# LED 驱动规格书
# 1200STH420C-PLD

V1.2

2023/10/20

| Powerland Signatures | | | | | Customer Approval Signature |
|---|---|---|---|---|---|
| Prepared | Checked | | Approved | Marketing | |
| | ME | 研发经理 | | | |
| | | | | | |

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This specification describes the performance characteristics of a 1200W/4.5A versatile power supply for LED Driver.
The output current of this series are programmable, and designed for 0-10V/PWM/Rset/DMX dimming/DALI dimming applications.

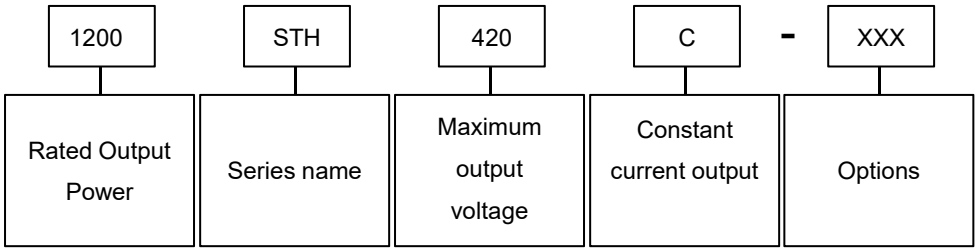
## Features

- Constant current programmable outputs
- High efficiency: 96% typical @400Vac, full load
- High power factor: 0.97 typical. @ 230Vac, full load
- Isolated 0-10V/PWM/ Resistor Dimming/DMX Dimming/DALI Dimming optional
- DMX512 with RMD function
- With Lightning Protection & all-round protections (OVP,OCP,SCP,OTP)
- Comply with UL8750 & EN61347-2-13 Safety Regulation
- IP66

## Applications

- Stadium Lighting
- Arena Lighting

## Model Name Definition




## Specifications

| Part Number | Outputs | Max. Output Power | Programmable Current Range per channel | Output Voltage Range | Efficiency @400VAC |
|---|---|---|---|---|---|
| 1200STH420C-PLD | CH1 | 1200W | 2-4.5A | 200-420V | 96% |

## Input Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Input AC Voltage | 180Vac | - | 528Vac | |
| Input Frequency | 45 Hz | 50/60 Hz | 63 Hz | |
| Leakage Current | - | - | 0.75 mA | At 400Vac / 60Hz input , grounding effectively |
| Input AC Current | - | - | 2.63A | Measured at full load and 480 Vac input. |
| | - | - | 3.16A | Measured at full load and 400 Vac input. |
| | - | - | 6.4A | Measured at full load and 200 Vac input. |
| Inrush Current | - | - | 35A | 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%Io set | - | 5%Io set | At full load condition |
| Total Output Current Ripple (pk-pk) | - | - | 10%Io max | At full load condition, 20 MHz BW |
| Startup Overshoot Current | - | - | 10%Io max | At full load condition |
| Line Regulation | - | - | ±3% | Measured at full load |
| Load Regulation | - | - | ±3% | |
| Turn-on Delay Time | - | - | 1.5 s | Measured at 200/400/480Vac input. |
| Temperature Coefficient of Ioset | -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% |
| SCP | | | | Shut down and latch |

## General Specifications

| Parameter | Min. | Typ. | Max. | Notes |
|---|---|---|---|---|
| Standby power | - | - | 0.5 W | Measured at 230Vac/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 | |
| Storage Temperature | -40°C | - | +85°C | Humidity: 5%RH to 90%RH |
| Dimensions<br>Inches (L × W × H)<br>Millimeters (L × W × H) | 16×5.92×2.91<br>406.4×150.4×74 | | | |
| Net Weight/pcs | - | 4.65kg | - | |

## Dimming Specifications

| Dimming | Explain |
|---|---|
| DALI2.0 | Part 101/102/207; D4I Part 251/253 |
| 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% | |

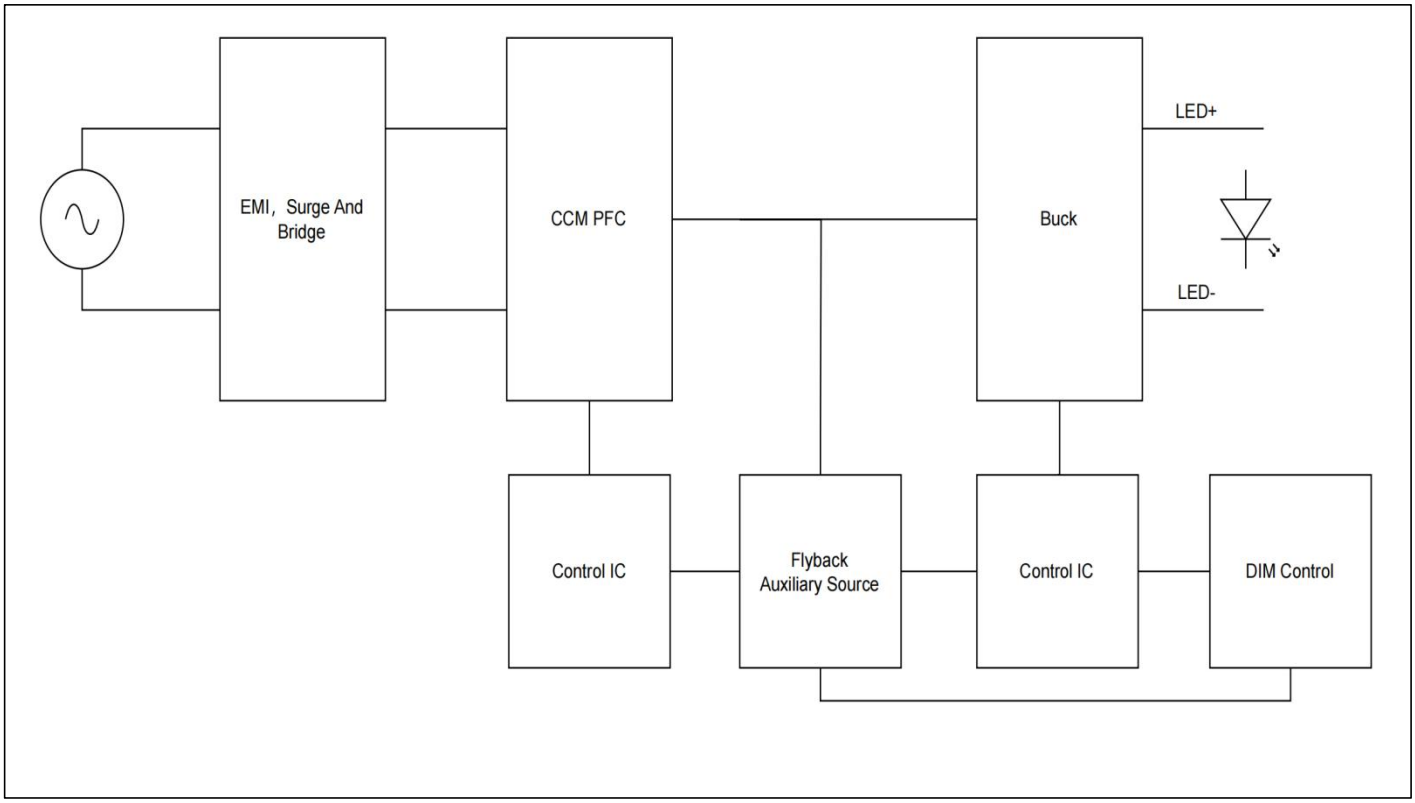
## Safety &EMC Compliance

| Safety Category | Standard |
|---|---|
| UL/CUL | UL8750,CAN/CSA-C22.2 No. 250.13-12 |
| EMI Standards | Notes |
| FCC Part 15 | ANSI C63.4:2009 Class B |
| | This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired Operation. |
| EMS Standards | Notes |
| EN 61000-4-2 | Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge |
| EN 61000-4-3 | Radio-Frequency Electromagnetic Field Susceptibility Test-RS |
| EN 61000-4-4 | Electrical Fast Transient / Burst-EFT: level 3, criteria A |
| EN 61000-4-5 | Surge Immunity Test: AC Power Line: line to line 10 kV, line to earth 10 kV |
| EN 61000-4-6 | Conducted Radio Frequency Disturbances Test-CS |
| EN 61000-4-8 | Power Frequency Magnetic Field Test |
| EN 61000-4-11 | Voltage Dips |
| EN 61547 | Electromagnetic Immunity Requirements Applies To Lighting Equipment |

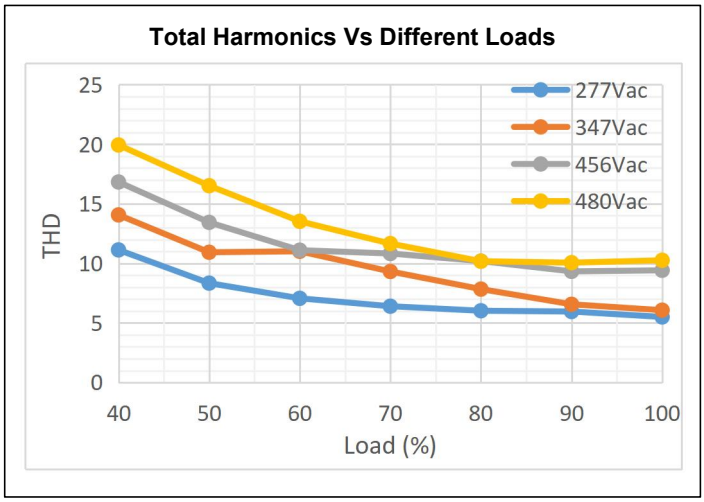
## Isolation

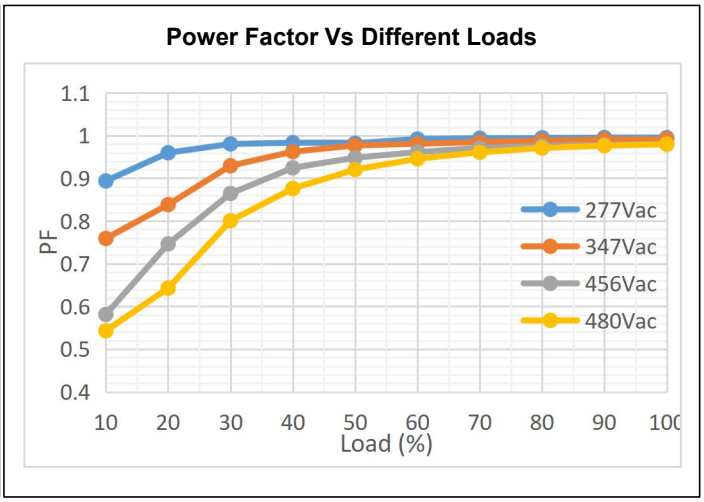
| Isolation | AC Input | DC Output | Dimming (SELV) | Housing |
|---|---|---|---|---|
| AC Input | / | No isolation | Double isolation | Basic |
| DC Output | No isolation | / | Double isolation | Basic |
| Dimming (SELV) | Double isolation | Double isolation | / | Basic |
| Housing | Basic | Basic |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

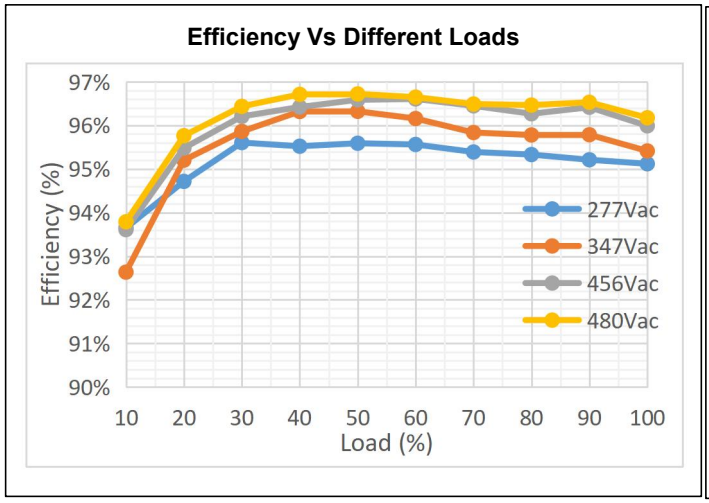
## Block Diagram

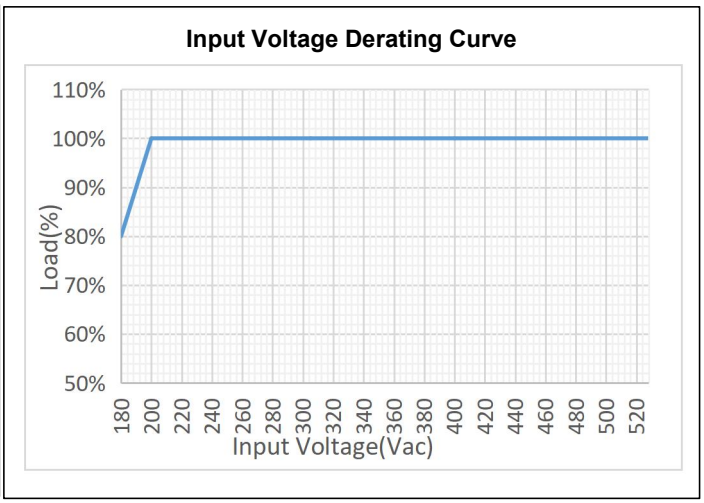


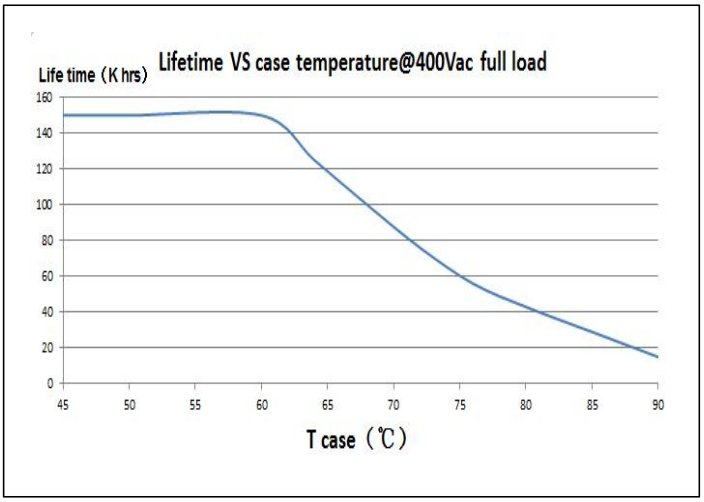
## Performance Curve



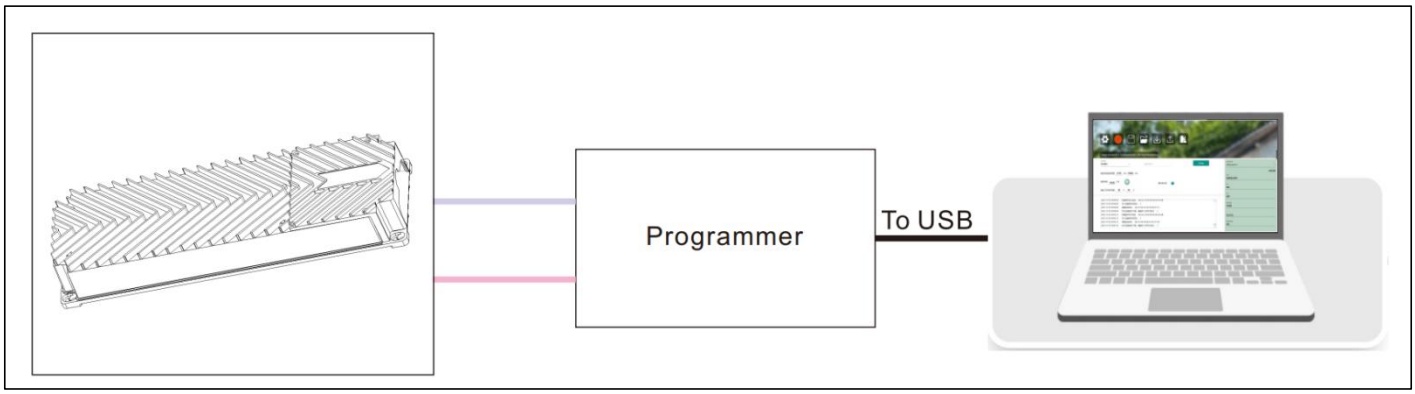
## Inrush Current Data

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 | 13.2 | 0.252 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 380 | 18 | 0.384 | 1 | 2 | 2 | 3 | 2 | 3 | 4 | 5 | 2 | 3 | 4 | 6 |
| 480 | 25.6 | 0.29 | 1 | 1 | 1 | 2 | 1 | 2 | 3 | 3 | 3 | 4 | 6 | 7 |

| Vin(Vac) | Fin(Hz) | I inrush(A) | T inrush(ms) |
|---|---|---|---|
| 277 | 60 | 13.2 | 0.252 |
| 380 | 50 | 18 | 0.384 |
| 480 | 63 | 25.6 | 0.29 |

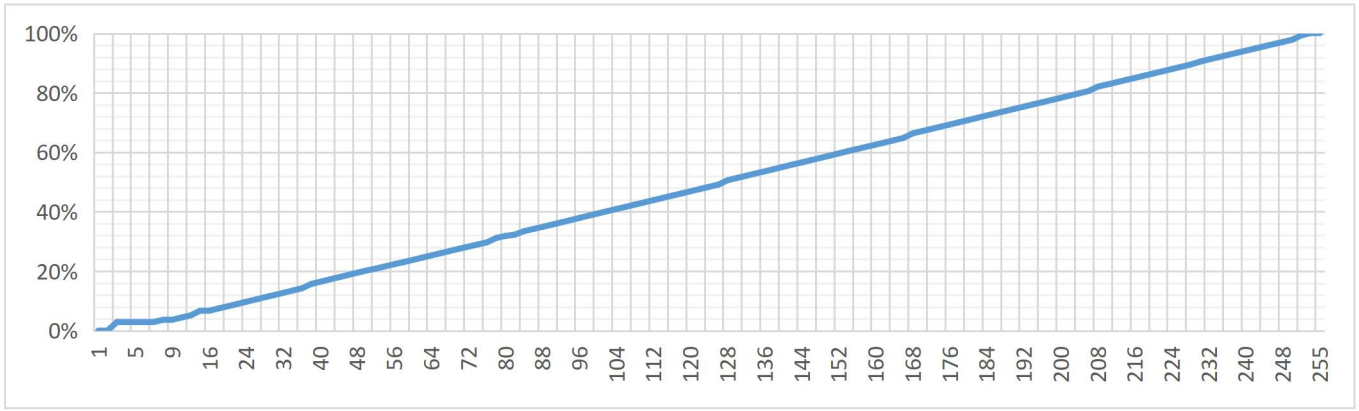
## Programming



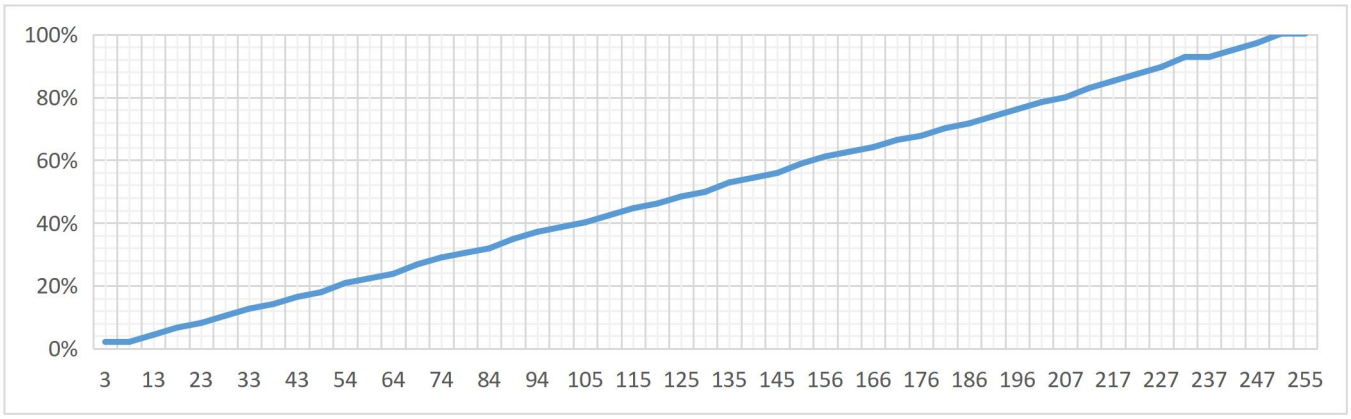

Note：Contact business personnel to take the software installation package.

# Dimming Curve

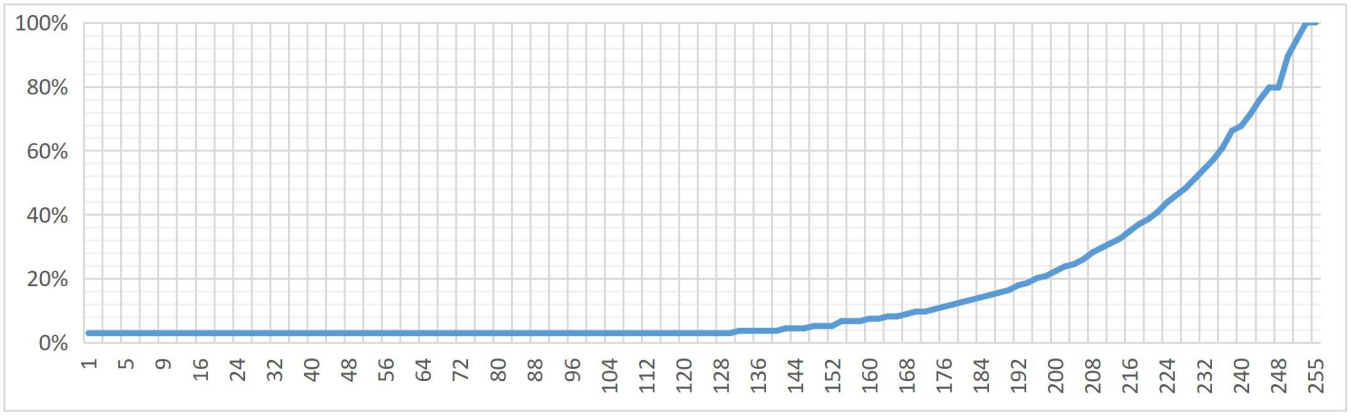
**DMX Dimming Curve**




**DALI Linear Dimming Curve**

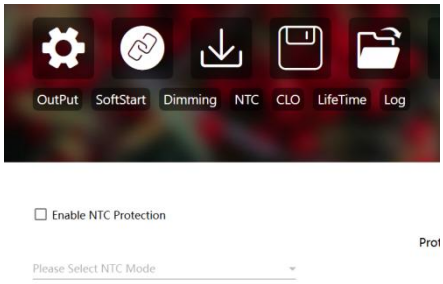



**DALI Logarithm Dimming Curve**

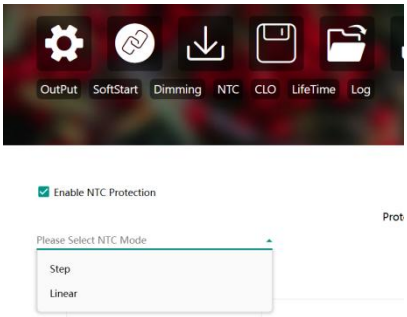


## NTC

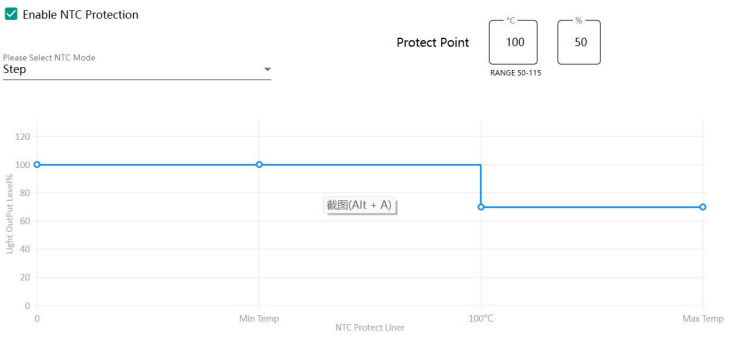
The drive has the option of external temperature protection. On the internal connector, an external NTC lead can be selected for temperature protection. Do not connect the external NTC protection cable when it is not needed. In the setting of the programmer, there is a column of NTC selection.



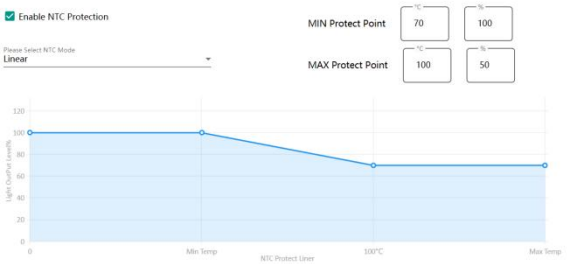

If use the NTC function, select “Enable NTC Protection”. The recommended normal temperature resistance of external selected NTCS is 100K ohms. Place at the end of high temperature device to be detected.
After clicking with this function. The NTC temperature protection mode and temperature point can be set. There are two situations, step protection and linear protection.




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.



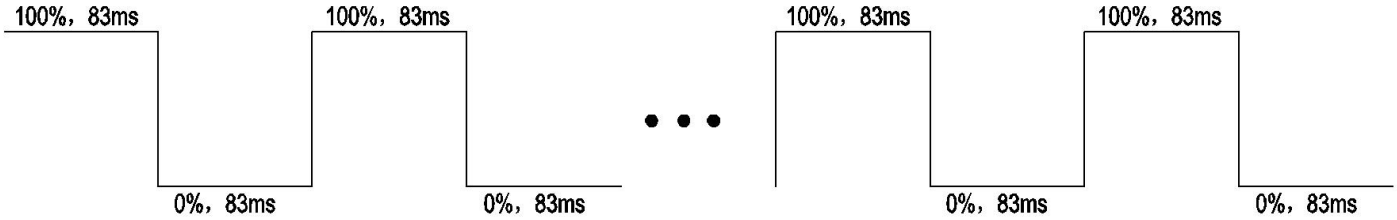

If you choose linear protection. As you can see from the figure below, you can set the temperature protection point at which the descent begins, and the maximum temperature protection. And the power drop amplitude when the maximum temperature protection point is reached.



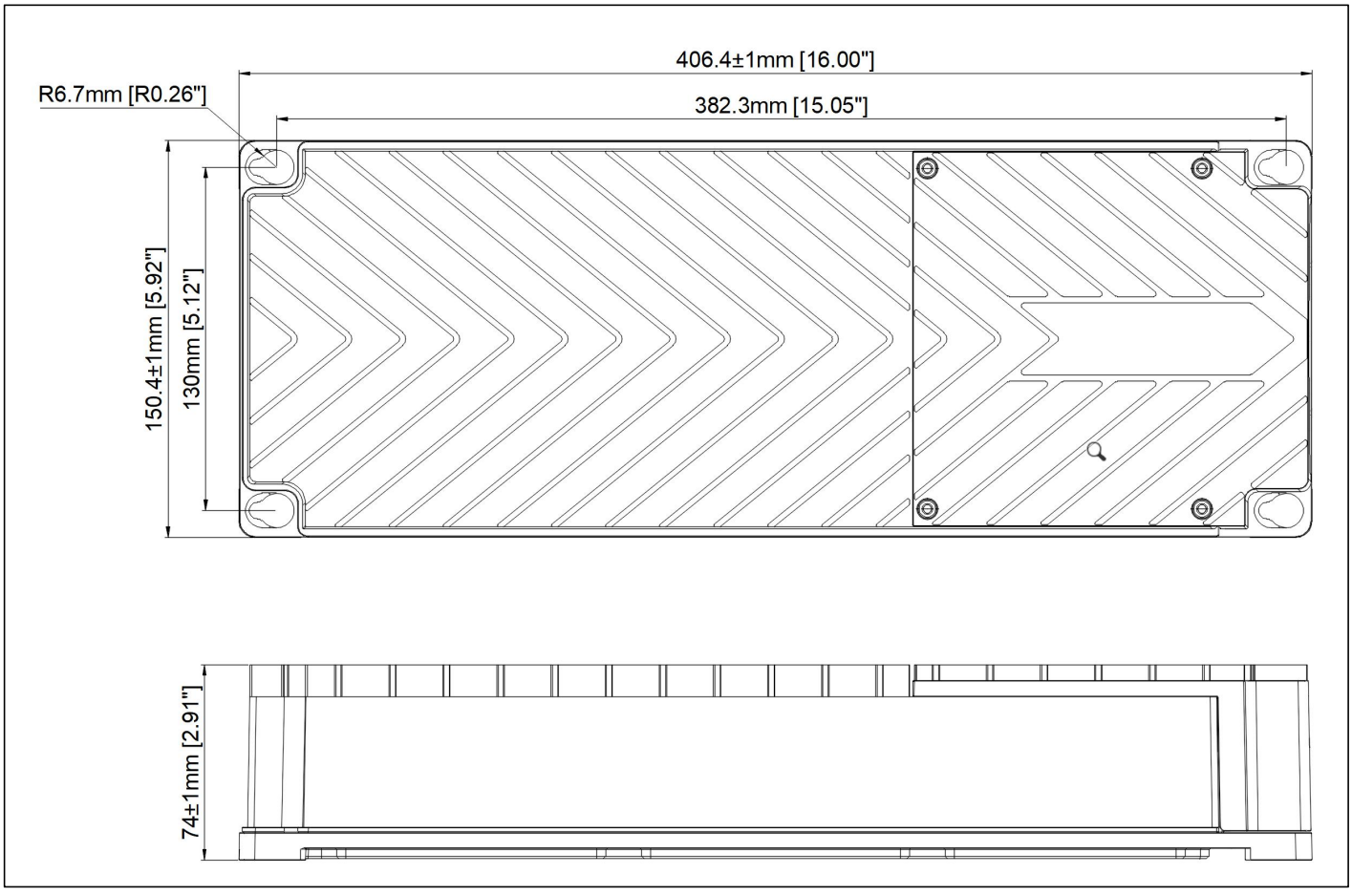
## Strobe function

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

Less than 7fps is recommended.




## Mechanical Drawing




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

## Label

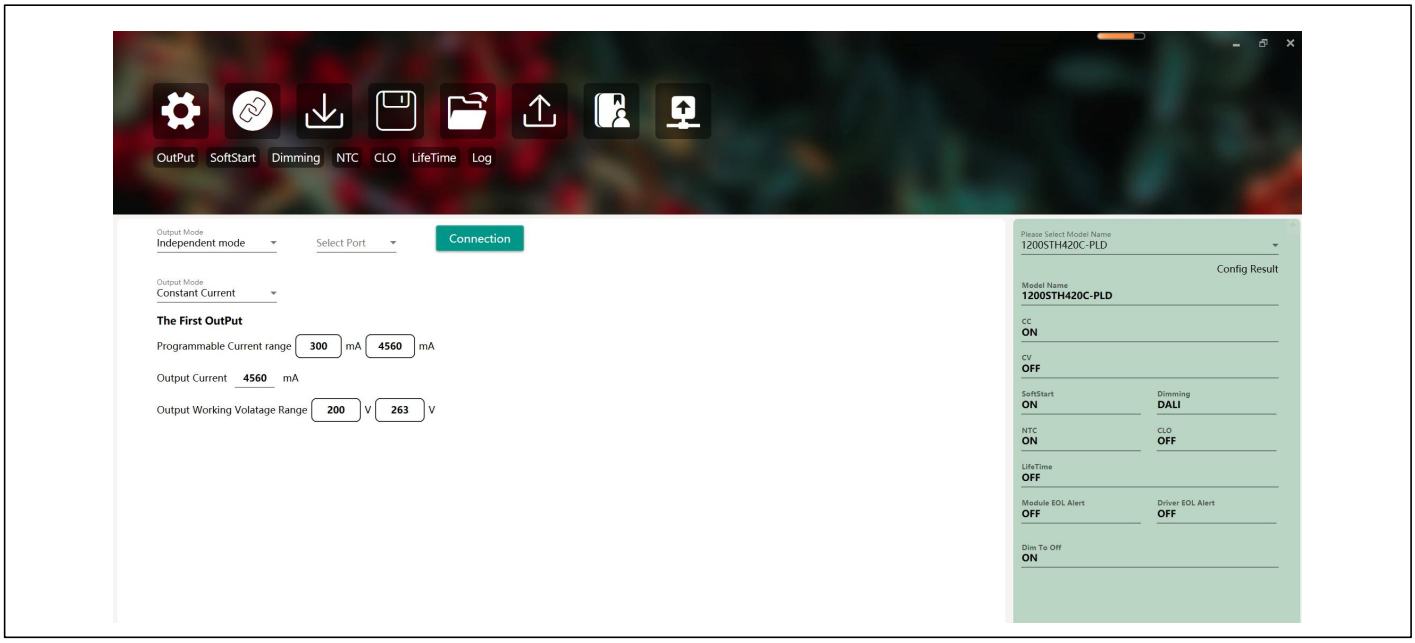
TBD

## Package

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

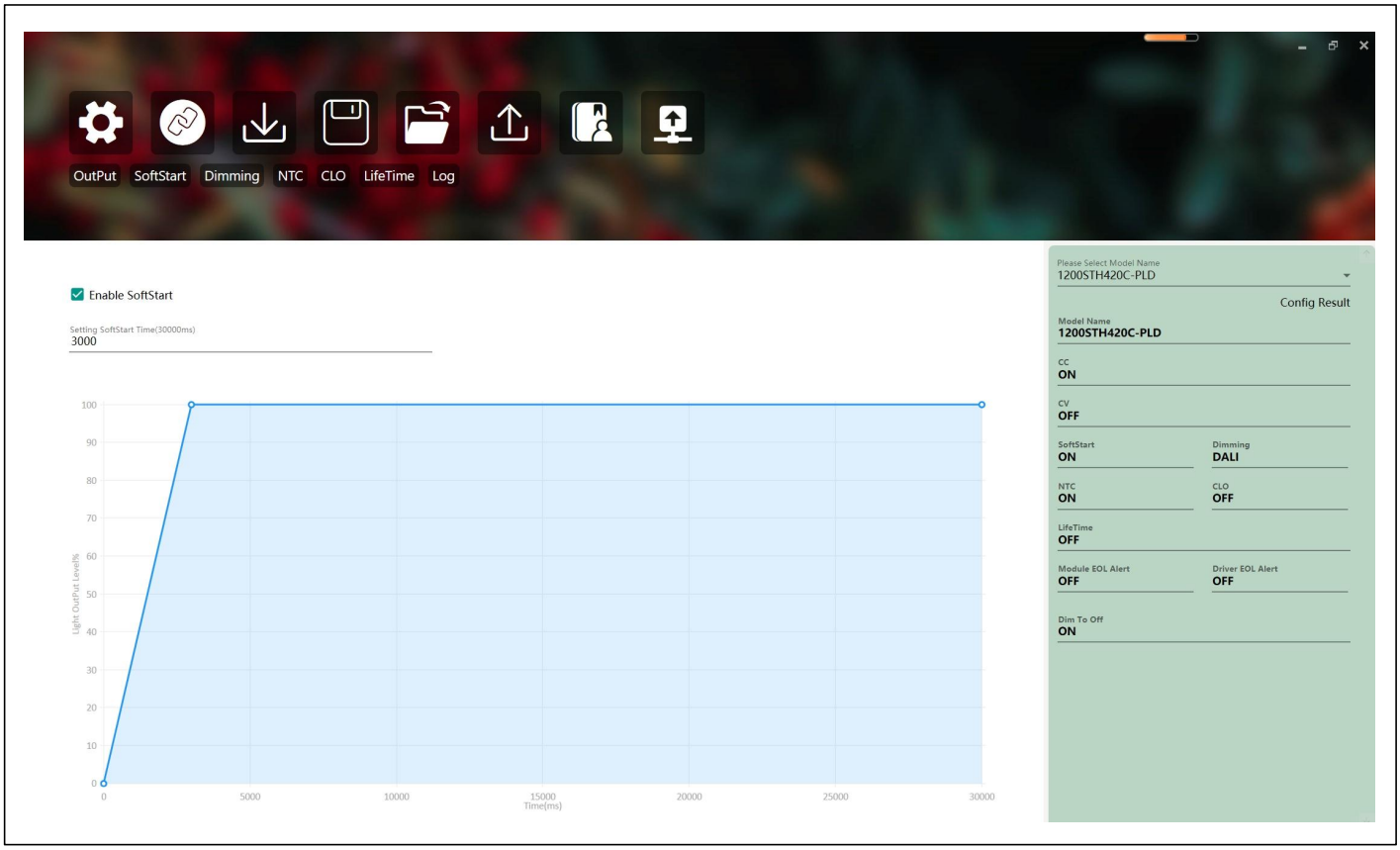
# Description of upper computer software

1.Output mode




2.SoftStart mode

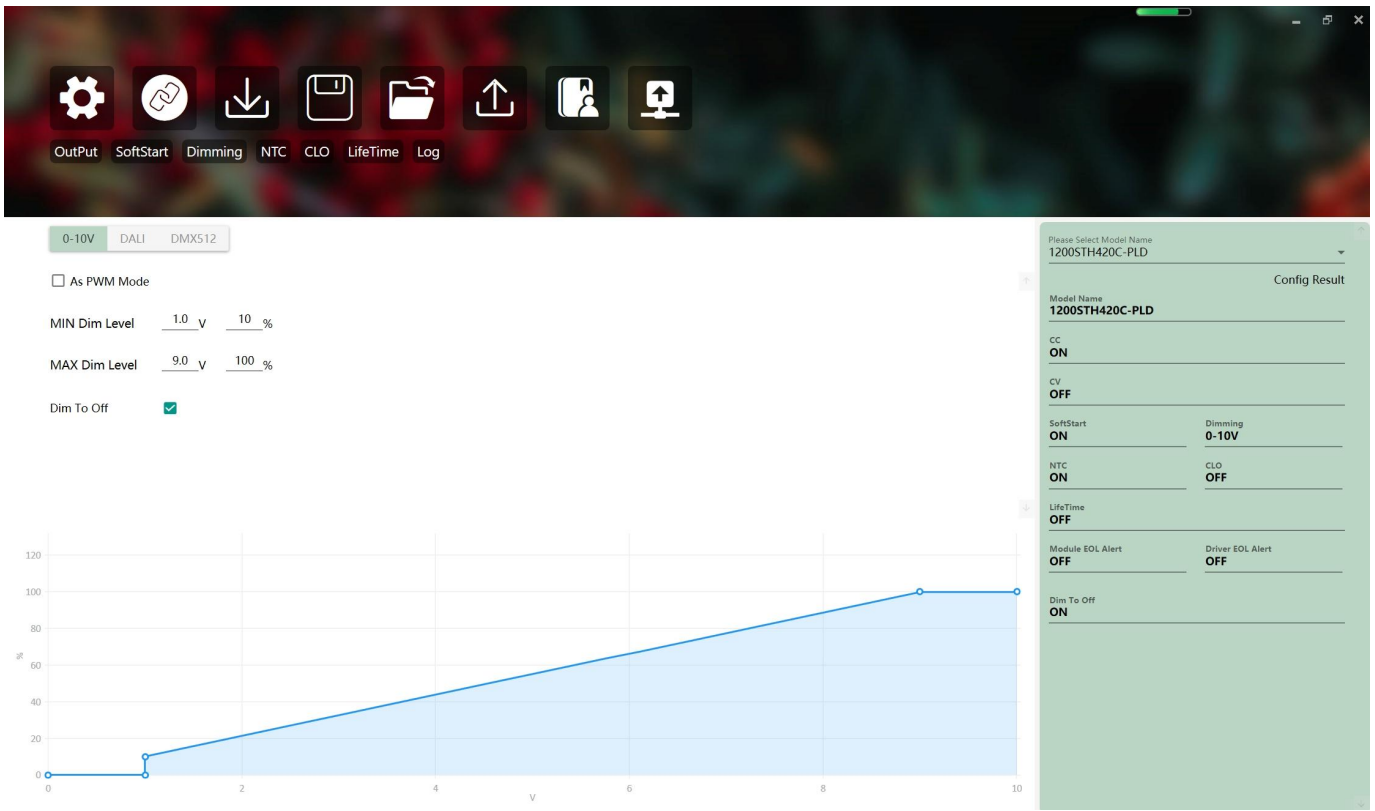
The soft start can be set according to the demand.



3.Dimming mode

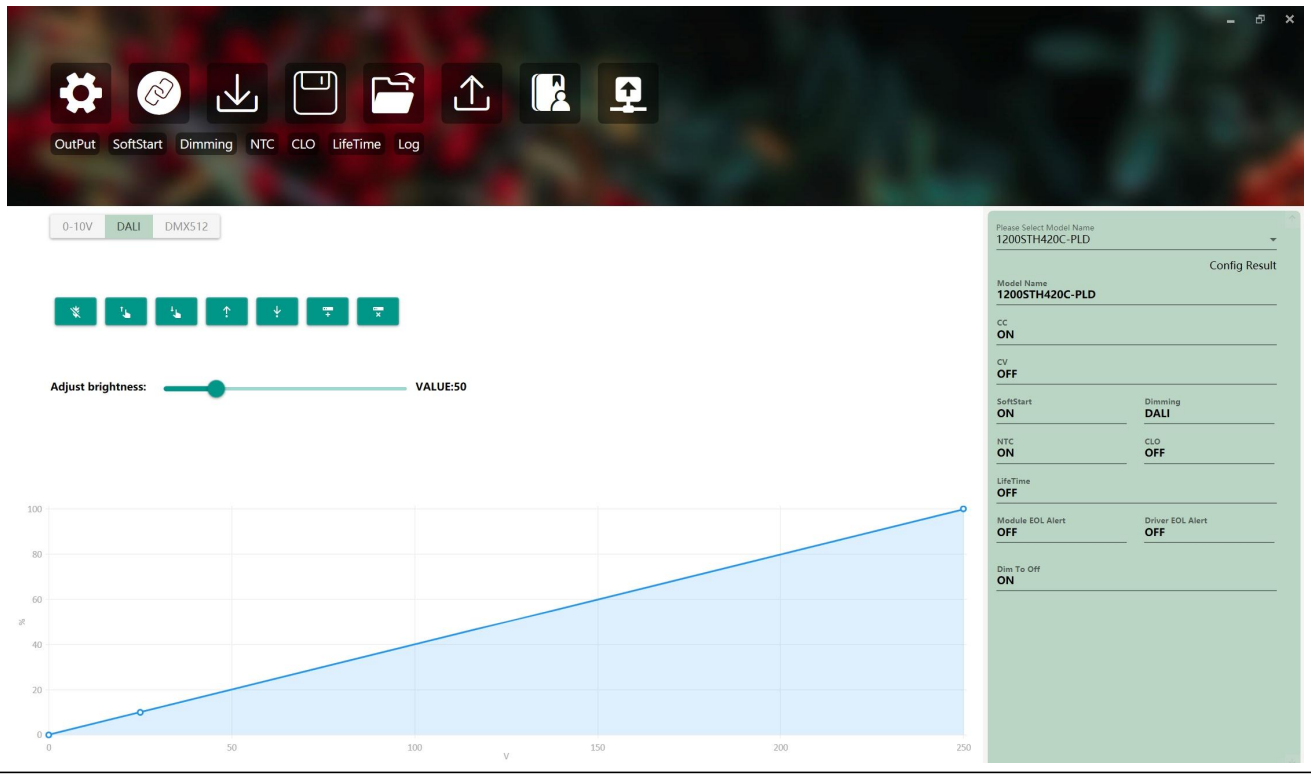
The dimming have 0-10V, DALI and DMX512 modes.

1). 0-10V mode

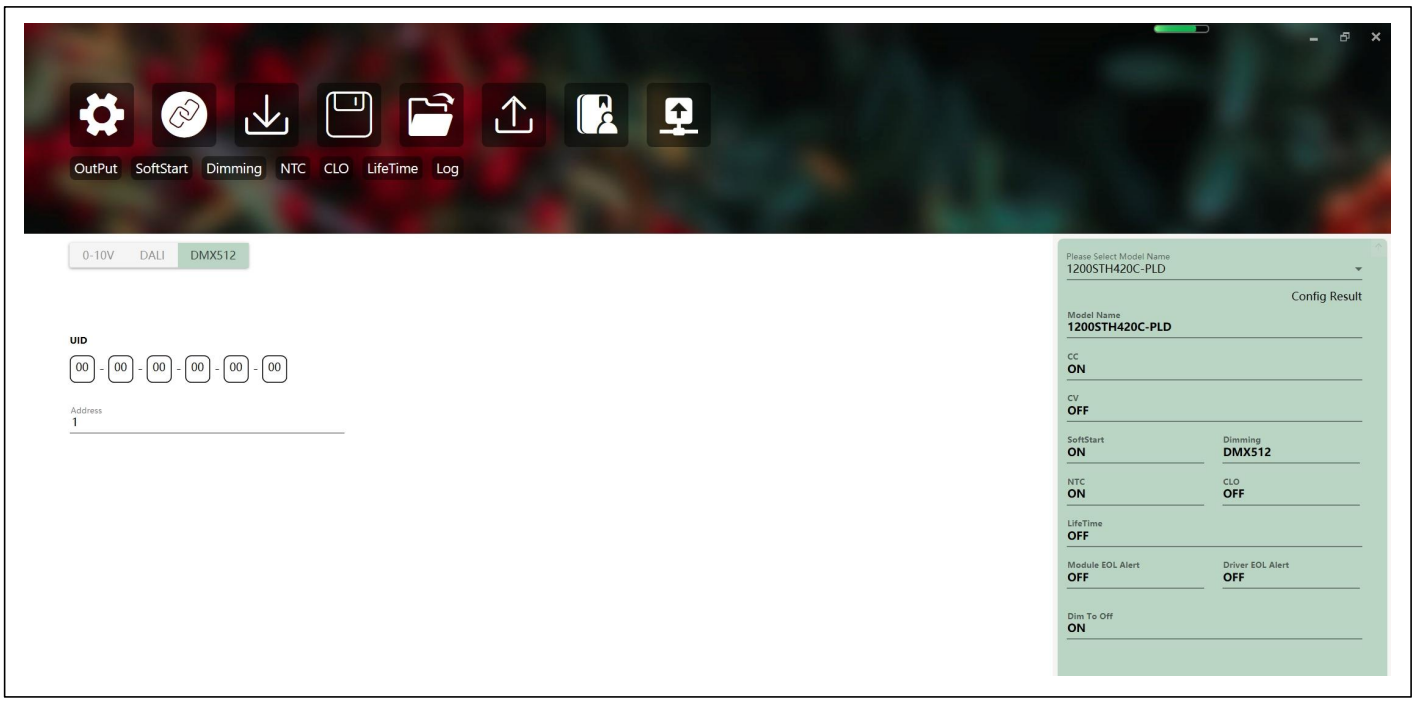



Note:PWM mode is included in 0-10V mode.

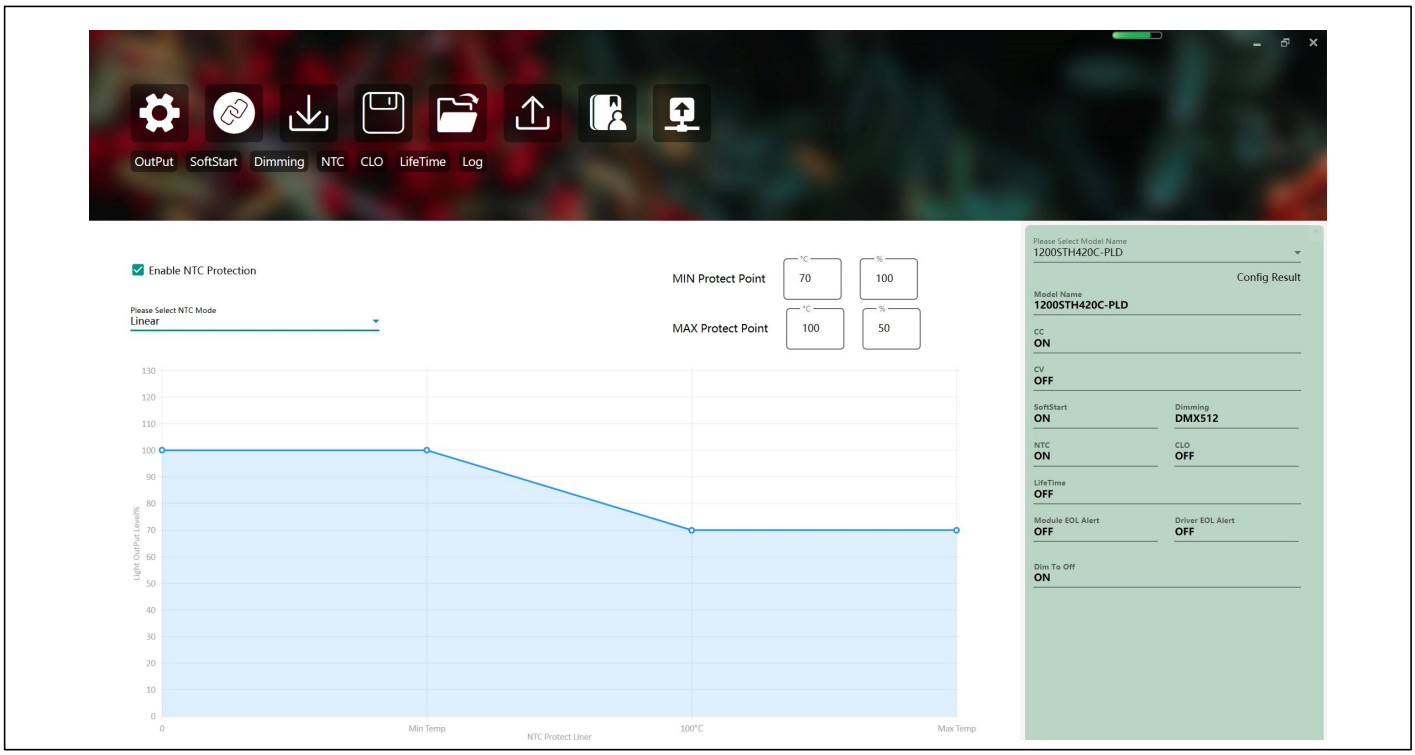
2). DALI mode



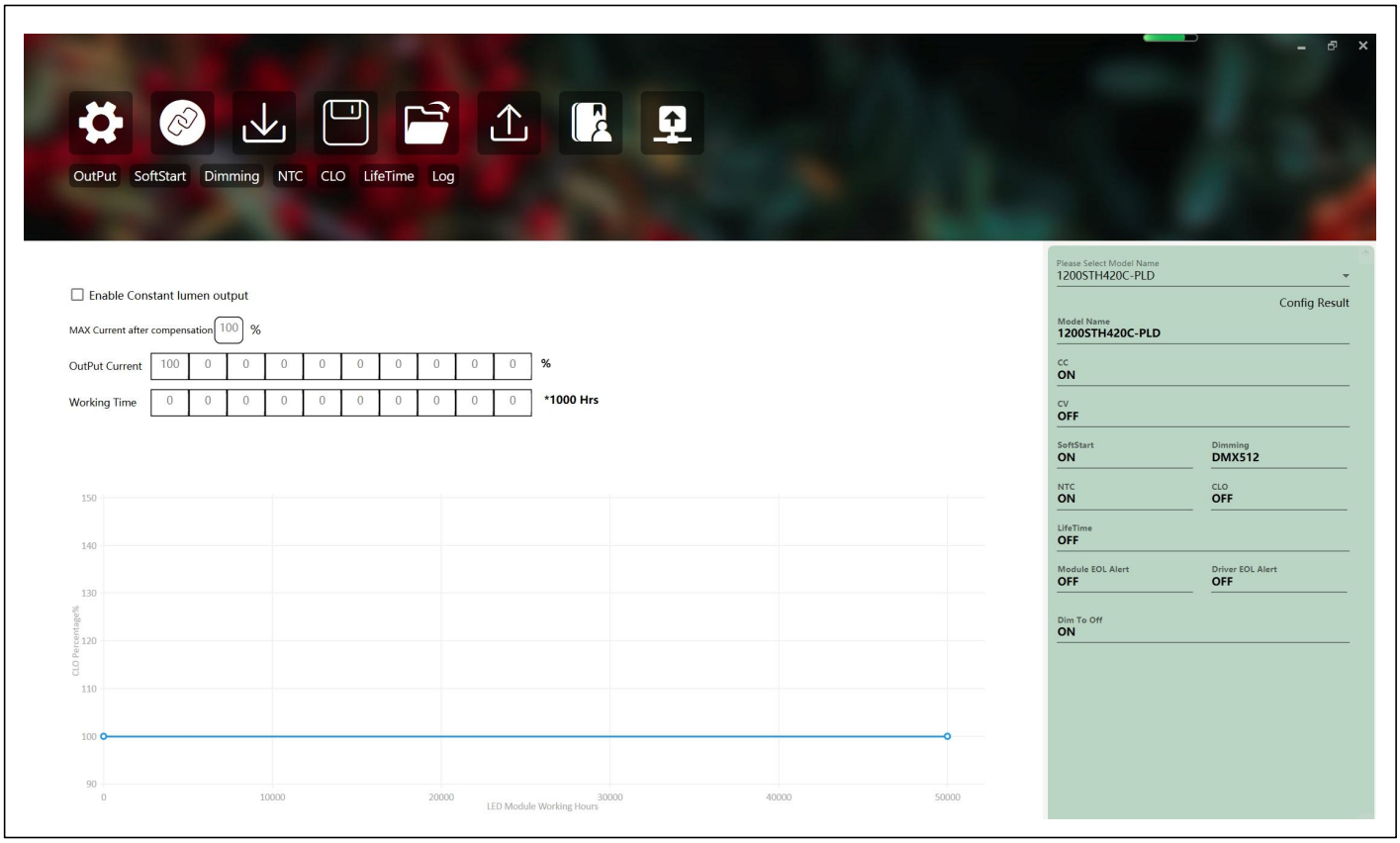
3). DMX512 mode



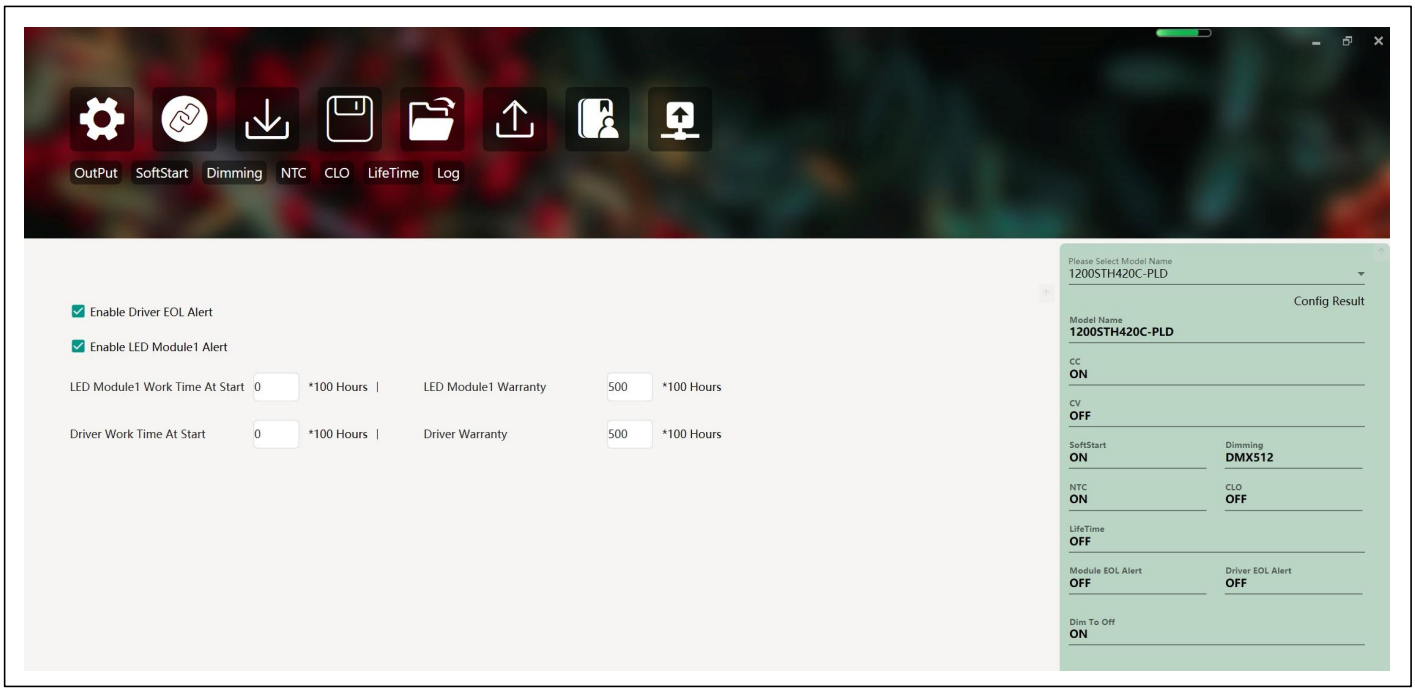

4. NTC mode



5. CLO mode




6.LifeTime mode



# Revision History

| Change Date | Rev. | Description of Change | | |
|---|---|---|---|---|
| | | Item | From | To |
| 2022/6/21 | V1.0 | | | |
| 2023/6/13 | V1.1 | Update Mechanical Drawing | | |
| 2023/10/20 | V1.2 | Add Isolation、Block Diagram、Performance Curve 、 Inrush Current Data、Programming、Dimming Curve、NTC、Strobe function、 Description of upper computer software | | |
| | | Inrush Current | Max：65A | Max：30A |
| | | Input AC Voltage | Min：200Vac | Min：180Vac |
| | | Update machine name | 1200STH420C | 1200STH420C-PLD |
| | | Standby power | Max：1A | Max：0.5A |
| | | Update Input AC Current | | |
| | | | | |