

## Description

S6-600W series is specially designed for sports lighting and industrial lighting applications. It is constant current LED driver that operates from 220-480Vac with DMX programming dimming function. This Rectangle integrated structure enables it to have a better heat dissipation cooler, significantly improving reliability and extending product life, the better thermal design and high efficiency enable the driver to operate with high reliability, and extending product lifetime. Overall protection is provided against lightning surge, output over voltage, short circuit, and over temperature, to ensure low failure rate.



## Product Features

- Universal input voltage range: 198~528Vac;
- Isolated constant power design;
- DMX -RDM control optional, Support RDM control mode & controller address setting;
- Support flashing function with maximum of 6 flashes per second
- Ultra low ripple: < 2%;
- PF : >0.95@100%load ,THD: <15%@100%load;
- Inrush current:<40A@480Vac;
- Surge protection: DM 6KV,CM 10KV;
- All -around protection: SCP,OVP,OTP;
- Ingress protection rating: IP66,Ik08;
- Ambient temperature:-40℃~50℃ ;
- 5 years warranty.

## Application

Stadium Lighting  
 Area and flood lighting  
 High-bay lighting.

## Models

Model Number	Input Voltage Range (Vac)	Max Output Power (W)	Output Voltage Range (Vdc)	Full Power Output Current Range (A)	Default Current(A)	Eff. (Typ.)	PF(Typ.)	THD(Typ.)
S6-600R360	198~528Vac	600	172~360	1.67~3.00	1.2	94.0%	0.97	15%

### NOTES:

- [1]. All specifications are measured at 25°C ambient temperature, input voltage 230Vac, and the typical value tested at full load, if no specific note.
- [2]. The driver product is suitable for 265W-600W LED module.
- [3]. Efficiency ≥ 85% at 50% load @25°C.

## Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Range	198Vac	220V/277V/347V 400V/480VAC	528Vac	
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	3.2A	220-480Vac&Full Load.
Max Input Power	-	-	660W	220Vac&Full Load.
Leakage Current	-	-	0.70mA	IEC 60598-1;240Vac/60Hz.
Inrush Current	-	-	30A	220Vac&Full Load, Cold Start.
Standby Power Consumption	-	-	0.5W	230Vac&50Hz.
Power Factor(PF)	0.96	0.98	-	220Vac, 50-60Hz, 100% Load.
Power Factor(PF)	0.90	0.95	-	480Vac, 50/60Hz, 70%-100% load.
Total Harmonic Distortion(THD)	-	5%	10%	220-400Vac, 50-60Hz, 100% Load.
Total Harmonic Distortion(THD)	-	15%	20%	220-480Vac, 50-60Hz, 70%-100% Load.
MCB(B16)	-	6	-	230Vac.

## Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	172Vdc	-	360Vdc	The full power cannot be lower than 200Vdc.
Open Circuit Voltage	-	-	420Vdc	The open circuit protection is locked, and the AC needs to be powered on again.
Output Current Range	0.30A	-	3.00A	The DMX programmer regulates the I <sub>set</sub> current.
Full Power Current Range	1.67A	-	3.00A	
Current Accuracy	-5%	-	+5%	
Total Output Current Ripple (pk-pk)	-	5%	10%	> 15KHz BW, full load& LED load, the ripple would be tiny different under different LED load.
Total Output Current Ripple (pk-pk)	-	1.5%	2%	< 1KHz BW, full load& LED load, the ripple would be tiny different under different LED load.
Startup Overshoot Current	-	6%	10%	220~480Vac & 100% Load, load is LED.
Line Regulation	-1%	-	+1%	25°C±10°C ambient temperature, input Voltage changes from 220Vac to 480Vac.
Load Regulation	-3%	-	+3%	25°C±10°C ambient temperature, Input Voltage 230Vac,load changes from 60% to 100%.
Turn-on Delay Time	-	1s	2s	230Vac,100% load.

## General Specifications

parameter	Min	Typ.	Max	Notes
Efficiency@220Vac Io=1.67A	92.5%	94.0%	-	Measured at full load and 25°C ambient temperature.
Efficiency@220Vac Io=3.00A	92.5%	94.0%	-	Measured at full load and 25°C ambient temperature.
Efficiency@400Vac Io=1.67A	93.0%	94.5%	-	Measured at full load and 25°C ambient temperature.
Efficiency@400Vac Io=3.00A	93.0%	94.5%	-	Measured at full load and 25°C ambient temperature.
Efficiency@480Vac Io=1.67A	93.5%	95.0%	-	Measured at full load and 25°C ambient temperature.
Efficiency@480Vac Io=3.00A	93.0%	94.5%	-	Measured at full load and 25°C ambient temperature.
Mean Time Between Failure	-	200Khours	-	25°C±10°C ambient temperature, 230Vac, 100% load (MIL-HDBK-217F/SR-332).
Lifetime	-	50Khours	-	Tc=75°C, 230Vac&100% load.
Operating Temperature Ta	-40°C	-	+50°C	220-480Vac&100% load.
Operating Tc for Safety Tc_s	-40°C	-	+90°C	
Operating Tc for Warranty Tc_w	-40°C	-	+75°C	5 years warranty case temperature Humidity: 10% to 80% RH No condensation.
Storage Temperature Ta	-40°C	-	+85°C	Humidity: 5% to 50% RH No condensation.
Altitude	-60m	-	4000m	
Input Under Voltage Protection	173 Vac	180 Vac	193 Vac	
External NTC (R1)		18K ohm (Set by software)		When the R-NTC is reduced to R1, the external thermal protection is triggered and the output current gradually decreases.
External NTC (R2)		9.1K ohm (Set by software)		When the R-NTC is reduced to R2, the output current is reduced to the programmed protection current value.
External NTC (Protection Circuit)	10%Io <sub>set</sub>	60%Io <sub>set</sub>	100%Io <sub>set</sub>	10%Io <sub>set</sub> >Io <sub>min</sub> (Default setting 60%).
External NTC (Protection Circuit)	Io <sub>min</sub>	60%Io <sub>set</sub>	100%Io <sub>set</sub>	10%Io <sub>set</sub> ≤Io <sub>min</sub> (Default setting 60%).
Over Temperature Protection Tc	-	93°C	-	230Vac&100% load.
Short Circuit Protection	-	-	-	Self-recovery after 30 seconds.
Dimensions (L*W*H)	335*143.5*58.6mm			
Net Weight	3100±50g/PCS			
Package	544*365*195mm; 4PCS/Ctn			

## Dimming

Parameter	Min	Typ.	Max	Notes
DMX+ to DMX-	-6V	-	6V	
DMX+ to Chassis	22M ohm	-	-	At 42Vdc
DMX- to Chassis	22M ohm	-	-	At 42Vdc
Logic 0 Input	-	-	-0.2V	DMX+ to DMX-
Logic 1 Input	0.2V	-	-	DMX+ to DMX-
Communication Baud Rate	-	250K bps	-	
Dimming Output Range	10%Io <sub>max</sub>	-	100%Io <sub>set</sub>	10%Io <sub>max</sub> ≤Io <sub>set</sub> ≤100%Io <sub>max</sub>

### Note:

All specifications are typical at 25°C unless stated otherwise.

## Safety Specification

Dielectric Strength (Input-Output)	-	4372Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Input-Ground)	-	1830Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Output-Ground)	-	2100Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Input-Dimming)	-	1600Vac	-	60s, Current not exceeding 5mA.
Dielectric Strength (Dimming-Ground)	-	500Vac	-	60s, Current not exceeding 5mA.
Grounding Resistance	-	-	0.1Ω	25°C±10°C Ambient Temperature, pass 25A Current, 60s.
Insulation Resistance	10MΩ	-	-	Input-Output, Input-PE, Output-PE, 500Vdc/60s/25°C.

## Safety Compliance

Safety Category	Standards	Approved	Notes
CCC	GB19510.1,GB19510.14	√	
CE	EN61347-1, EN61347-2-13, EN62493	√	
ENEC	EN61347-1, EN61347-2-13, EN62384	√	
CB	IEC61347-1, IEC61347-2-13	√	
BIS	IS 15885(PART 2/SEC 13)		
UL	UL 8750	√	
CUL	CSA C22.2 No.250.13	√	
KC	K61347-1, K61347-2-13		
PSE	J61347-1, J61347-2-13		
SAA	AS/NZS IEC 61347.2.13		
SAA	AS/NZS 61347.1		

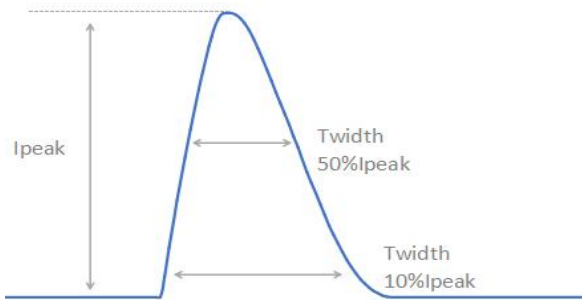
## EMC Compliance

EMC Category	Standards	Approved	Notes
CCC	GB/T 17743, GB 17625.1	√	
CE	EN 55015	√	
CE	EN 61000-3-2, EN 61000-3-3	√	
CE	EN61000-4-2,3,4,5,6,11	√	
CE	EN 61547	√	
KC	K61547		
KC	K00015		
PSE	J55015		
FCC	FCC part 15		
Surge Shock Immunity	ANSI/C82.77-5-2017		
Ringing Wave			

## RoHS

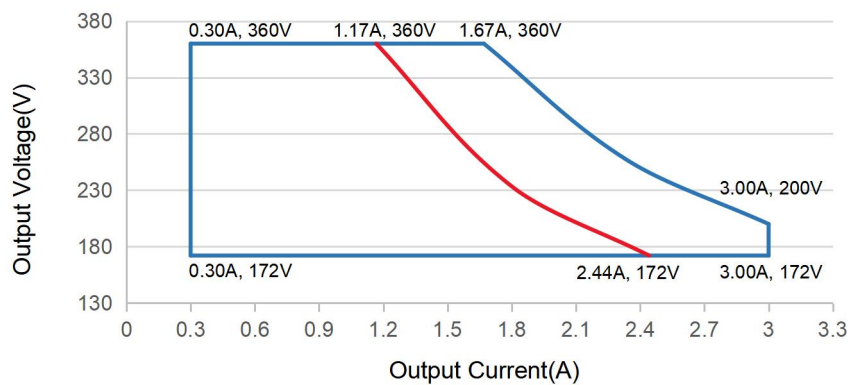
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

## Inrush Current



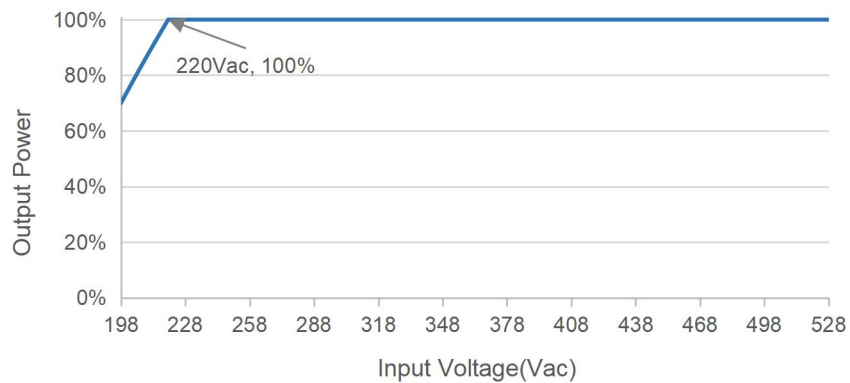
$V_{in}$	$I_{peak}$	$T(@10\% \text{ of } I_{peak})$	$T(@50\% \text{ of } I_{peak})$
220Vac	12.7A	2.44ms	1.030ms
400Vac	24.6A	2.50ms	1.120ms
480Vac	27.6A	2.50ms	1.120ms

## Output Voltage vs. Output Current

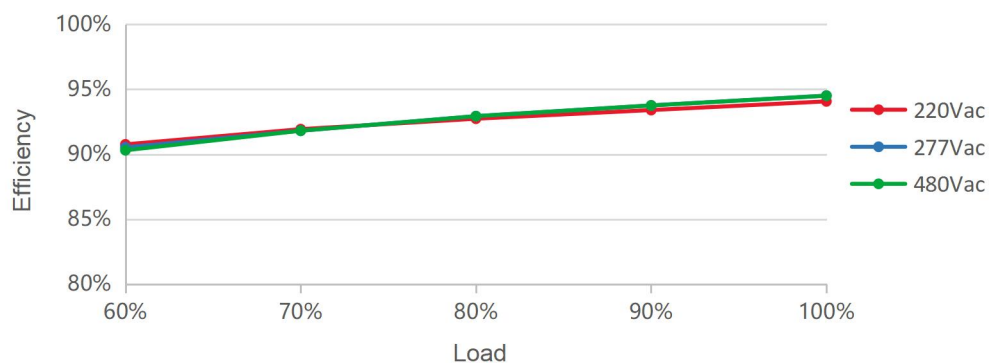


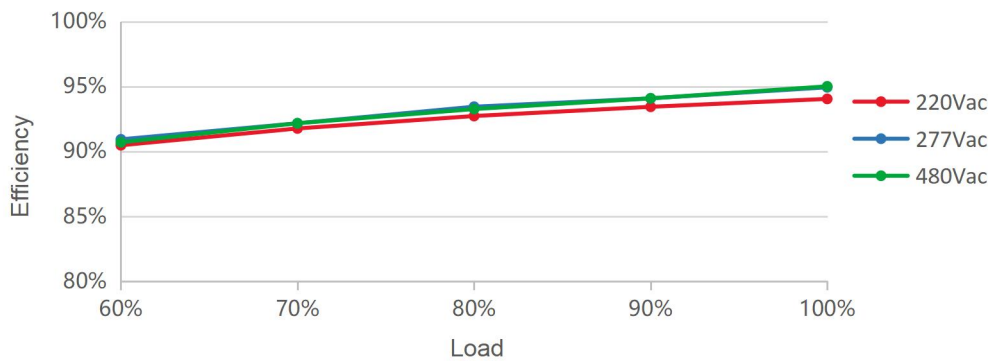
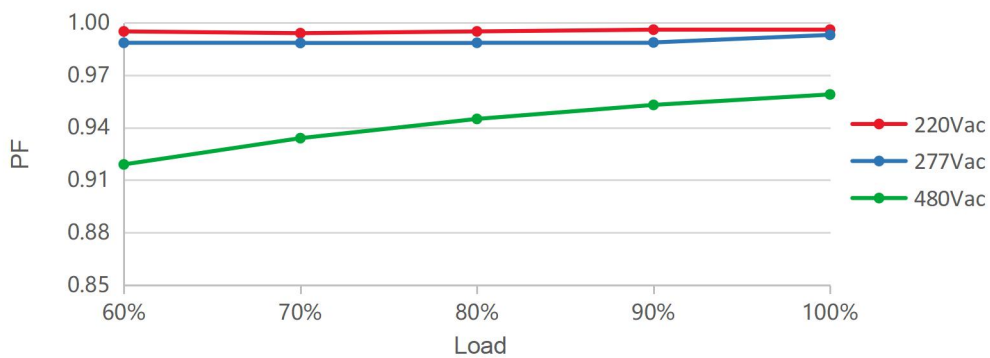
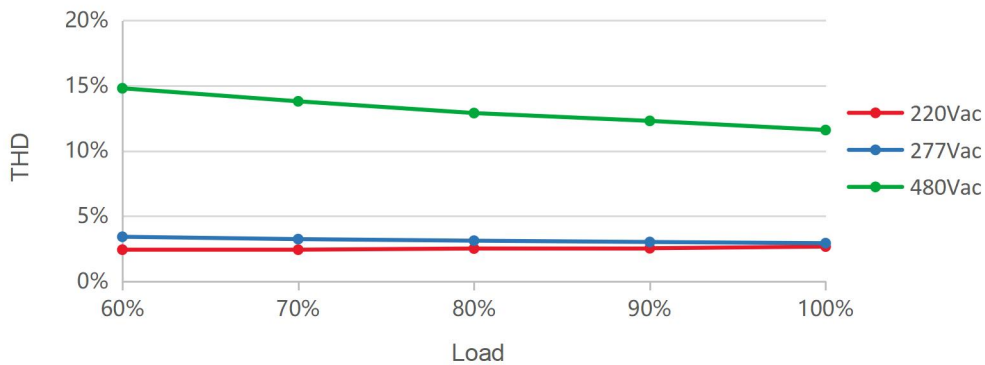
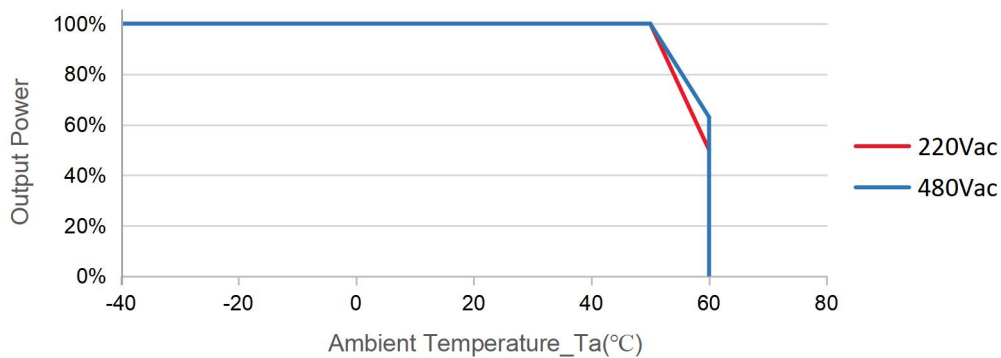
Red curve: good performance area.

## Output Power vs. Input Voltage

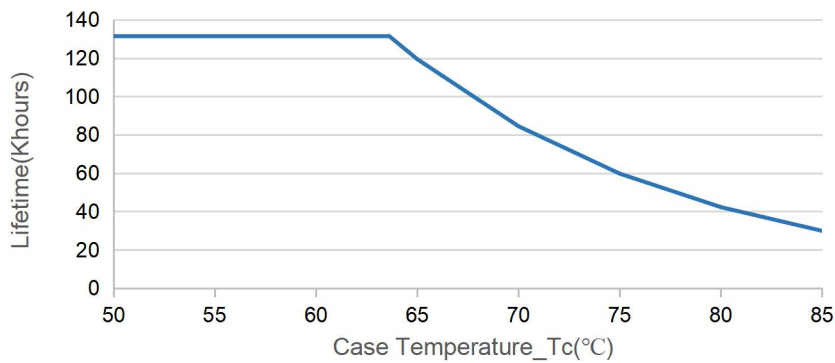


## Efficiency vs. Load ( $I_o=3.00A$ )

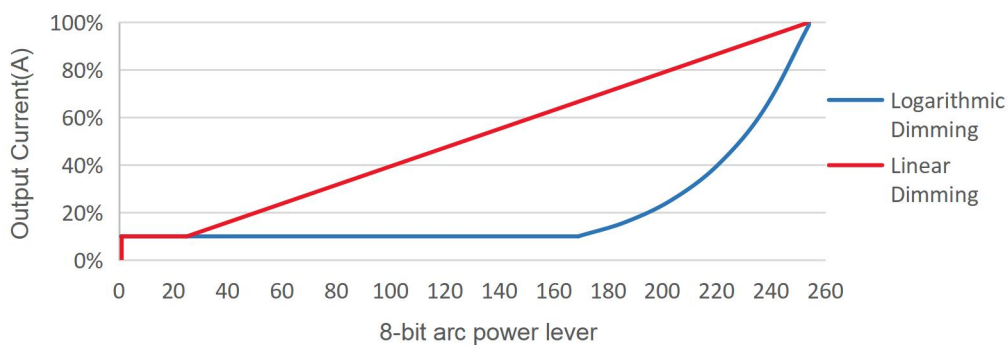


**Efficiency vs. Load (Io=1.67A)****PF vs. Load****THD vs. Load****Output Power vs. Ambient Temperature**

## Lifetime vs. Case Temperature



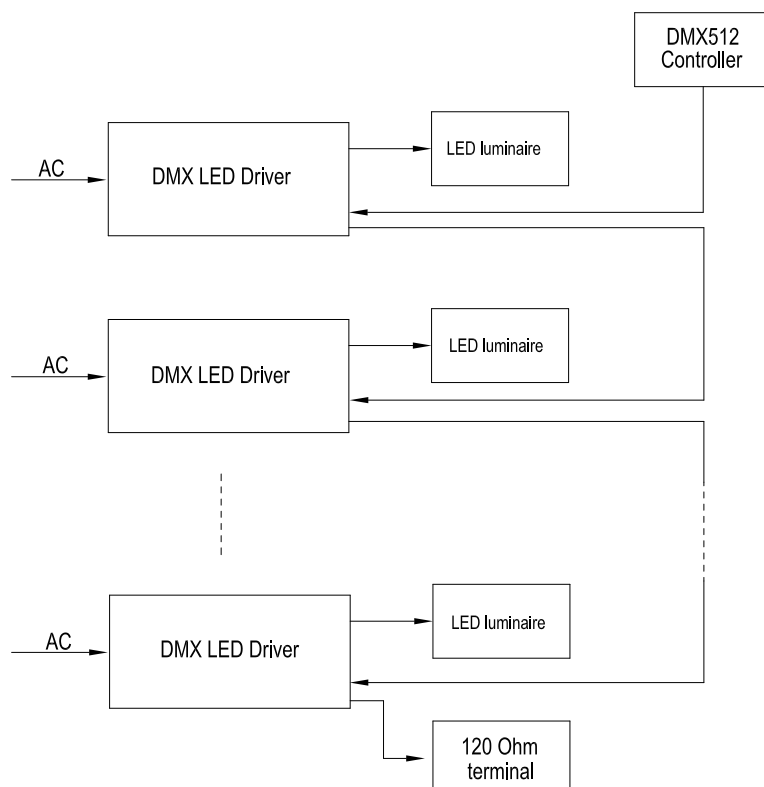
## DMX Dimming



### Note:

Factory Default Logarithmic Dimming Curve.

## Implementation:DMX512 Daisy chain

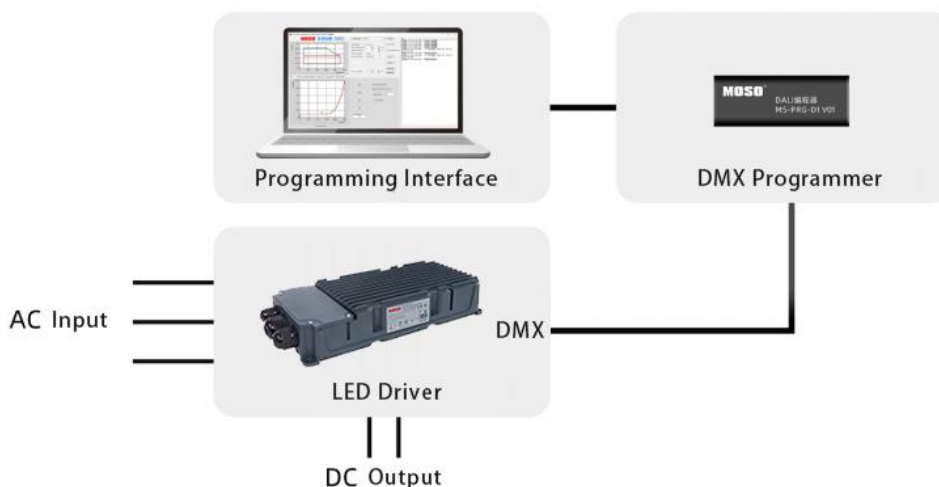


### Note:

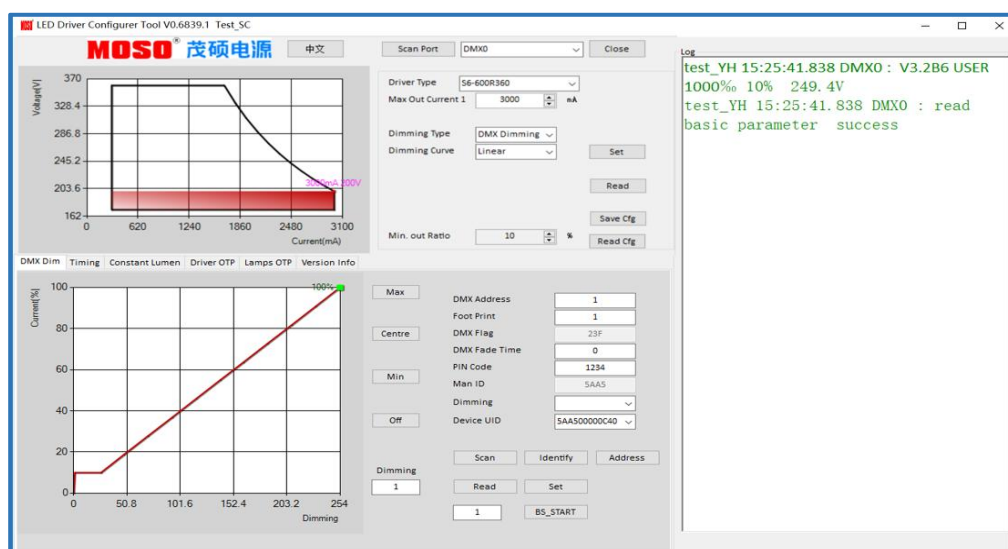
- [1]. Up to 32 drivers may be daisy-chained, terminated by a 120 ohm resistor (connected between DMX+ & DMX- as the last driver).
- [2]. 300m maximum length.
- [3]. 100m maximum between drivers.
- [4]. For best performance, a characteristic impedance of 120 ohms should be maintained for the entire length of the control line.

## Programming Link (DMX)

### 1. Programming mode



### 2. Operating instructions



#### DMX visual software programming

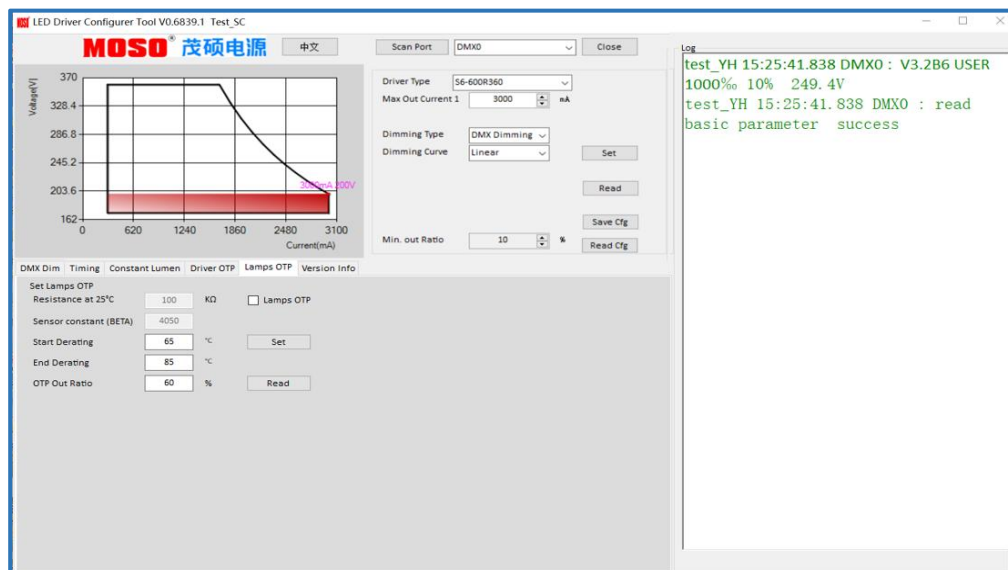
1.The current parameters and configured driving parameters can be read;

2.Time dimming. Set the timing control function, which supports 7 segments at most;

3.CLO;

4.Power protection. The power protection parameters can be set according to the actual needs of customers.

### 3. NTC



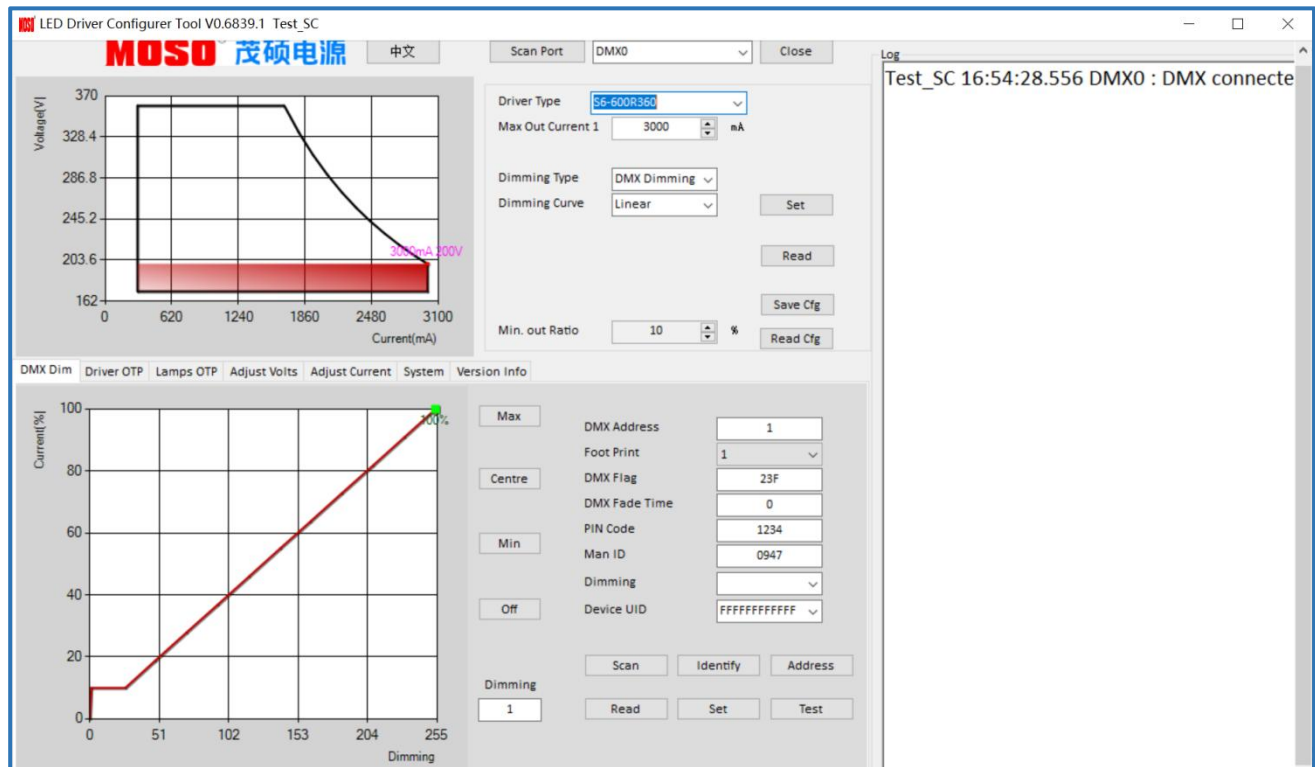
The recommended value of NTC resistance is 100K  $\Omega$ , BETA: 4050

NTC resistance value changes with temperature:

40°C	48.6 $\Omega$ -58.8K $\Omega$ ;
60°C	21.8 $\Omega$ -26.3K $\Omega$ ;
65°C	18.1 $\Omega$ -22.1K $\Omega$ ;
70°C	15.1 $\Omega$ -18.6K $\Omega$ ;
75°C	12.7 $\Omega$ -15.8K $\Omega$ ;
80°C	10.7 $\Omega$ -13.4K $\Omega$ ;
85°C	9.1 $\Omega$ -11.5K $\Omega$ ;



#### 4. DMX interface parameters



##### ◆ Scan

When the DMX control system is connected to a new driver, customer need to click the "Scan" button to scan the new driver. The Configurer Tool will automatically read the Device UID of the newly connected driver in the system. The UID of the driver is displayed on the right LOG page. When the Device UID displayed by the Configurer Tool is consistent with the actual device UID of the driver, you can perform the next operation on the DMX driver, otherwise the software will display "read basic parameter fail".

##### ◆ Identify

The specific position of the driver can be identified by this function. Click the "Identify" button, and the light connected to the corresponding driver will flash to indicate its location.

##### ◆ Foot print

This function is used to assign the number of addresses. The selected value corresponds to the number of addresses assigned

##### ◆ DMX Flag

The software displays the hexadecimal code and converts the corresponding binary code to correspond to 16 different functions. 1 indicates that the function is enabled and 0 indicates that the function is disabled.

For example, 23F=0000, 0010, 0011, 1111 indicates that functions 7, 11, 12, 13, 14, 15 and 16 are enabled, FFFF=1111, 1111, 1111, 1111, Indicates that all 16 functions are enabled.

##### ◆ Address

Driver assignment DMX address can be modified. With this function, customer can enter any number within 512 into the "DMX Address" to reassign the DMX address of a driver. Entering the number, then click "Address" to complete the address setting.

The number of driver channels corresponds to the number of **DMX addresses** occupied by the driver. The Address window displays the address of the first channel. For example, if the address of the first channel is 6, the address of the second channel is 7 and the address of the third channel is 8.

**⚠ Note:** So for multichannel DMX drivers, the maximum configurable address equals :  $512 - (\text{number of channels}) + 1$ , Unlike the "Address" button, which can only modify the DMX address of the driver, "Set" can set all the DMX parameter modified by customer into the driver.

### ◆ Dimming

This function is used to read the dimmer value data of the driver in real time and return the value.

### ◆ DMX fade time

The Fade Time will be started when the system changes the dimming value. The maximum of Fade Time for each steps can reach 2500ms. The calculation method is set value multiplied by 10ms

The longest total time spent will be 635 seconds when dimming value has changed from 0 to 254 with maximum Fade Time. The calculation formula is as follows:

**255 steps (whole dimming value has changed)\*2500ms (maximum fade time) ÷1000 (Unit conversion: from microseconds to seconds) =635 seconds.**

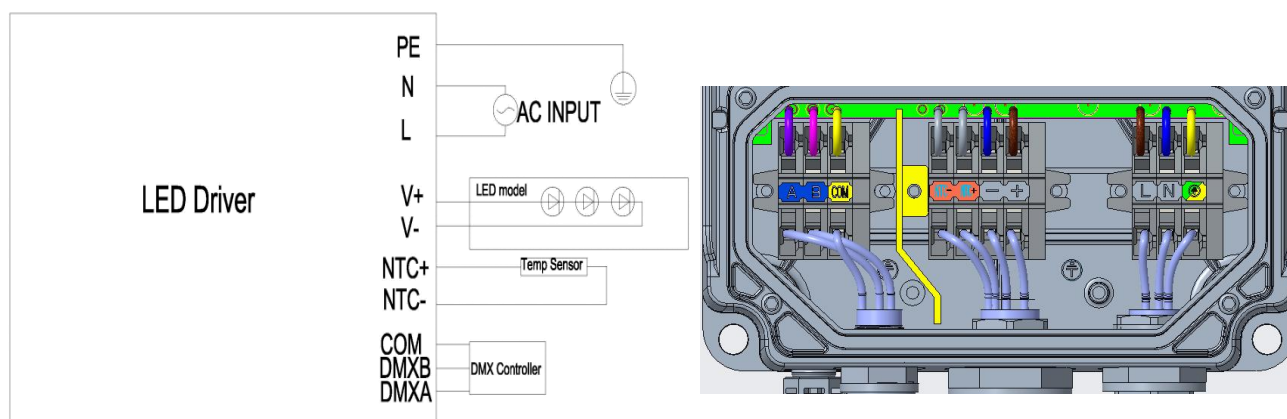
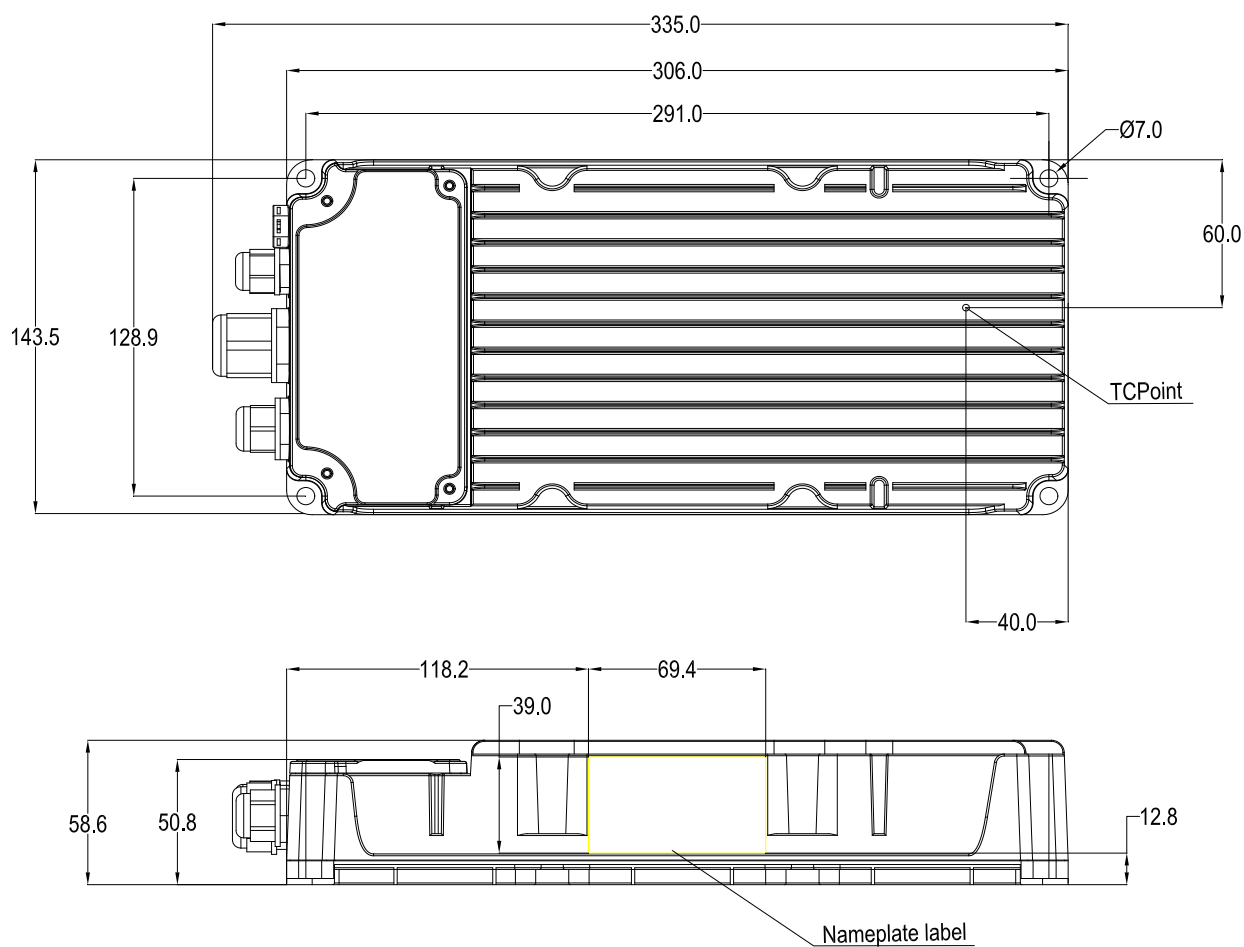
### ◆ PIN Code

The password for each driver to join the customer's control system.

### ◆ Device UID

A window used to select the device UID of the driver. Use the “**Scan**” button to automatically switch the device UID of the driver newly connected to the system, or manually select the device UID previously connected.

## Mechanical Outline



## Connections

Wire	Recommended wire Specification	Note
Input (L,N,G)	H07RN-F, Minimum wire diameter 3*1.0mm <sup>2</sup> , The maximum wire diameter 3*2.5 mm <sup>2</sup>	
Output, NTC	H07RN-F, Minimum wire diameter 4*1.0mm <sup>2</sup> , The maximum wire diameter 4*2.5 mm <sup>2</sup>	
Dimming(DMX)	H07RN-F, Minimum wire diameter 3*1.0mm <sup>2</sup> , The maximum wire diameter 3*2.5 mm <sup>2</sup>	

Terminal	Recommended wire Specification	Note
Input	PG13.5, the torsion 3N.m Minimum wire diameter 6mm, The maximum wire diameter 11mm	
Input	PG13.5, the torsion 3N.m Minimum wire diameter 8mm, The maximum wire diameter 12mm	
Output, NTC	PG19, the torsion 3N.m Minimum wire diameter 12mm, The maximum wire diameter 15mm	
Dimming(DMX)	PG9, the torsion 1.5N.m Minimum wire diameter 4.5mm, The maximum wire diameter 8mm	

## Label



## NOTE:

The output voltage range on the label is 260-520V, and the current range is 0.19-1.88A, which refers to the dimming range.

## Shipping Barcode Label Standard

2	2	1	2	1	2	1	0	5	7	0	1	A	1	0	0	0	1
Year	month	day	Part of production order number				Engineering level		REVISION RR		Production line number			Progressive Serial number			

Version

A.1	First release	2023-03-10

## Specification for Approval

Product Name: 600W Stadium Intelligent LED Driver

Product Model: S6-600R360

Rev: A.1

Address: XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

Tel: 0755-27657000

FAX: 755-27657908

E-mail: info@mosopower.com

Web Site: <http://www.mosopower.com>

Prepared By	Checked By	Approved By

## Specification for Approval

Product Name: 600W Stadium Intelligent LED Driver

Product Model: S6-600R360

Rev: A.1

CUSTOMER AUTHORIZED SIGNATURE		
Tested By	Checked By	Approved By
(Company seal)Return one copy to MOSO with approved signature and company seal.		

Address:XiLiSongbai Road 1061, Nanshan District, Shenzhen City, Guangdong, China

Tel: 0755-27657000

FAX: 755-27657908

E-mail:info@mosopower.com

Web Site:http://www.mosopower.com

Prepared By	Checked By	Approved By