

Description

S7-680Y500 series is specially designed for sports lighting and industrial lighting applications. It is constant current LED driver with NFC programming and DMX & DALI-2 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 power design; non-Isolated Class I Driver;
- Efficiency up to 97%;
- NFC programmable;
- DALI-2/D4i & DMX512 dimming control;
- DMX512/RDM, support RDM control mode & controller address setting;
- Dimming Range 1%-100%;
- Low Frequency Ripple <1%;
- Support flashing function with maximum of 34 flashes per second;
- DALI-2 & D4i Certified;
- DALI-2 certified ,Support Part 150, 250, 251, 252, 253;
- Integrated Power Metering with High Accuracy up to 1%;
- Standby power consumption <0.5W;
- Auxiliary power supply: 24V/125mA;
- DMX&DALI-2 control interface;
- Dim-to-off; No glow after Dim-to-off;
- Inrush current: <30A@400Vac;
- Max remote distance 300 meters;
- Surge protection: 10KV line-line, 20KV line-earth;
- Multiple protection: UVP,SCP, OVP, OLP,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.)
S7-680Y500	180-528	680W	200-500	1.36~2.60A	2.6A	97%	0.97	10%

NOTES:

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

[2]. All specifications are measured at 25°C 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	-	-	3.8A	200Vac&Full Load
Max Input Power	-	-	760W	200Vac&Full Load
Inrush Current	-	-	30A	480Vac, Cold Start
Standby Power Consumption	-	-	0.5W	230Vac
Power Factor(PF)	0.90	0.97		200-480Vac, 50/60Hz, 70%-100% Load
Total Harmonic Distortion(THD)	-	10%	20%	200-480Vac, 50/60Hz, 70%-100% Load
MCB(B16)	-	4	-	230Vac.

Output Specifications

Parameter	Min	Typ.	Max	Notes
Output Voltage Range	200Vdc	-	500Vdc	
Open Circuit Voltage	-	-	600Vdc	
Output Current range	0.26A	-	2.60A	Programmable current range by DALI / DMX / NFC programmer
Full Power Current Range	1.36A	-	2.60A	
Current Accuracy	-5%	-	+5%	
Total Output Current Ripple (pk- pk)	-		10%	>3kHz, full load.
Total Output Current Ripple (pk- pk)	-		1.0%	<3kHz, full load.
Startup Overshoot Current	-		10%	200~480Vac full load condition, LED load
Line Regulation	-3%	-	+3%	
Load Regulation	-3%	-	+3%	
Turn-on Delay Time	-	-	2s	200~480Vac &100% Load, load is LED

General Specifications

Parameter	Min	Typ.	Max	Notes
Efficiency@220Vac	93.5%	95%	-	Measured at full load and 25°C ambient temperature
Efficiency@277Vac	94%	95%	-	Measured at full load and 25°C ambient temperature
Efficiency@347Vac	95%	96%	-	Measured at full load and 25°C ambient temperature
Efficiency@400Vac	95%	96%	-	Measured at full load and 25°C ambient temperature
Efficiency@480Vac	95%	96%	-	Measured at full load and 25°C ambient temperature
Mean Time Between Failure	-	200Khours	-	25°C±10°C ambient temperature, 220Vac, 80% load (MIL-HDBK-217F/SR-332)
Lifetime	-	100Khours	-	Tc=70°C, 480Vac&80% load
Ambient Temperature Ta	-40°C	-	+50°C	200Vac~277Vac&100% load
Ambient Temperature Ta	-40°C	-	+55°C	277Vac~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 90% RH No condensation
Storage Temperature Ta	-40°C	-	+85°C	
Altitude	-60m	-	4000m	
Over Temperature Protection Tc	90°C	95°C	100°C	Tc; 230Vac&100% load.
Short Circuit Protection	-	-	-	Self-recovery .
Dimensions (L*W*H)	335*143.5*58.6mm			
Net Weight	3200±50g/PCS			
Package (L*W*H)	544*365*195mm; 4PCS/Ctn			

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	1% I_{Oset}	-	100% I_{Oset}	$I_{Oset}=2.6A$
On/Off flashing rate with DMX	-	-	34	

Note:

All specifications are typical at 25°C.

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	1% I_{Oset}	-	100% I_{Oset}	$I_{Oset}=2.6A$
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)	3750Vac	3750Vac	2000Vac	60s, Current not exceeding 10mA
Grounding Resistance	0.1Ω(Max)			25°C±10°C Ambient Temperature, pass 30A Current, 120s.
Insulation Resistance	10MΩ(Min)			Input-PE, Output-PE, 500Vdc/60s/25°C/70%RH

Safety Compliance

Safety Category	Standards	Approved	Notes
CCC	GB/T19510.213GB/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		

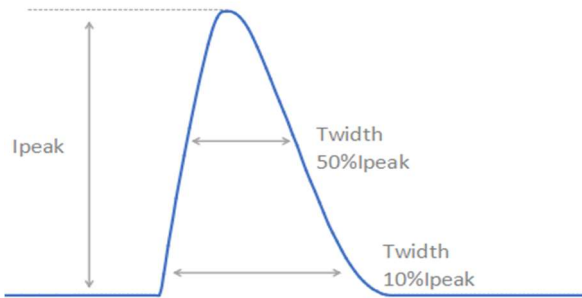
EMC Compliance

EMC Category	Standards	Approved	Notes
CCC	GB/T 19510.213, GB/T 19510.1		
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	√	6KV/6KV (2Ω)

RoHS

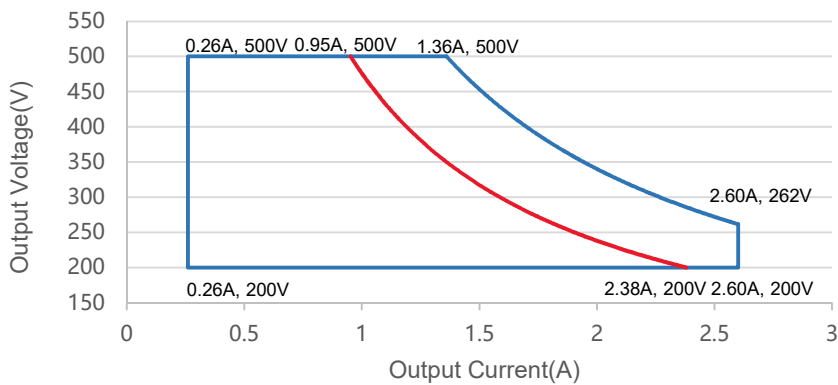
Our products comply with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Inrush Current

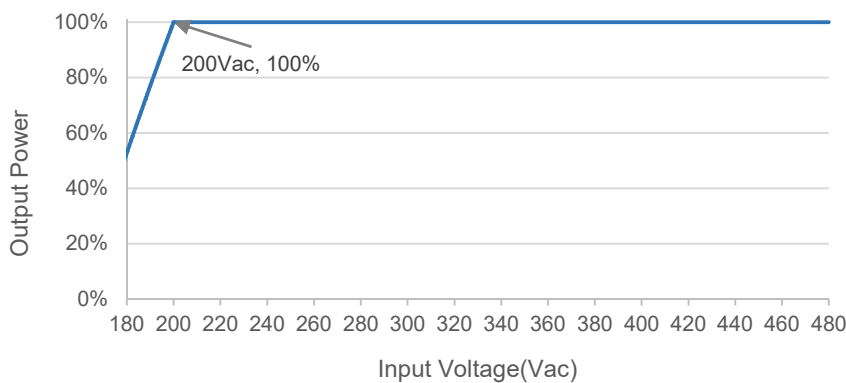


Vin	Ipeak	T(@10% of Ipeak)	T(@50% of Ipeak)
220Vac	5.84	3.980	2.500
277Vac	7.36	3.880	2.520
347Vac	8.80	3.820	2.500
400Vac	10.30	3.620	2.360
480Vac	12.4	3.560	2.240

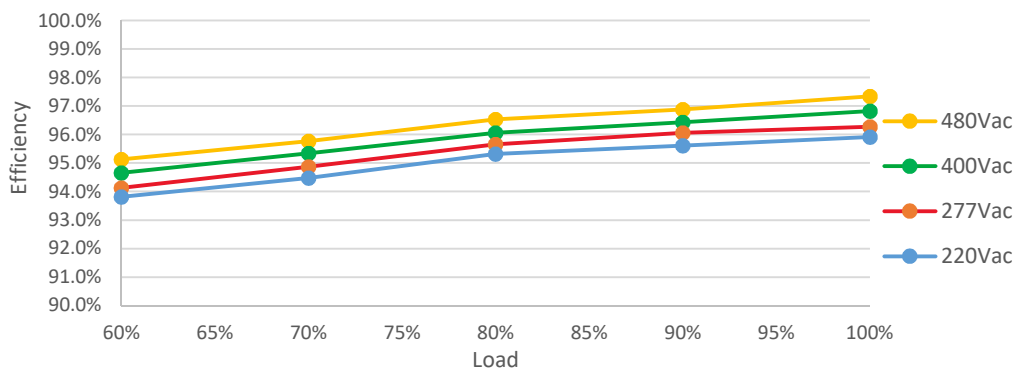
Output Voltage vs. Output Current



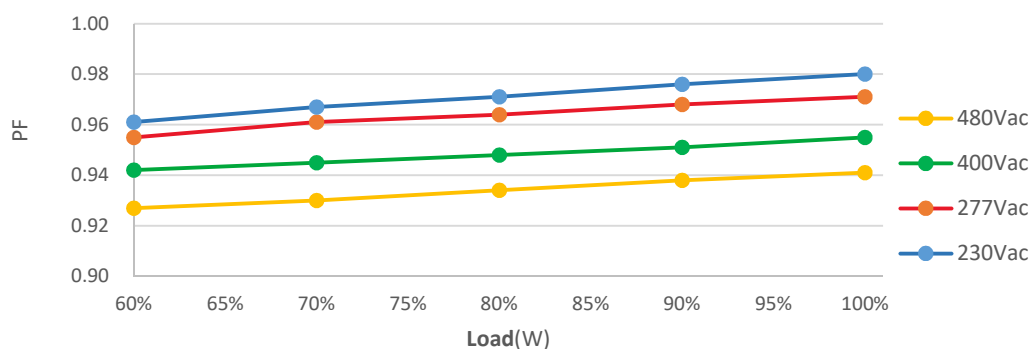
Output Power vs. Input Voltage



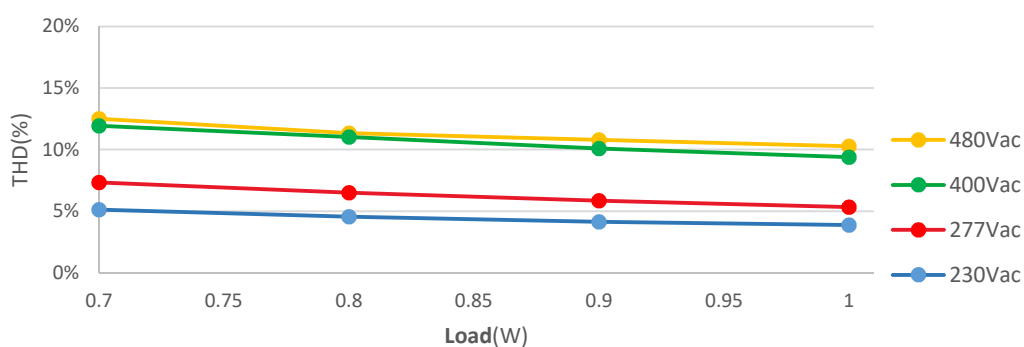
Efficiency vs. Load



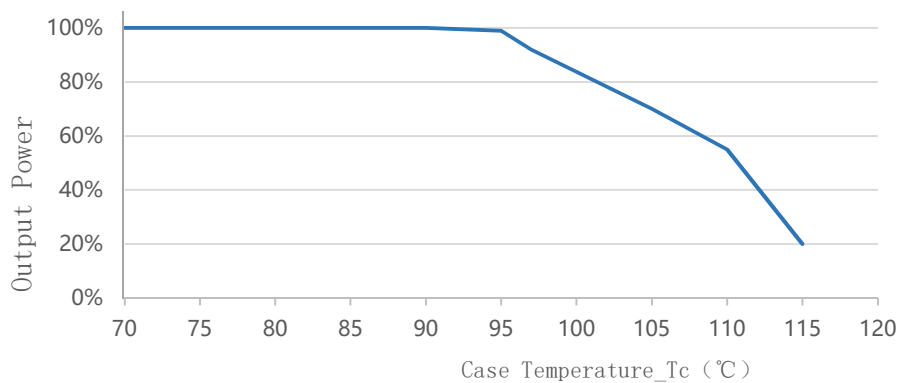
PF vs. Load



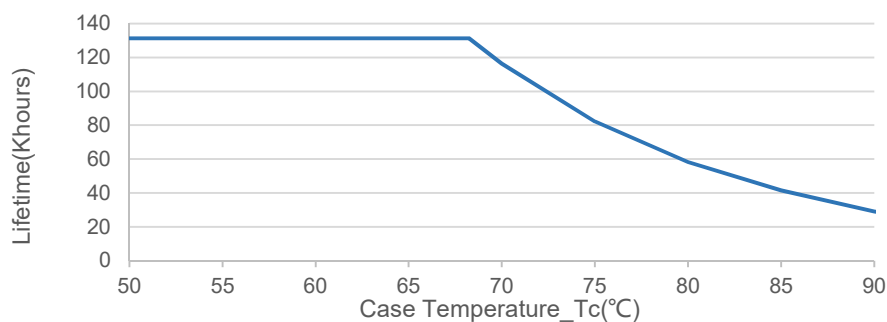
THD vs. Load



Output Power vs. Ambient Temperature

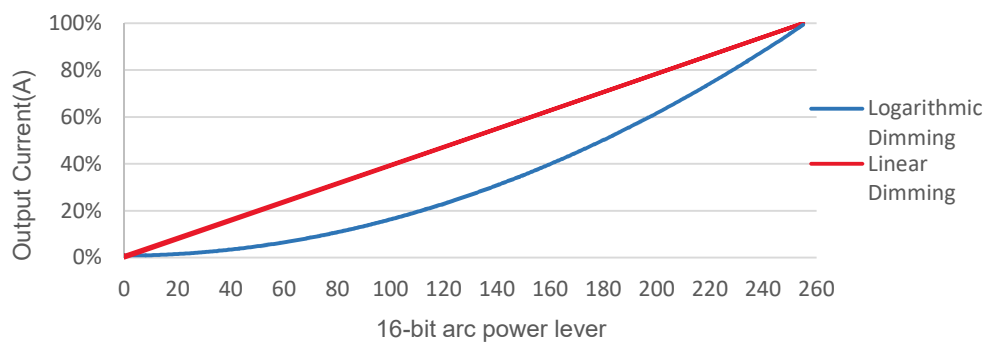


Lifetime vs. Case Temperature

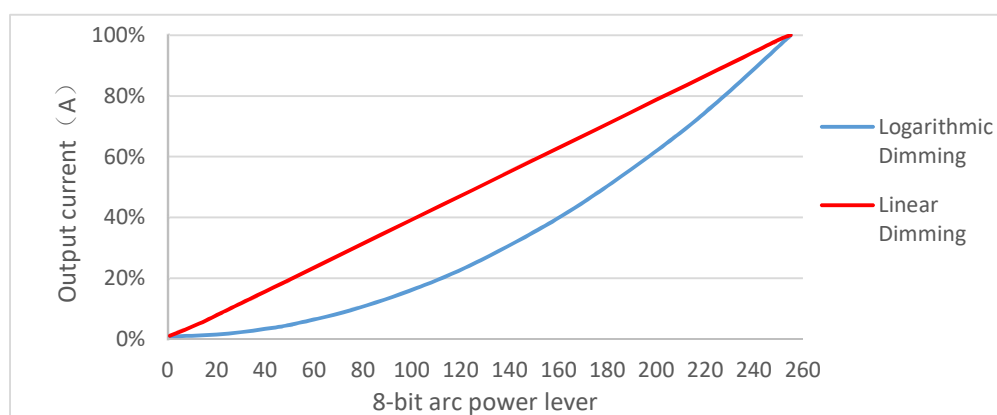


Dimming Curve

DMX dimming curve

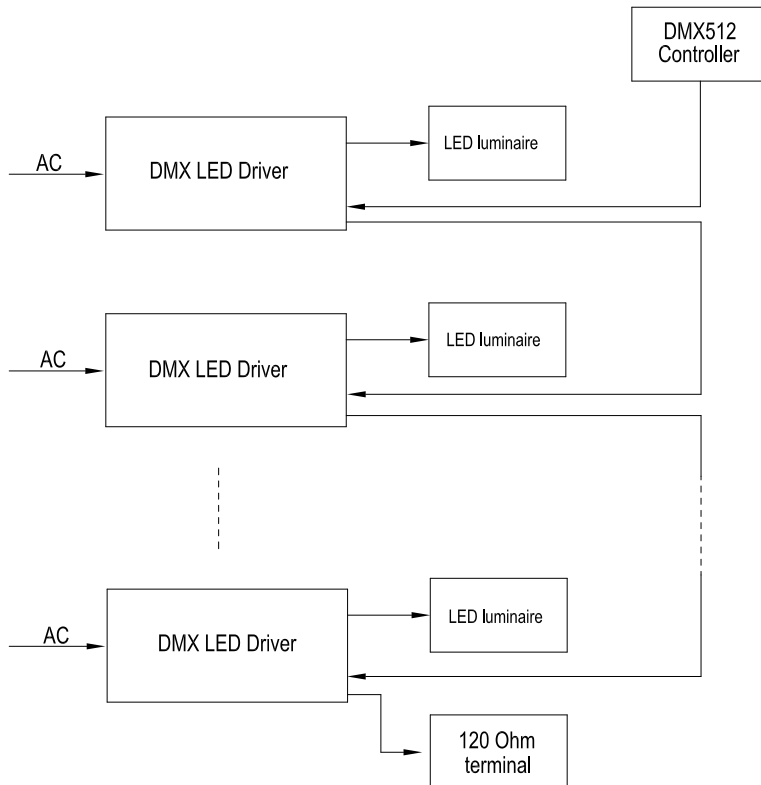


DALI-2 dimming curve



Note: Factory Default Output Logarithmic Curve.

Implementation:DMX512 Daisy chain

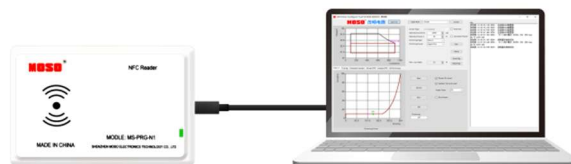


Note:

- [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

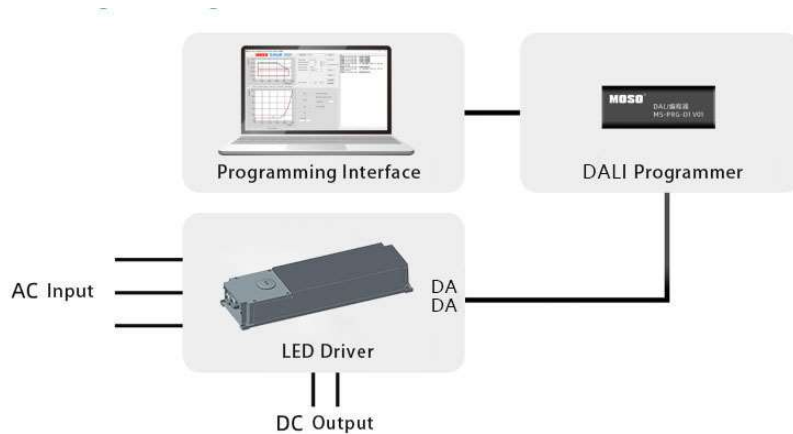
■ For NFC



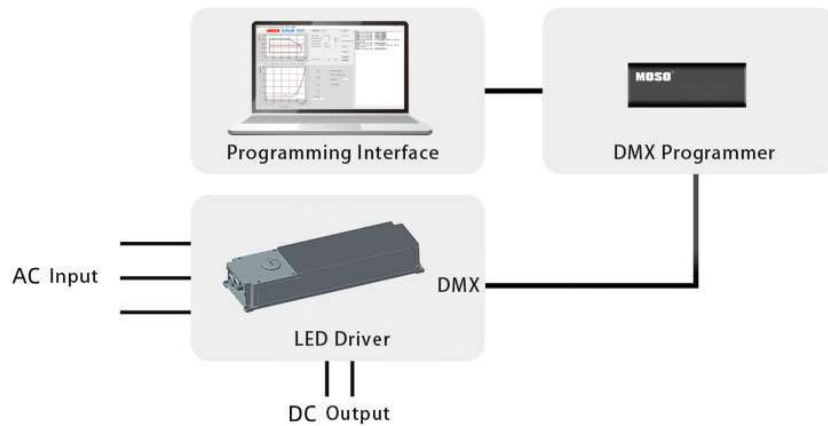
Notes:

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

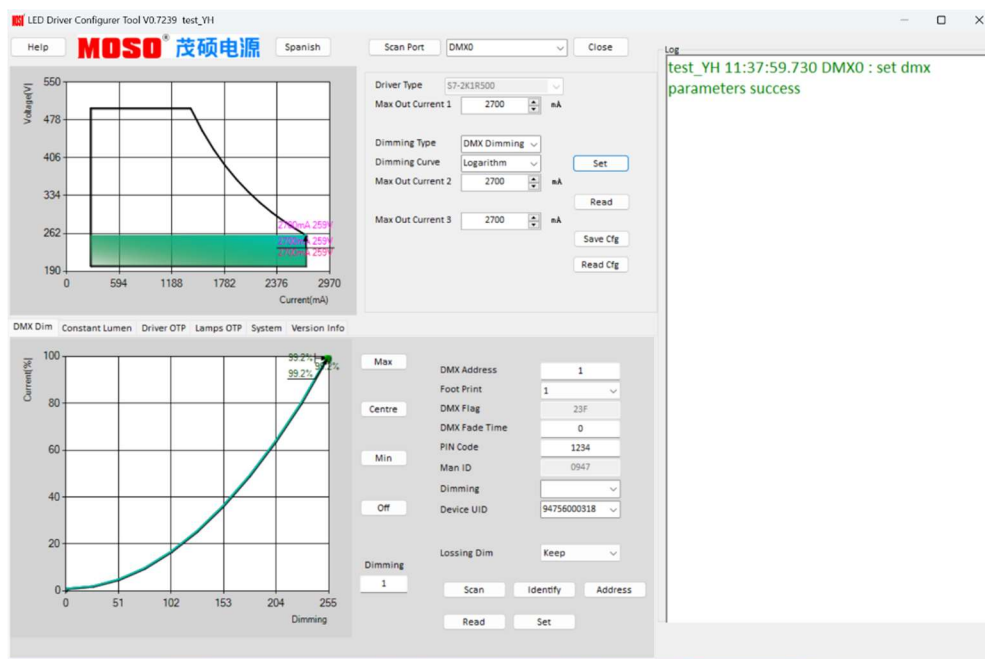
1.1 Switching from DALI-2 Dimming to DMX-RDM:

- After connecting the DMX programmer to computer, click on the software "Scan Port" button;
 - Click "Read Cfg" to import the corresponding model's DMX configuration file;
 - Click 'Set' button to transmit the .cfg file into the driver's MCU;
 - 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:

- After connecting the DALI programmer to computer, click on the software "Scan Port" button;
- Click "Read Cfg" to import the corresponding model's DALI configuration file;
- Click 'Set' button to transmit the .cfg file into the driver's MCU;
- After setting and restarting the driver, the software interface displays the DALI-2 dimming mode, indicating successful conversion;

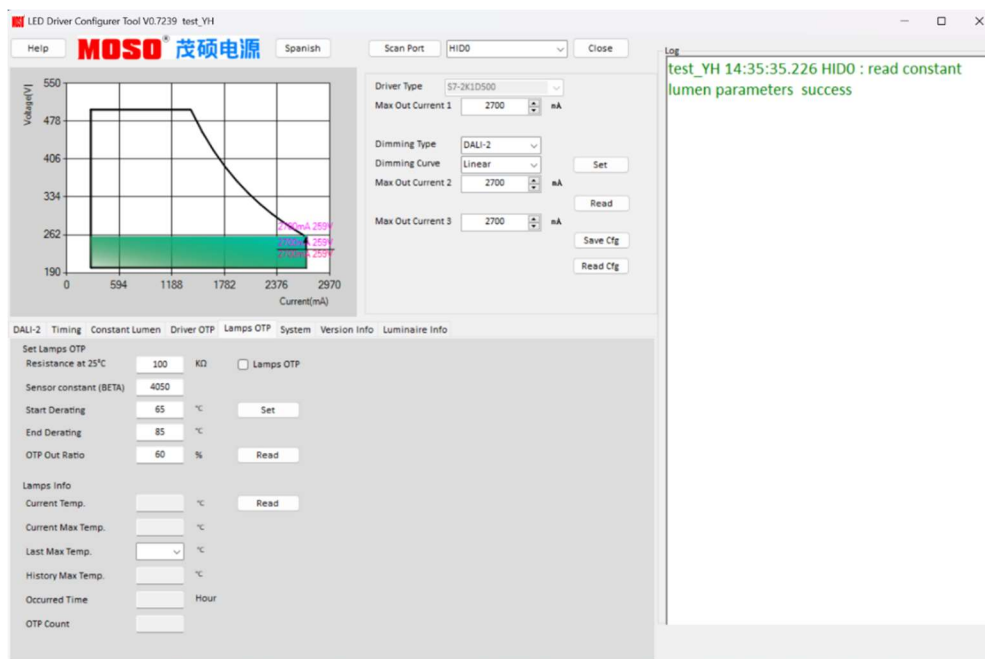
Operating instructions



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

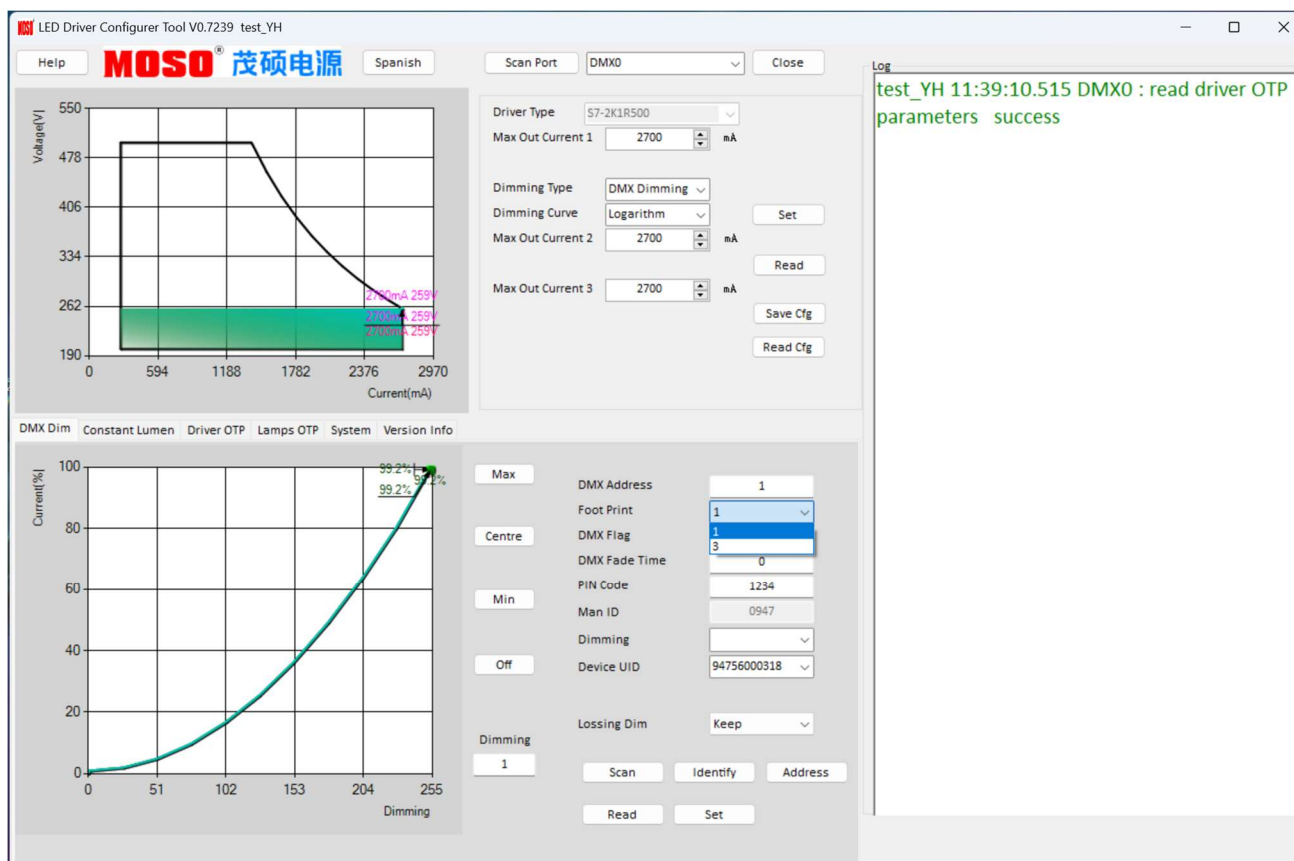


The recommended value of NTC resistance is 100K Ω , BETA: 4050

NTC resistance value changes with temperature:

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

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 : $512 - (\text{number of channels}) + 1$, 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.

◆ 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

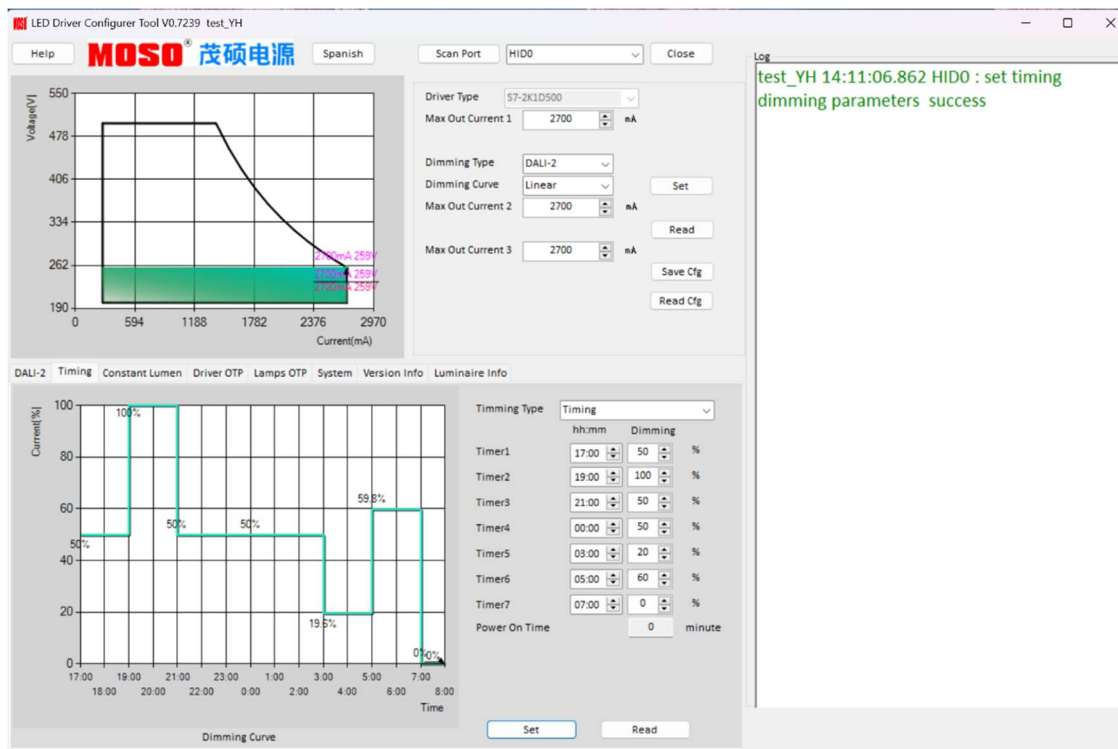
A window used to select the device UID of the driver. Use the **"Scan"** button to automatically switch the device UID of the driver newly connected to the system, or manually select the device UID previously connected.

Time Dimming — Consistent with S7 series

Time-controlled dimming is divided into two modes: Timing dimming, Self-Adaptive dimming.

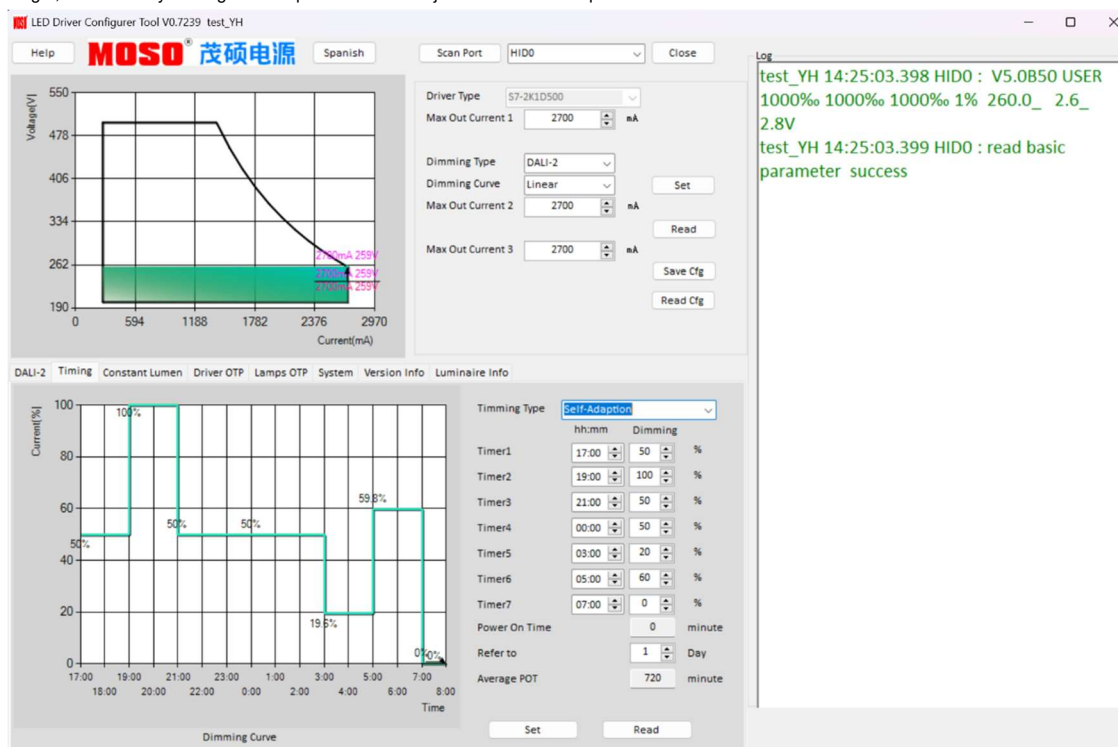
Timing Dimming

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.



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.

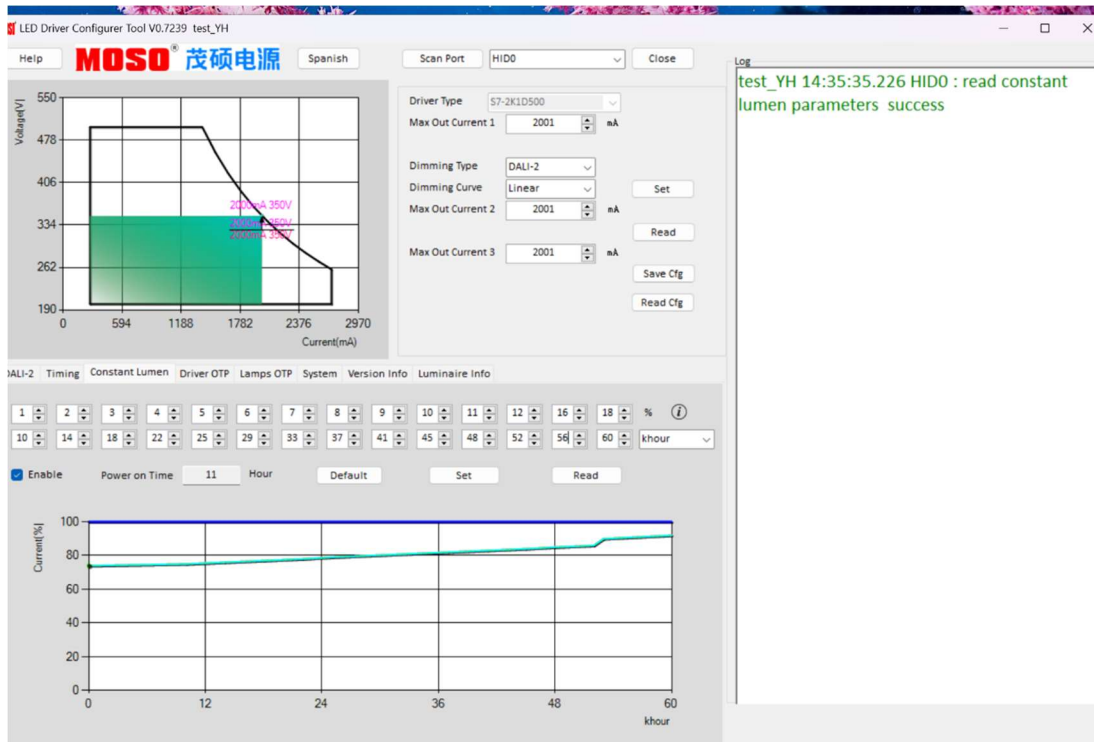


Note: Drives were judged only as valid working days if they were greater than 4 hours and less than 24 hours, and an effective on-off cycle was considered a day

CLO —Consistent with S7 series

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.

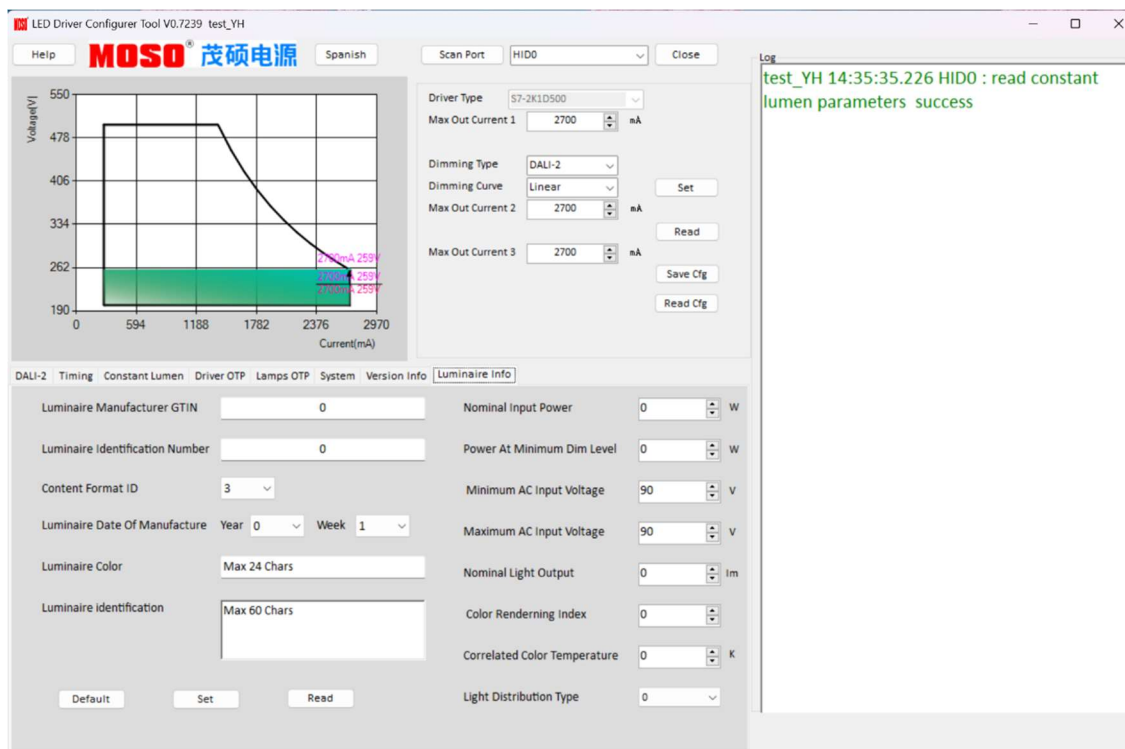
Note: Compensated current values are calculated as a percentage based on IMAX. The minute setting column is only used by the customer to test the CLO function. The driver will reset the hour setting column after power failure and power on again. The "ENABLE check box" must be checked to enable the CLO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



Luminaire Information —Consistent with S7 series

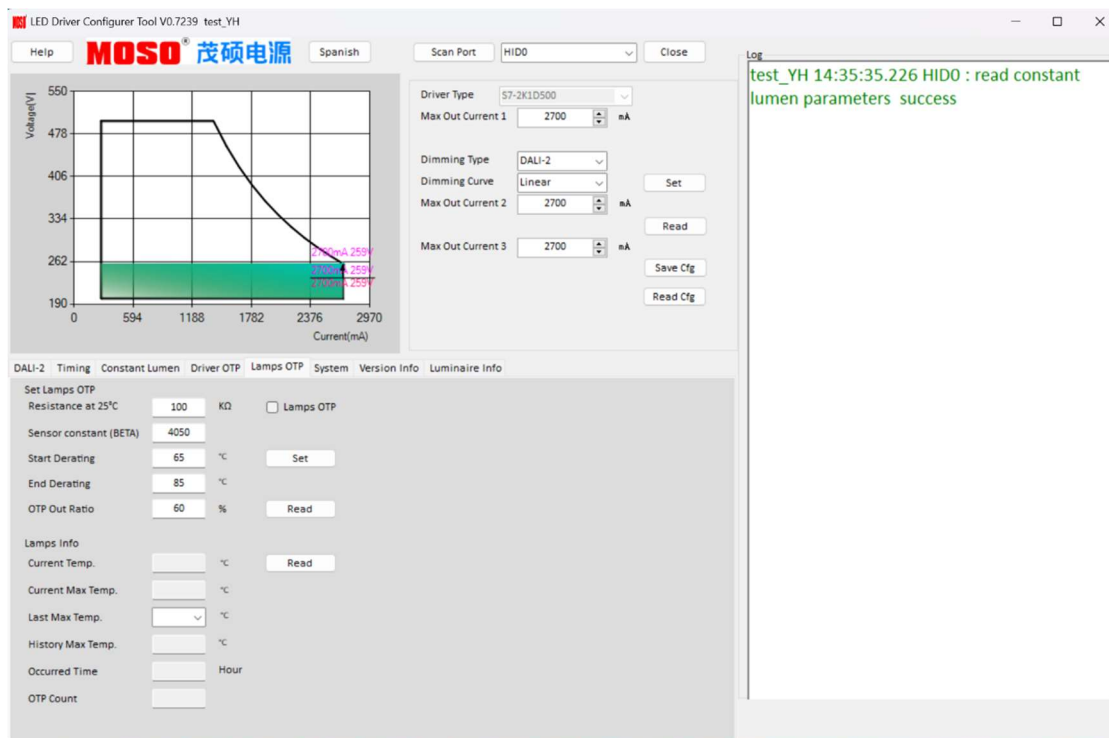
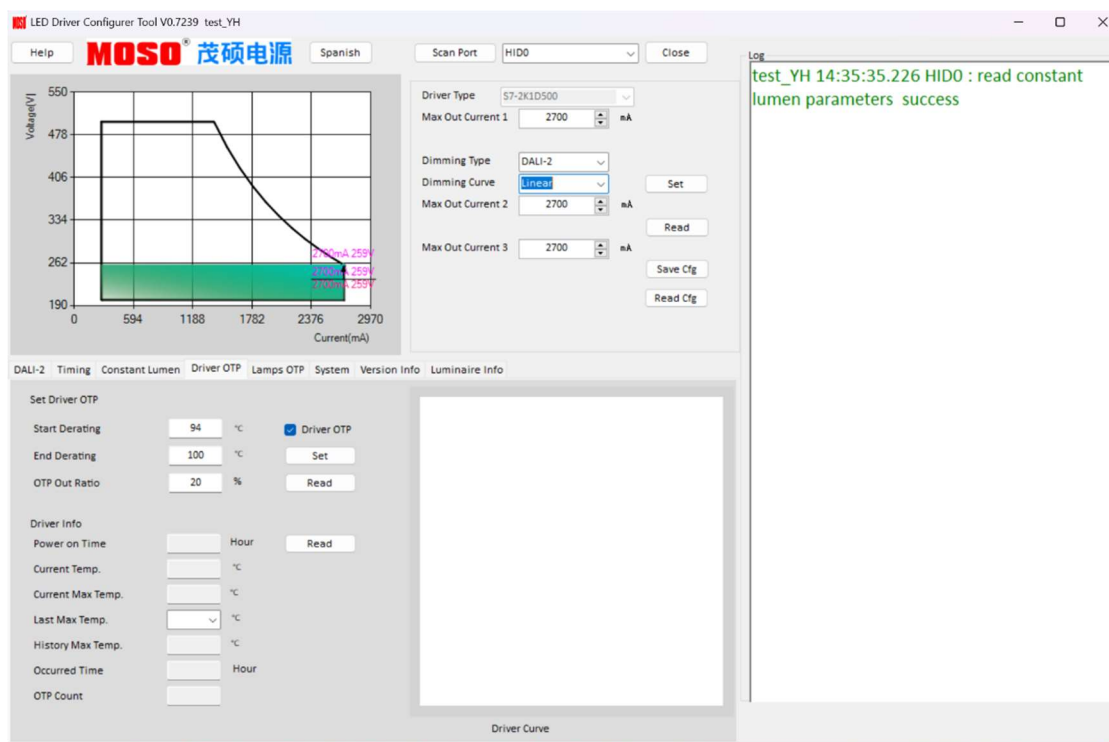
Customer can program the drive through Dali line control programmer (MS-PRG-D1 V01) and use "set button" in Luminaire information function bar for writing information as follows graphic.

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.

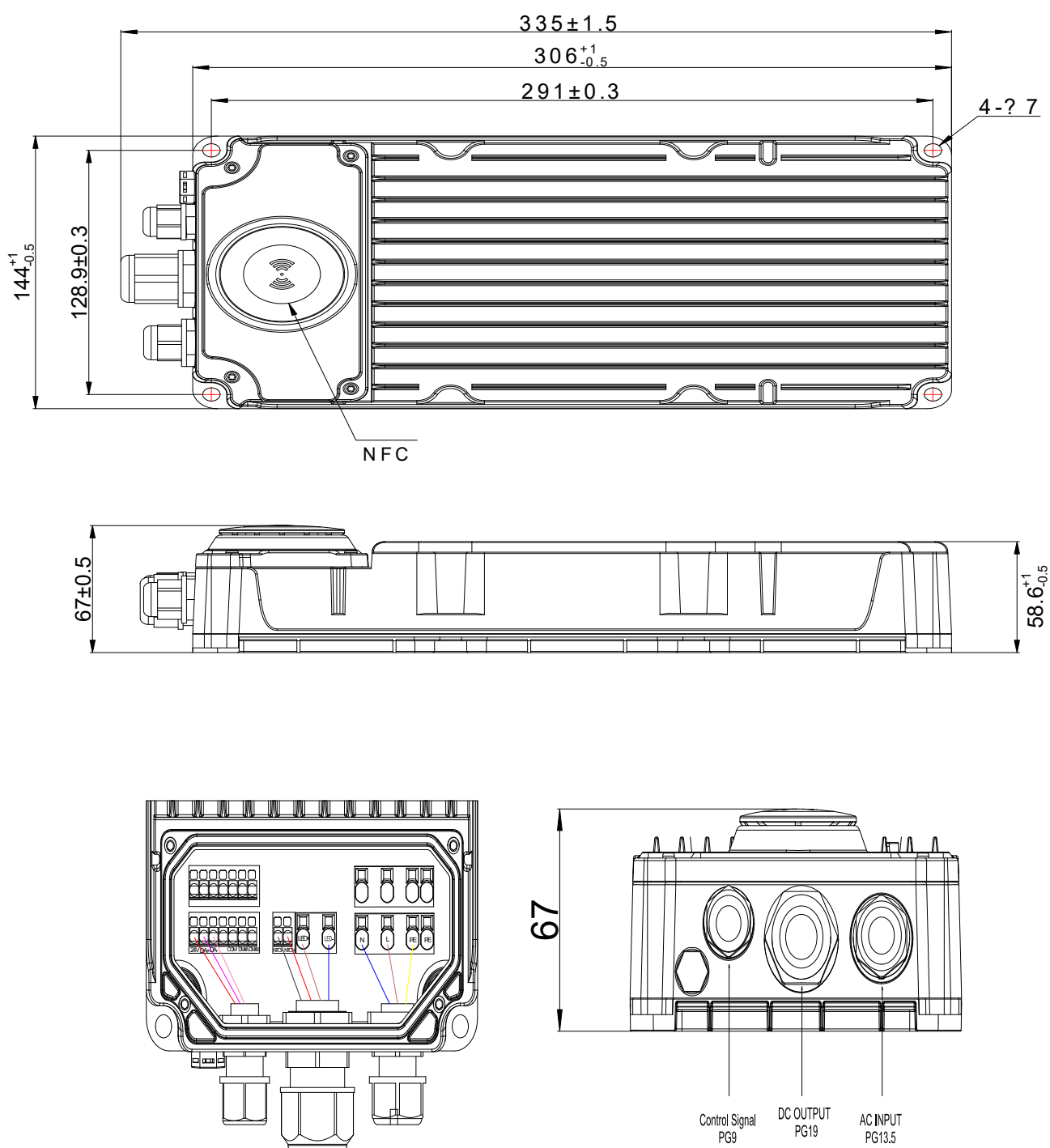


Driver Protection and Luminaire Protection

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.



Mechanical Outline



Connections

Wire	Recommended wire Specification	Note
Input	PG13.5 wire diameter range 6-11mm, optional for 7-12 mm ; Wire Cross-section: 1.0mm ² -2.5 mm ² /24AWG-14AWG	
Output, NTC	PG19 wire diameter range 12-15mm, optional for 6-10 mm ; Wire Cross-section: 1.0mm ² -2.5 mm ² /24AWG-14AWG	
Dimming (DALI / DMX)	PG9 wire diameter range 4.5-8mm Wire Cross-section: 0.2 mm ² -1.5 mm ² /24AWG-16AWG	

Terminal	Recommended wire Specification	Note
Input	PG13.5, the torsion 1.3~1.6N.m	
Output, NTC	PG19, the torsion 2.2~2.5N.m	
Dimming (DALI / DMX)	M16, the torsion 1.2~1.5N.m	

Label (DALI)


S7-680D500
 LED DRIVER
 Constant current type
 Integrated SPD

INPUT	200-400V/480V~ 50/60Hz, 3.8A Max. PF:0.9C-0.95, 760W 200-400V~ for EU Certification range 200-480V~ for cUL Certification range
OUTPUT	Single channel: 200-500V~ 0.26-2.60A Uout: 600V~ Total Max. Power: 680W
tc: 90°C	ta: 50°C Input: 200-277V~ ta: 55°C Input: 277-400V/480V~

CLASS P: "FOR CONNECTIONS USE WIRE RATED FOR AT LEAST 90°C (194° F) " OR EQUIVALENT
 POUR LES CONNEXIONS UTILISER DES CONDUCTEURS D'ALIMENTATION CONVENANT 90 °C
 USE ONLY WITHIN AN ENCLOSURE; DOIT ÊTRE INSTALLÉ DANS UNE ENCEINTE
 For use in permanently connected (fixed) equipment only
 SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
 No. 1061, Songbai Road, Xili Town, Nanshan District,
 Shenzhen, CHINA
 Suitable for Dry
 Damp and wet locations
 MADE IN CHINA










Label (DMX)


S7-680R500
 LED DRIVER
 Constant current type
 Integrated SPD

INPUT	200-400V/480V~ 50/60Hz, 3.8A Max. PF:0.9C-0.95, 760W 200-400V~ for EU Certification range 200-480V~ for cUL Certification range
OUTPUT	Single channel: 200-500V~ 0.26-2.60A Uout: 600V~ Total Max. Power: 680W
tc: 90°C	ta: 50°C Input: 200-277V~ ta: 55°C Input: 277-400V/480V~

CLASS P: "FOR CONNECTIONS USE WIRE RATED FOR AT LEAST 90°C (194° F) " OR EQUIVALENT
 POUR LES CONNEXIONS UTILISER DES CONDUCTEURS D'ALIMENTATION CONVENANT 90 °C
 USE ONLY WITHIN AN ENCLOSURE; DOIT ÊTRE INSTALLÉ DANS UNE ENCEINTE
 For use in permanently connected (fixed) equipment only
 SHENZHEN MOSO ELECTRONICS TECHNOLOGY CO., LTD
 No. 1061, Songbai Road, Xili Town, Nanshan District,
 Shenzhen, CHINA
 Suitable for Dry
 Damp and wet locations
 MADE IN CHINA





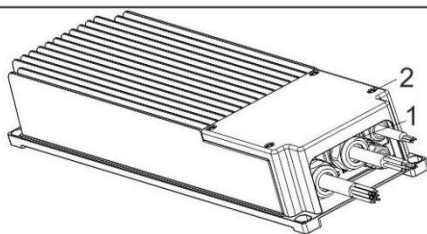




Note:

The accessory package includes label of S7-680D500*1/S7-680R500; box-end wrench (T10)*1; O-ring(7~12mm)*1; O-ring(6~10mm)*1; O-ring(8~12mm)*1

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.

Version

A.1	First release	2026-06-03

Specification for Approval

Product Name: 680W Non-isolate LED Driver

Product Model: S7-680D500

Rev : A.1

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

Tel: 0755-27657000

FAX: 0755-27657908

E-mail: info@mosopower.com

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

Prepared By	Checked By	Approved By

Specification for Approval

Product Name: 680W Non-isolate LED Driver

Product Model: S7-680D500

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.		

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