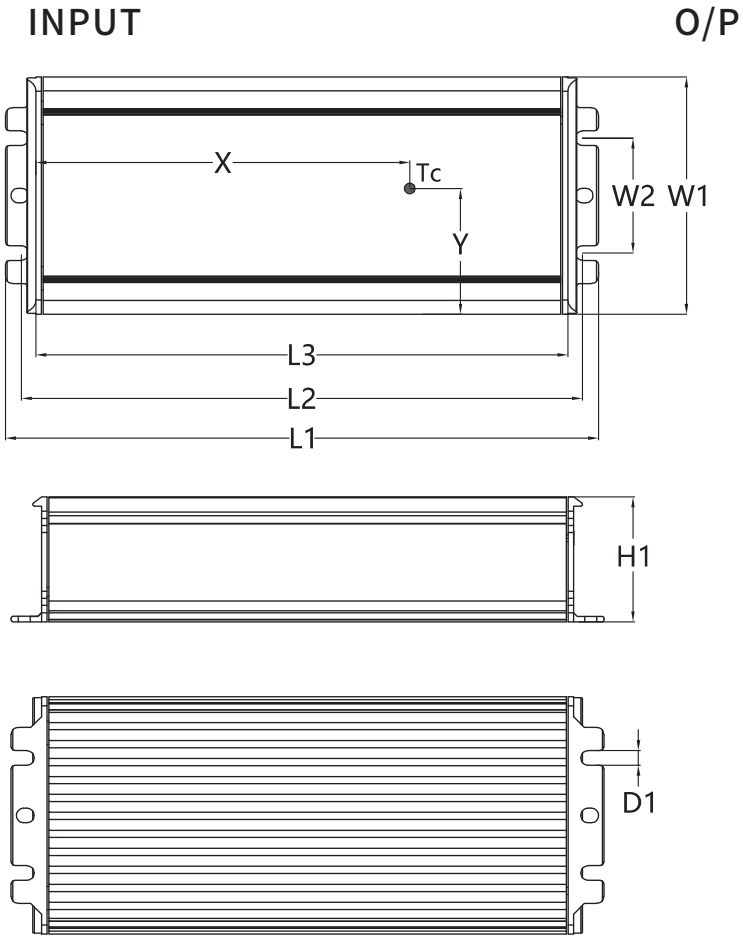
Outline and mounting dimensions (B/BE models)

Name Description	Standard Code	mm(In.)
Case Length	L3	148(5.82)
Case Width	W1	66(2.6)
Case Height	H1	34.75(1.36)
Overall Length	L1	165(6.49)
Mounting Hole Length	L2	156.1(6.14)
Mounting Hole Width	W2	32(1.26)
Screw hole width	D1	4.1(0.16)
TC Point Position	X	104(4.09)
TC Point Position	Y	35(1.38)

Note:
Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.



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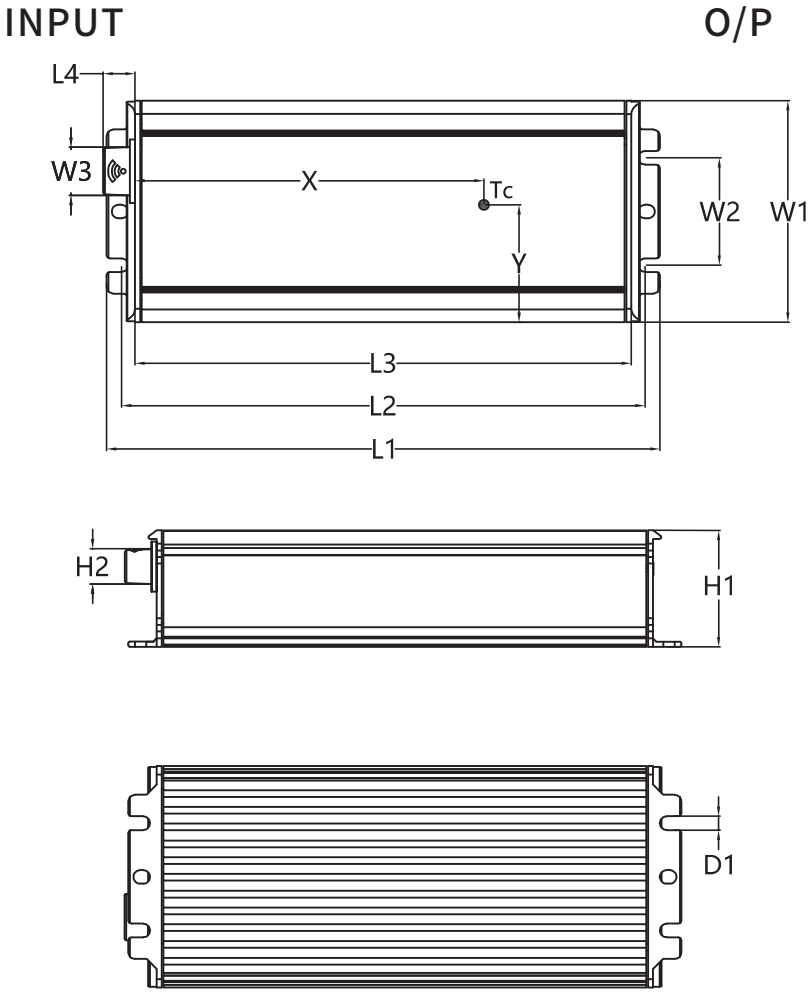
Outline and mounting dimensions (D/DE models)

Name Description	Standard Code	mm(In.)
Case Length	L3	148(5.82)
Case Width	W1	66(2.6)
Case Height	H1	34.75(1.36)
Overall Length	L1	165(6.49)
Mounting Hole Length	L2	156.1(6.14)
Mounting Hole Width	W2	32(1.26)
Screw hole width	D1	4.1(0.16)
Mounting Hole Width	L4	10.5(0.41)
Screw hole width	W3	14.4(0.57)
Screw hole width	H2	10.3(0.40)
TC Point Position	X	104(4.09)
TC Point Position	Y	35(1.38)

Note:
Please follow the "LED Driver User Manual" obtained from SOSEN's official website for assembly.



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Assembly Tips

Please take isolation and waterproof measures if the dimming cable is not in use.

Package

- Outside carton dimension: L×W×H =495mm×385mm×162mm;
- 14PCS/Carton;
- Net weight/Piece: 0.68kg;Gross weight/Carton: 11kg;
- 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 installation.

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	2023/10/08	
V01	Add Models	2024/02/29	
V02	Update Characteristic Curve	2024/10/14	
V03	Update Model List	2024/11/27	
V04	Update Input Characteristics Data	2024/12/23	

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