

1800W LED Drivers with three independent output channels,all the output channels can parallel connection freely.

The output current of this series are programmable, and designed for 0-10V/PWM/DMX dimming/DALI dimming applications.



Features	2
Applications	2
Model Name Definition	2
Specifications	2
Input Specifications	2
Output Specifications	3
General Specifications	3
Dimming Specifications	4
0-10V and PWM Dimming Specifications	4
Safety &EMC Compliance	4
Isolation	5
Block Diagram	5
Performance Curve	6
Inrush Current Data	7
Programming	7
Dimming Curve	8
NTC	9
Strobe function	10
Mechanical Drawing	12
Package	13
Description of upper computer software	14
Revision History	18

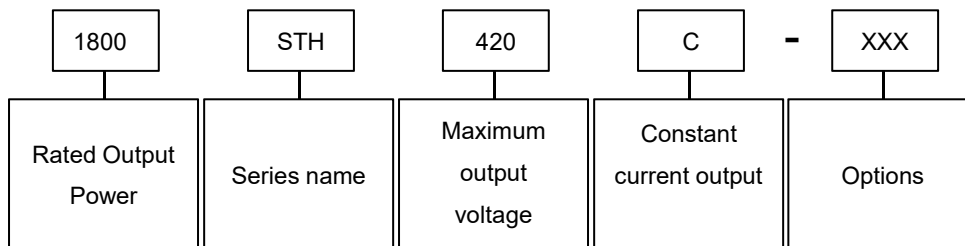
Features

- 3 channels 600W output, with free parallel connection
- 3 channels CC programmable outputs
- High efficiency: 96.5% typical @400Vac, full load
- High power factor: 0.99 typical. @ 230Vac, full load
- Isolated 0-10V/PWM/ Resistor Dimming/DMX Dimming/DALI Dimming optional
- 3 independent DMX512 addresses
- With Lightning Protection & all-round protections (OVP,OCP,SCP,OTP)
- Comply with UL8750 & EN61347-2-13 Safety Regulation
- IP66
- Remote mounting up to 200m between driver and luminaire

Applications

- Stadium Lighting
- Arena Lighting

Model Name Definition



Specifications

Part Number	Outputs	Max. Output Power	Programmable Current Range per channel	Output Voltage Range	Efficiency typical @400VAC
1800STH420C-PLD	CH1	600W	1-3A	200-420V	96.5%
	CH2	600W	1-3A	200-420V	
	CH3	600W	1-3A	200-420V	

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	180 Vac	200-415Vac	456Vac	Default performance input voltage range Set by programming
	432Vac	480Vac	528Vac	
Input Frequency	47 Hz	50/60 Hz	66 Hz	
Leakage Current	-	-	0.75 mA	At 277Vac / 60Hz input , grounding effectively
Input AC Current	-	3.95A	-	Measured at full load and 480 Vac input.
	-	4.74A	-	Measured at full load and 400 Vac input.

	-	9.8A	-	Measured at full load and 200 Vac input.
Inrush Current	-	-	30A	At 400Vac input, 25°C cold start.
PF	0.95	-	-	At 400Vac, 80%-100% load
THD	-	-	20%	At 200-480Vac, 80%-100% load

Output Specifications

Parameter	Min.	Typ.	Max.	Notes
Output Current Tolerance	-5%lo set	-	5%lo set	At 25°C and full load condition
Total Output Current Ripple (pk-pk)	-	-	10%lo max	At 25°C and full load condition, ≤200Hz BW
Startup Overshoot Current	-	-	10%lo max	At 25°C and full load condition
No Load Output Voltage	-	-	500V	
Line Regulation	-	-	±3%	Measured at 25°C and full load
Load Regulation	-	-	±3%	At 25°C condition
Turn-on Delay Time	-	-	1.5 s	Measured at 200/400/480Vac input.
Temperature Coefficient of lo set	-0.03%/°C	-	0.03%/°C	Case temperature = 0°C ~Tc max
OTP Tc	85°C	90°C	95°C	Output current will drop to 50% lowest, or shut down.
SCP				Shut down and latch
OVP	-	-	600V	Peak
Cm Surge Peak Voltage at output	-	-	3KV	@10KV input common-mode surge
Auxiliary Output Voltage	11V	13.5V	16V	
Auxiliary Output Current	0 mA	-	70mA	Return terminal is "0-10V(-)"

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Standby power	-	0.83W	1W	Measured at 230Vac/50Hz; Dimming off
	-	0.98W	1.1W	Measured at 277Vac/50Hz; Dimming off
	-	1.40W	1.5W	Measured at 400Vac/50Hz; Dimming off
	-	1.70W	2W	Measured at 480Vac/50Hz; Dimming off
MTBF	234,000 Hours	-	-	Measured at 230Vac input, 80%load and 25°C ambient temperature (MIL-HDBK- 217F)
Lifetime	97,000 Hours	-	-	Measured at 230Vac input, 80%Load and 60°C case temperature; See lifetime vs. Tc curve for the details
Operating Case Temperature Tc	-40°C	-	90°C	
Operating Ambient Temperature Ta	-40°C	-	50°C	Input voltage ≥ 230Vac
	-40°C	-	40°C	Input voltage < 230Vac
Storage Temperature	-40°C	-	85°C	Humidity: 5%RH to 90%RH
Dimensions				
Inches (L × W × H)	19.76×5.91×3.09			
Millimeters (L × W × H)	502×150×78.5			

Net Weight/pcs	-	5.55kg	-	
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Dimming Specifications

Dimming	Explain
DALI2.0	Part 101/102/207/251/252/253
DMX	RDM
0-10V	Programmable
PWM	Programmable

0-10V and PWM Dimming Specifications

Parameter	Min.	Typ.	Max.	Notes
Absolute Maximum Voltage on the Vdim (+) Pin	-1 V	-	15 V	
Source Current on Vdim (+)Pin	90uA	100uA	110uA	
Recommended Dimming Input Range	0 V	-	10 V	Default 0-10V dimming mode.
PWM_in High Level	3 V	5V	10 V	PWM is disabled default, please inform us if need this function enable.
PWM_in Low Level	-0.3 V	-	0.6 V	
PWM_in Frequency Range	500 Hz	-	3 KHz	
PWM_in Duty Cycle	1%	-	98%	

Safety & EMC Compliance

Safety Category	Standard
UL/CUL	UL8750,CAN/CSA-C22.2 No. 250.13-12
ENEC&CE	EN 61347-2-13
CB	IEC 61347-1, IEC 61347-2-13
Dielectric Strength(Hi-pot)	Primary to Dimming: 4000Vac 10mA max
	Primary to Earth: 2000Vac 10mA max.
	Dimming to Earth: 500Vac 10mA max.
Insulation Resistance	50Mohm min.@ primary to earth add 500Vdc test voltage
Grounded Resistance	0.1 Ω max. @ 25A, 1 minute
EMI Standards	Notes
EN 55015 (CISPR15)	Conducted emission Test & Radiated emission Test
EN61000-3-2	Harmonic Current Emission
EN61000-3-3	Voltage Fluctuation & Flicker
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge, criteria B
EN 61000-4-3	Radio-Frequency Electromagnetic Field Susceptibility Test-RS, criteria A
EN 61000-4-4	Electrical Fast Transient / Burst-EFT: level 3, criteria B
EN 61000-4-5	Surge Immunity Test: AC Power Line: line to line 10 kV, line to earth 10 kV, criteria B
EN 61000-4-6	Conducted Radio Frequency Disturbances Test-CS, criteria A

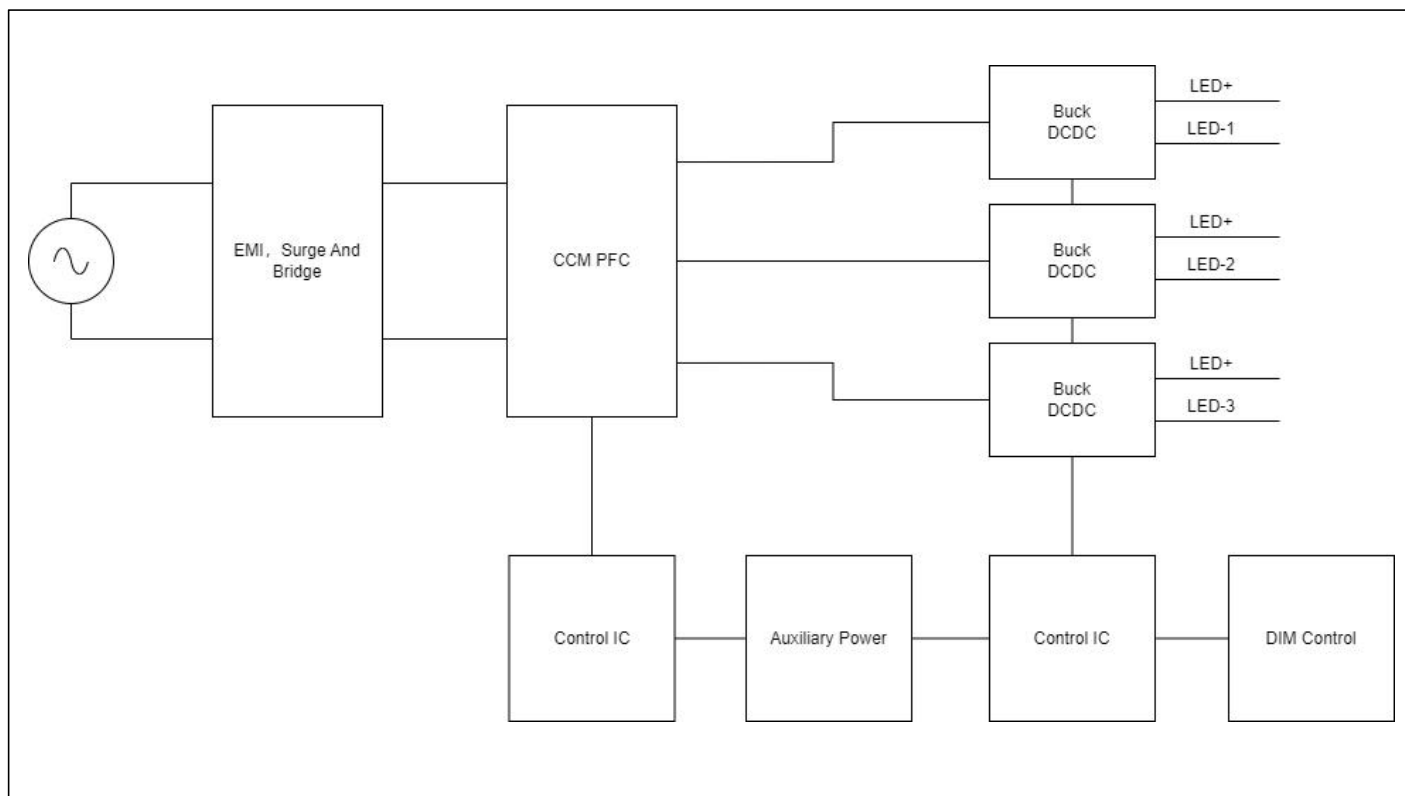
EN 61000-4-8	Power Frequency Magnetic Field Test, criteria B
EN 61000-4-11	Voltage Dips, criteria C
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

Note: This LED driver meets the EMI specifications above, but EMI performance of a luminaire that contains it depends also on the other devices connected to the driver and on the fixture itself.

Isolation

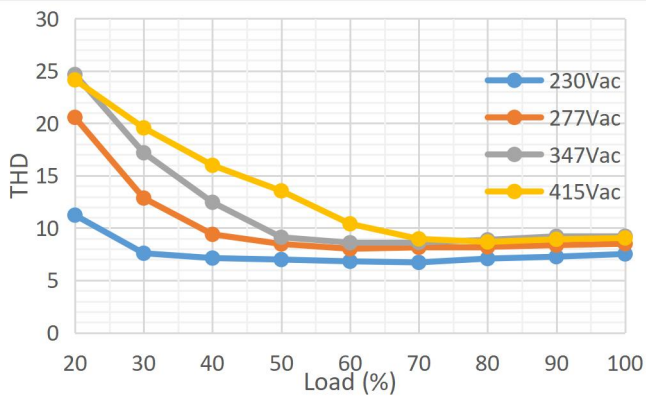
Isolation	AC Input	DC Output	Dimming (SELV)	Housing
AC Input	/	No isolation	Double isolation	Basic
DC Output	No isolation	/	Double isolation	Basic
Dimming (SELV)	Double isolation	Double isolation	/	Basic
Housing	Basic	Basic	Basic	/

Block Diagram

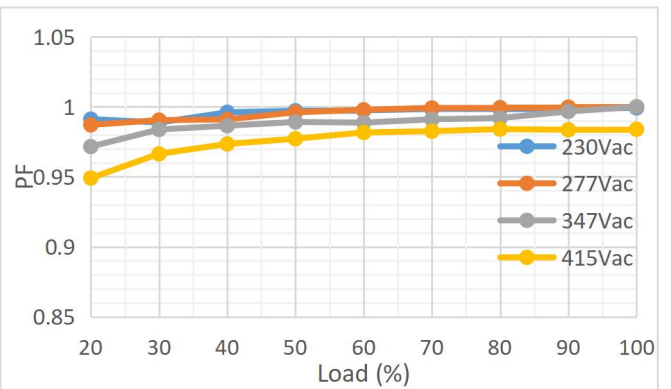


Performance Curve

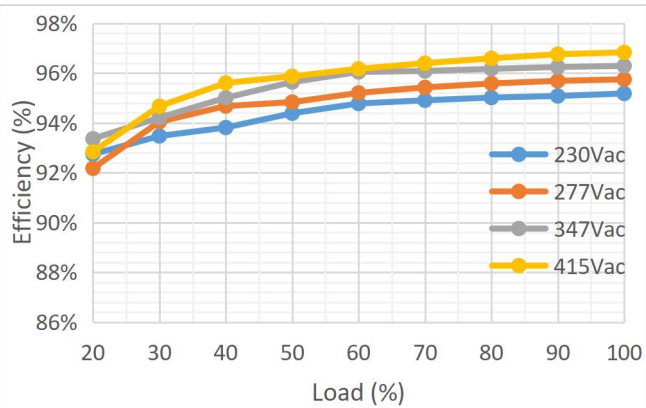
Total Harmonics Vs Different Loads



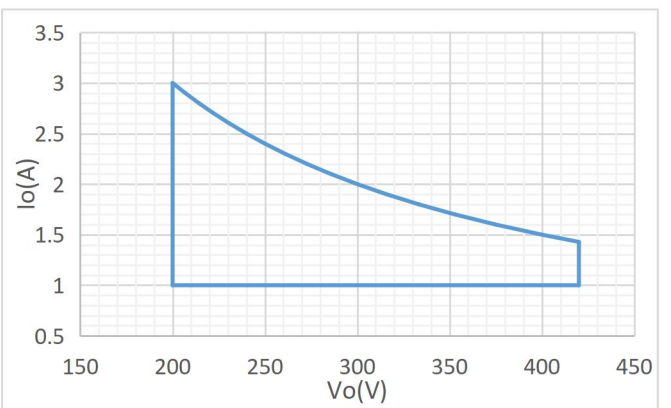
Power Factor Vs Different Loads



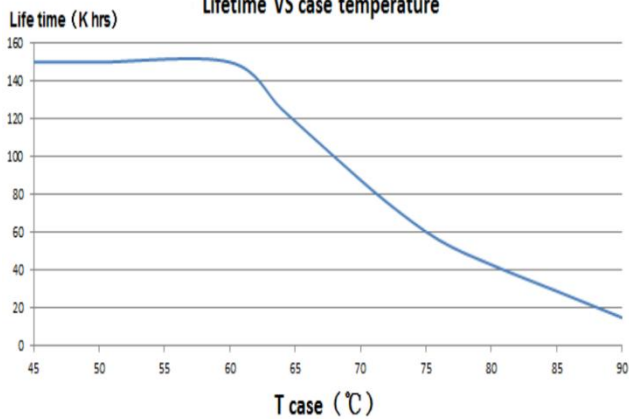
Efficiency Vs Different Loads



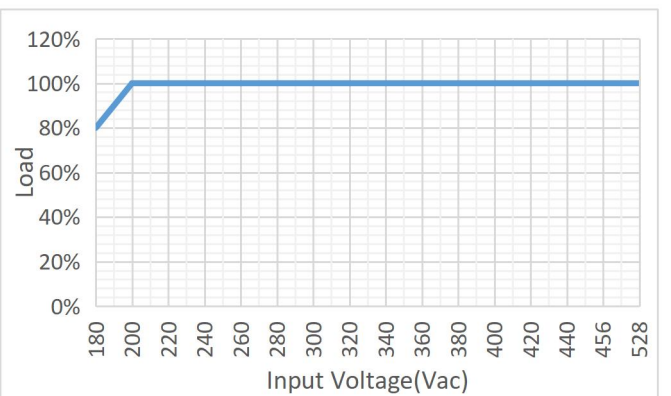
I/V Operating Area



Lifetime VS case temperature



Input Voltage Derating Curve



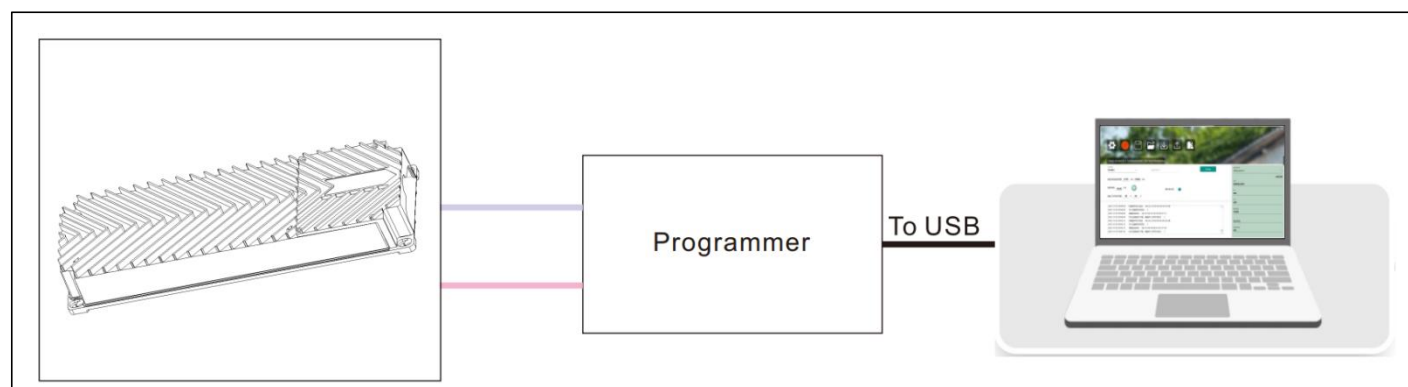
Inrush Current Data

The maximum number of LED drivers connectable to a single MCB is reported in the following table for each nominal input voltage. Due to the different kinds of circuit breakers available on the market, this table is just for reference.

Vin	Inrush Current data		Drivers for Each circuit Breaker											
Nominal (Vac)	I peak(A)	T inrush(ms)	Type B 10A	Type B 16A	Type B 20A	Type B 25A	Type c 10A	Type c 16A	Type c 20A	Type c 25A	Type D 10A	Type D 16A	Type D 20A	Type D 25A
277	19.2	0.24	1	1	2	2	1	1	2	2	1	1	2	2
380	25.2	0.25	1	1	2	2	1	2	3	3	1	2	3	3
456	26.9	0.26	1	1	2	2	1	2	3	4	1	2	3	4

Vin(Vac)	Fin(Hz)	I inrush(A)	T inrush(ms)
277	60	19.2	0.24
380	50	25.2	0.25
456	63	26.9	0.26

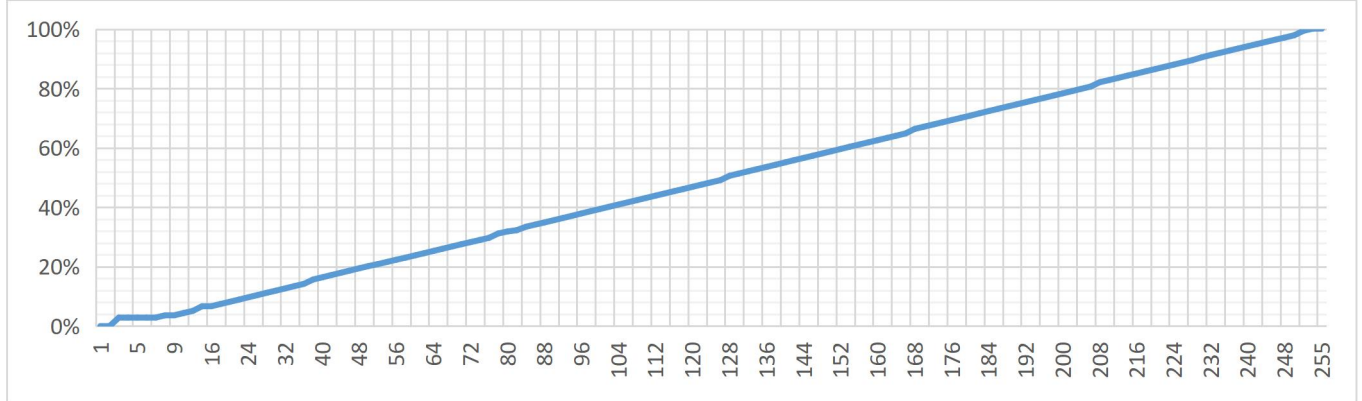
Programming



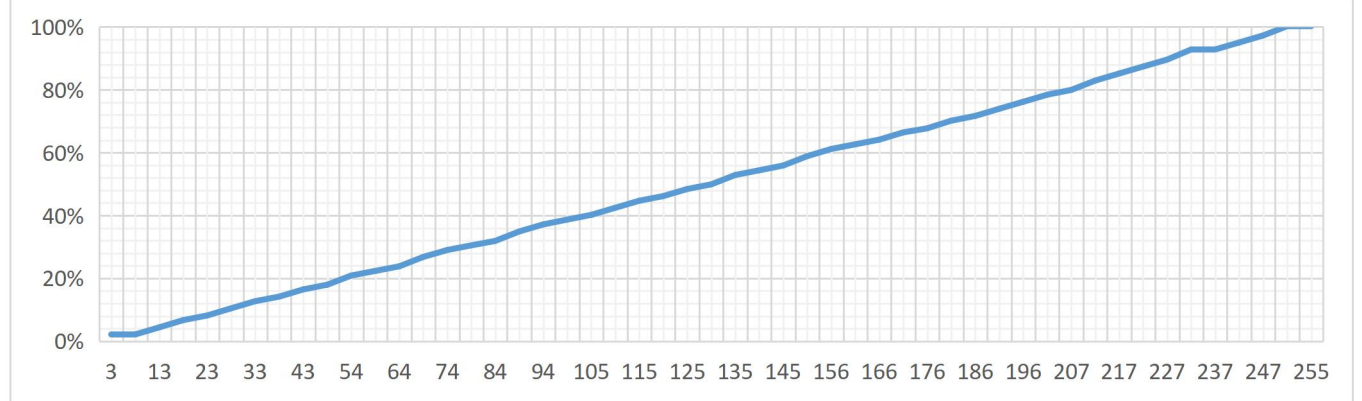
Note: Contact business personnel to take the software installation package.

Dimming Curve

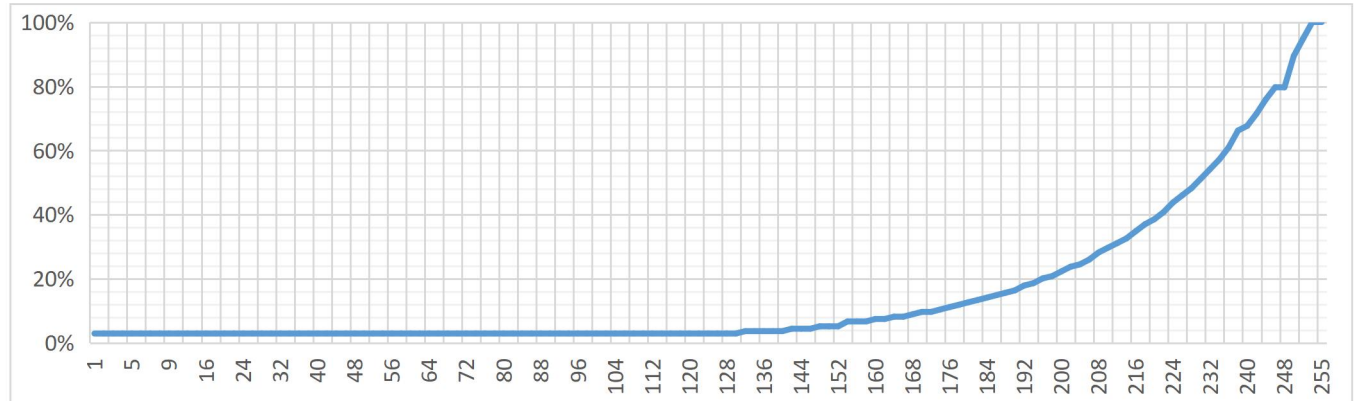
DMX Dimming Curve



DALI Linear Dimming Curve

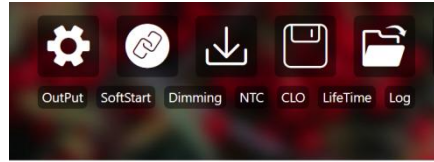


DALI Logarithm Dimming Curve



NTC

The drive has the option of external temperature protection. On the internal connector, an external NTC lead can be selected for temperature protection. Do not connect the external NTC protection cable when it is not needed. In the setting of the programmer, there is a column of NTC selection.



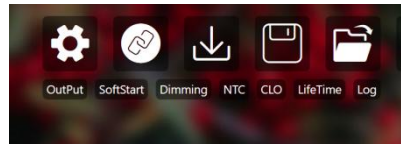
☐ Enable NTC Protection

Prot

Please Select NTC Mode

If use the NTC function, select “Enable NTC Protection”. The recommended normal temperature resistance of external selected NTCS is 100K ohms. Place at the end of high temperature device to be detected.

After clicking with this function. The NTC temperature protection mode and temperature point can be set. There are two situations, step protection and linear protection.



☒ Enable NTC Protection

Prot

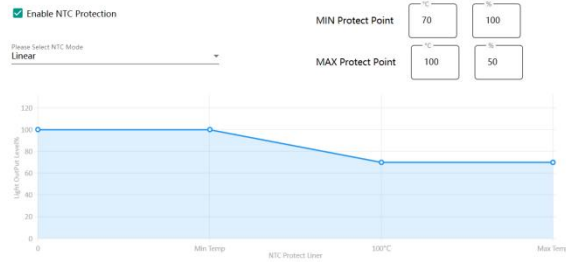
Please Select NTC Mode

Step
Linear

When setting step protection, it will immediately derate to the set ratio while reaching to the designed temperature. As can be seen from the setting interface, both the protection temperature and the derating ratio when reaching the protection temperature can be set in the programmer.



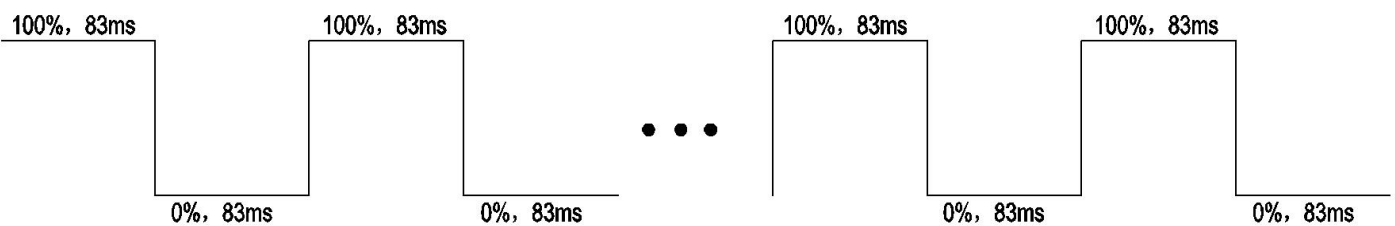
If you choose linear protection. As you can see from the figure below, you can set the temperature protection point at which the descent begins, and the maximum temperature protection. And the power drop amplitude when the maximum temperature protection point is reached.



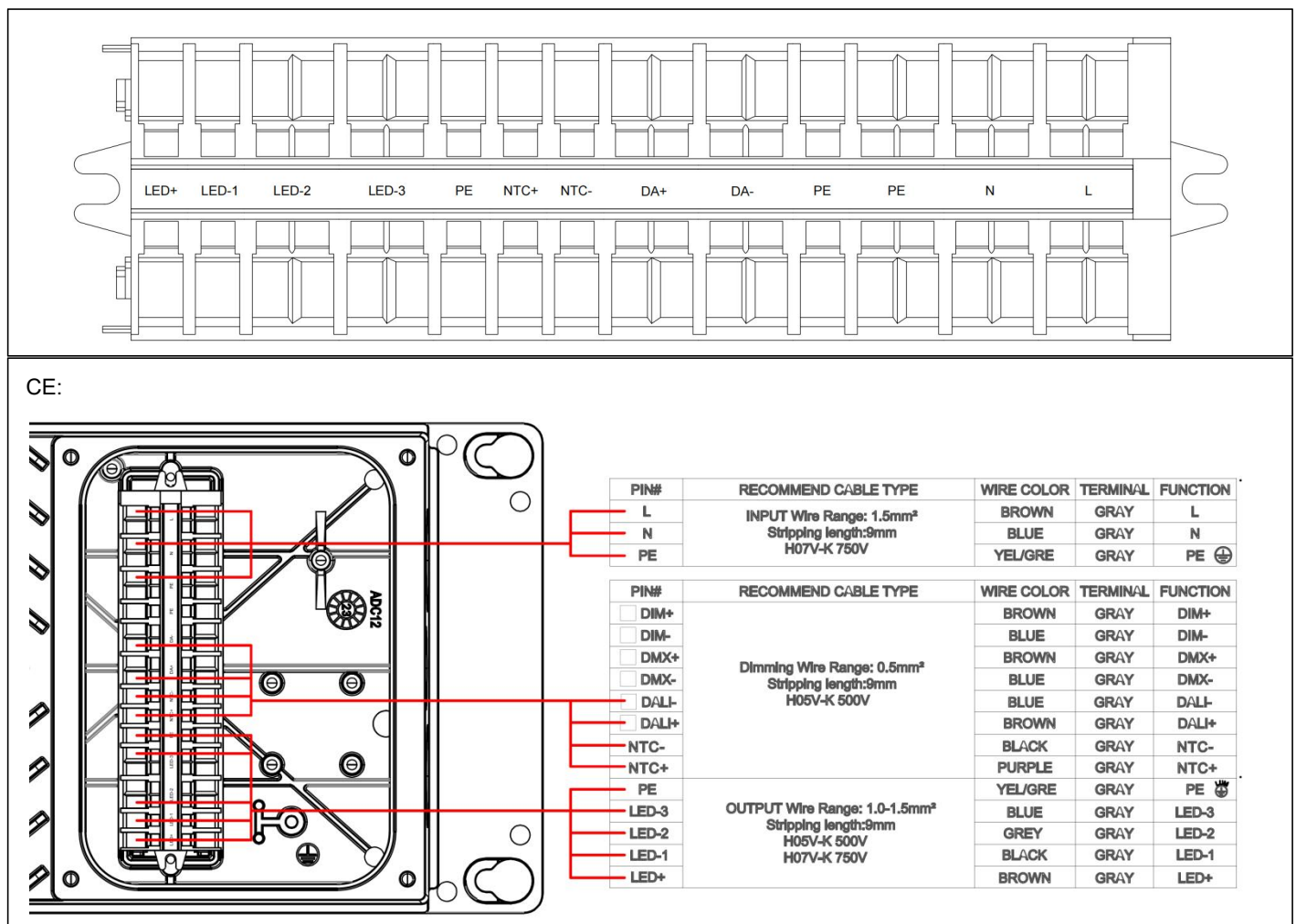
Strobe function

The driver supports strobe function up to 12 fps from 100% dimming to 0% change forth and back.

Less than 7fps is recommended.



Definition Of Cabling Interface

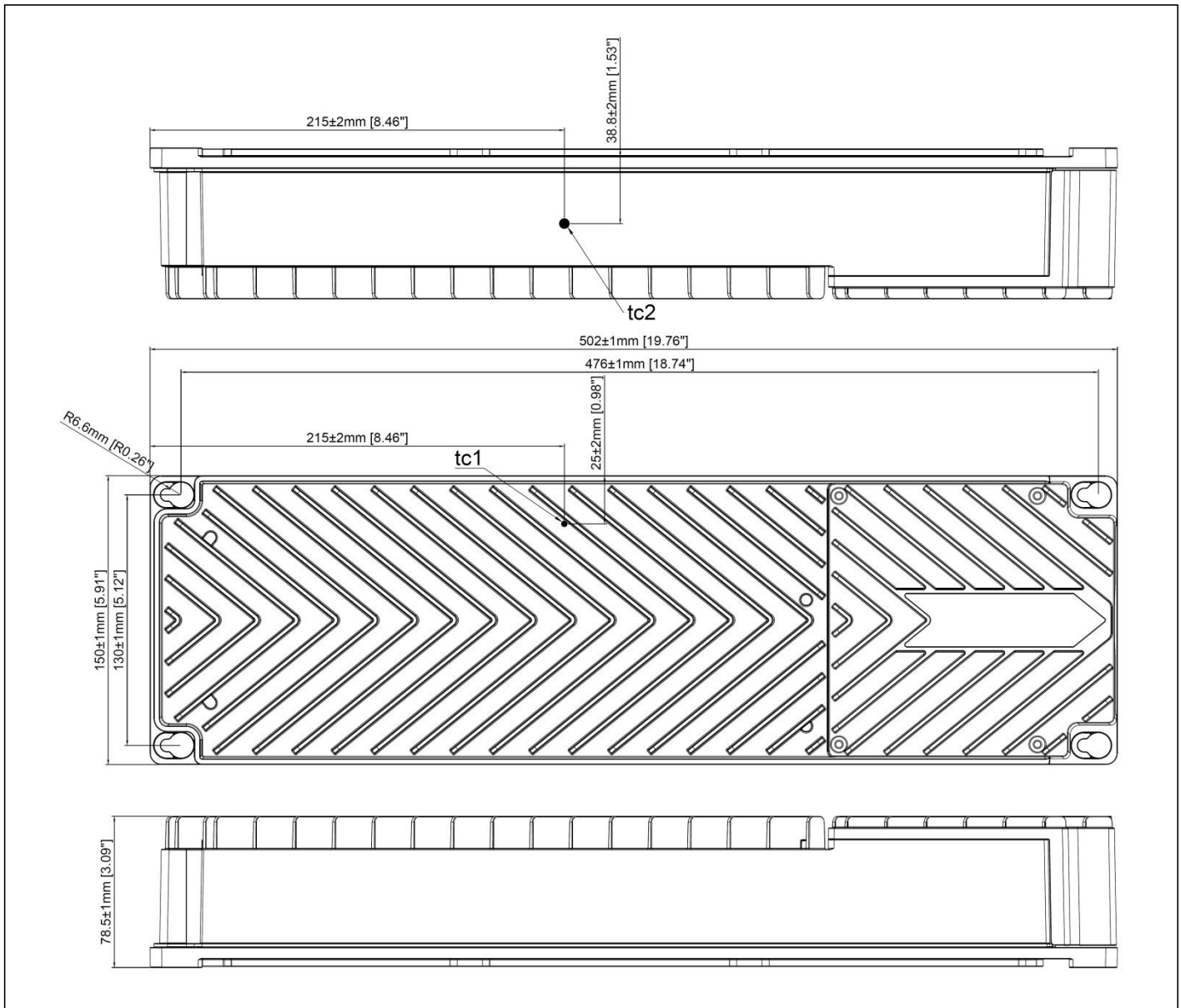


Cable gland have M25 (12-14mm or 14-16mm) and M20 (6.5-7mm * 2) two models.

Available range of input cable, output cable and dimming cable:

Gland Model	Cable Category	Cable Model	Cable Specifications	Available Range Of Outer Diameter
Input AC cable	VDE	H07RN-F	3*4mm ²	12-14mm
			3*2.5mm ²	12-14mm
	UL	SOW	3*12AWG	14-16mm
Output DC cable	VDE	H07RN-F	3*2.5mm ²	12-14mm
			5*2.5mm ²	14-16mm
	UL	SO	3*12AWG	14-16mm
		SOW	5*16AWG	12-14mm
Dimming cable	VDE	H05RN-F	3*0.75mm ²	6.5-7mm
	UL		3*20AWG	

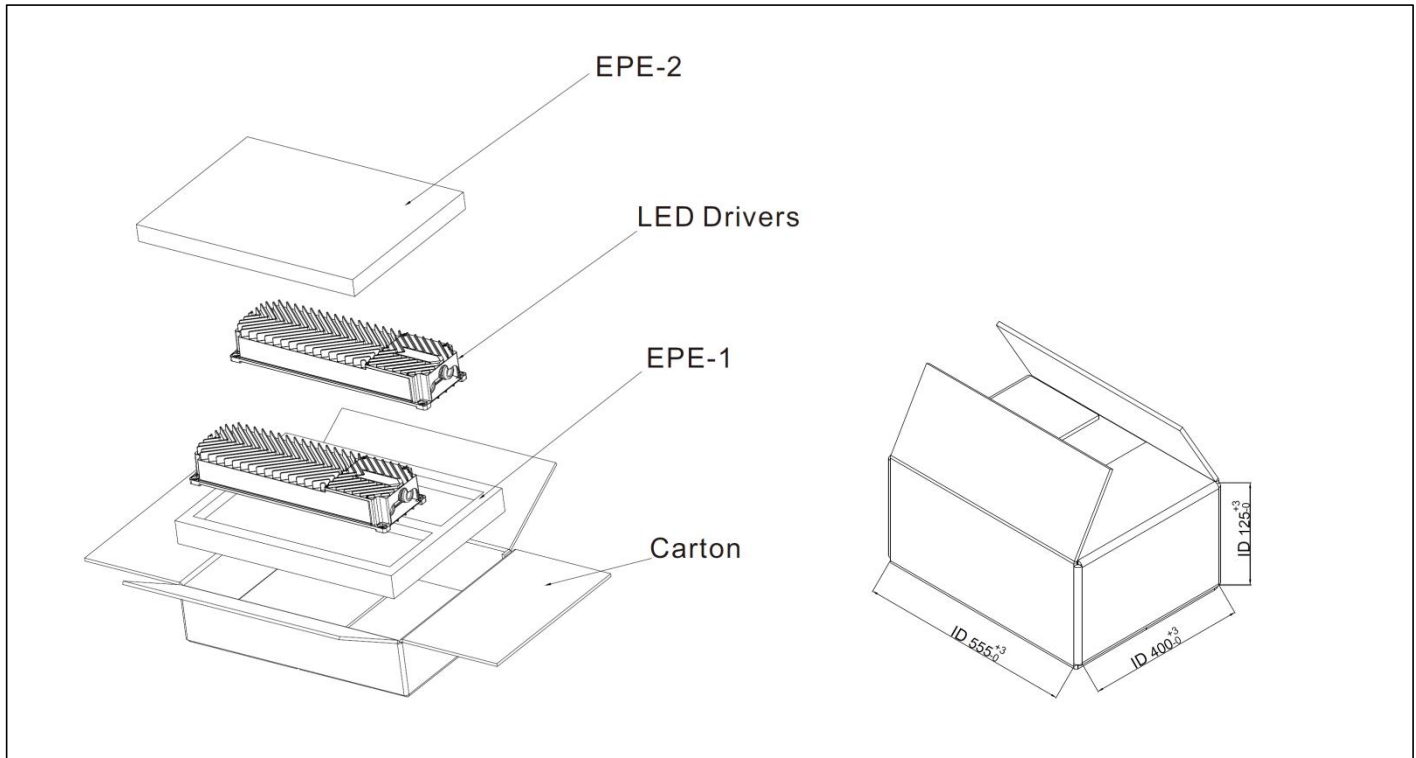
Mechanical Drawing



NOTE: The DMX、DALI dimming and dimming can only use one at the same time.

Package

Carton	L×W×H = 555×400×125mm
EPE-1	1pcs/carton
EPE-2	1pcs/carton
LED Drivers	2pcs/carton
Net weight	5.55kg/pcs
Gross weight	12.1kg/carton
Transportation seismic grade	GB/T 4857.7-2005

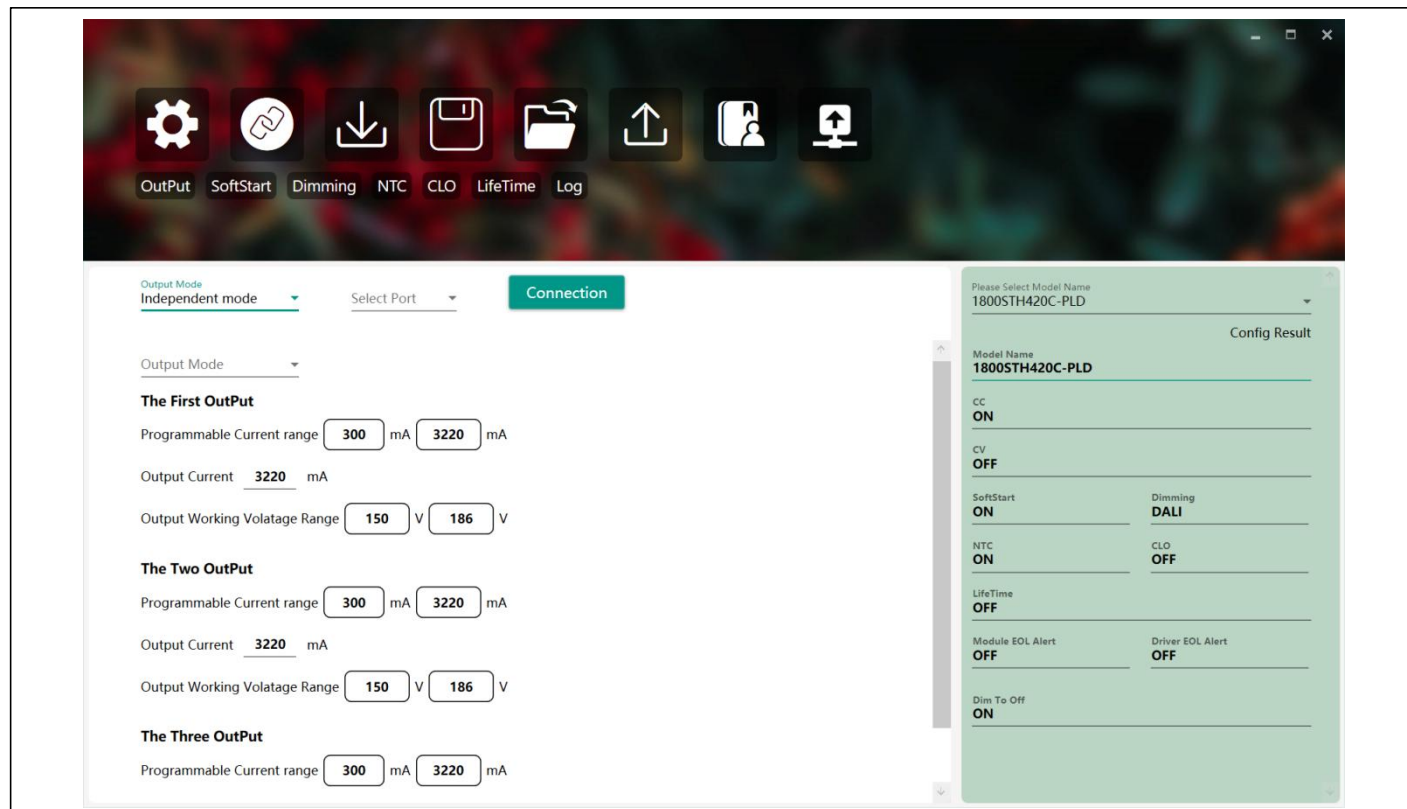


Description of upper computer software

1. Output mode

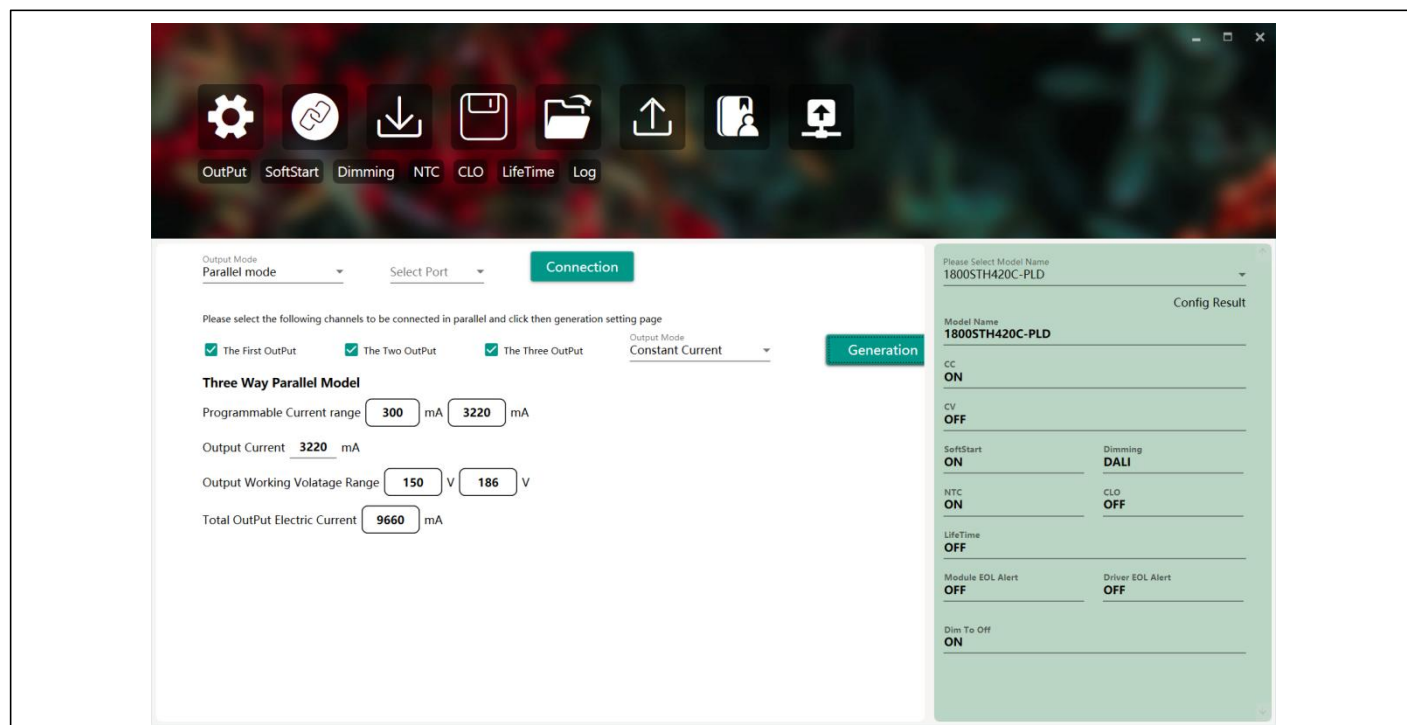
Output modes include independent mode and parallel mode.

1). Independent mode



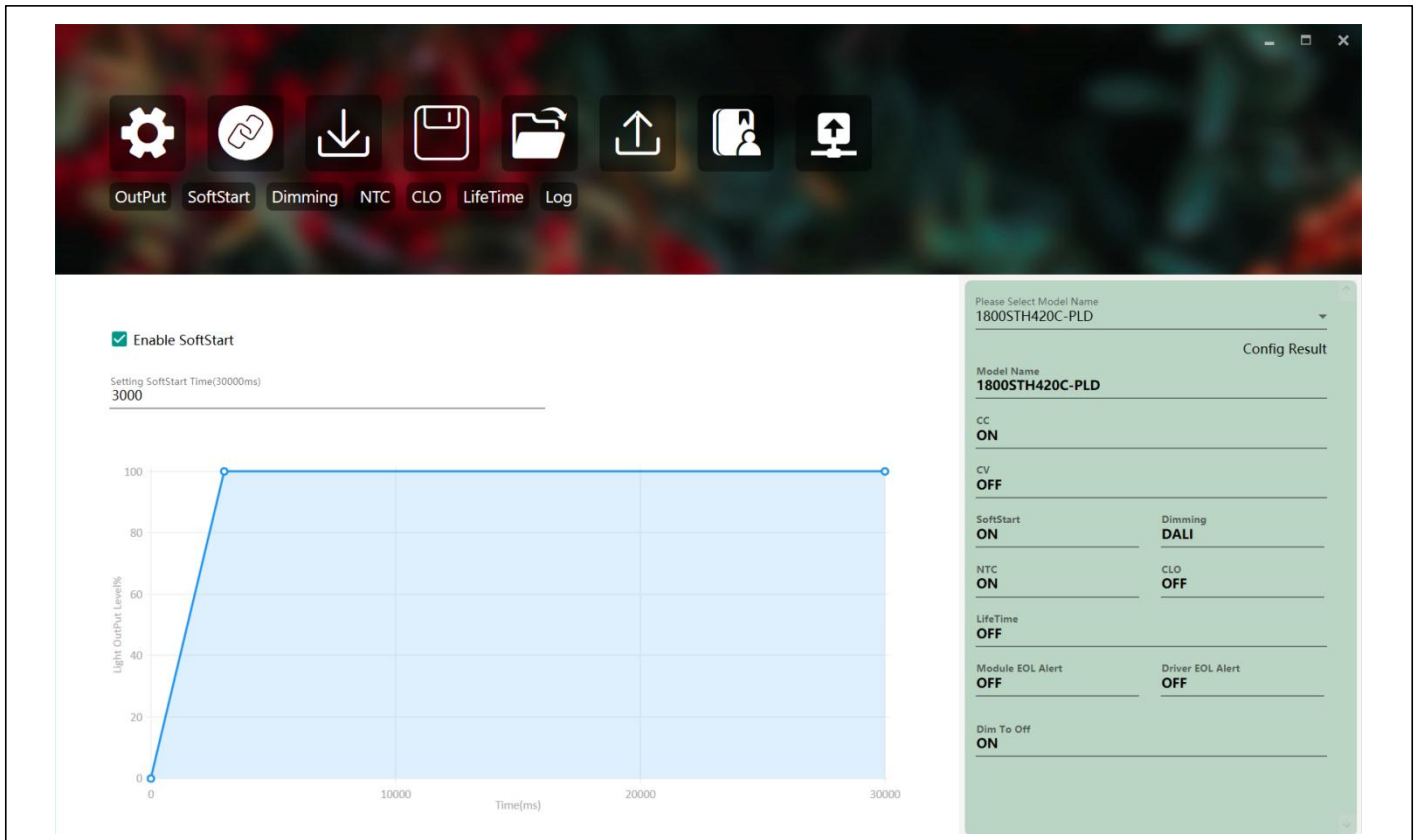
2). Parallel mode

Select the output channels that need to be output in parallel, and then click Generation.



2. SoftStart mode

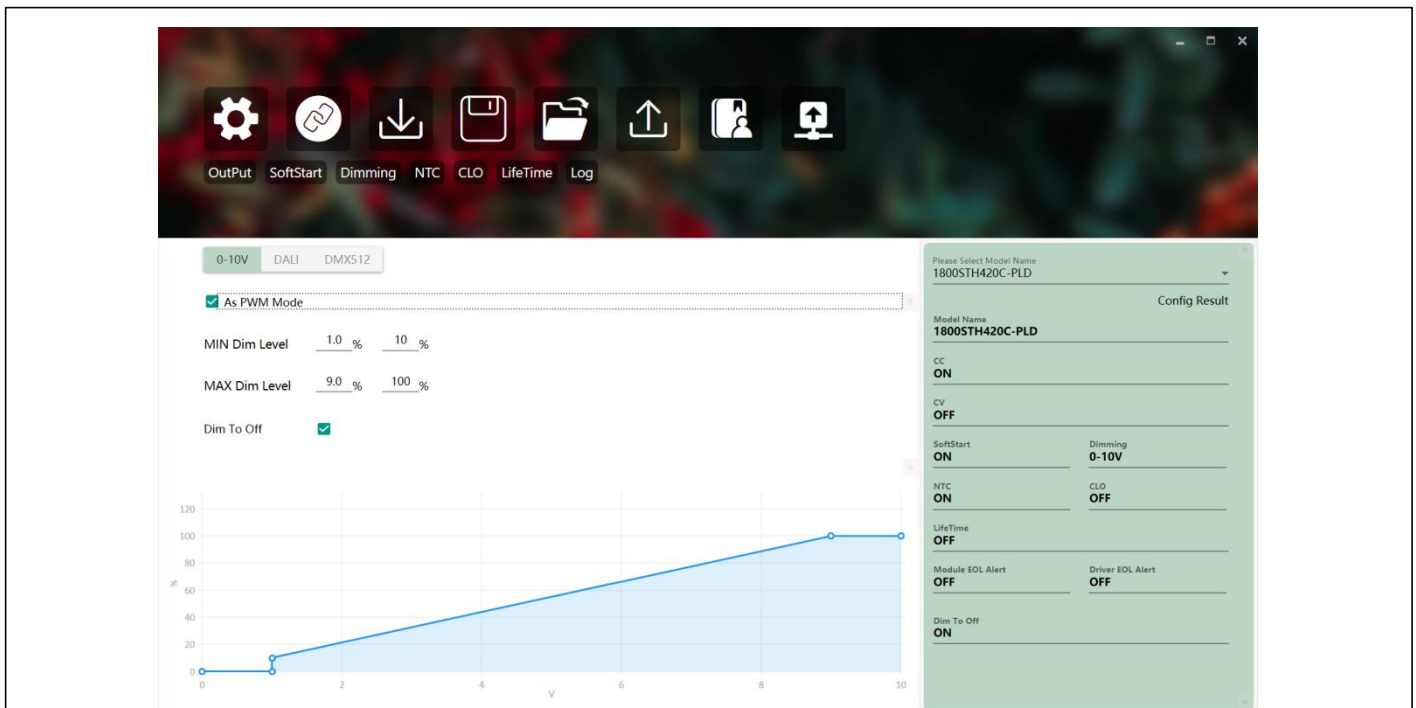
The soft start can be set according to the demand.



3. Dimming mode

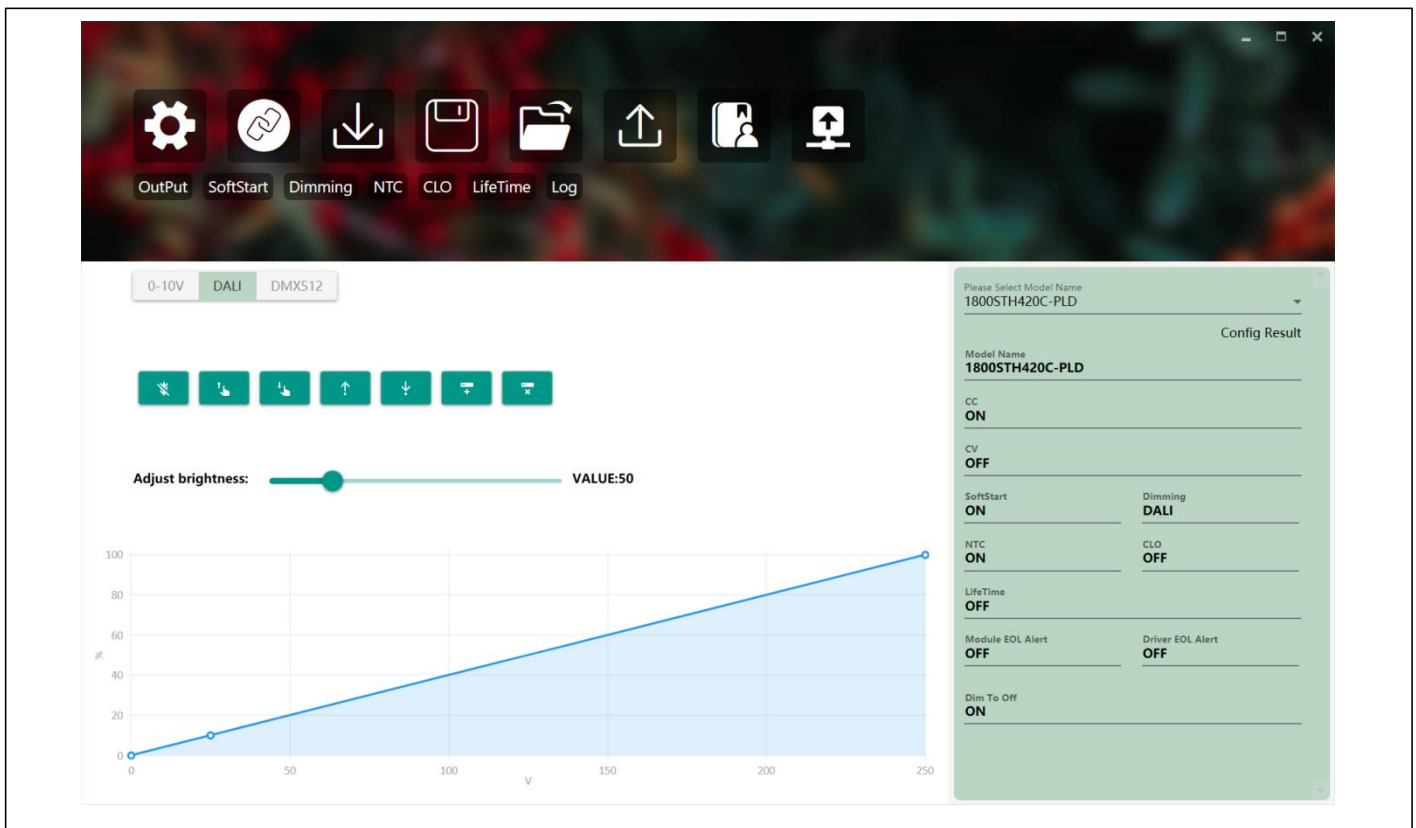
The dimming have 0-10V, DALI and DMX512 modes.

1). 0-10V mode



Note: PWM mode is included in 0-10V mode.

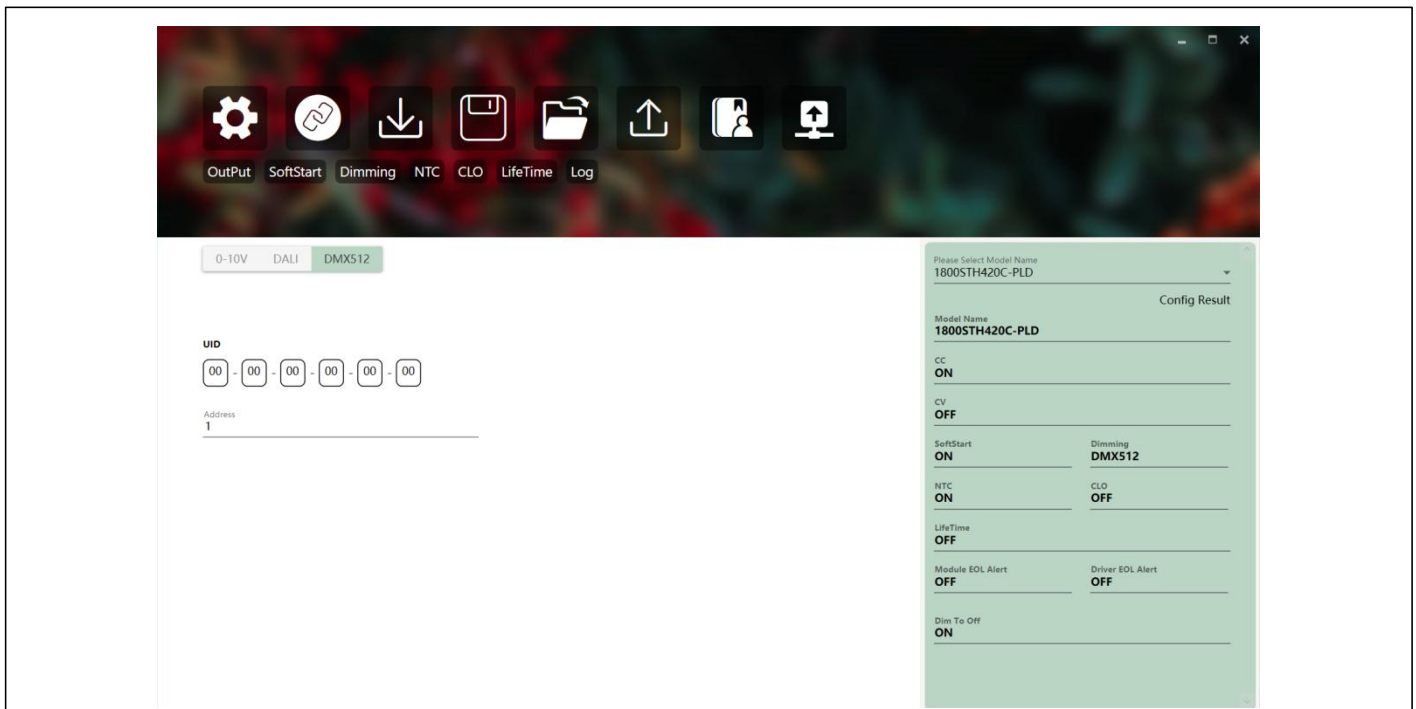
2). DALI mode



The screenshot shows the web interface for the 1800W LED Driver in DALI mode. The top navigation bar includes icons for OutPut, SoftStart, Dimming, NTC, CLO, LifeTime, and Log. Below the navigation bar, there are tabs for 0-10V, DALI (selected), and DMX512. A row of seven green buttons with icons for various functions is visible. A slider labeled "Adjust brightness:" is set to "VALUE:50". Below the slider is a line graph showing the relationship between input voltage (V) on the x-axis (0 to 250) and output voltage (V) on the y-axis (0 to 100). The graph shows a linear increase from 0V at 0V to 100V at 250V. On the right side, a "Config Result" panel displays the following settings:

Please Select Model Name	
1800STH420C-PLD	
Model Name	
1800STH420C-PLD	
CC	ON
CV	OFF
SoftStart	ON
Dimming	DALI
NTC	ON
CLO	OFF
LifeTime	OFF
Module EOL Alert	OFF
Driver EOL Alert	OFF
Dim To Off	ON

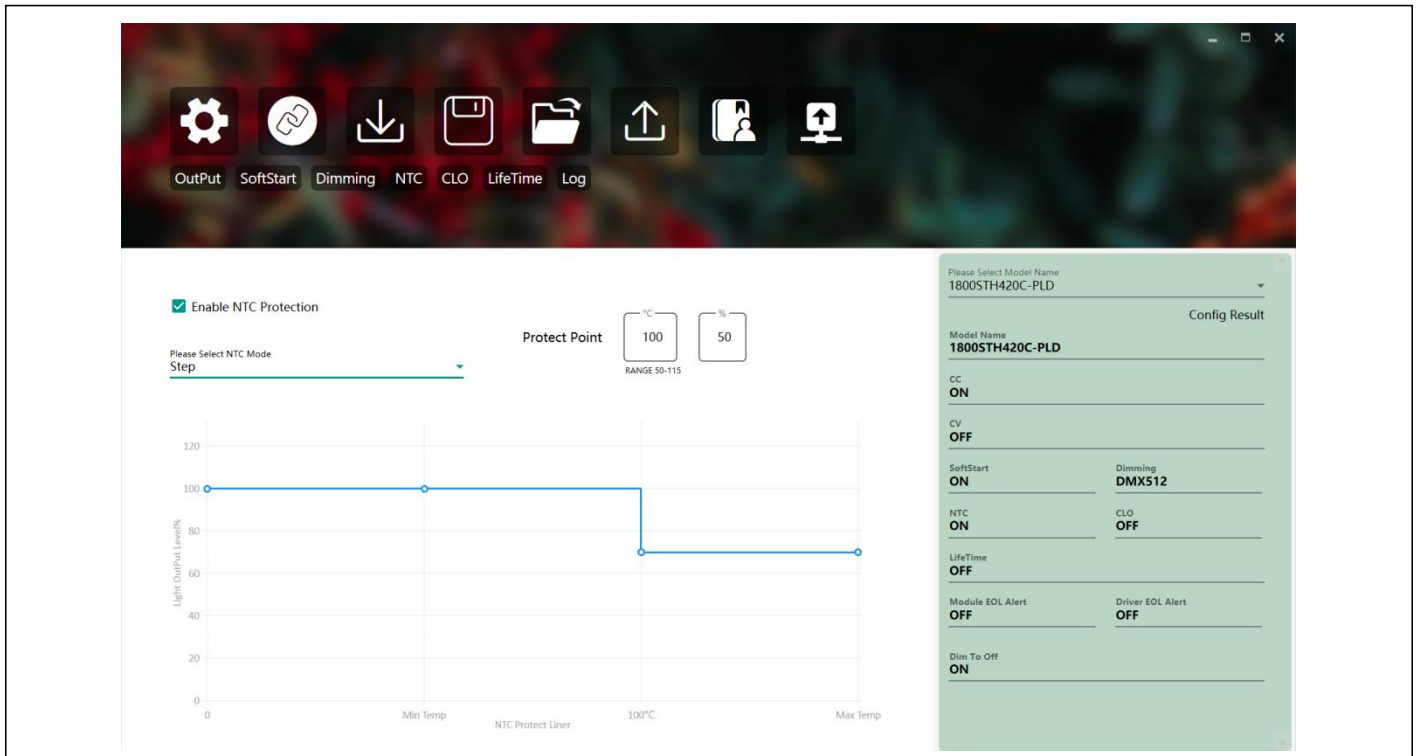
3). DMX512 mode



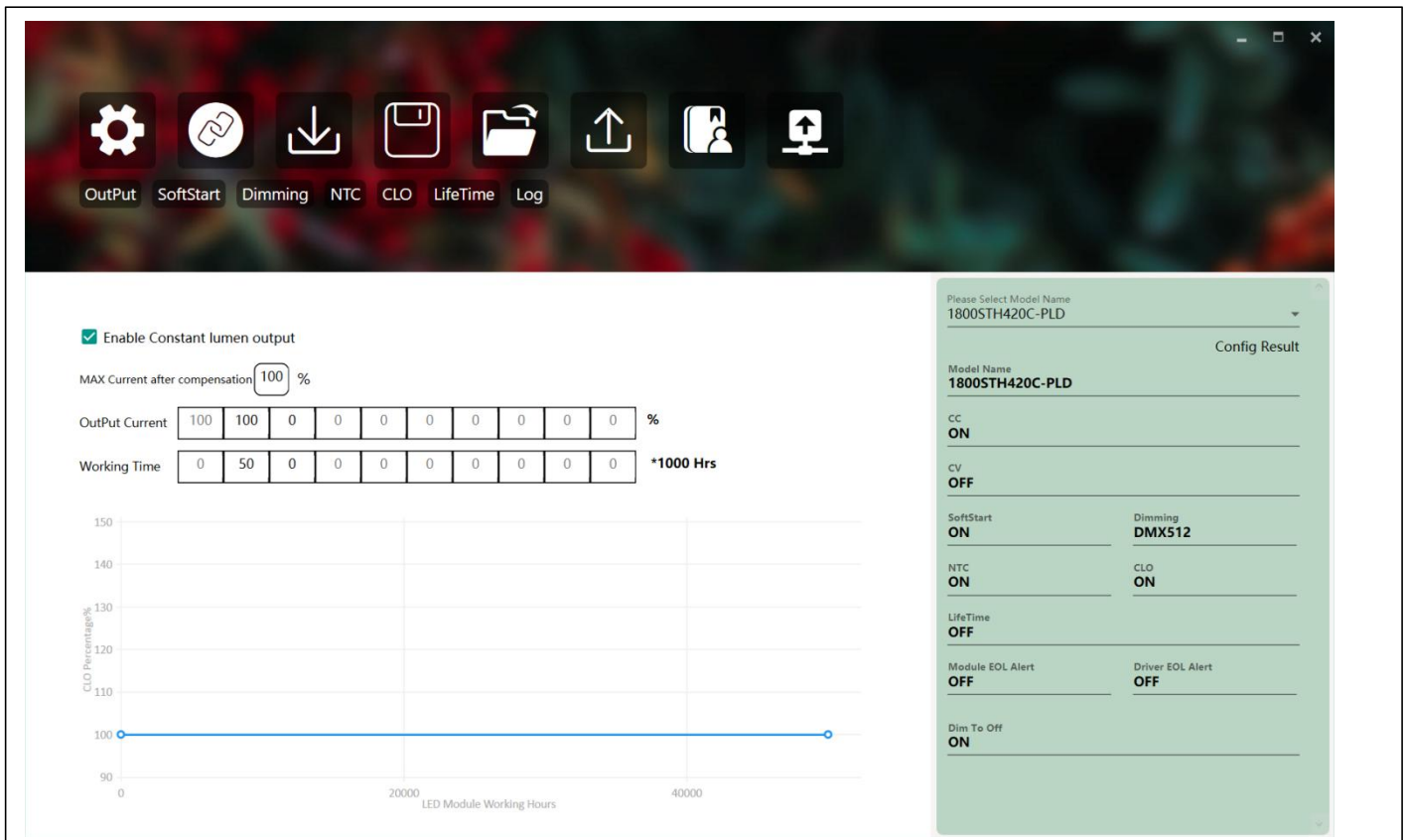
The screenshot shows the web interface for the 1800W LED Driver in DMX512 mode. The top navigation bar is the same as in the DALI mode. Below the navigation bar, there are tabs for 0-10V, DALI, and DMX512 (selected). A "UID" section shows a sequence of six boxes, each containing "00". Below this, an "Address" field is set to "1". On the right side, a "Config Result" panel displays the following settings:

Please Select Model Name	
1800STH420C-PLD	
Model Name	
1800STH420C-PLD	
CC	ON
CV	OFF
SoftStart	ON
Dimming	DMX512
NTC	ON
CLO	OFF
LifeTime	OFF
Module EOL Alert	OFF
Driver EOL Alert	OFF
Dim To Off	ON

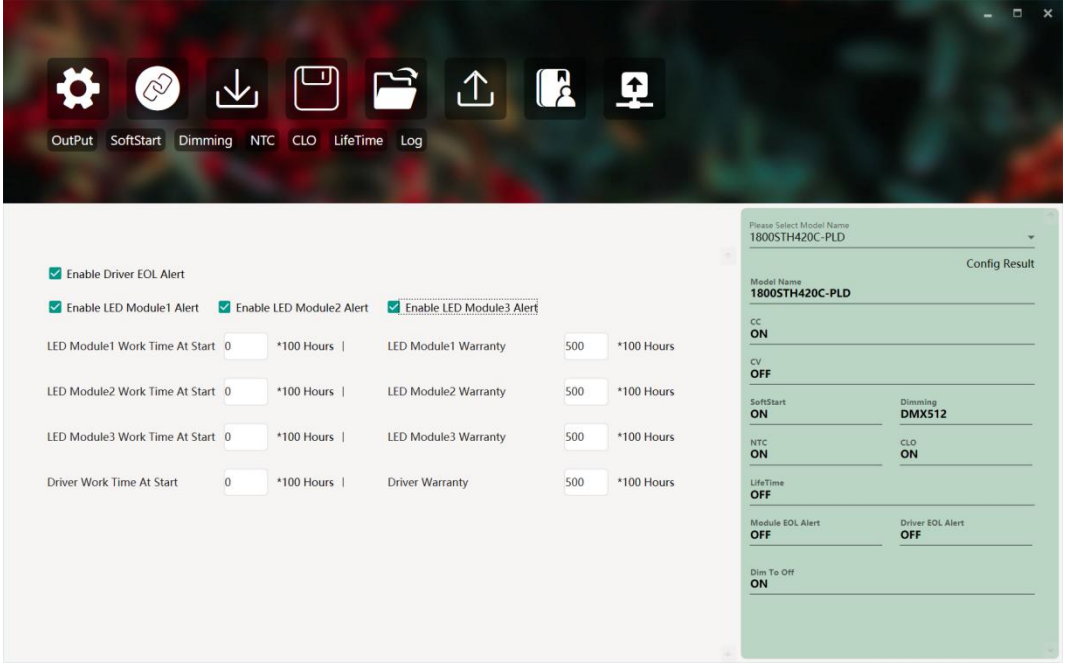
4. NTC mode



5. CLO mode



6.LifeTime mode



The screenshot displays the configuration interface for the 1800W LED Driver in LifeTime mode. The top navigation bar includes icons for OutPut, SoftStart, Dimming, NTC, CLO, LifeTime (selected), and Log. The main configuration area is divided into two sections: a left panel for enabling alerts and setting work times/warranty, and a right panel for model selection and configuration results.

Left Panel Settings:

- ☒ Enable Driver EOL Alert
- ☒ Enable LED Module1 Alert
- ☒ Enable LED Module2 Alert
- ☒ Enable LED Module3 Alert
- LED Module1 Work Time At Start: 0 *100 Hours | LED Module1 Warranty: 500 *100 Hours
- LED Module2 Work Time At Start: 0 *100 Hours | LED Module2 Warranty: 500 *100 Hours
- LED Module3 Work Time At Start: 0 *100 Hours | LED Module3 Warranty: 500 *100 Hours
- Driver Work Time At Start: 0 *100 Hours | Driver Warranty: 500 *100 Hours

Right Panel (Config Result):

Please Select Model Name: 1800STH420C-PLD

Model Name: 1800STH420C-PLD

CC: ON

CV: OFF

SoftStart: ON

Dimming: DMX512

NTC: ON

CLO: ON

LifeTime: OFF

Module EOL Alert: OFF

Driver EOL Alert: OFF

Dim To Off: ON

Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2024/3/11	V1.0			
2024/9/23	V1.1	Add Dielectric Strength(Hi-pot)/Insulation Resistance/Grounded Resistance/No Load Output Voltage/Package		
		Delete FCC Part 15		
		Update Definition Of Cabling Interface		
		Update Operating Ambient Temperature Ta		
		Input AC Current	Max	Type
		Update Input Voltage Derating Curve		
		Delete EN 61000-4-5 (Output)/EN 61000-4-5 (Control terminal)/EN 61000-4-5 (NTC)		
		Update Mechanical Drawing		
2024/12/5	V1.2	Leakage Current	At 400Vac / 60Hz input , grounding effectively	At 277Vac / 60Hz input , grounding effectively
2025/1/10	V1.3	Add Auxiliary Output Voltage/Auxiliary Output Current		
		Line Regulation/Load Regulation		Add 25°C condition