

This specification describes the performance characteristics of a 800W/4A 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.



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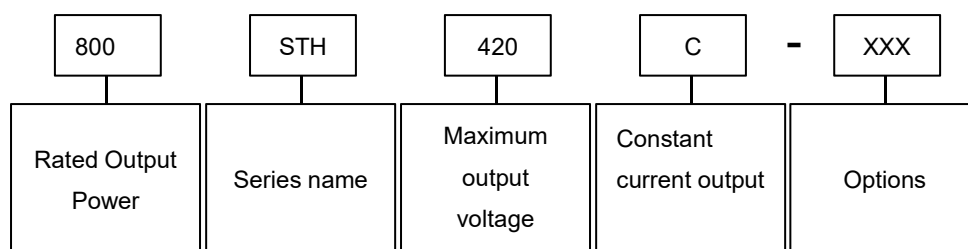
Features

- 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(typical) @400VAC
800STH420C-PLD	CH1	800W	1.6-4A	200-420V	96%

Input Specifications

Parameter	Min.	Typ.	Max.	Notes
Input AC Voltage	180Vac	-	528Vac	
Input Frequency	47 Hz	50/60 Hz	63 Hz	
Leakage Current	-	-	0.75 mA	At 277Vac / 60Hz input , grounding effectively
Input AC Current	-	1.9A	-	Measured at full load and 480 Vac input.
	-	3.8A	-	Measured at full load and 230 Vac input.
	-	4.5A	-	Measured at full load and 200 Vac input.
Inrush Current	-	-	35A	At 277Vac input, 25°C cold start.
PF	0.95	-	-	At 277Vac, 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 25°C and full load condition
Total Output Current Ripple (pk-pk)	-	-	10%Io max	At 25°C and full load condition, ≤200Hz BW
Startup Overshoot Current	-	-	10%Io max	At 25°C and full load condition
Line Regulation	-	-	±3%	At 25°C and full load condition
Load Regulation	-	-	±3%	At 25°C condition
Turn-on Delay Time	-	-	1.5 s	Measured at 200/277/456Vac input.
Temperature Coefficient of Io 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%
SCP				Shut down and latch
Auxiliary Output Voltage	11V	13.5V	16V	
Auxiliary Output Current	0 mA	-	100mA	Return terminal is "0-10V(-)"

General Specifications

Parameter	Min.	Typ.	Max.	Notes
Standby power	-	-	0.8W	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				
Inches (L × W × H)	16×5.92×3.09			
Millimeters (L × W × H)	406.4×150.4×78.5			
Net Weight/pcs	-	4.05kg	-	

Dimming Specifications

Dimming	Explain
DALI2.0	Part 101/102/207
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%	-	100%	

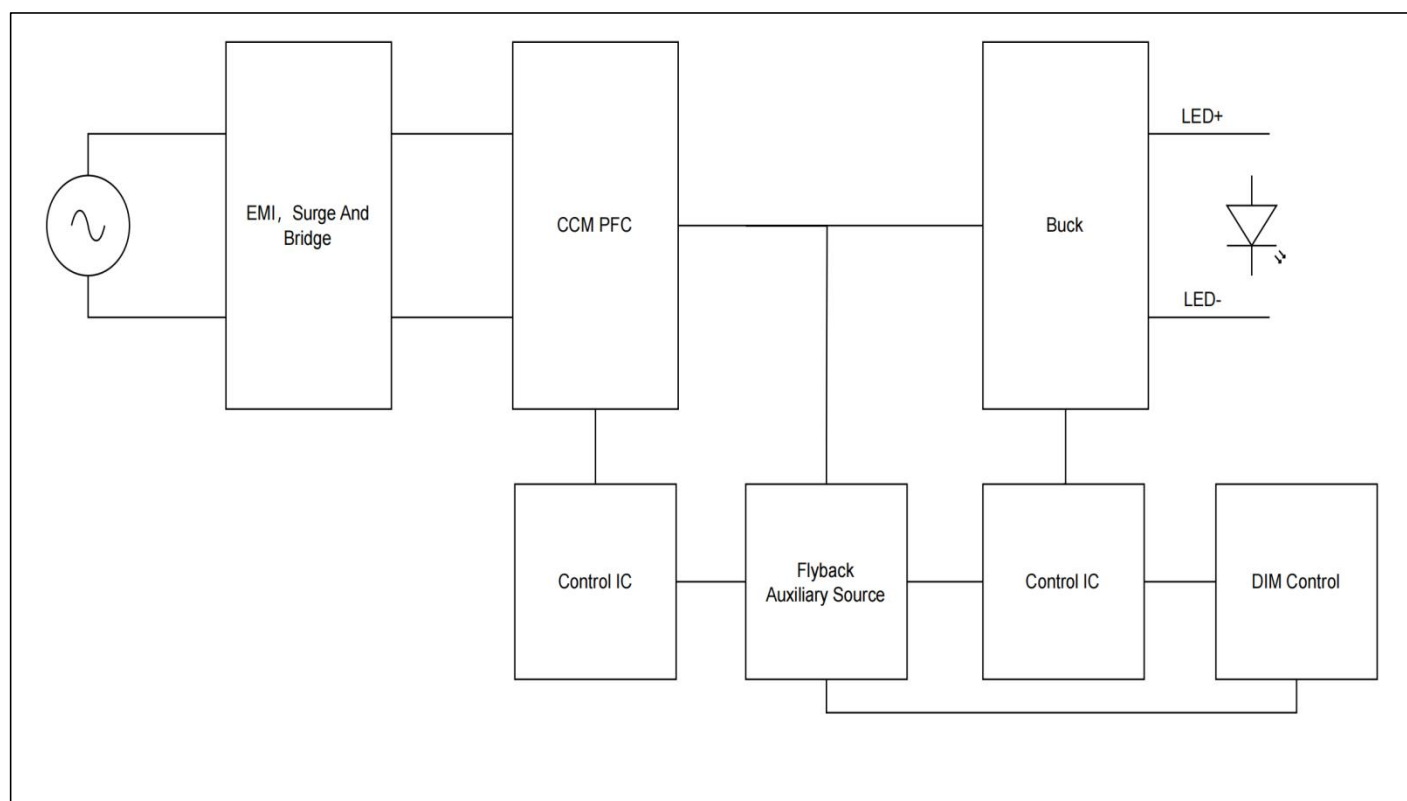
Safety & EMC Compliance

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.
	Secondary to Earth: 500Vac 10mA max.
Insulation Resistance	50Mohm min.@ primary to secondary add 500Vdc test voltage
Grounded Resistance	0.1 Ω max. @ 25A, 1 minute
EMS Standards	Notes
EN 61000-4-2	Electrostatic Discharge (ESD): 8 kV air discharge, 4 kV contact discharge, criteria A
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 A
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 A
EN 61000-4-11	Voltage Dips,criteria C
EN 61547	Electromagnetic Immunity Requirements Applies To Lighting Equipment

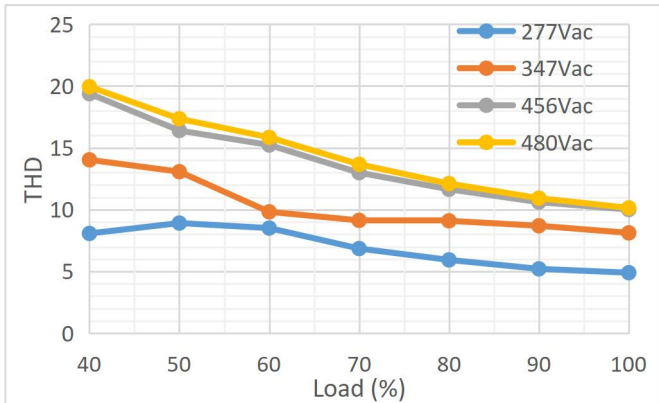
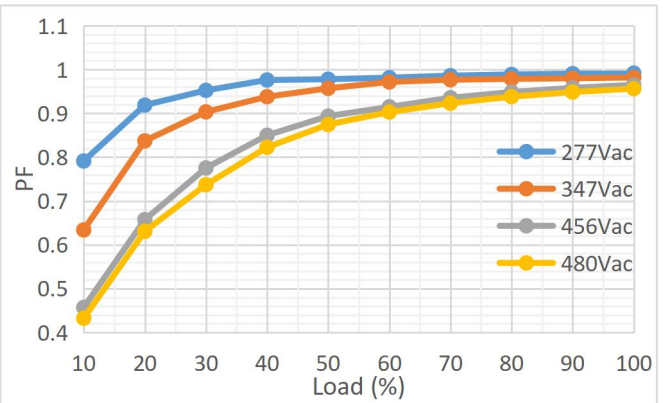
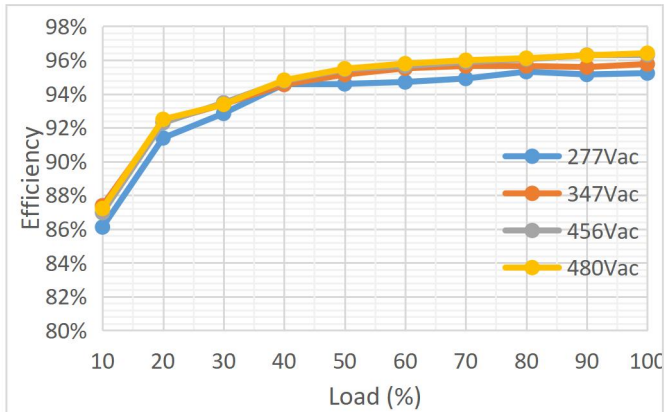
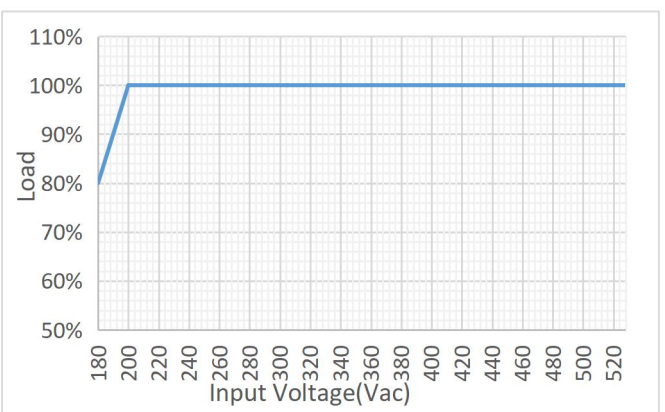
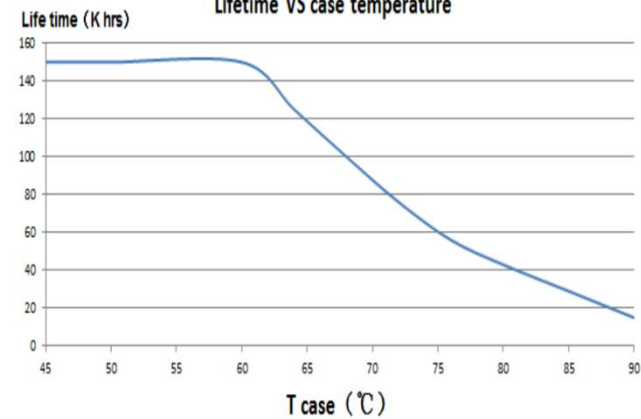
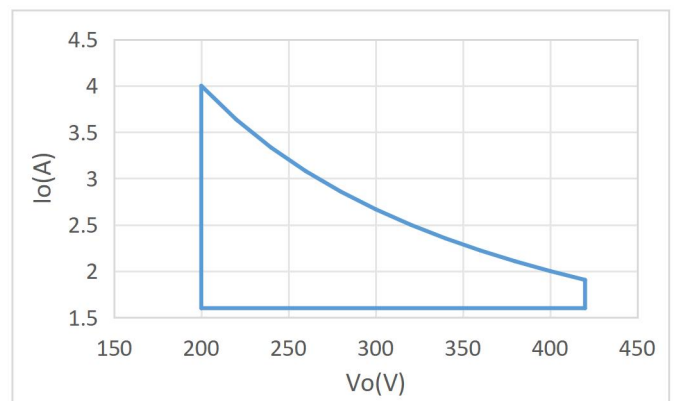
Isolation

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

Total Harmonics Vs Different Loads

Power Factor Vs Different Loads

Efficiency Vs Different Loads

Input Voltage Derating Curve

Lifetime VS case temperature

I/V Operating Area


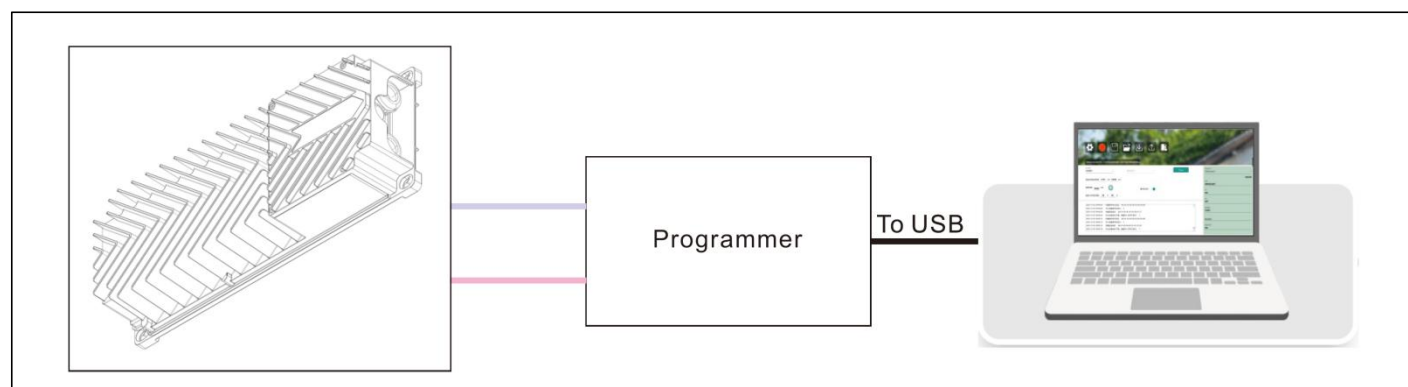
Inrush Current Data

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											
			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	15.2	0.27	1	2	3	3	2	4	5	6	2	4	5	6
380	20	0.28	1	1	2	3	2	3	4	5	3	5	7	9
480	28	0.29	1	1	1	2	1	2	2	3	2	4	5	7

Vin(Vac)	Fin(Hz)	I inrush(A)	T inrush(ms)
277	60	15.2	0.27
380	50	20	0.28
480	63	28	0.29

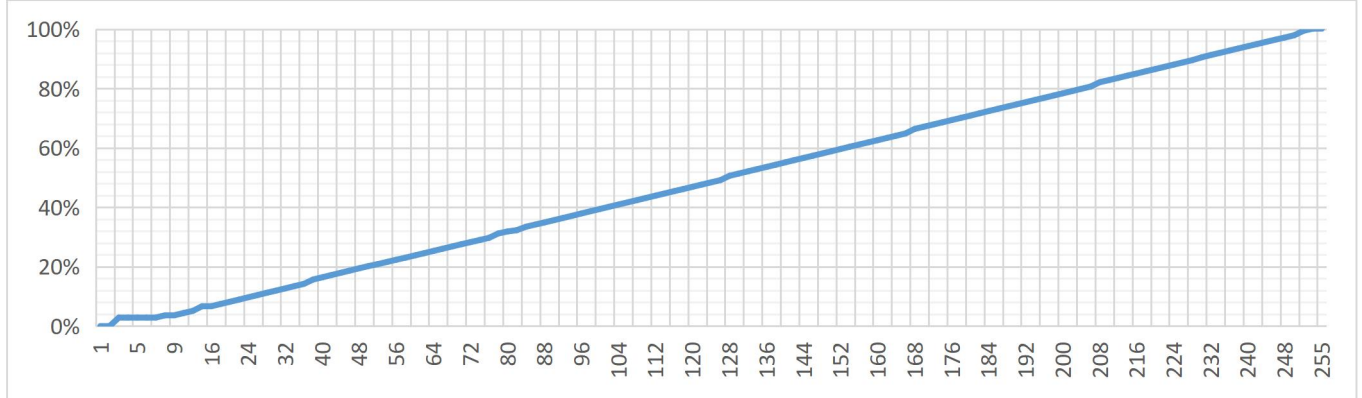
Programming



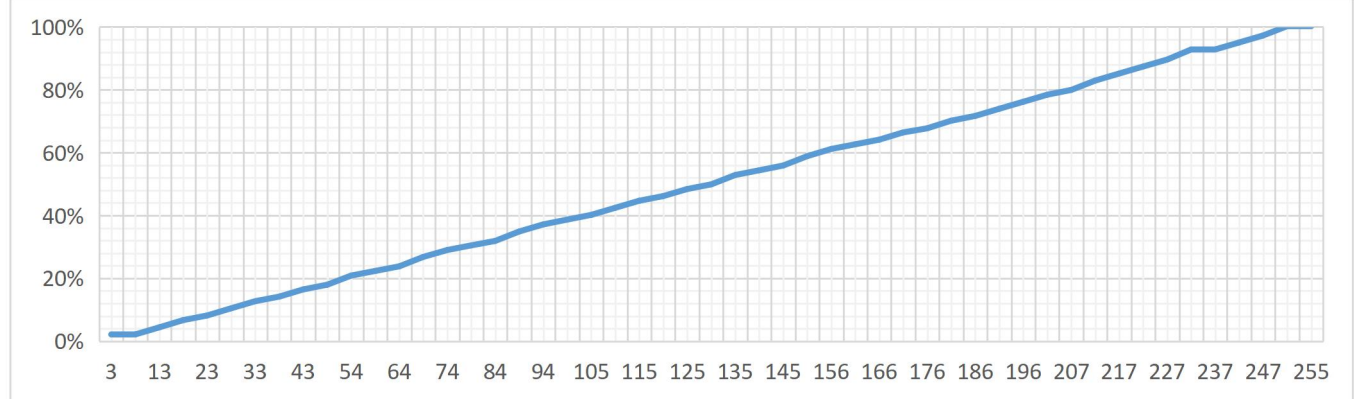
Note: Contact business personnel to take the software installation package.

Dimming Curve

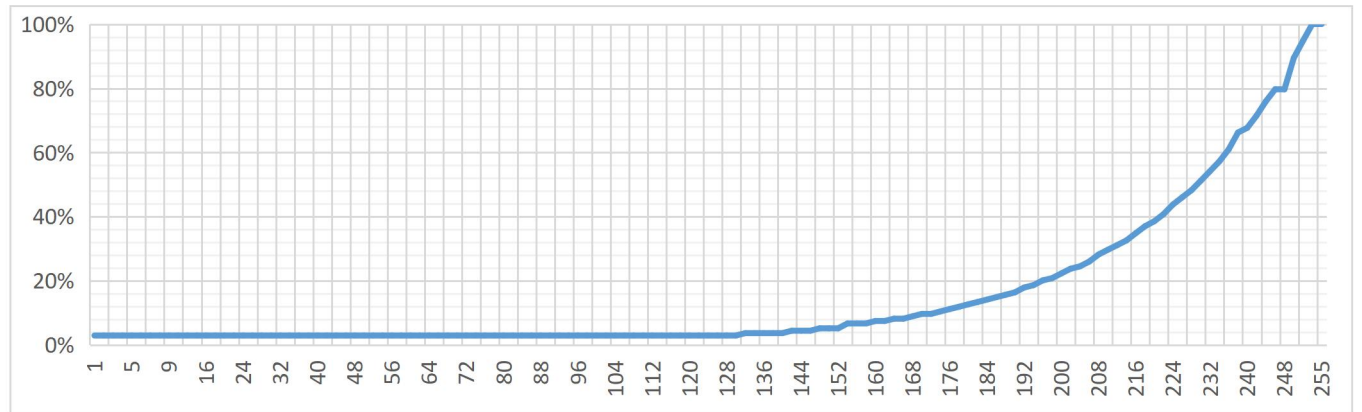
DMX Dimming Curve



DALI Linear Dimming Curve

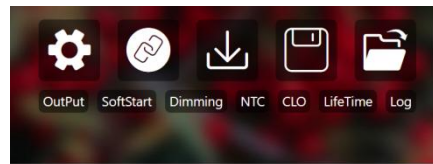


DALI Logarithm Dimming Curve



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.

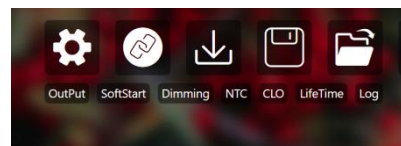

☐ Enable NTC Protection

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.

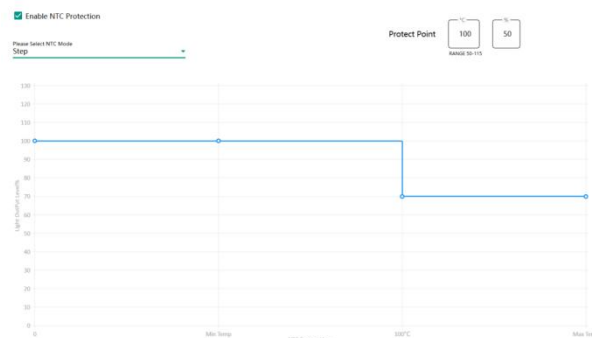

☒ Enable NTC Protection

Prot

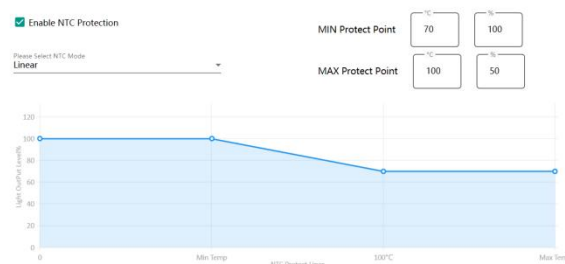
Please Select NTC Mode

Step
Linear

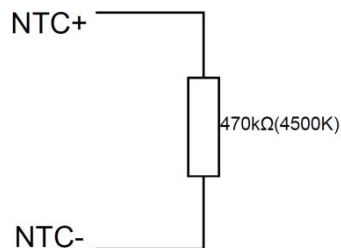
When setting step protection, it will immediately derate to the set ratio while reaching to the designed temperature. As can be seen from the setting interface, both the protection temperature and the derating ratio when reaching the protection temperature can be set in the programmer.



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.



NTC connection mode:



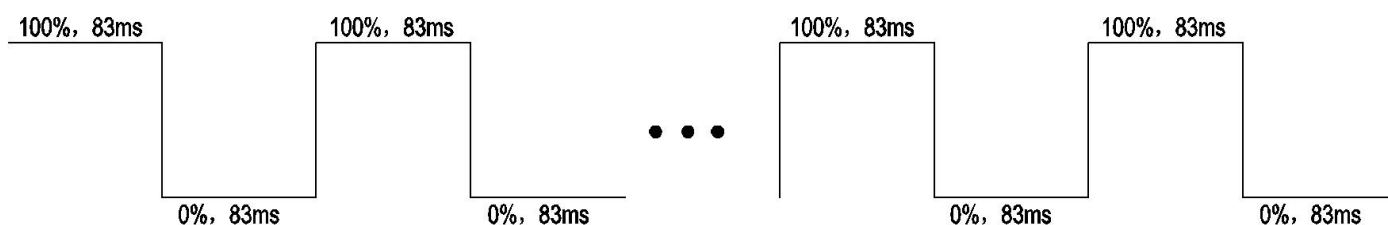
Recommended NTC resistor:

Sunlord P/N: CMF474F4500FB0805

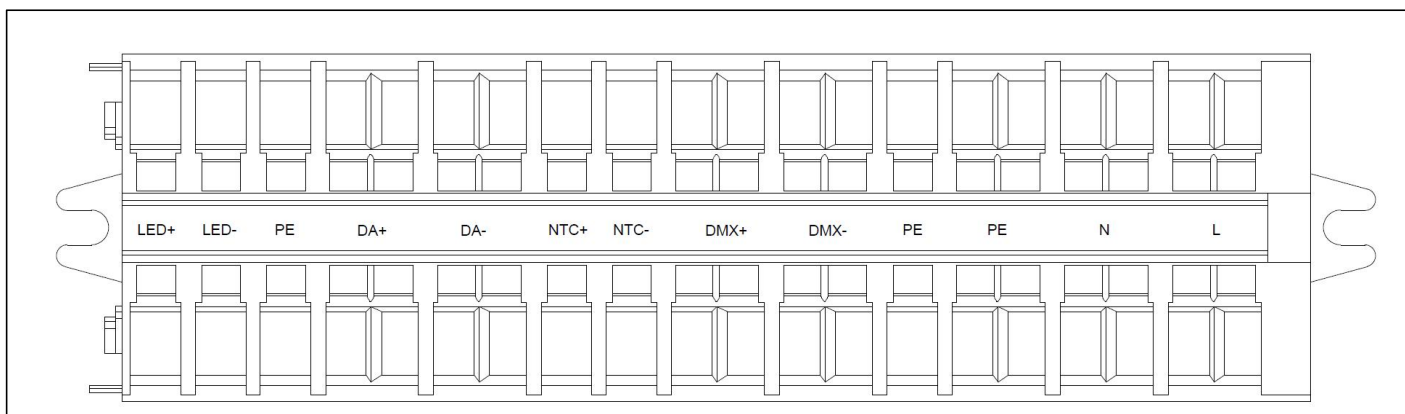
Strobe function

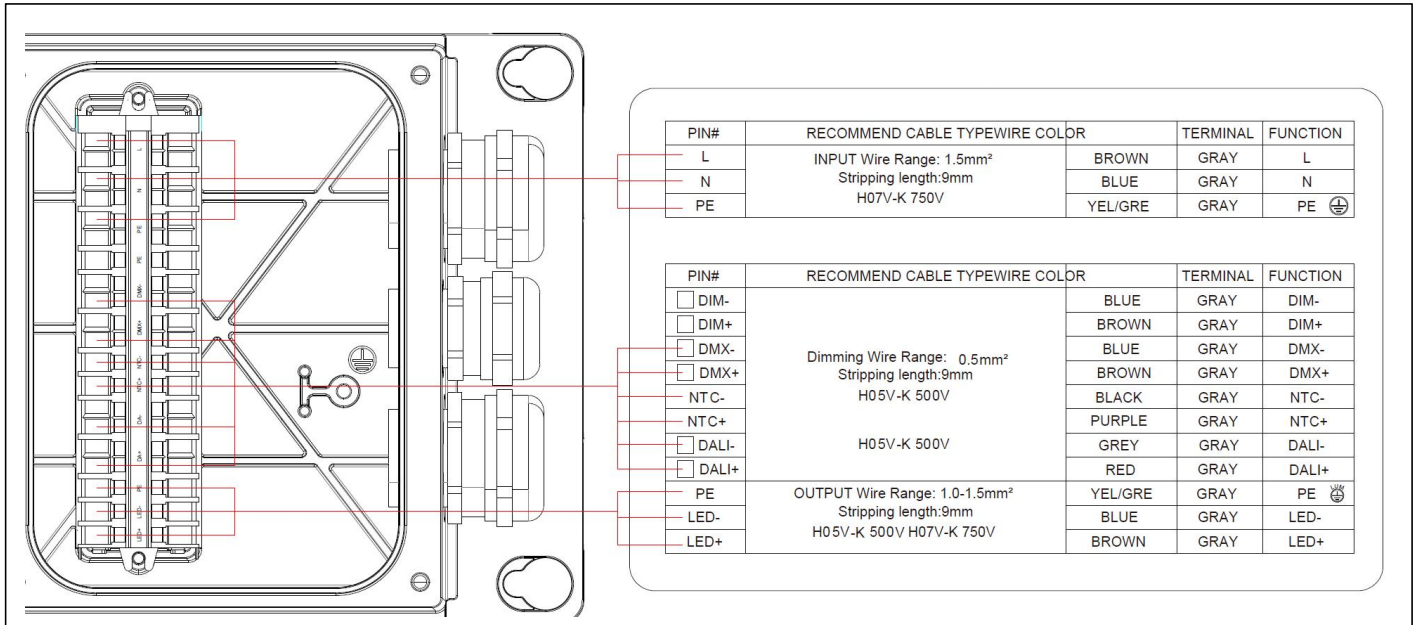
The driver supports strobe function up to 12 fps from 100% dimming to 0% change forth and back.

Less than 7fps is recommended.

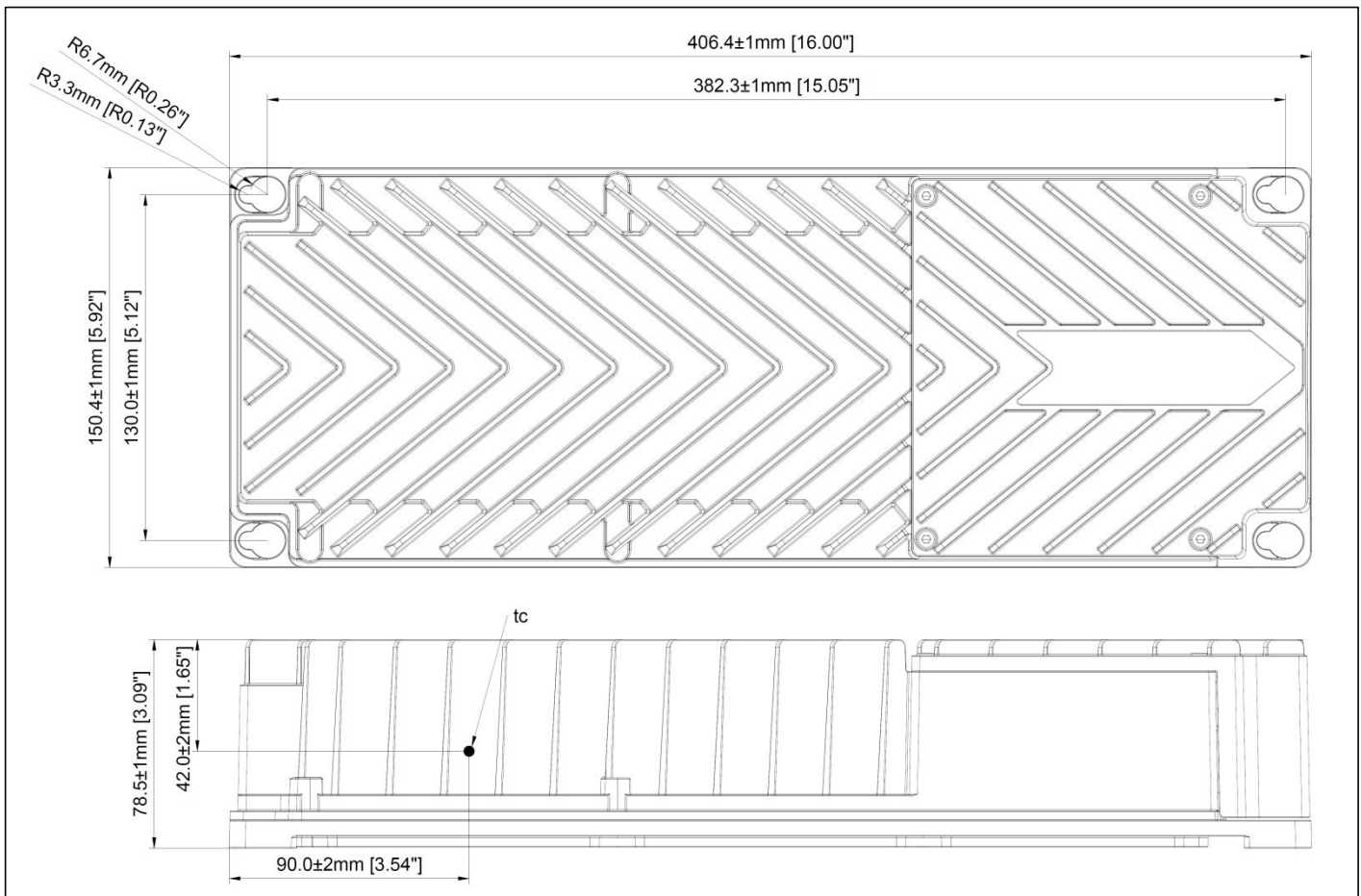


Definition Of Cabling Interface





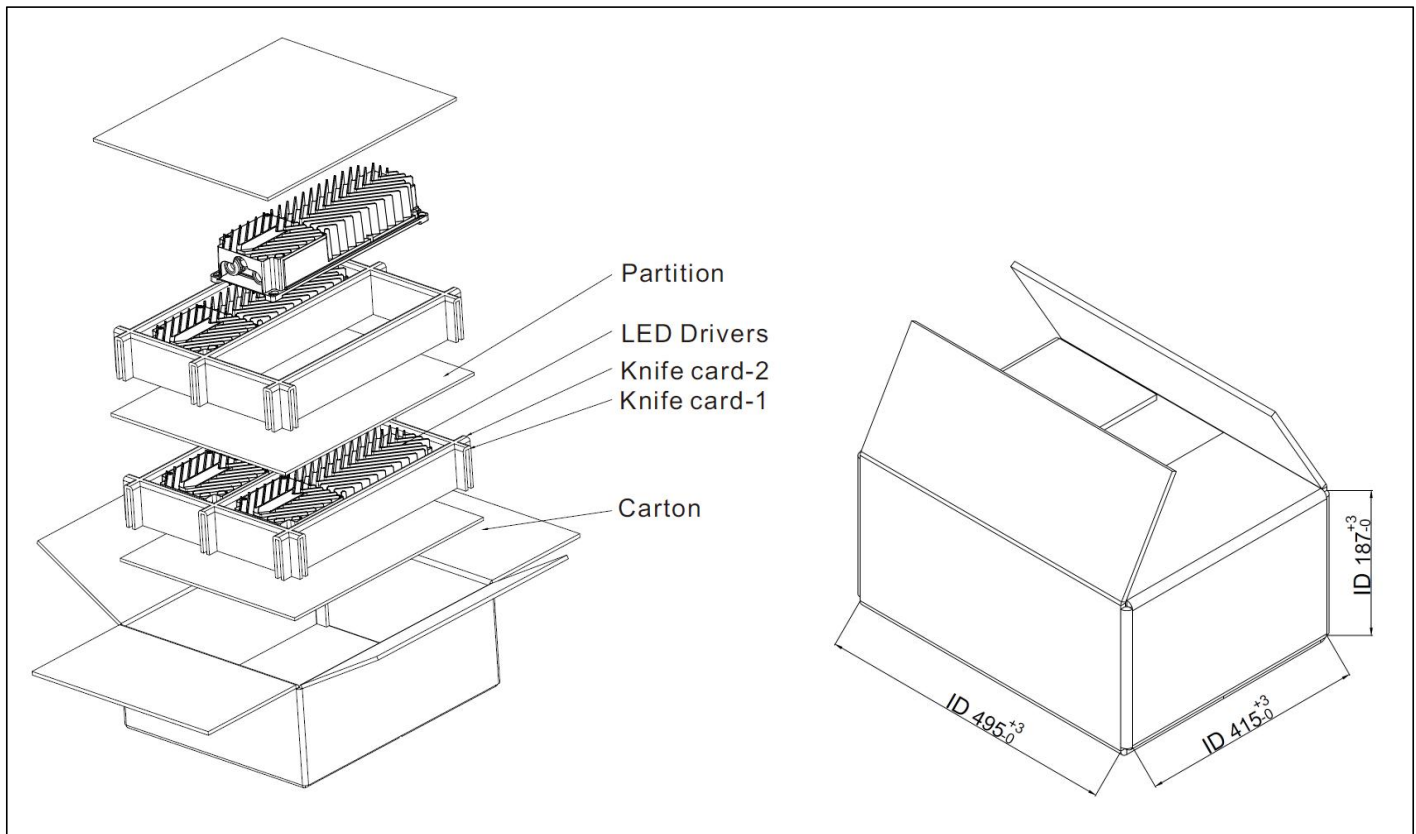
Mechanical Drawing



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

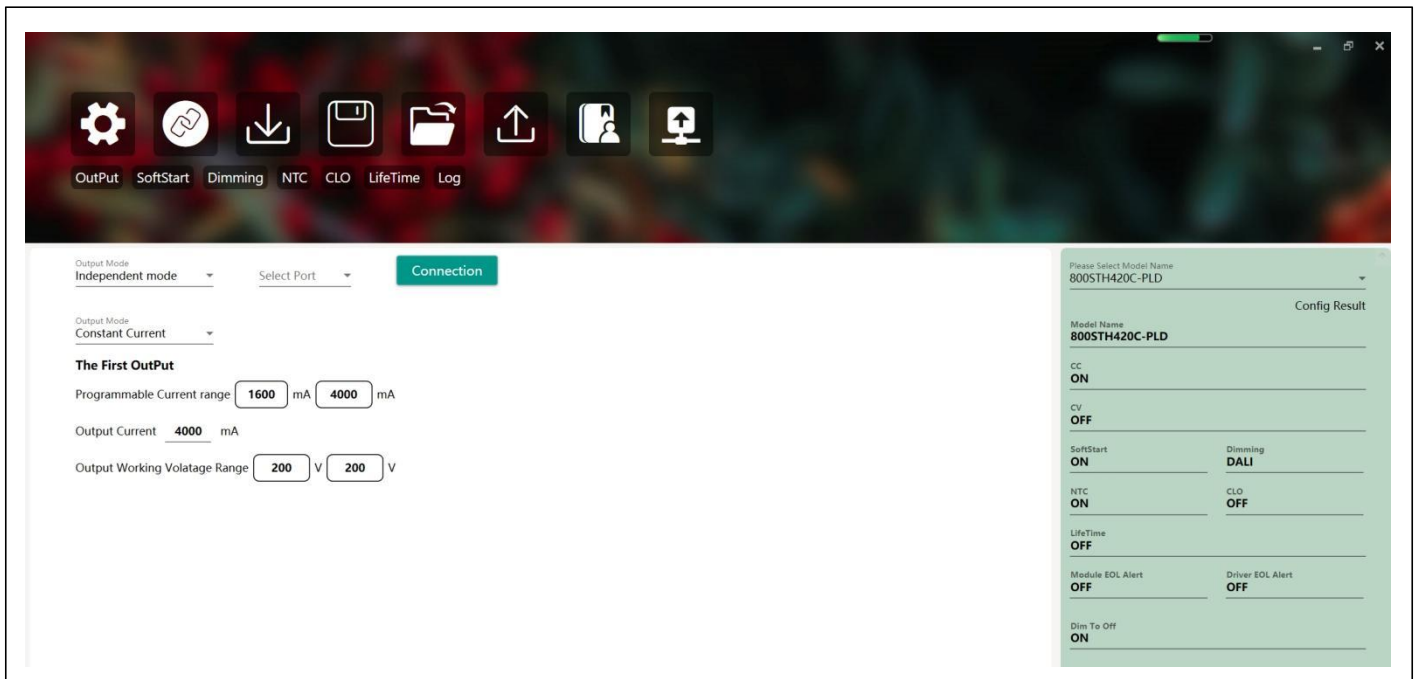
Package

Carton	L×W×H = 495mm× 415mm× 187mm
Knife card-1	4pcs/carton
Knife card-2	6pcs/carton
LED Drivers	4pcs/carton
Net weight	4.05kg/pcs
Gross weight	18kg/carton
Transportation seismic grade	GB/T 4857.7-2005



Description of upper computer software

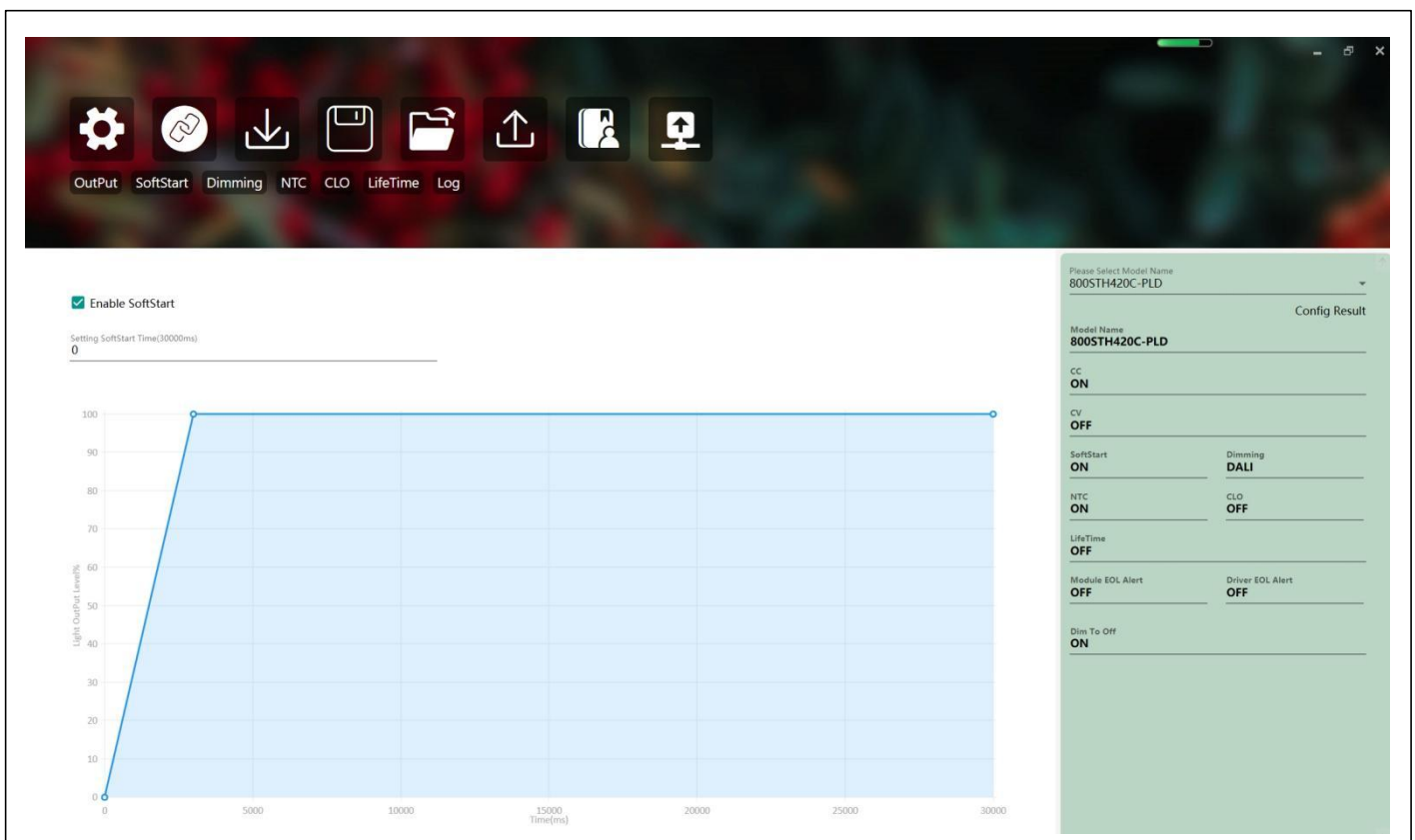
1. Output mode



The screenshot shows the 'Output Mode' configuration window. At the top, there is a navigation bar with icons for OutPut, SoftStart, Dimming, NTC, CLO, LifeTime, and Log. Below the navigation bar, the 'Output Mode' is set to 'Independent mode'. The 'Output Mode' dropdown is set to 'Constant Current'. The 'The First OutPut' section shows 'Programmable Current range' with input fields for 1600 mA and 4000 mA, 'Output Current' set to 4000 mA, and 'Output Working Volatage Range' with input fields for 200 V and 200 V. On the right side, there is a 'Config Result' panel for model 800STH420C-PLD, showing various settings: CC ON, CV OFF, SoftStart ON, Dimming DALI, NTC ON, CLO OFF, LifeTime OFF, Module EOL Alert OFF, Driver EOL Alert OFF, and Dim To Off ON.

2. SoftStart mode

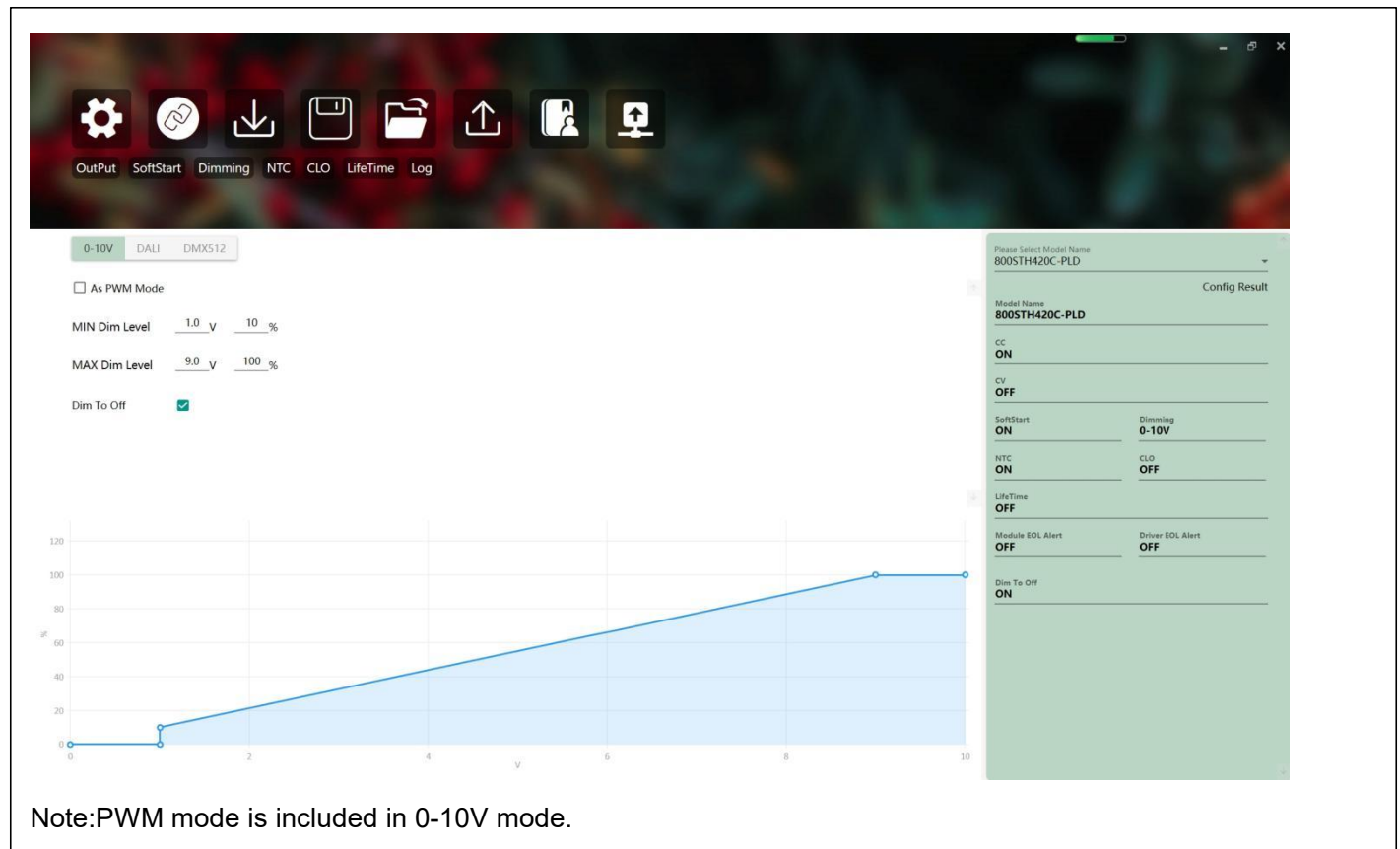
The soft start can be set according to the demand.



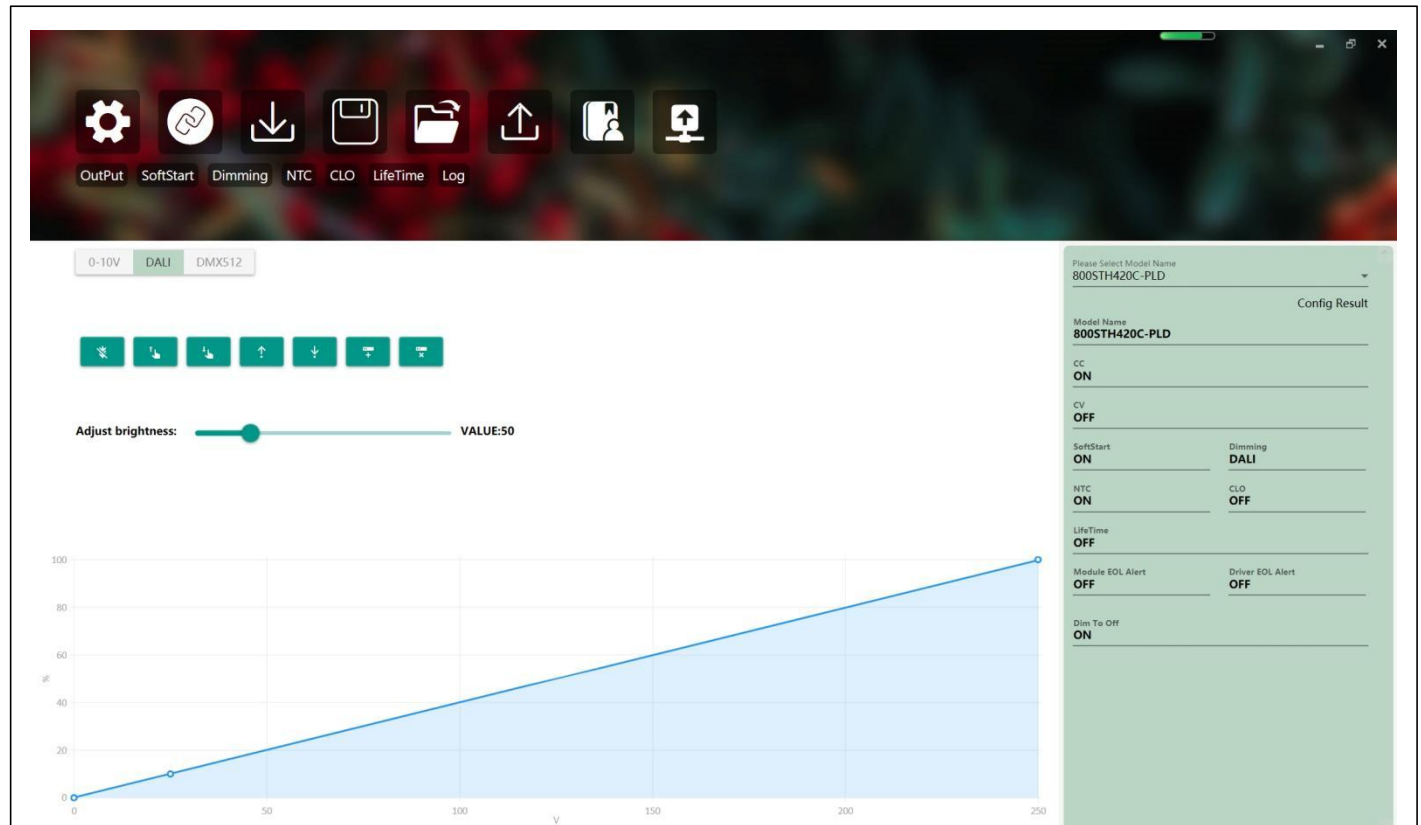
3. Dimming mode

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

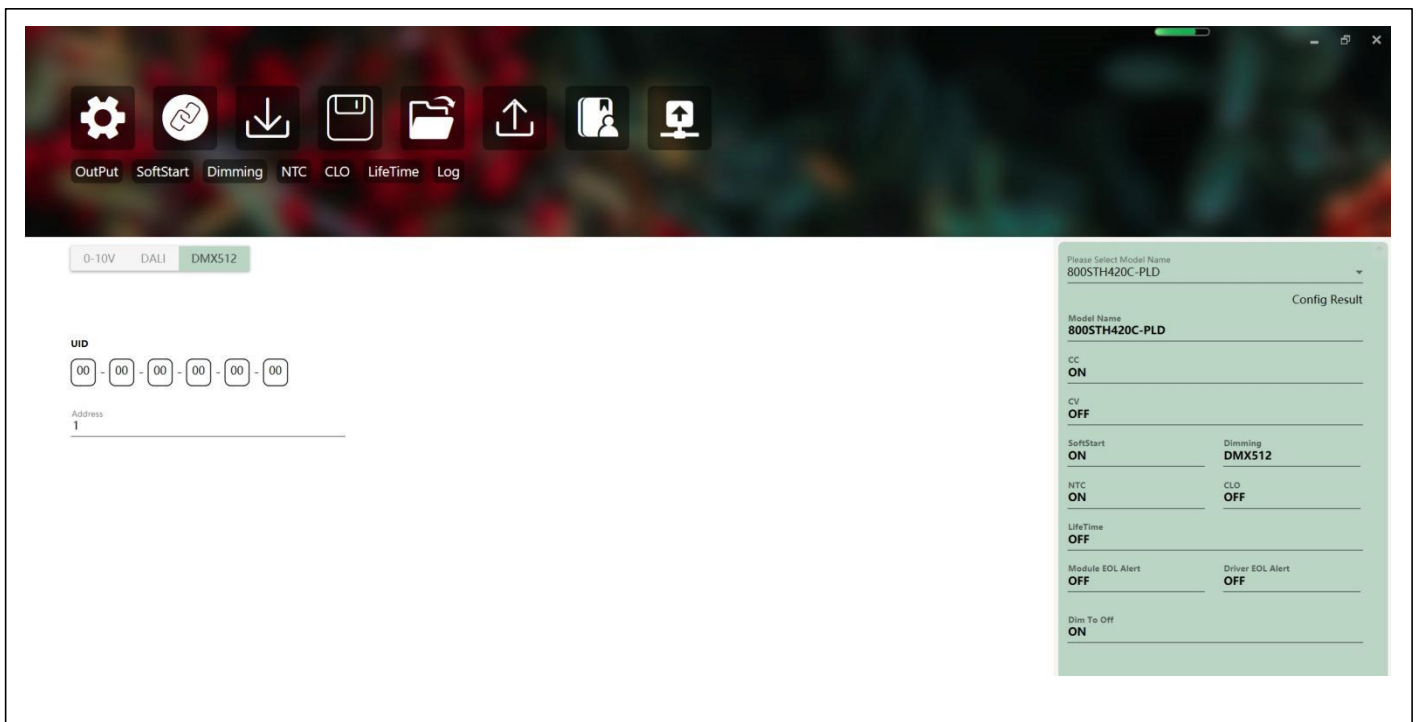
1). 0-10V mode



2). DALI mode



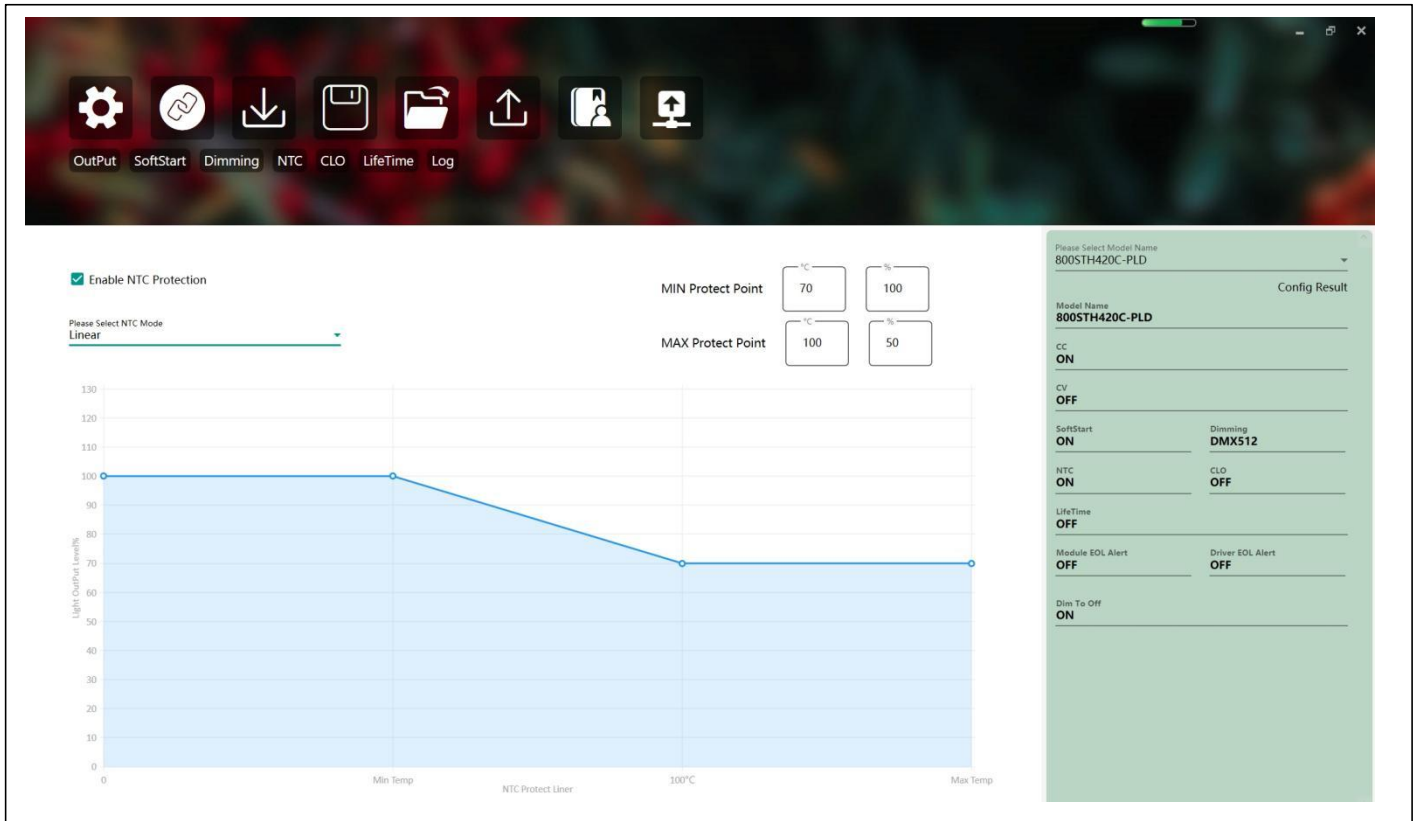
3). DMX512 mode



The screenshot shows the DMX512 mode configuration interface. At the top, there is a navigation bar with icons for OutPut, SoftStart, Dimming, NTC, CLO, LifeTime, and Log. Below this, there are tabs for 0-10V, DALI, and DMX512, with DMX512 being the active tab. The main area displays the UID (00-00-00-00-00-00) and Address (1). On the right, there is a 'Config Result' panel showing the following settings:

Please Select Model Name	
800STH420C-PLD	
Model Name: 800STH420C-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



The screenshot shows the NTC mode configuration interface. At the top, there is a navigation bar with icons for OutPut, SoftStart, Dimming, NTC, CLO, LifeTime, and Log. Below this, there are tabs for 0-10V, DALI, and DMX512, with NTC being the active tab. The main area displays the 'Enable NTC Protection' checkbox (checked) and the 'Please Select NTC Mode' dropdown (Linear). A graph shows the Light Output Level (%) vs. Temperature (°C). The graph has a blue shaded area representing the NTC protection range. The MIN Protect Point is set to 70°C and 100%, and the MAX Protect Point is set to 100°C and 50%. The graph shows a linear decrease in light output from 100% at 70°C to 50% at 100°C, and then a constant level of 50% up to the Max Temp.

MIN Protect Point: 70°C, 100%

MAX Protect Point: 100°C, 50%

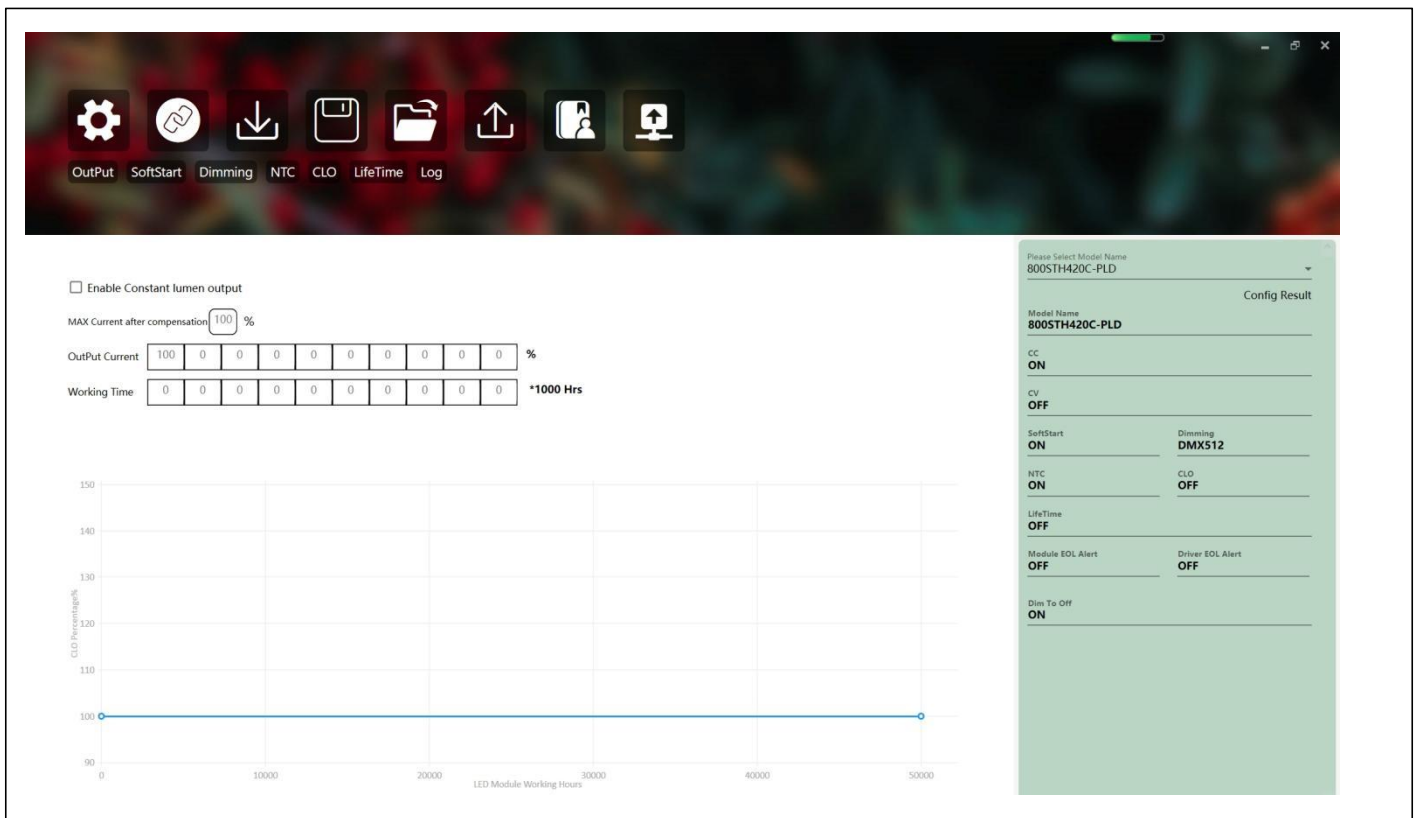
Light Output Level (%) vs. Temperature (°C) graph:

Temperature (°C)	Light Output Level (%)
0	100
Min Temp	100
NTC Protect Linear	100
100°C	50
Max Temp	50

On the right, there is a 'Config Result' panel showing the following settings:

Please Select Model Name	
800STH420C-PLD	
Model Name: 800STH420C-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

5. CLO mode



☐ Enable Constant lumen output

MAX Current after compensation %

OutPut Current %

Working Time *1000 Hrs

LED Powering/Hz

LED Module Working Hours

Please Select Model Name
800STH420C-PLD

Config Result

Model Name
800STH420C-PLD

CC
ON

CV
OFF

SoftStart
ON

Dimming
DMX512

NTC
ON

CLO
OFF

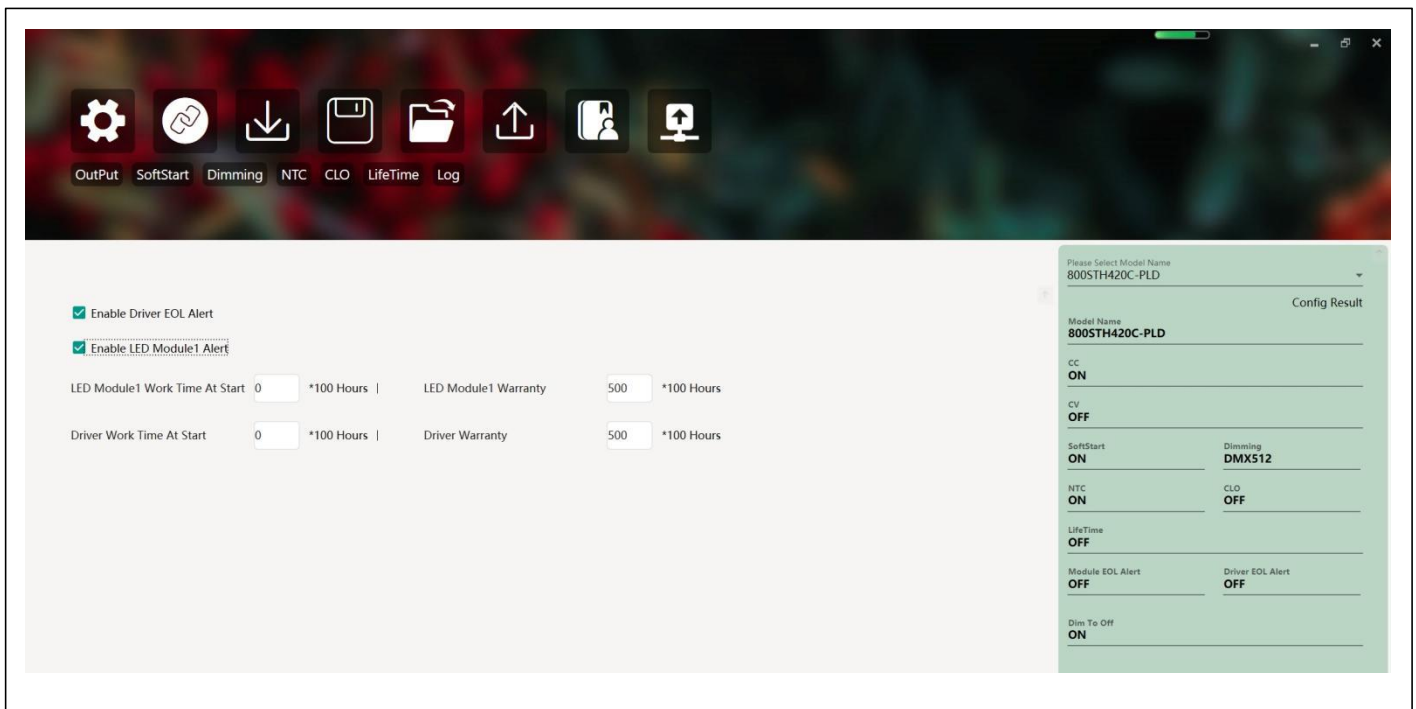
LifeTime
OFF

Module EOL Alert
OFF

Driver EOL Alert
OFF

Dim To Off
ON

6. LifeTime mode



☒ Enable Driver EOL Alert

☒ Enable LED Module1 Alert

LED Module1 Work Time At Start *100 Hours | LED Module1 Warranty *100 Hours

Driver Work Time At Start *100 Hours | Driver Warranty *100 Hours

Please Select Model Name
800STH420C-PLD

Config Result

Model Name
800STH420C-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

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	800STH420C	800STH420C-PLD
		Standby power	Max: 1A	Max: 0.5A
		Update Input AC Current		
2024/4/29	V1.3	Update Mechanical Drawing		
2024/12/2	V1.4	Add Package message/Definition Of Cabling Interface/Net Weight		
		Add Dielectric Strength(Hi-pot)/Insulation Resistance/Grounded Resistance/Net Weight/ENEC&CE/CB		
		EMS		Add criteria
		Standby power	Max: 0.5W	Max: 0.8W
		Add NTC connection mode/Recommended NTC resistor		
		Add I/V Operating Area		
		Update lifetime curve		
		Total Output Current Ripple (pk-pk)	At 25°C and full load condition, 20MHz BW	At 25°C and full load condition, ≤200Hz BW
		Efficiency(typical)@400VAC	97%	96%
		Leakage Current	At 480Vac / 60Hz input , grounding effectively	At 277Vac / 60Hz input , grounding effectively
		Turn-on Delay Time	Measured at 200/400/480Vac input.	Measured at 200/277/456Vac input.
		Output Current Tolerance/Startup Overshoot Current/Line Regulation/Load Regulation		Add 25°C condition
2025/1/6	V1.5	Input Frequency	45Hz	47Hz
		Add Auxiliary Output Voltage/Auxiliary Output Current		
		Input AC Current	Max : 1.8A(Note : Measured at full load and 480 Vac input.)	Typ: 1.9A(Note: Measured at full load and 480 Vac input.)
			Max : 2.1A(Note : Measured at full load and 480 Vac input.)	Typ: 3.8A(Note: Measured at full load and 480 Vac input.)

			Measured at full load and 400 Vac input.)	at full load and 230 Vac input.)
			Max : 4.7A(Note : Measured at full load and 200 Vac input.)	Typ: 4.5A(Note: Measured at full load and 200 Vac input.)
		Inrush Current	Max : 30A(Note : At 400Vac input, 25°C cold start.)	Max: 35A(Note: At 277Vac input, 25°C cold start.)
		PF	Note : At 400Vac, 80%-100% load	Note : At 277Vac, 80%-100% load