Description

S7-1K8Y500 series is specially designed for sports lighting and industrial lighting applications. It is constant current LED driver with NFC programming and DMX-RDM&DALI-2&D4I programming dimming function. The DALI-2 dimming control supports two-way communication and complies with D4i. This rectangle integrated structure enables it to have a better heat dissipation cooler, significantly improving reliability and extending product life. To ensure trouble free operation, protection is provided against input surge, output over voltage, short circuit, and over temperature. 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

- Input voltage range: 180~528Vac;
- Constant Current design, output current NFC adjustable，non-Isolated Class I Driver;
- Constant power design;
- Efficiency up to 97.5%;
- DALI-2/D4i & DMX512 dimming control;
- DMX512/RDM, support RDM control mode & controller address setting;
- Dimming Range 1%-100%（DALI-2&D4I, DMX-RDM）;
- Low Frequency Ripple <1%;
- Support flashing function with maximum of 18 flashes per second;
- Integrated Power Metering with High Accuracy up to ±1%;
- Standby power consumption <0.5W;
- Auxiliary power supply: 24V/125mA;
- 3*600W channels independently output;
- Dim-to-off; No glow after Dim-to-off;
- Max remote distance 300 meters;
- Surge protection: 10KV line-line, 20KV line-earth;
- Multiple protection: UVP,SCP, OVP, OTP;
- IP66, IK08 design for indoor and outdoor applications;
- 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(Vdc)	Default Current(A)	Eff.(Typ.)	PF(Typ.)	THD(Typ.)
S7-1K8Y500	180-528	1800W (600W x3)	200-500	(1.20~2.3A)*3	2.3A*3	97%	0.96	10%

NOTES:

[1].Y=D means DALI-2 & D4i, Y=R means DMX512-RDM.

[2].All specifications are measured at 25℃ ambient temperature, input voltage 400Vac, and the typical value tested at full load, if no specific note.

Input Specifications

Parameter	Min	Typ.	Max	Notes
Input Voltage Typ.	200Vac	-	480Vac	
Input Voltage Range	180Vac	-	528Vac	Refer to Output Power vs. Input Voltage curve.
Input Frequency AC	47Hz	50/60Hz	63Hz	
Max Input Current	-	-	10A	200Vac&Full Load.
Max Input Power	-	-	1950	200Vac&Full Load.
Protective Conductor Current	-	-	3.5mA	200~480Vac/60Hz
Inrush Current	-	20A	30A	480Vac&Full Load, Cold Start.
Standby Power Consumption	-	-	0.5W	230Vac
Power Factor(PF)	0.95	0.97	-	200-480Vac, 50/60Hz,100% Load
	0.90		-	200-480Vac, 50/60Hz, 60%-100% Load
Total Harmonic Distortion(THD)	-	10%	20%	200-480Vac, 50/60Hz, 60%-100% Load
MCB(B16)	-	1	-	230Vac.

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	200Vdc	-	500Vdc	
Open Circuit Voltage	-	-	600Vdc	
Programmable Current range	0.23A		2.3A	Programmable current range by DALI / DMX / NFC programmer
Full Power Current Range V+/V1-	1.2A	-	2.30A	Common positive pole.
Full Power Current Range V+/V2-	1.2A	-	2.30A	Common positive pole.
Full Power Current Range V+/V3-	1.2A	-	2.30A	Common positive pole.
Current Accuracy	-3%	-	+3%	25℃±10℃ ambient temperature, input voltage changes from 220Vac to 480Vac.
Total Output Current Ripple (pk- pk)	-	5%	10%	>3kHz, full load.
Total Output Current Ripple (pk- pk)	-	0.5%	1.0%	<3kHz, full load.
Startup Overshoot Current	-	-	10%	200-480Vac, 100% Load & LED Load.
Line Regulation	-2%	-	+2%	25℃±10℃ ambient temperature, input voltage changes from 220Vac to 480Vac.
Load Regulation	-3%	-	+3%	25℃±10℃ ambient temperature, Input Voltage 400Vac, load changes from 80% to 100%.
Turn-on Delay Time	-	-	1.5s	200~480Vac &100% Load, load is LED.

General Specifications

Parameter	Min	Typ.	Max	Notes
CH1/2/3: 260Vdc//2.3A	94.0%	95.5%	-	Efficiency @220Vac
CH1/2/3: 500Vdc//1.2A	95.0%	96.5%	-	Measured at full load and 25℃ ambient temperature
CH1/2/3: 260Vdc//2.3A	95.0%	96.0%	-	Efficiency @277Vac
CH1/2/3: 500Vdc//1.2A	95.5%	97.0%	-	Measured at full load and 25℃ ambient temperature
CH1/2/3: 260Vdc//2.3A	95.5%	96.5%	-	Efficiency @347Vac
CH1/2/3: 500Vdc//1.2A	96.0%	97.5%	-	Measured at full load and 25℃ ambient temperature
CH1/2/3: 260Vdc//2.3A	95.5%	96.5%	-	Efficiency @400Vac
CH1/2/3: 500Vdc//1.2A	96.0%	97.5%	-	Measured at full load and 25℃ ambient temperature
CH1/2/3: 260Vdc//2.3A	95.5%	96.5%	-	Efficiency @480Vac
CH1/2/3: 500Vdc//1.2A	96.0%	97.5%	-	Measured at full load and 25℃ ambient temperature
Mean Time Between Failure	-	200Khours	-	25℃±10℃ambient temperature, 220Vac,80% load (MIL-HDBK-217F/SR-332).
Lifetime	-	50Khours	-	Tc=80℃,220Vac&100% load
Ambient Temperature Ta	-40℃	-	+45℃	200Vac~277Vac&100% load.
	-40℃	-	+50℃	277Vac~480Vac&100% load.
Operating Tc for Safety Tc_s	-40℃	-	+85℃	
Operating Tc for Warranty Tc_w	-40℃	-	+75℃	5 years warranty case temperature Humidity: 10% to 90% RH No condensation.
Storage Temperature Ta	-40℃	-	+85℃	Humidity: 5% to 90% RH No condensation
Altitude	-60m	-	4000m	
Over Temperature Protection Tc	88℃	90℃	95℃	
Short Circuit Protection	-	-	-	Self-recovery.
Dimensions (L*W*H)	500*150*81mm			
Net Weight	7000±100g/PCS			
Package	587*487*170mm; 2PCS/ctn, Gross Weight: 16Kg			

DMX 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	23mA	-	100%Io_{set}	
On/Off flashing rate with DMX	-	-	18	

Note:

All specifications are typical at 25℃.

DALI-2 Specifications

Parameter	Min	Typ	Max	Notes
High Voltage Level	9.5V	16V	22.5V	
Lower Voltage Level	-6.5V	0V	6.5V	Return terminal is “DA−”.
Dimming Output Current Range	23mA	-	100% Io_{set}	
Sink Current	-	-	2.0mA	
Timer dimming	-	-	-	Traditional, Self-adaption.
Output lumen compensation	-	-	-	Constant lumen output function.

D4iPart 150/Part 250,251,252,253

Parameter	Min	Typ	Max	Notes
24V Auxiliary Output Voltage	21.6V	24V	26.4V	200-480Vac，P $_{load}$>0.1W
24V Auxiliary Output Source Current	0mA	-	125mA	Return terminal is “24V−”
24V Auxiliary Output Transient Peak Current @6W	-	-	250mA	250mA peak for a maximum duration of 2.2ms in a 6.0ms period during which time the average should not exceed 125mA.
24V Auxiliary Output Transient Peak Current @10W	-	-	425mA	425mA peak for a maximum duration of 1.3ms in a 5.2ms period during which time the average should not exceed 125mA.
Integrated DALI-2 Bus Power Supply Voltage	12V	16V	20V	Voltage is depending on loading.
Integrated DALI-2 Bus Power Supply Current	50mA	-	60mA	Return terminal is “DA−”
DALI Part 251 - Memory Bank 1 Extension	-	-	-	Luminaire Data: bank 1(GTIN, identification number, nominal Input Power, light output, etc.)
DALI Part 252 - Energy Reporting	-	-	-	Energy Data: bank 202 (active energy and power), bank 203 (apparent energy and power), bank 204 (load side energy and power).
DALI Part 253 - Diagnostics & Maintenance	-	-	-	Diagnostics Data: bank 205 (control gear diagnostics and maintenance), bank 206 (light source diagnostics and maintenance), bank 207 (luminaire maintenance data).

Safety Specification

Parameter	CCC	CE/ENEC/SAA	UL	Notes
Dielectric Strength(Input-Ground)	2000Vac	2000Vac	2000Vac	60s, Current not exceeding 10mA.
Dielectric Strength(Output-Ground)	2200Vac	2200Vac	2200Vac	60s, Current not exceeding 10mA.
Dielectric Strength(Input-Dim)	4000Vac	4000Vac	2000Vac	60s, Current not exceeding 10mA.
Grounding Resistance	0.1Ω(Max)			25℃±10℃ Ambient Temperature, pass 30A Current 120s.
Insulation Resistance	10MΩ(Min)			Input-PE, Output-PE, 500Vdc/60s/25℃/70%RH.

Safety Compliance

Safety Category	Standards	Approved	Notes
CCC	GB/T19510.213,GB/T19510.1	√	
CE	EN61347-1, EN61347-2-13	√	
CE	EN62493	√	
ENEC	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	√	

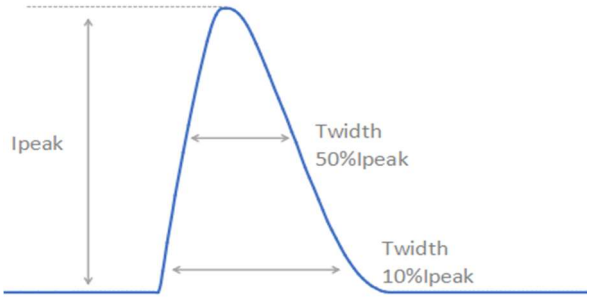
EMC Compliance

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	√	
	IEC/EN 61000-4-5	√	
Ringing Wave	IEC/EN 61000-4-12	√	
	ANSI/IEEE C62.41.2	√	

RoHS

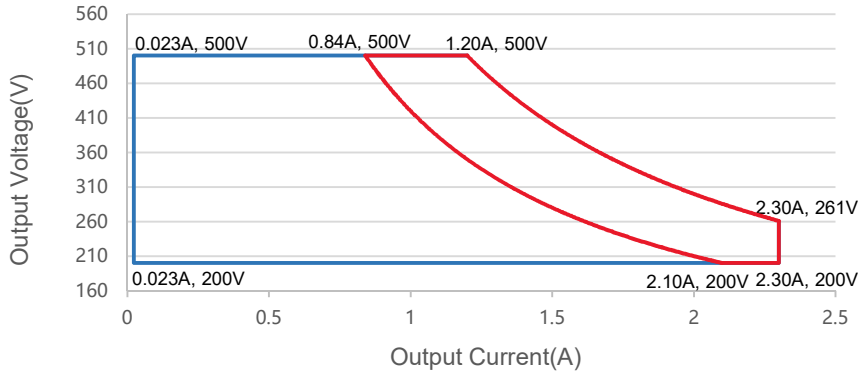
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current



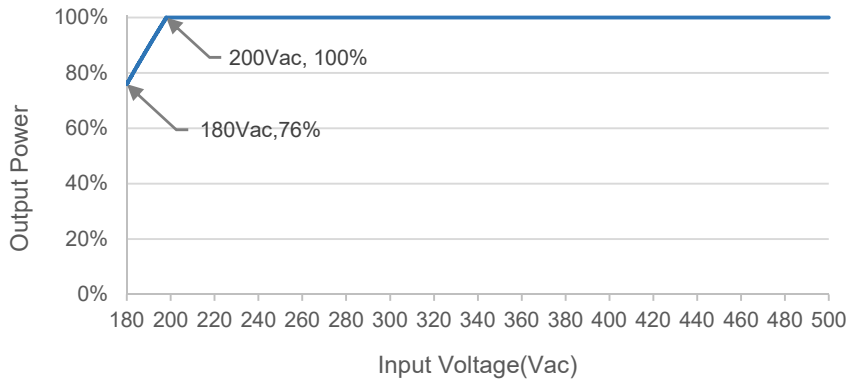
Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	8.8A	2.44ms	1.48ms
277Vac	11.5A	2.48ms	1.48ms
347Vac	15.3A	2.64ms	1.52ms
400Vac	18.5A	3.44ms	2.12ms
480Vac	21.1A	3.2ms	2.08ms

Output Voltage vs. Output Current



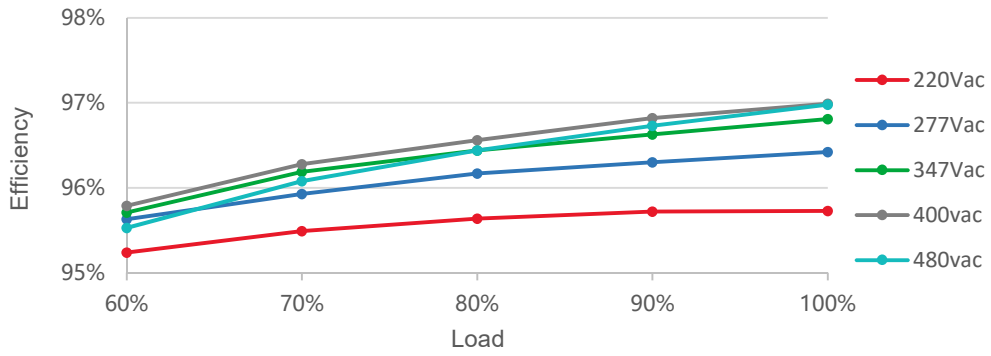
Red curve: good performance area

Output Power vs. Input Voltage

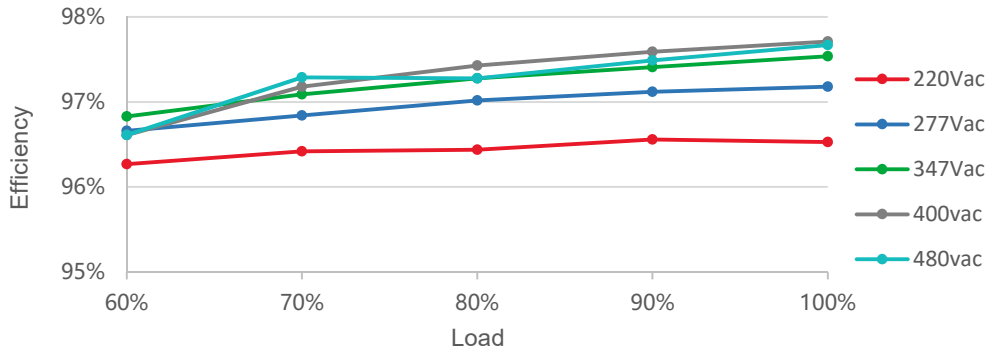


Efficiency vs. Load

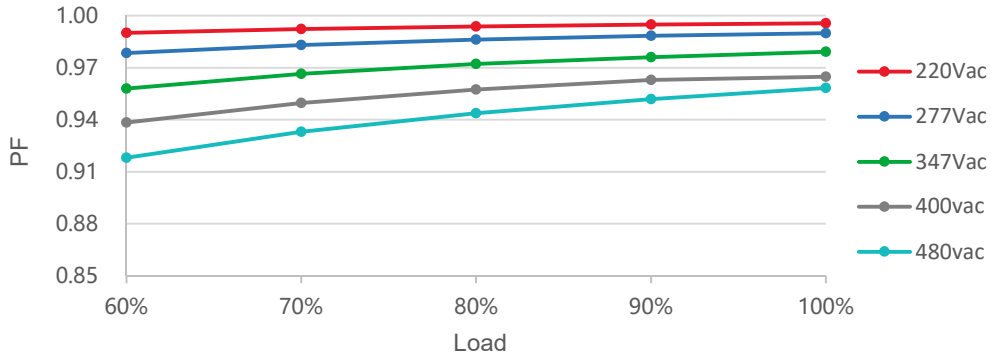
260Vdc/2.3A



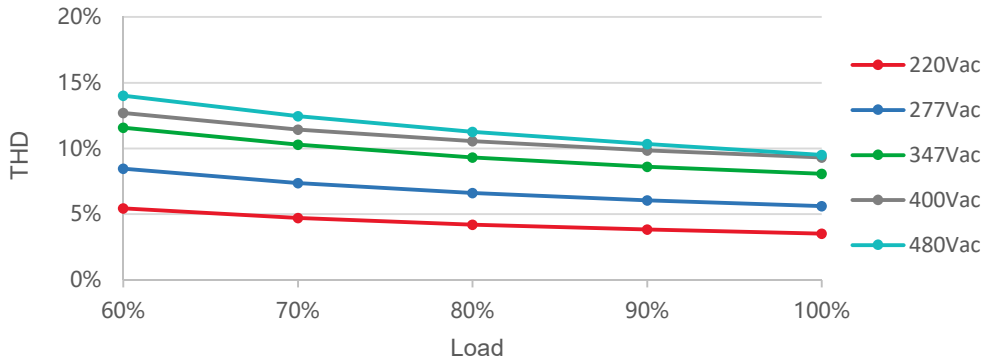
500Vdc/1.2A



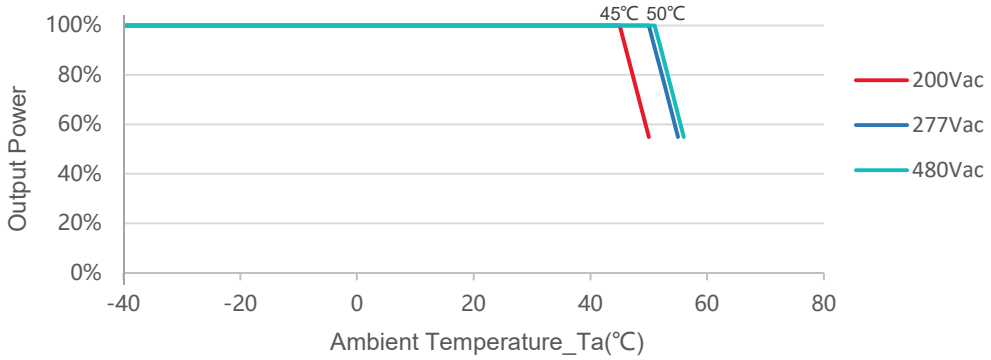
PF vs. Load



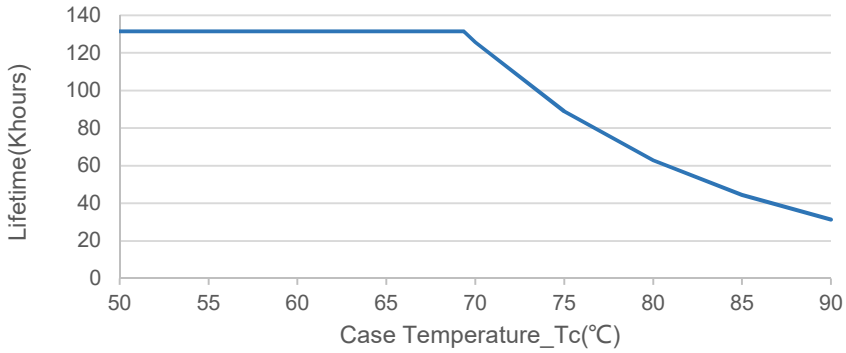
THD vs. Load



Output Power vs. Ambient Temperature

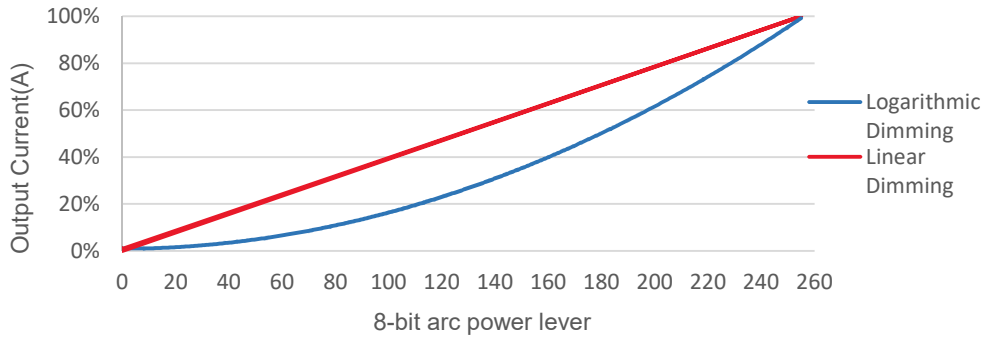


Lifetime vs. Case Temperature

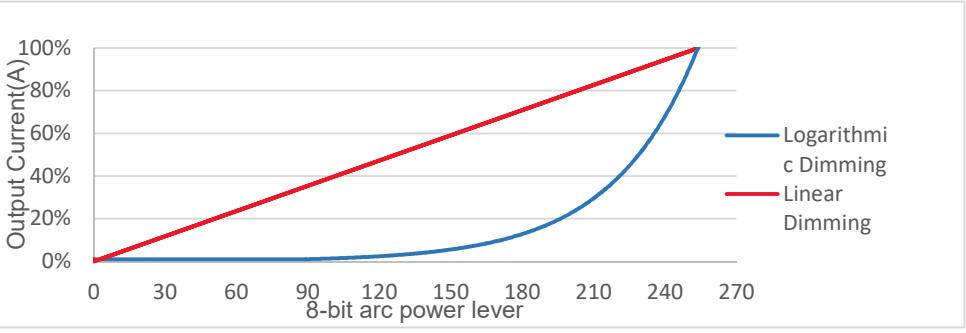


Dimming Curve

DMX dimming curve

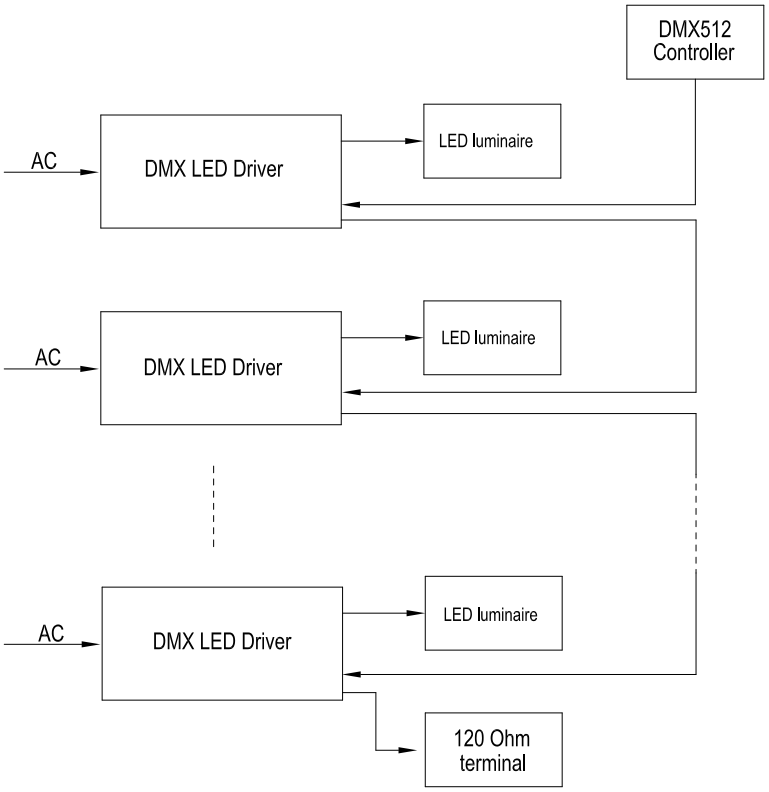


DALI-2 dimming curve



Note: Factory Default Output Logarithmic Curve.

Implementation: DMX512 Daisy chain



Note:

[1].Up to 32 drivers may be daisy-chained, terminated by a 120 Ohm resistor (connected between DMXA & DMXB as the last driver).

[2].300m maximum length.

[3].100m maximum between drivers.

[4]. For best performance, a characteristic impedance of 120 Ohm should be maintained for the entire length of the control wire.

Programming Link

■ For NFC

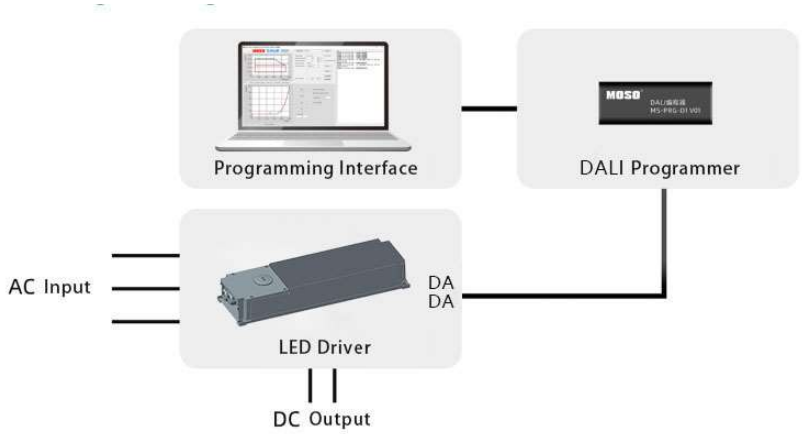
Notes:

1. The driver does not need to be powered on during the programming process.

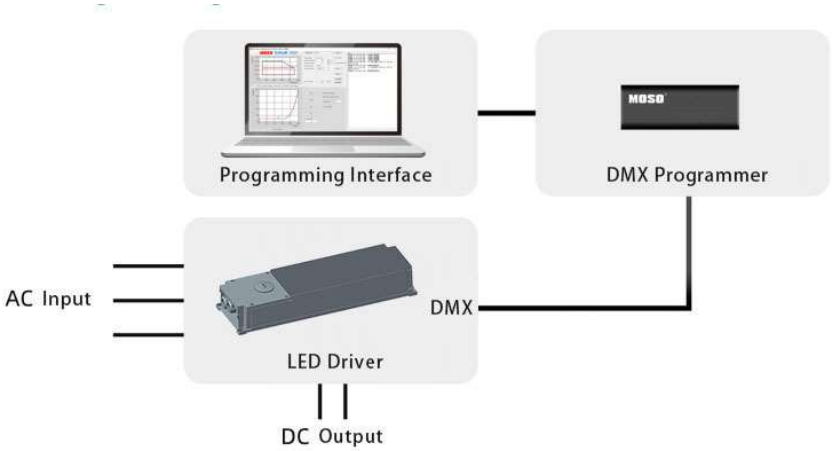
2. Please refer to MS-PRG-D1 or MS-PRG-N1 (Programmer) datasheet for details.

3. Applicable to FEIG programmer: ISC PRH101 and CPR30-USB

■ For Dali



■ For DMX



1. Dimming Mode Switching for DALI-2 & DMX-RDM

1.1 Switching from DALI-2 Dimming to DMX-RDM:

a. After connecting the DMX programmer to computer, click on the software "Scan Port" button;

b. Click "Read Cfg" to import the corresponding model's DMX configuration file;

c. Click 'Set' button to transmit the .cfg file into the driver's MCU;

d. After setting and restarting the driver, the software interface displays the DMX dimming mode, indicating successful conversion;

Note: If the third step fails to set, select "FFFFFFFFFFFF" for the Device UID and reset the driver.

1.2 Switching from DMX-RDM to DALI-2 Dimming:

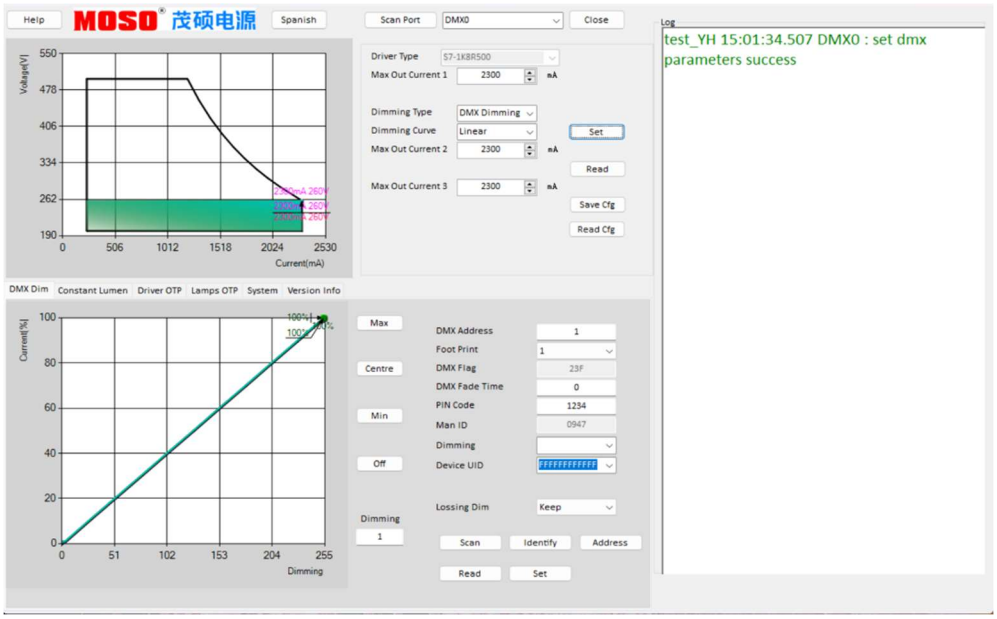
a. After connecting the DALI programmer to computer, click on the software "Scan Port" button;

b. Click "Read Cfg" to import the corresponding model's DALI configuration file;

c. Click 'Set' button to transmit the .cfg file into the driver's MCU;

d. After setting and restarting the driver, the software interface displays the DALI-2 dimming mode, indicating successful conversion;

Operating instructions



DALI / DMX visual software programming

1. Use corresponding programmer to connect with driver.

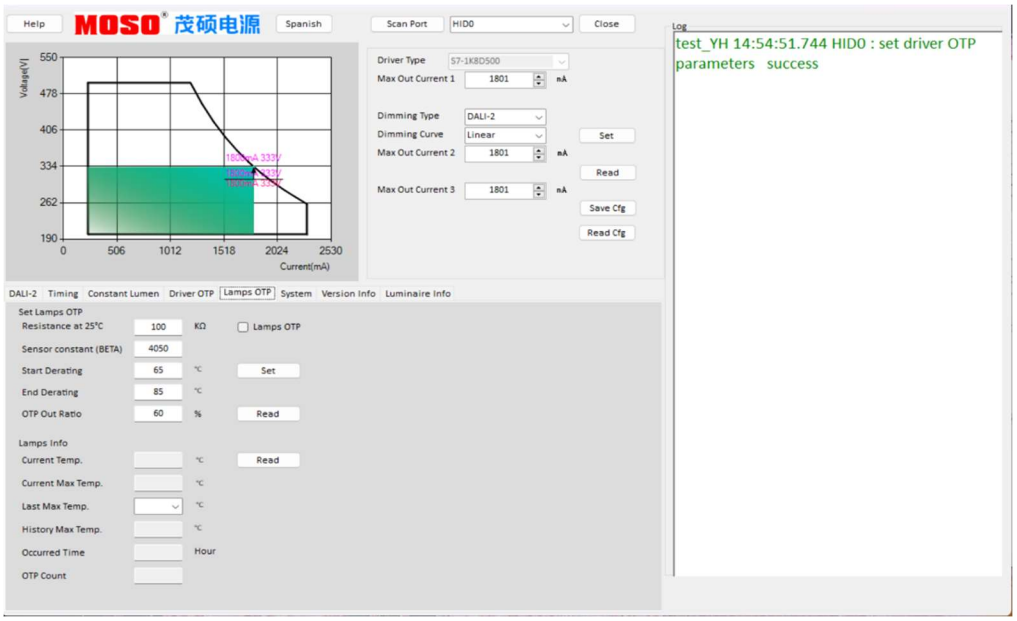
2. The output current of the three channels is independent. When setting the current, each channel needs to be modified.

3. The current parameters and configured driving parameters can be read and set.

4. Time dimming. Set the timing control function, which supports 7 segments.

5.Driver OTP and Lamps OTP. The Driver OTP and Lamps OTP parameters can be set according to the needs of customers.

NTC

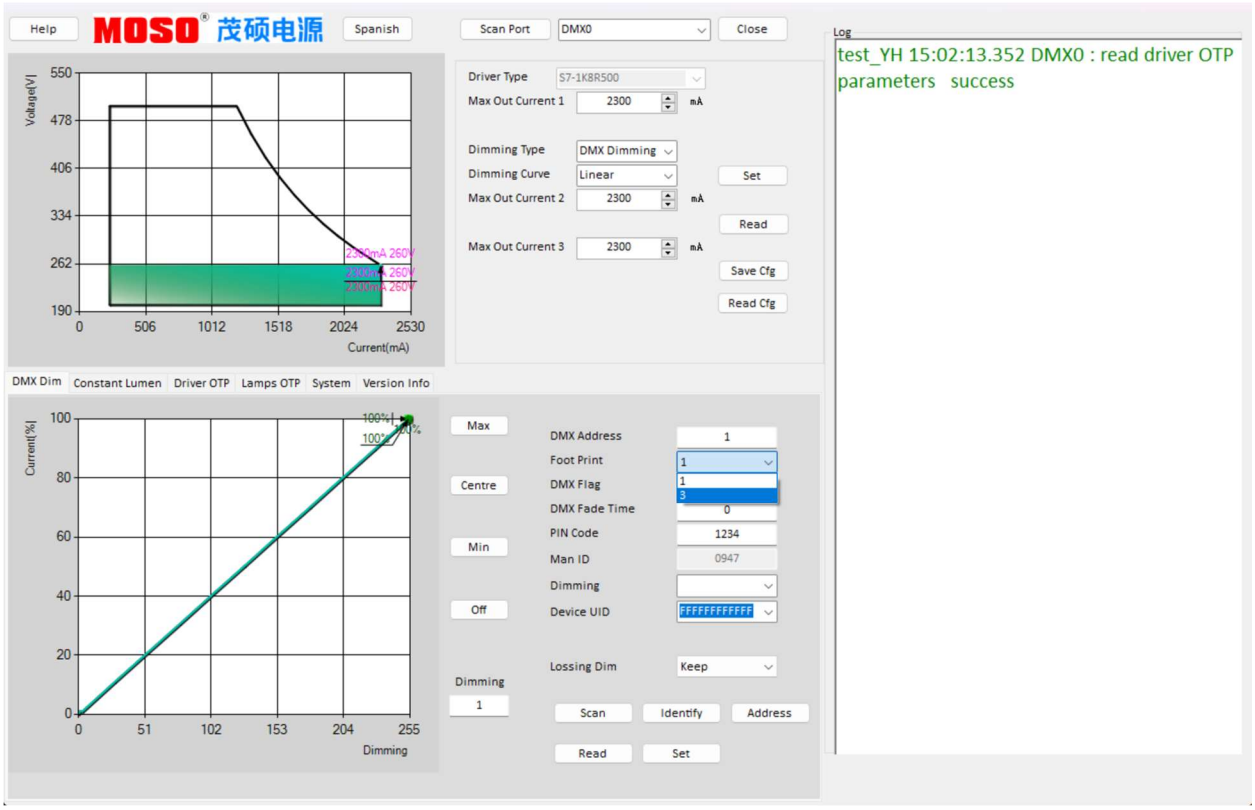


The recommended value of NTC resistance is 100K Ω, BETA: 4050

NTC resistance value changes with temperature:

40℃	48.6KΩ-58.8KΩ;
60℃	21.8KΩ-26.3KΩ;
65℃	18.1KΩ-22.1KΩ;
70℃	15.1KΩ-18.6KΩ;
75℃	12.7KΩ-15.8KΩ;
80℃	10.7KΩ-13.4KΩ;
85℃	9.1KΩ-11.5KΩ;

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. If 1 is selected, the three channels share a single DMX address, and if 3 is selected, the three channels use three different DMX addresses.

◆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- (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.

◆DMX Flag

The software displays the hexadecimal code and converts the corresponding binary code to correspond to functions. 1 indicates that the function is enabled and 0 indicates that the function is disabled. At present, only ten functions are supported.

For example, 23F=10, 0011, 1111 indicates that functions 0~5 and 9 are enabled.

◆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

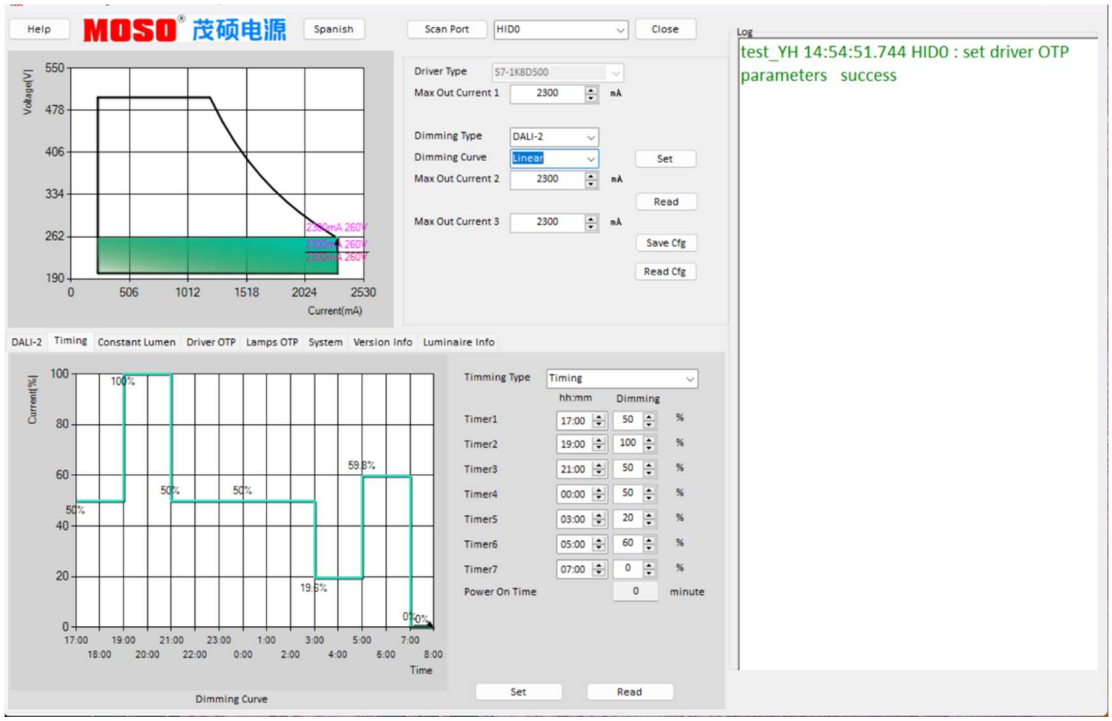
A window used to select the device UID of the driver. Use the **"Scan"** button to automatically switch the device UID of the driver newly connected to the system, or manually select the device UID previously connected.

Time Dimming

Time-controlled dimming is divided into three modes: Timing dimming, Virtual Midnight dimming, Self-Adaptive dimming.

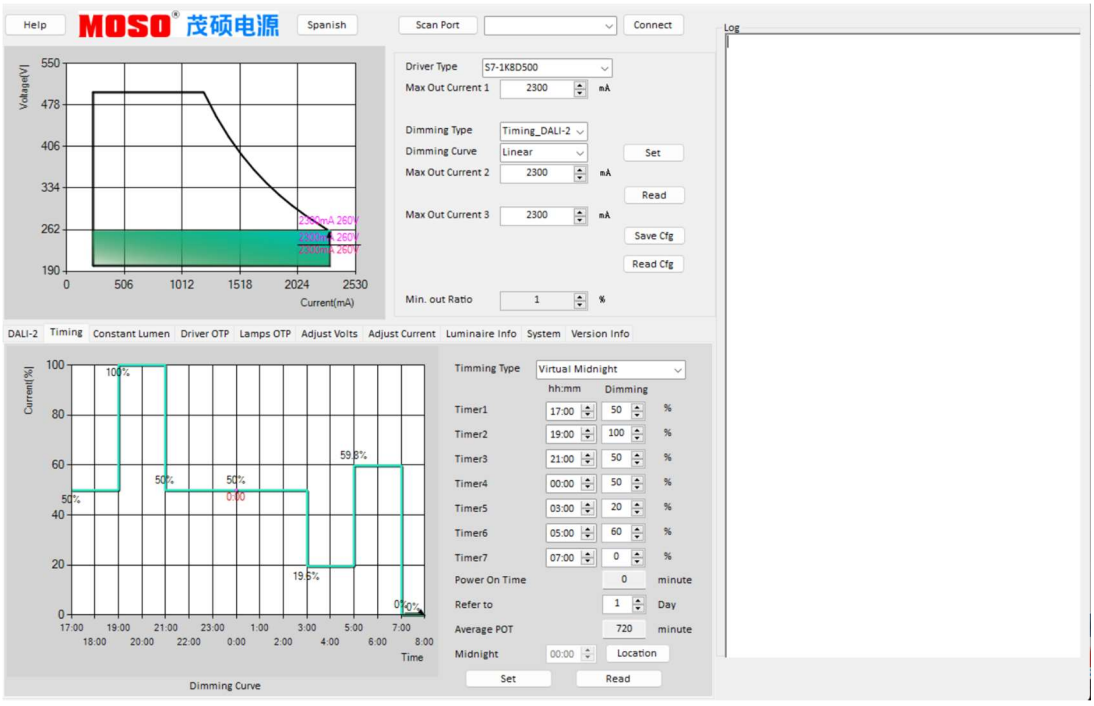
Timing Dimming

After the driver is powered on, the driver will change in sequence according to the programmed seven periods, and maintain the brightness of timer 7 after running to the last timer.



Virtual Midnight dimming

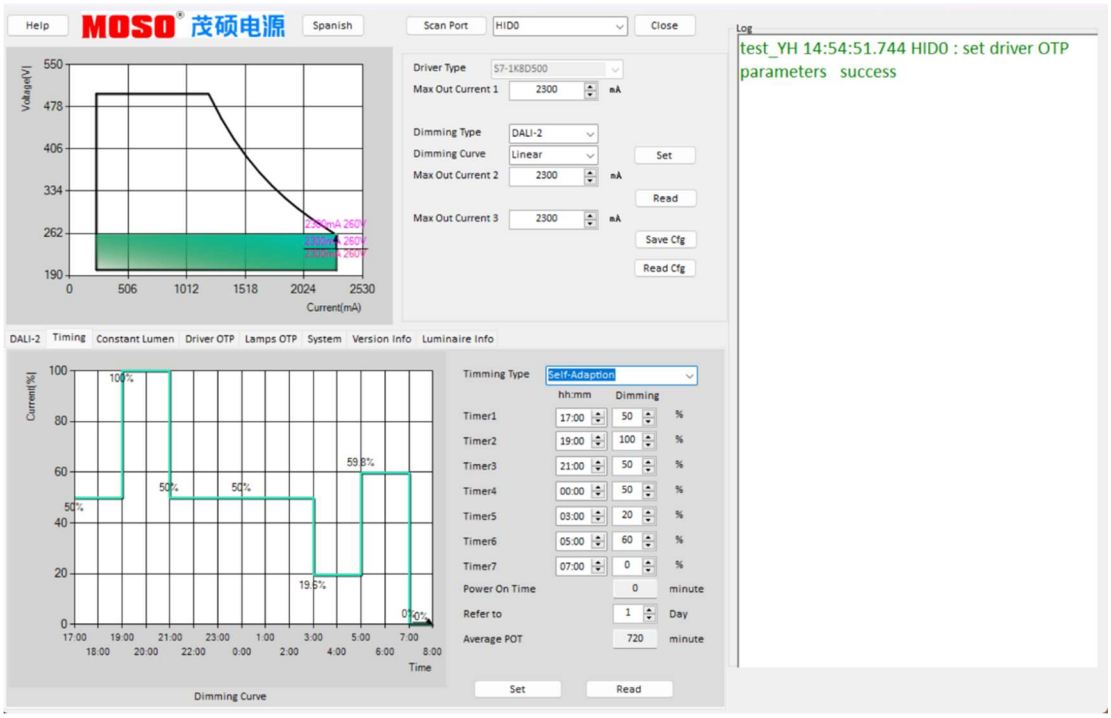
The power-on point and power-off point usually correspond to sunset time and sunrise time respectively, so their midpoint is the virtual midnight point. The driver will automatically sample the corresponding effective working days according to the reference days set by the customer, and automatically adjust the dimming curve according to the average working hours.



◆Self - Adaption Dimming

Depending on the customer setup, the drive automatically calculates the effective mean operating time and calculates the ratio to the customer's set parameter time length, automatically making this computational ratio adjustment at each step.

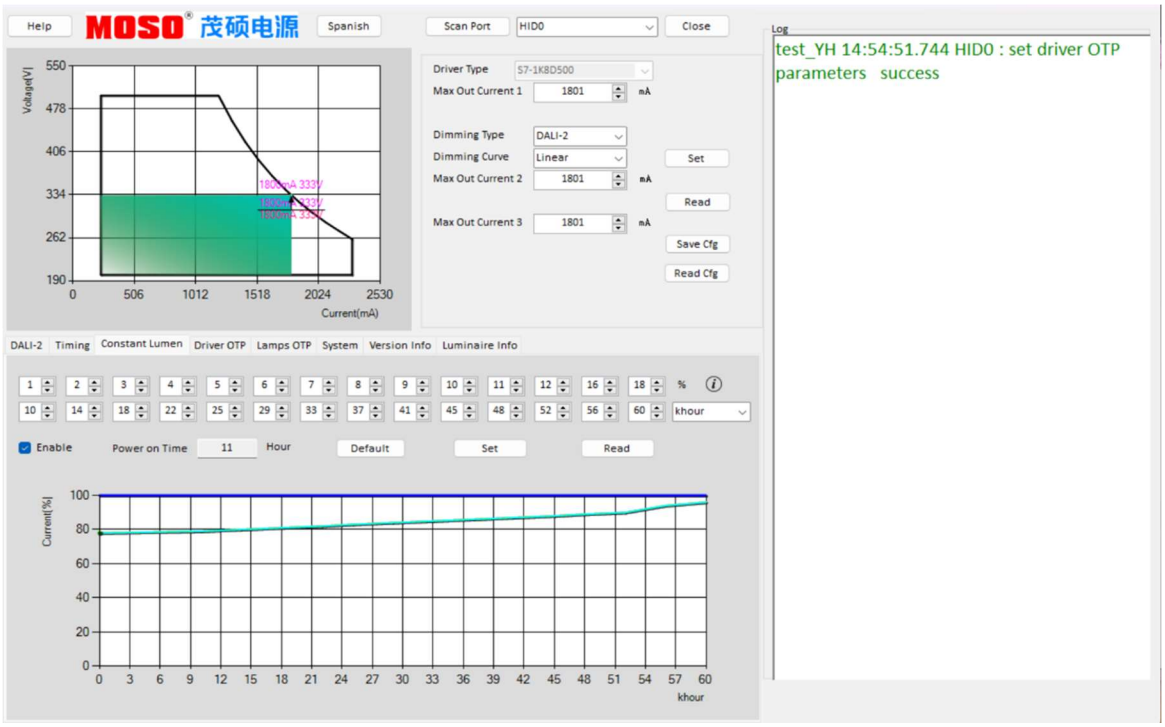
Note：Drives were judged only as valid working days if they were greater than 4 hours and less than 24 hours, and an effective on-off cycle was considered a day



CLO

CLO: With the increase of cumulative illumination time of LED light source, the LED driving can automatically increase its output current, and then realize the increasing of light flux output of LED light source with the increase of cumulative illumination time to achieve the purpose of light decay compensation. Thus the road surface illumination level is basically constant.

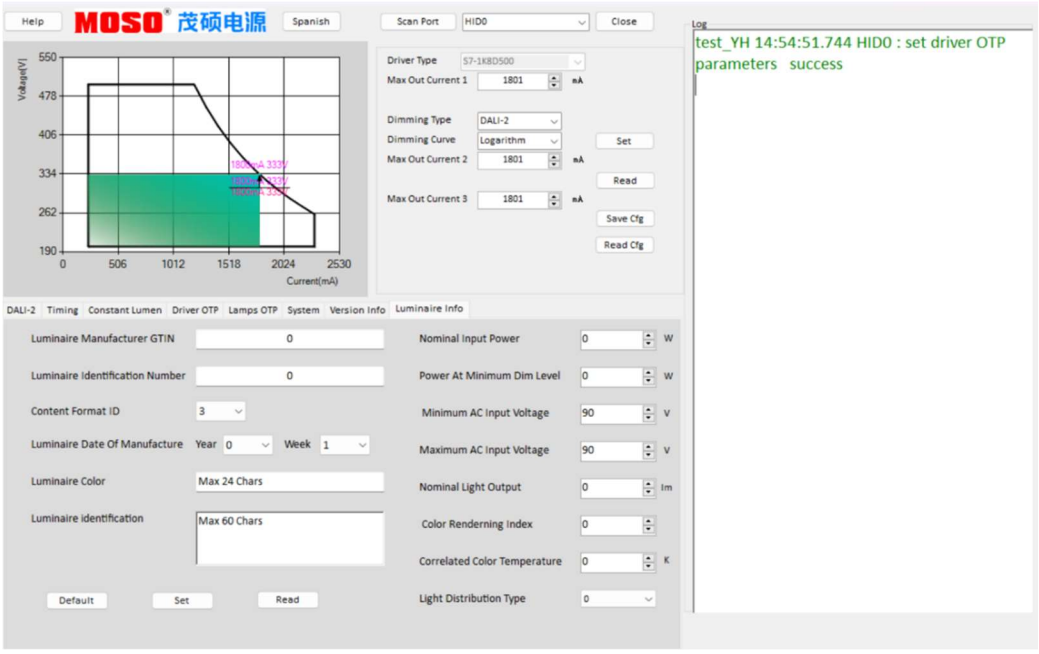
Note：Compensated current values are calculated as a percentage based on IMAX.The minute setting column is only used by the customer to test the CLO function. The driver will reset the hour setting column after power failure and power on again.The “ENABLE check box” must be checked to enable the CLO function



Luminaire Information

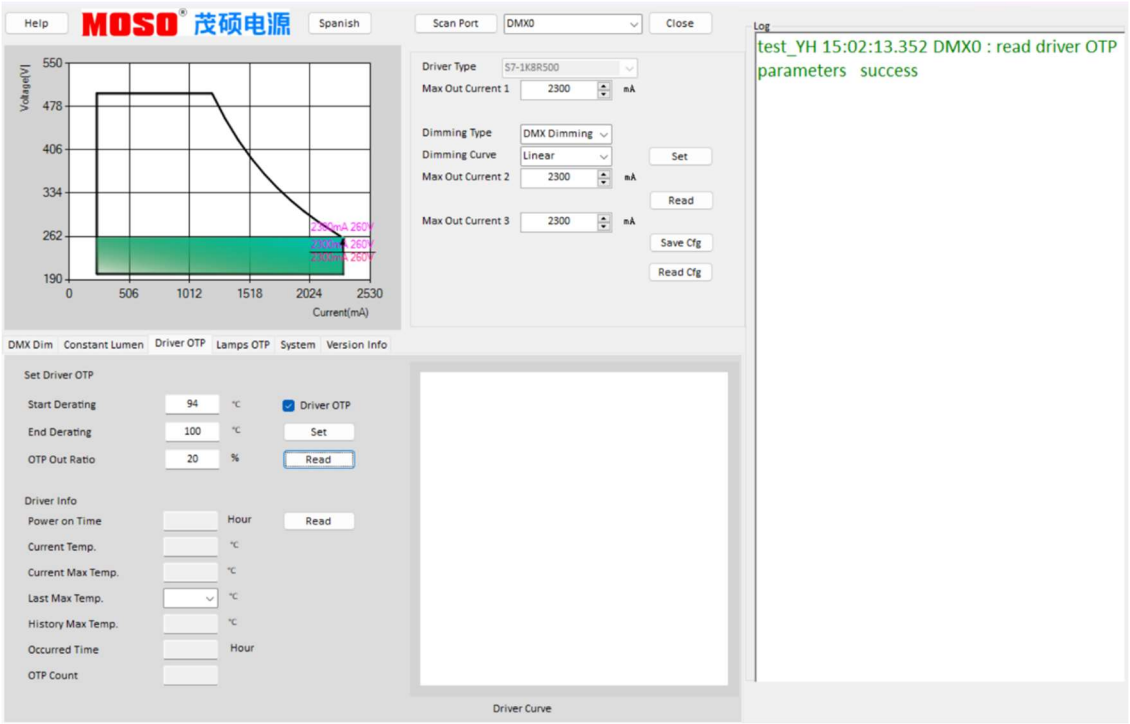
Customer can program the drive through Dali line control programmer (MS-PRG-D1 V01) and use “set button“ in Luminaire information function bar for writing information as follows graphic.

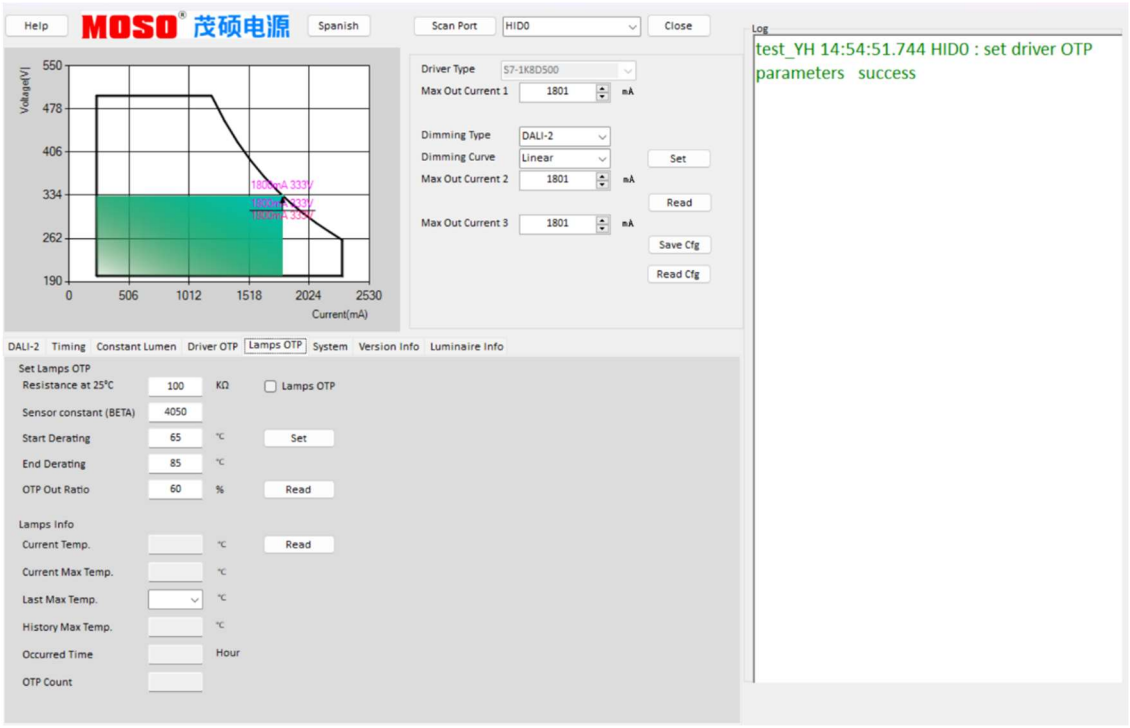
According to the provisions of DALI part 253, the driver needs to realize the operation information of lampsData storage. This information is filled in by the lighting equipment manufacturer.



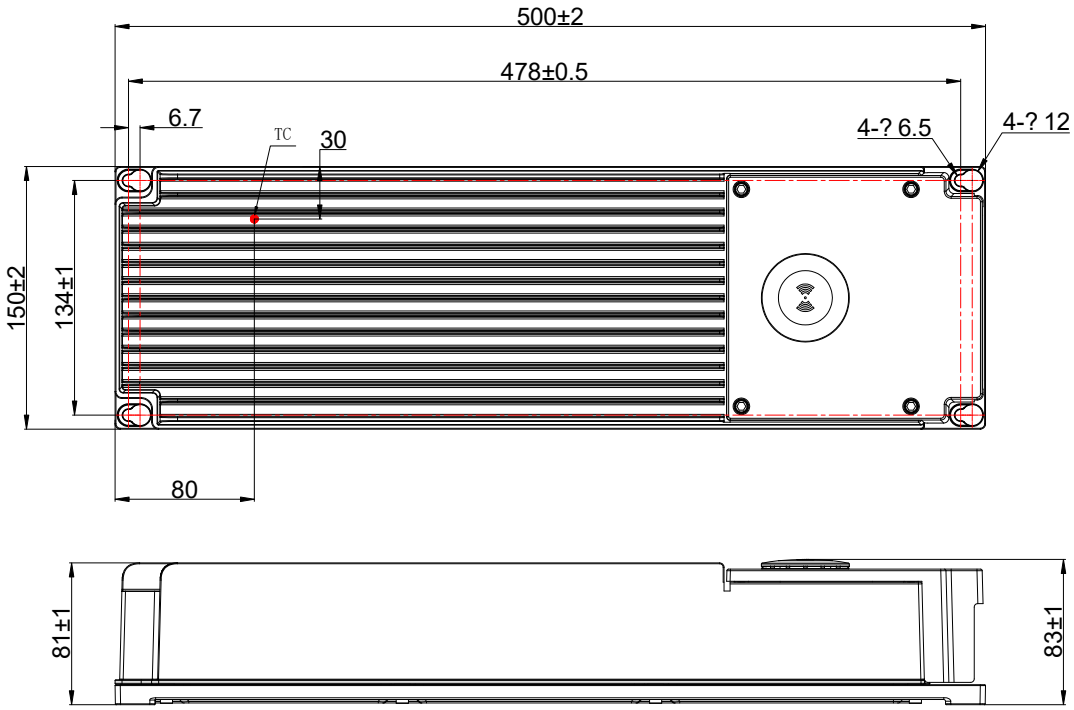
Driver Protection and Luminaire Protection

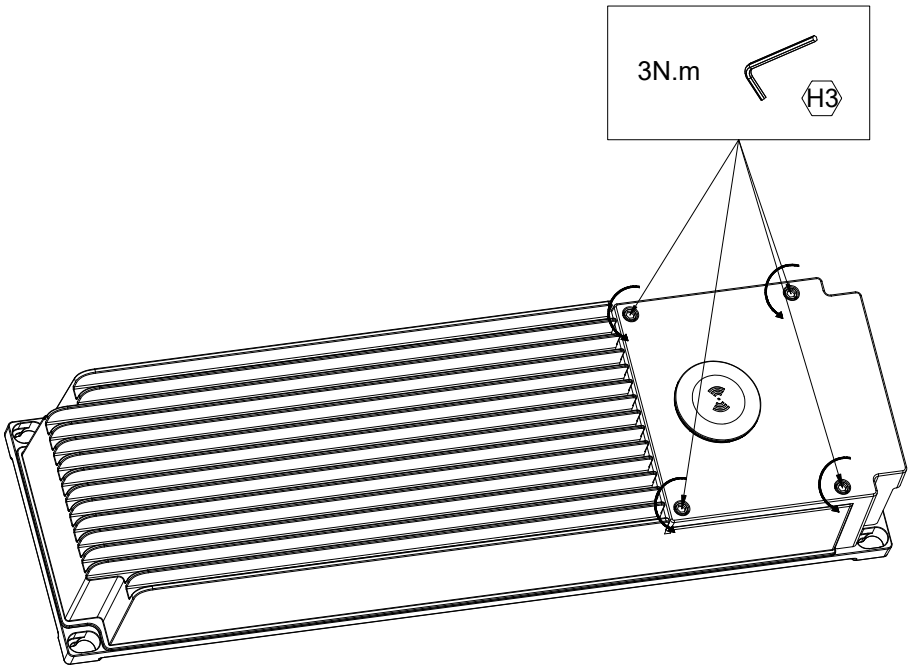
The one with the faster rate of decrease in preferential current during over- temperature protection. At the end of over-temperature protection, the lower the **“OTP out Ratio”** current value is set, the higher the priority is.

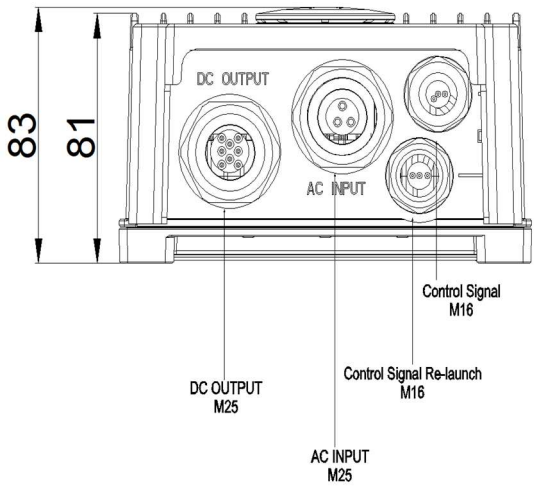



Help
MOSO 茂硕电源
Spanish
Scan Port
HID0
Close
Log
test_YH 14:54:51.744 HID0 : set driver OTP parameters success
Voltage[V]
550
478
406
334
262
190
0
506
1012
1518
2024
2530
Current(mA)
Driver Type
S7-1K8D500
Max Out Current 1
1801
mA
Dimming Type
DALI-2
Dimming Curve
Linear
Max Out Current 2
1801
mA
Max Out Current 3
1801
mA
Set
Read
Save Cfg
Read Cfg
DALI-2
Timing
Constant Lumen
Driver OTP
Lamps OTP
System
Version Info
Luminaire Info
Set Lamps OTP
Resistance at 25℃
100
KΩ
Lamps OTP
Sensor constant (BETA)
4050
Start Derating
65
℃
Set
End Derating
85
℃
OTP Out Ratio
60
%
Read
Lamps Info
Current Temp.
℃
Read
Current Max Temp.
℃
Last Max Temp.
℃
History Max Temp.
℃
Occurred Time
Hour
OTP Count

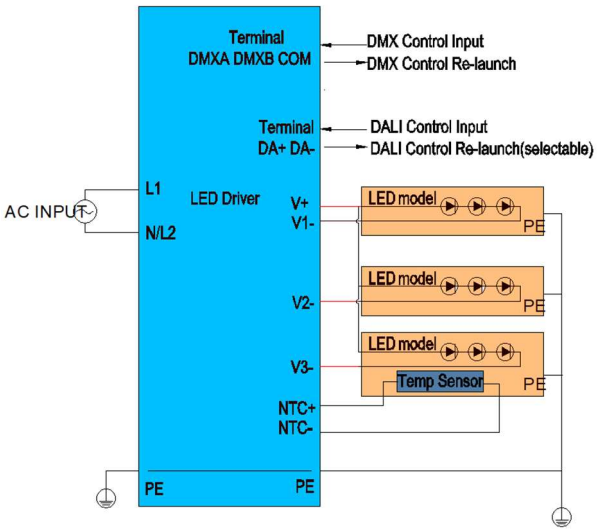
Mechanical Outline



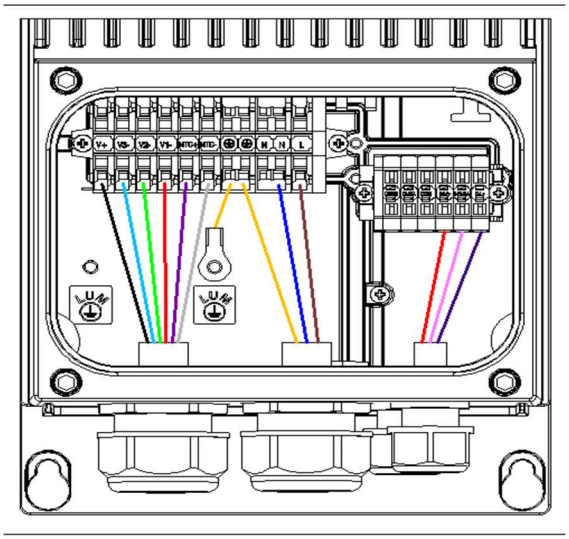




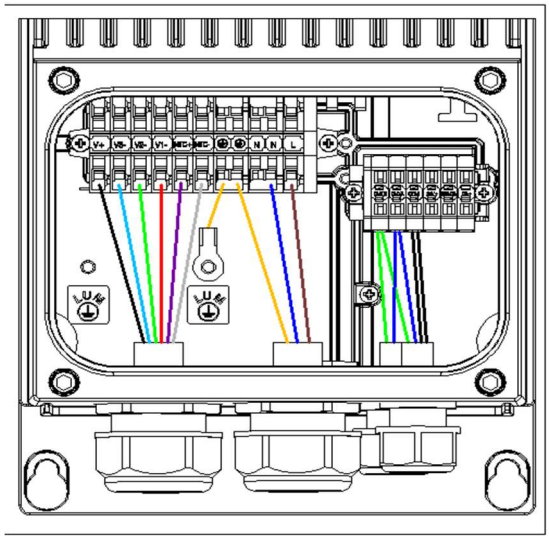
Wire Ports



V1-, V2-, V3-cannot be connected together



DALI Wiring Connection



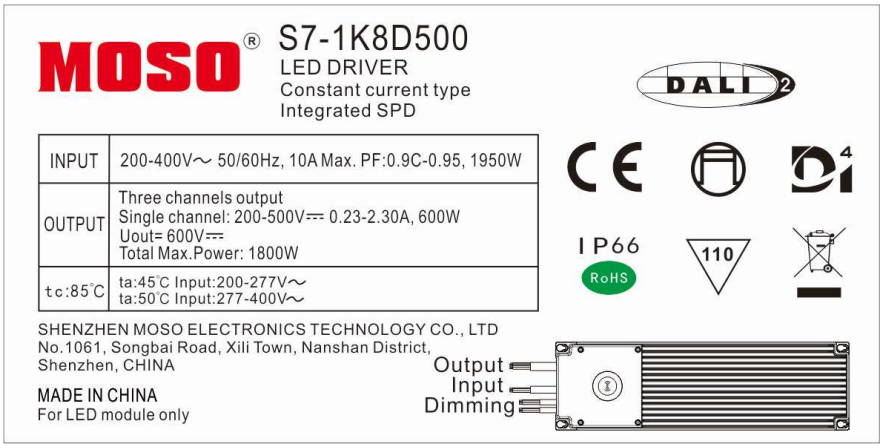
DMX Wiring Connection

Connections

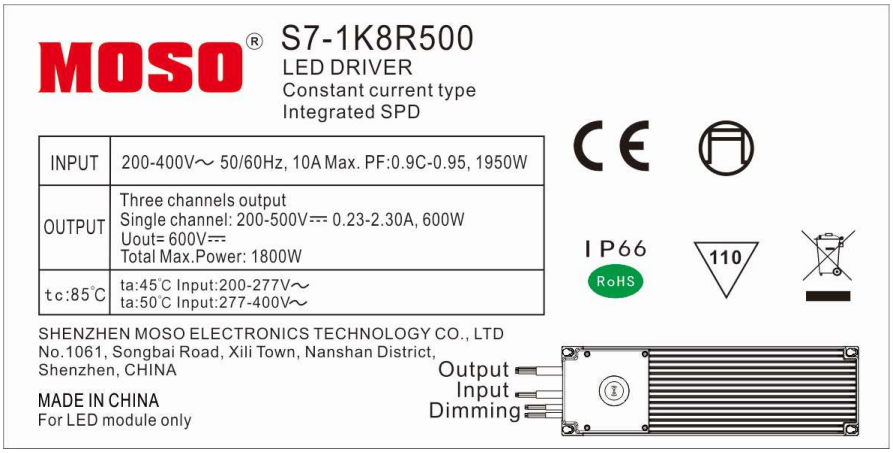
Wire	Recommended wire Specification	Note
Input	M25 wire diameter range9-16mm, optional for 13-18 mm ; Wire Cross-section:1.0mm² -2.5mm² /16AWG-12AWG	
Output, NTC, AUX	M25 wire diameter range9-16mm, optional for 13-18 mm ; Wire Cross-section:1.0mm² -2.5mm² /16AWG-12AWG	
Dimming (DALI / DMX)	M16 wire diameter range 4-8mm,optional for 2-6mm Wire Cross-section:0.5 mm² -1.5 mm² /22AWG-16AWG	
Dimming (DALI / DMX Re-launch)	M16 wire diameter range 4-8mm,optional for 2-6mm Wire Cross-section:0.5 mm² -1.5 mm² /22AWG-16AWG	

Terminal	Recommended Connection Specification	Note
Input	M25, the torsion 5~6N.m	
Output, NTC, AUX	M25, the torsion 5~6N.m	
Dimming (DALI / DMX)	M16, the torsion 1~2N.m	
Dimming (DALI / DMX Re-launch)	M16, the torsion 1~2N.m	

Label (DALI)

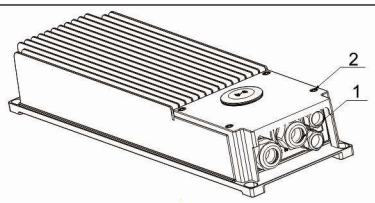


Label (DMX)



Note:
The accessory package includes label of S7-1K8D500*1/S7-1K8R500*1; Allen key(H3)*1;O-ring(13~18mm)*2; O-ring(2~6mm)*2

Cautions Label



CAUTIONS

1. After the wiring is connected according to the datasheet, ensure that the gland is effectively locked to prevent water from damaging the driver.
2. When closing the electrical cover after wiring, ensure that the four fixing screws effectively tightened to prevent water from damaging the driver.

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.2	First release	2025-08-19

Specification for Approval

Product Name: 1800W Non-isolated LED Driver

Product Model: S7-1K8Y500

Rev : A.2

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: 1800W Non-isolated LED Driver

Product Model: S7-1K8Y500

Rev : A.2

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