

SOSEN LED Driver, Your Smart Choice

Specifications

SS-1800NS Series LED Driver

Model: SS-1800NS-V500*

Description: 1800W LED Driver

Rev.: V01

Release Date: 2024-12-06

SS-1800NS Series LED Driver

SOSEN
LED DRIVER



LED DRIVER

NS Series



CB RoHS

Features:

- Efficiency up to 97%
- Non-isolated Class I driver
- 3*600W Independent Channels with Common Positive Output
- Dim-to-Off with Standby Power < 0.5W@230Vac
- External NTC to Protect LED Module
- Strobe Function, frequency settable from 0.1 ~ 22Hz
- Configurable 1 Channel DMX/RDM or multi-Channel (up to 3 DMX/RDM)
- Protections: IUV, OPP, SCP, OTP
- Surge Protection: CM: 10kV, DM: 10kV
- Communication Function With PC
- Dimming range 0.4% to 100 %
- Max remote distance 200 meters
- IEEE1789 Flicker Recommended Practice Compliant
- IP66/IK08
- Warranty: 7 years

Description:

SS-1800NS series are 1800W constant current LED Driver with wide O/P voltage range and adjustable O/P current by program. Compatible with wide input voltage range 200~480Vac for diverse applications from any system manufacturer and suitable for indoor and outdoor. LED luminaries manufactures can easily design luminaries and reduce cost.

Applications:

Stadium lighting, High pole lighting

Model List:

Model	AC Input Range	Output Channels	Max. Pout	Vout Range	Iout (1 Channel)	Default Current	THD (Typ.)	PF (Typ.)	Max.Tc
SS-1800NS-V500*	180-528Vac	3	1800W	260-500V	0.35-1.8A	1.2A	10%	0.95	90°C

Note:

1. Default Tested: at 400Vac, 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-1800NS Series LED Driver

“★” Means Additional Function

“★”	DALI (suffix:D)	AUX 12V (suffix:H)	NTC (suffix:N)	Timing	DMX/RDM (suffix:X)	D4i	Remark
XN			✓		✓		

Input Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Rated AC Input Range	200Vac		220Vac	≤Ta:45℃
	220Vac		480Vac	<Ta:50℃
AC Input Range	180Vac		528Vac	Ref. derating curve. When the input voltage is below 200V, Automatic Derating 70% of the maximum output power
Input Frequency Range	47Hz	50/60Hz	63Hz	
Max Input Current			11A	200Vac, Full load
Max Input Power			2200W	200Vac, Full load
Max Inrush Current(220Vac)			20A	Cold start
Max Inrush Current(347Vac)			25A	Cold start
Max Inrush Current(480Vac)			35A	Cold start
Standby Power			0.5W	230Vac/50Hz, Dim-off
Power Factor	0.95	0.97		400Vac/50Hz, Full load
	0.90	0.95		200-480Vac, 80-100% load
THD		5%	10%	400Vac/50Hz, Full load
			20%	200-480Vac, 80-100% load

SS-1800NS Series LED Driver

O/P Characteristics:

Parameter	Min.	Typ.	Max.	Remark
O/P Voltage Range	260V		500V	Power derated @260-333V
Rated O/P Voltage	333V		500V	Po=Vo*Io Per channel 600W,1800W total
Rated O/P Current	1.2A		1.8A	1.8A for 333V,1.2A for 500V
Adj. O/P Current (AOC)Range	0.35A		1.8A	Adjustable by program
No Load Voltage			600V	
Efficiency @220Vac	93.5%	95.0%		O/P 500V/1.2A,Per channel
Efficiency @347Vac	94.0%	96.0%		O/P 500V/1.2A,Per channel
Efficiency @480Vac	95.0%	97.0%		O/P 500V/1.2A,Per channel
O/P Current Tolerance	-5%		+5%	
O/P Current Ripple(PK-PK)		5%	10%	Full load,HF
O/P Current Ripple(PK-PK)			2%	Full load,LF
Start-up Current Overshoot			10%	Full load
Start-up Time			1.0S	400Vac,Full load
Line Regulation	-1%		+1%	Full load
Load Regulation	-3%		+3%	
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.
Short Circuit Protection				Recovers automatically after fault condition is removed
Strobe Function				Frequency settable from 0.1~22Hz. from 100% to 0% change

SS-1800NS Series LED Driver

Other Characteristics:

Parameter	Min.	Typ.	Max.	Remark
Dimming Level	0.4%		100%	
Life Time($T_c \leq 70^\circ\text{C}$)	90,000 hours			220vac, 100% loaded ,shell temperature 70°C , Refer to life curve for details
MTBF	210,900 hours			347Vac, Full load, $T_a = 25^\circ\text{C}$ (MIL-HDBK-217F)
IP Grade	IP66			
T_c	90°C			
Warranty	7 years			$T_c: \leq 70^\circ\text{C}$
Net Weight	6400g			
Dimension	500mm*150mm*110mm			L x W x H

NOTE: 1. All the parameters above are tested $T_a 25^\circ\text{C}$ and LED load, unless specified.

SS-1800NS 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	✓	
TUV	EN 61347-2-13:2014/A1:2017 EN 61347-1:2015 EN 62493:2015	✓	
RCM	AS/NZS61347.2.13	✓	
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	Class B
Radiation Emission	EN55015:2013+A1:2015	Class B
Harmonic Current Emissions	IEC/EN 61000-3-2	Class C
Surge	IEC61547/IEC61000-4-5	DM: 10kV,CM: 10kV,Criterion B
	ANSI/C82.77-5-2017	DM: 6kV,CM: 6kV,Criterion B
Ring Wave	IEC/EN 61000-4-12;ANSI/C82.77-5-2017	DM: 6kV,CM: 6kV,Criterion B

SS-1800NS Series LED Driver

Safety Test Items:

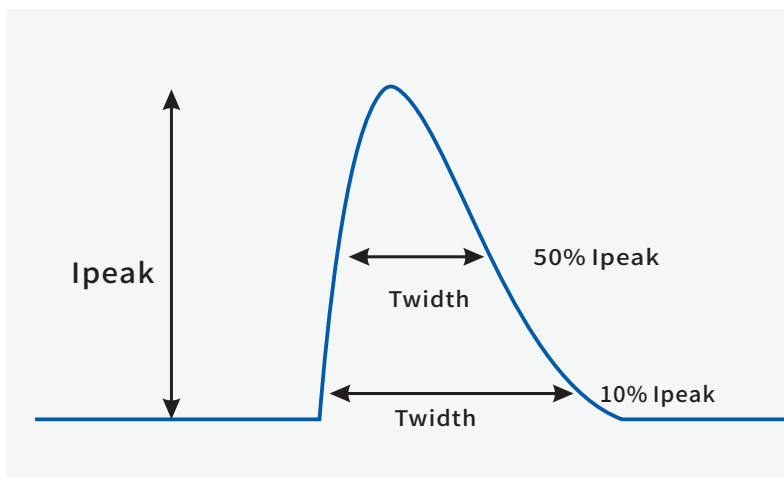
Safety Test Items	Technical Indicators			Remark
Insulation Requirements	UL Insulation Requirements	ENEC Insulation Requirements	CCC Insulation Requirements	
Input-Case	2U+1000	2U+1000	/	Basic insulation
Input-Dim	2U+1000	4U+2000	/	Reinforced insulation
Dim-Case	500Vac	500Vac	/	Basic insulation
Insulation Resistance	$\geq 10M\Omega$			Input-Dim, Test voltage: 500Vdc
Ground Resistance	$\leq 0.1\Omega$			25A/1min
Leakage Current	$\leq 0.7mA$			400Vac

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-, NTC), (D+ and D-, COM)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



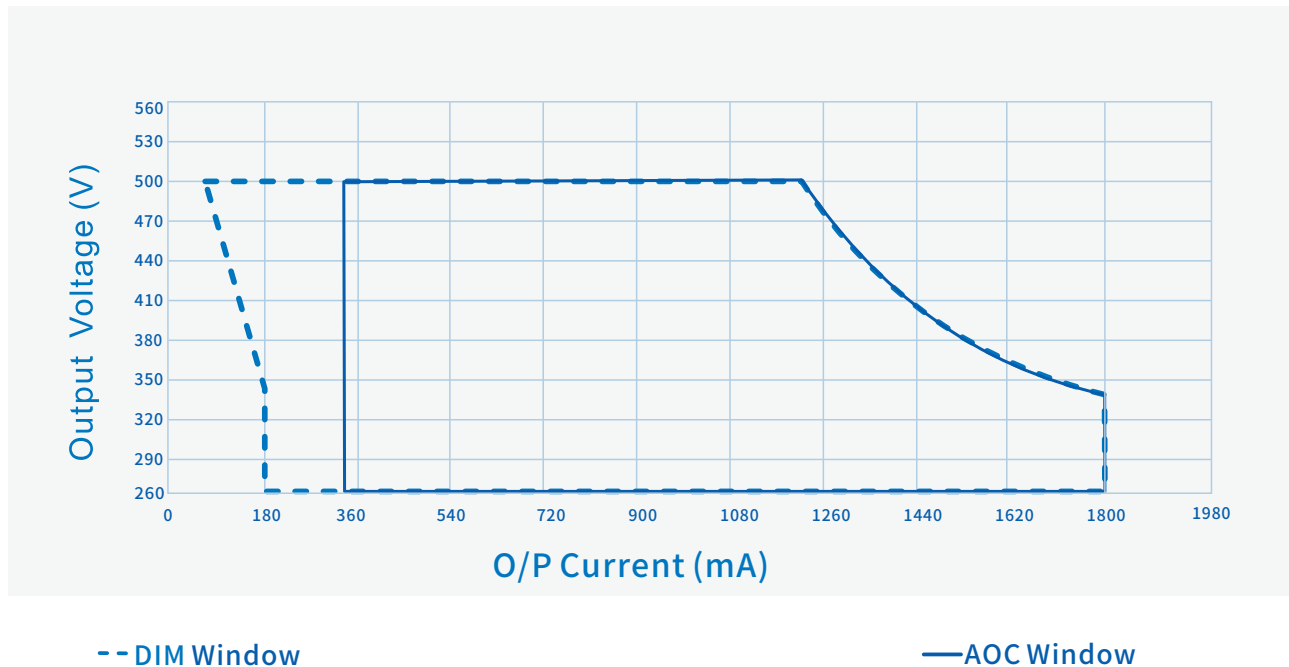
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	12A	5mS	2mS
400Vac	18A	5mS	3.5mS
480Vac	27A	5mS	3.5mS

6/15

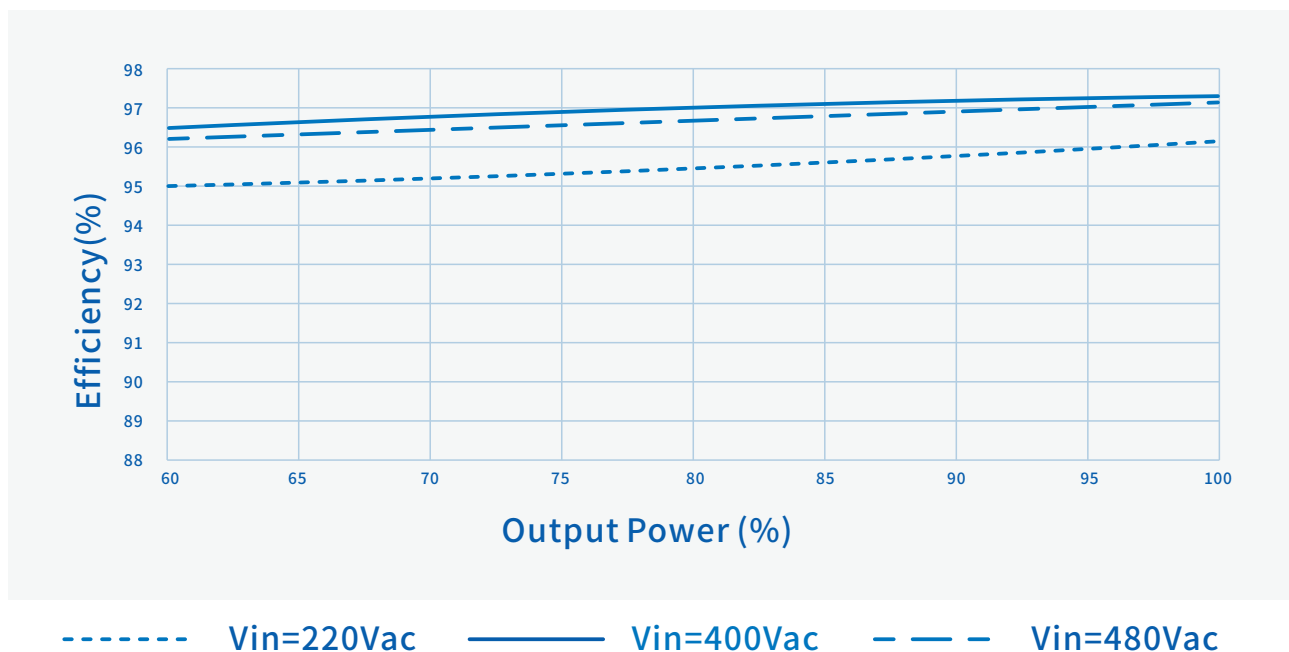
SS-1800NS Series LED Driver

Performance Curves:

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



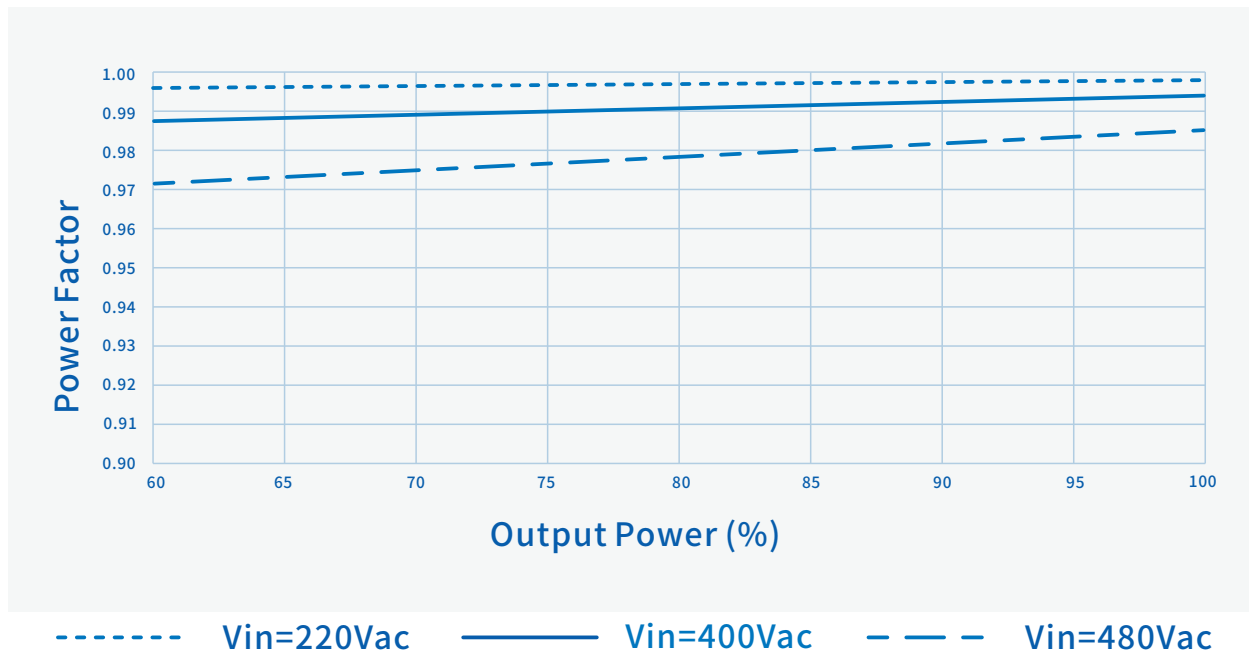
Efficiency Vs. Output Power



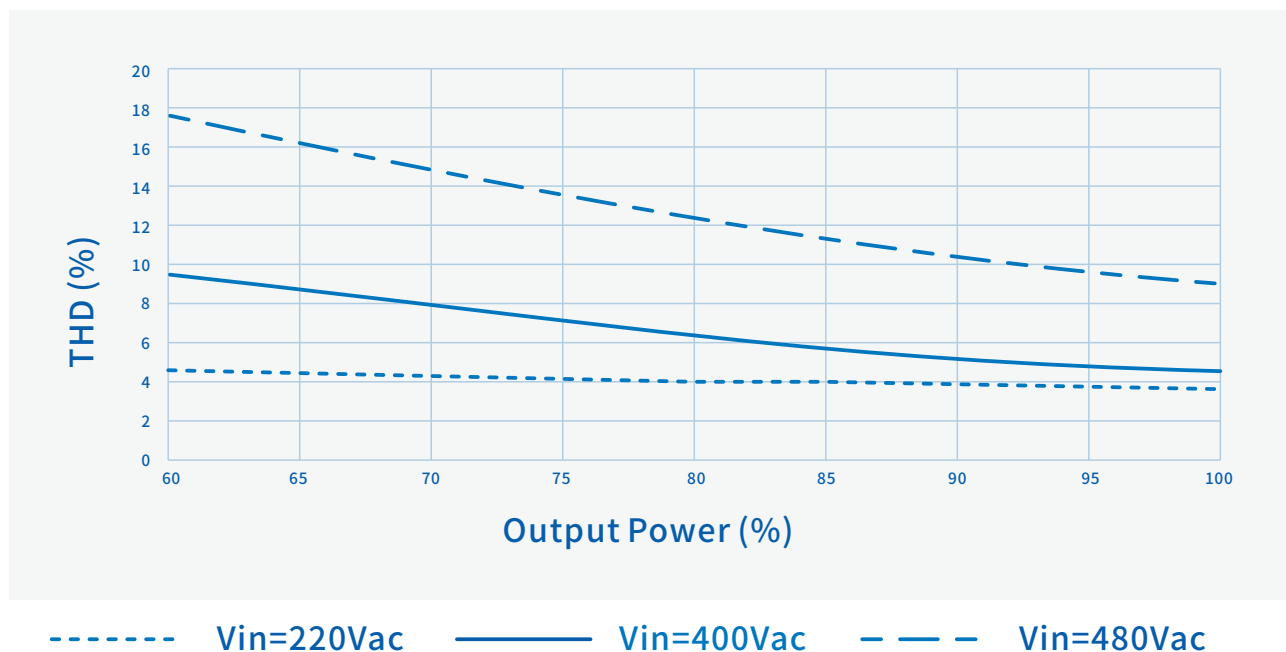
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Performance Curves:

Power Factor Vs. O/P Power



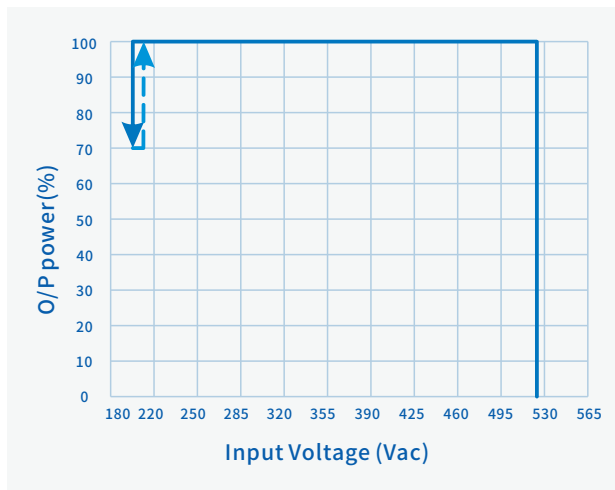
THD Vs. O/P Power



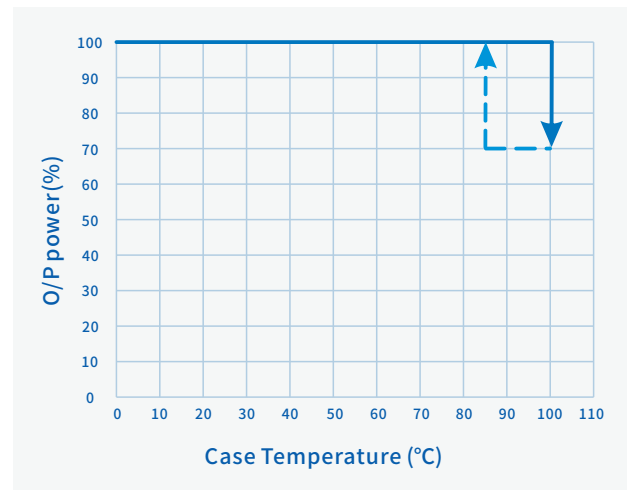
SS-1800NS Series LED Driver

Performance Curves:

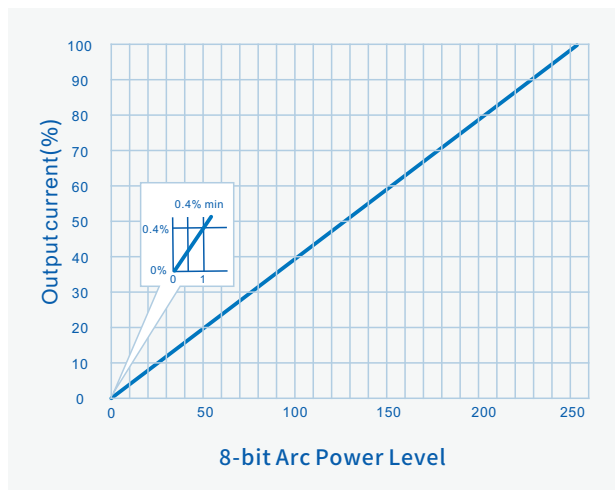
O/P Power Vs. Input Voltage
Derating Curve



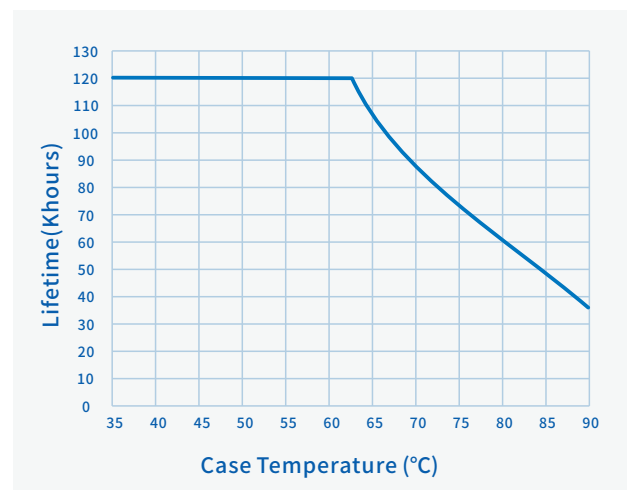
Output power Vs. Case Temperature



Linear Dimming Curve

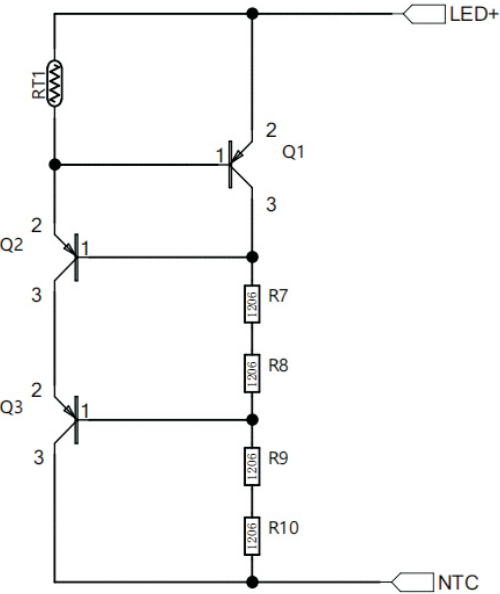


Lifetime Vs. Case Temperature



External Thermal Protection

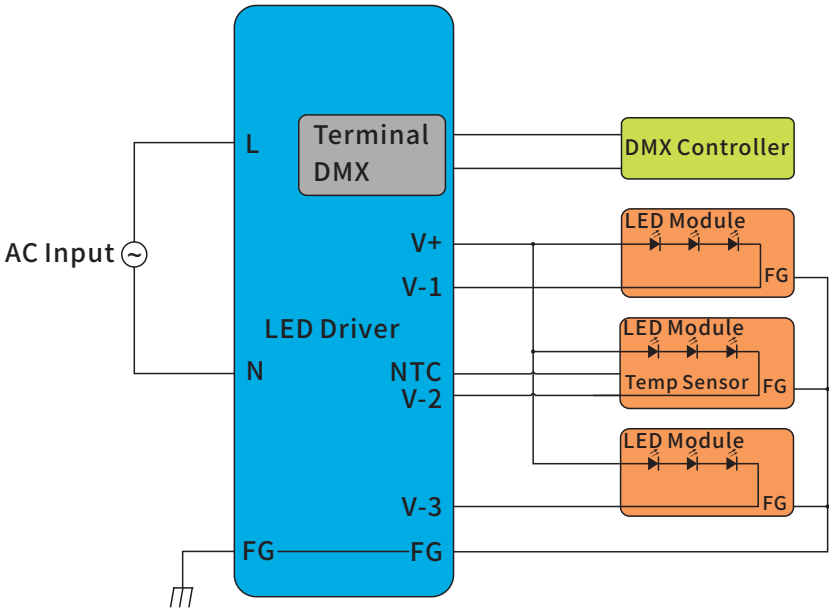
This needs an external circuit which locates on the hottest part of LEDs to protect the whole lumianires when the temperature exceeds the ratings. The circuit will be connected by V+ LED and NTC terminal on driver. The default protection temperature point is 100°C, it can be changed by Sosen programmer along with the actual target.



Reference	Description	Recommendation
Q1/Q2/Q3	500V PNP high-voltage transistor	FZT560, SOT-223, DIODES
RT1	NTC 10KΩ	0603 SMD 1% TDK b57371v2103h060 B(25/100)=4480
R7/R8/R9/R10	510KΩ Resistor	510KΩ 1% -55~155°C 1206

TLED(°C)	85	100	115	120
NTC value(Ω)	820	488	300	258
IOUT(%)	100	100	30	30

Note: This protection is an optional feature and user can connect nothing to NTC to ignore it.



Note: FG is indicated as Protective Earth

SS-1800NS Series LED Driver

Constant Lumen Output

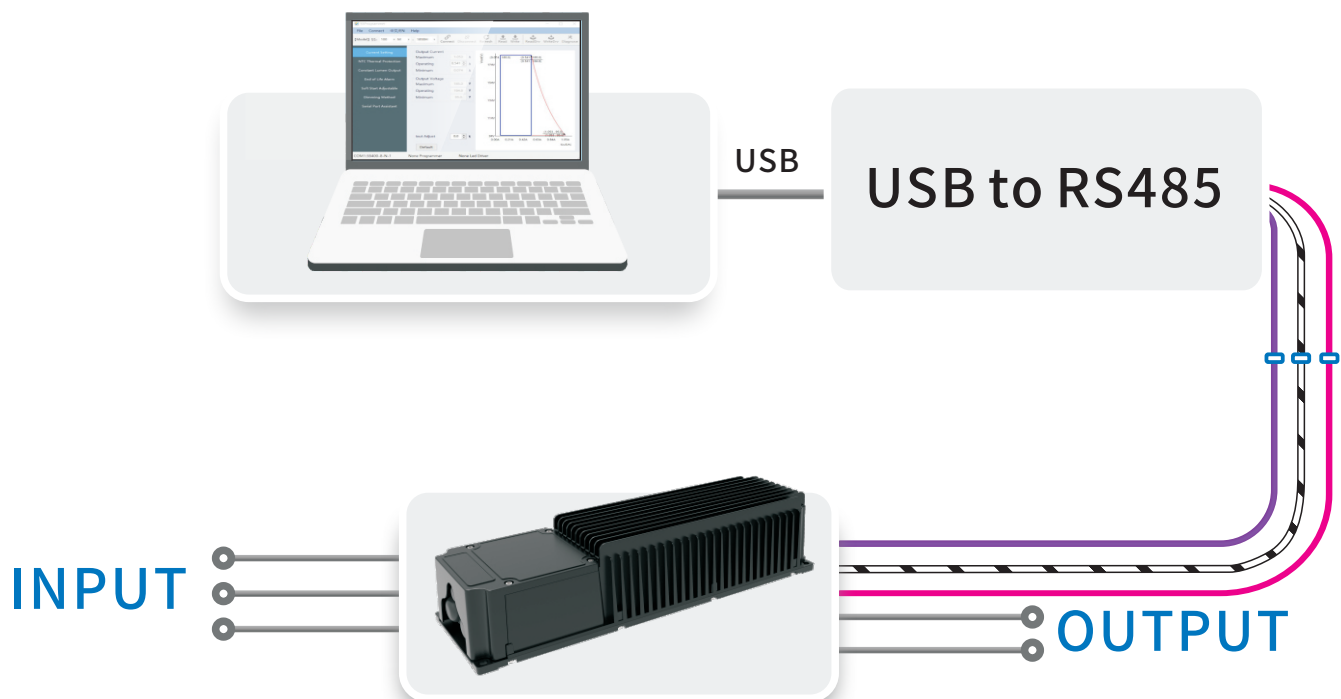
Constant Lumen Output are design to maintain fixture's stable output lumen by increasing driver's output current within driver's life span to counteract LED lumen degradation.

Programming connection diagram:

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.

For best performance, a characteristic impedance of 120 ohms should be maintained for the entire length of the control line.

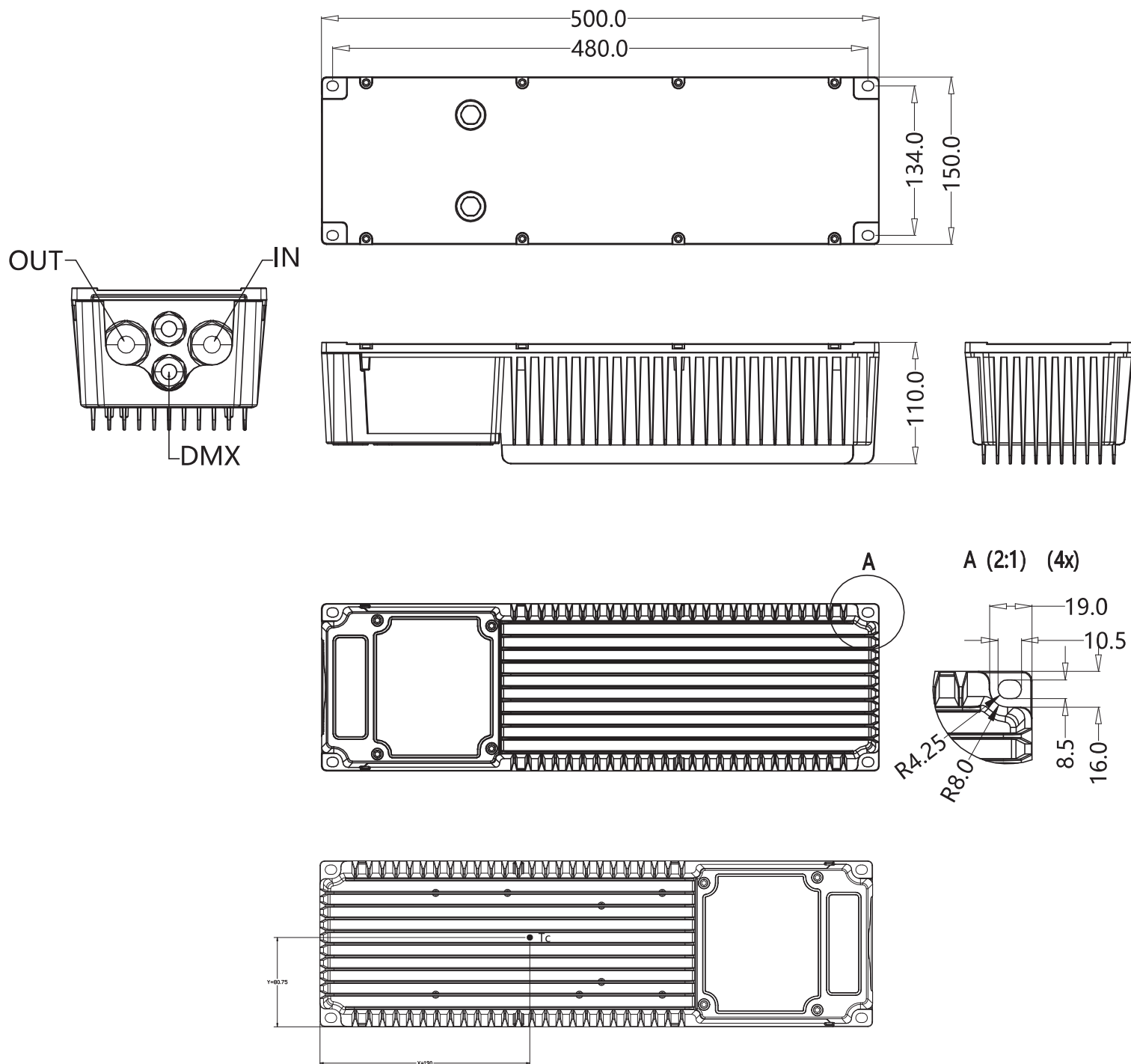


Note:

The driver needs to be powered on during the programming process.

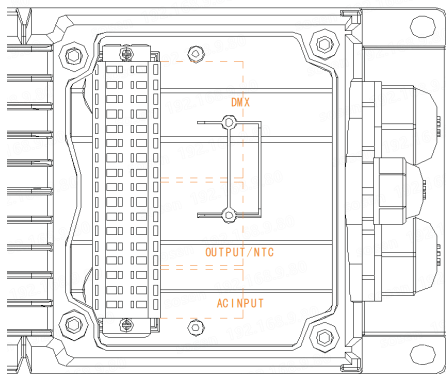
SS-1800NS Series LED Driver

Mechanical Characteristics

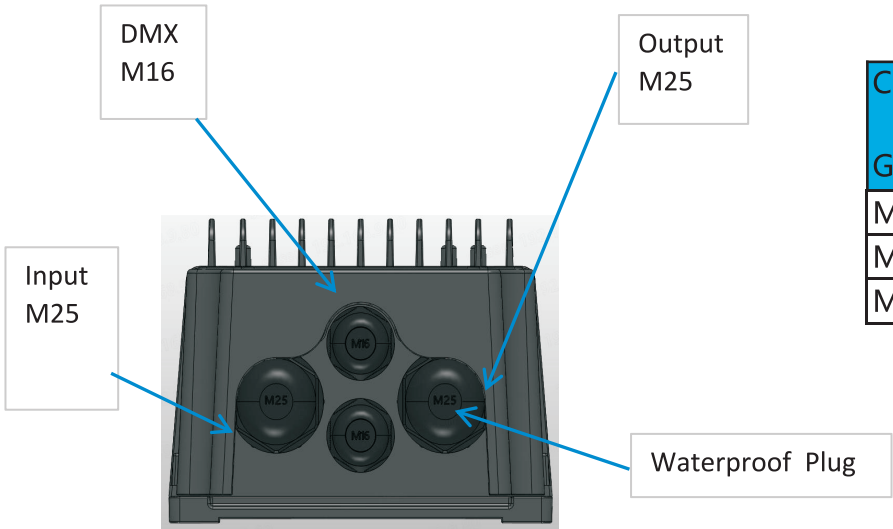
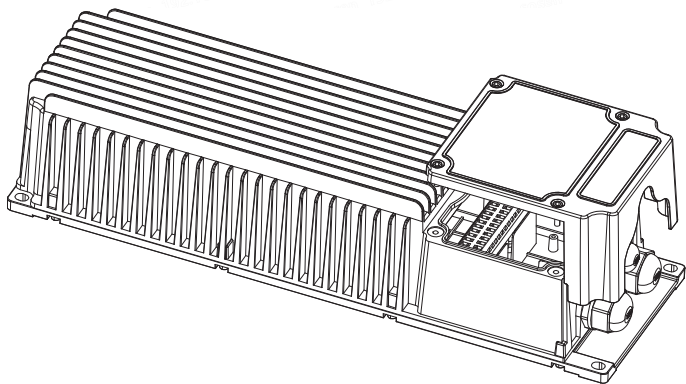


SS-1800NS Series LED Driver

Connection Diagram



PIN	TERMINAL COLOR	LABEL	FUNCTION
1	GRAY	L	AC INPUT
2	GRAY	N	AC INPUT
3	YELLOW		PROTECTION EARTH
4	GRAY	V-3	LED3- CONNECTION
5	GRAY	V-2	LED2- CONNECTION
6	GRAY	V-1	LED1- CONNECTION
7	RED	V+	LED+ CONNECTION
8	PURPLE	NTC	THERMAL PROTECTION INPUT
9	YELLOW		PROTECTIVE EARTH FOR LED MODULE
10	GRAY	NC	
11	GRAY	D+	DMX DATA+
12	GRAY	D+	DMX DATA+
13	GRAY	D-	DMX DATA-
14	GRAY	D-	DMX DATA-
15	GRAY	COM	DMX-GND
16	GRAY	COM	DMX-GND
17	GRAY	NC	NC



Cable Gland	Toque (N.m)	Cable Diameter (mm)	Cable AWG	Wire Section (mm ²)
M25	2.8	14-18	15-12	1.5-2.5
M25	2.8	14-18	18-16	0.75-2.5
M16	2.3	8.0-10.8	22-16	0.75-2.5

SS-1800NS Series LED Driver



Assembly Tips

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

Package

- Outside carton dimension: $L \times W \times H = 577\text{mm} \times 385\text{mm} \times 162\text{mm}$;
- 2PCS/Carton;
- Net weight/Piece: 6.4kg; Gross weight/Carton: 14.3kg;
- 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	2024/07/03	
V01	Modify derating curve , THD and O/P Current Overshoot; delete Timing Curve ,Constant Lumen and Life Warning	2024/12/06	

