

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			

Please return us one copy of the document with your approval signature.

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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.



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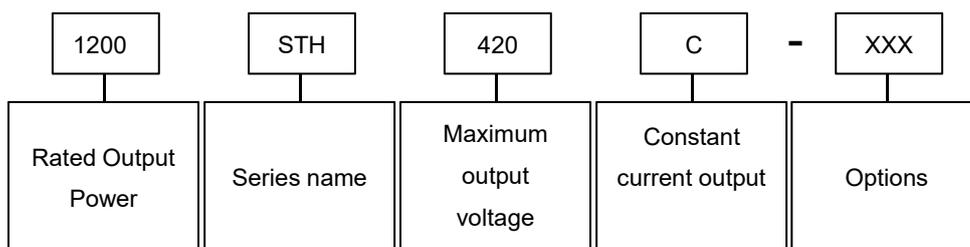
Features

- 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 @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%lo set	-	5%lo set	At full load condition
Total Output Current Ripple (pk-pk)	-	-	10%lo max	At full load condition, 20 MHz BW
Startup Overshoot Current	-	-	10%lo 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 I _o set	-0.03%/°C	-	0.03%/°C	Case temperature = 0°C ~T _c max
OTP T _c	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. T _c curve for the details
Operating Case Temperature T _c	-40°C	-	90°C	
Operating Ambient Temperature T _a	-40°C	-	50°C	
Storage Temperature	-40°C	-	+85°C	Humidity: 5%RH to 90%RH
Dimensions				
Inches (L × W × H)	16×5.92×2.91			
Millimeters (L × W × H)	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%	

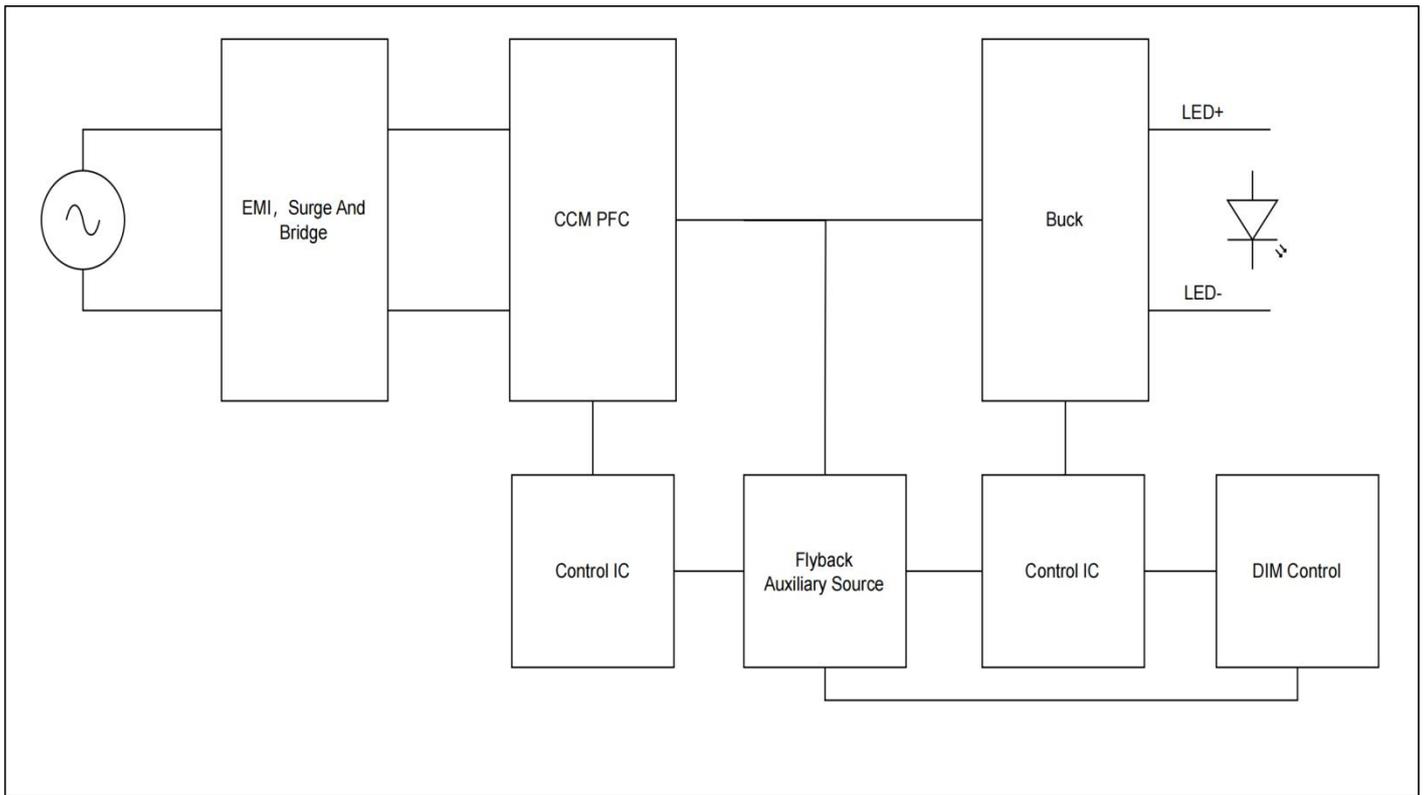
Safety & EMC Compliance

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

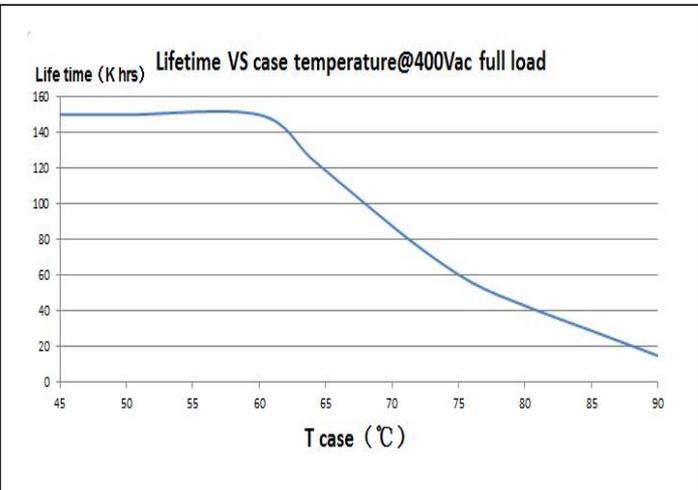
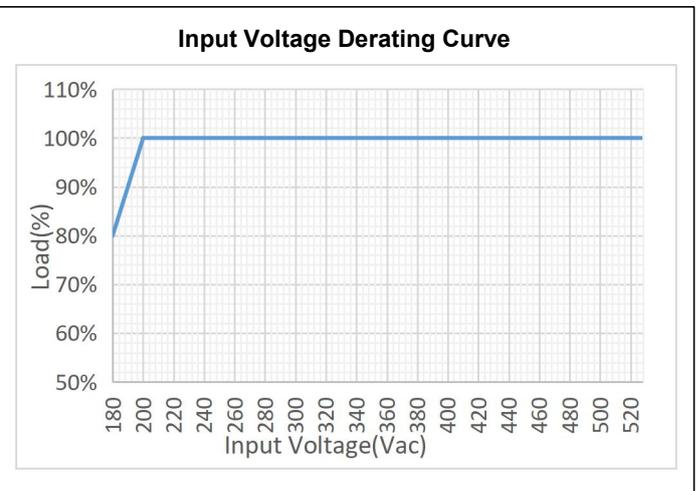
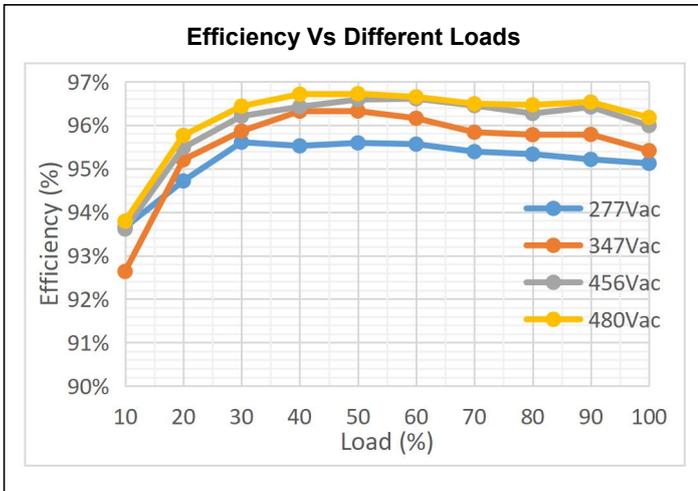
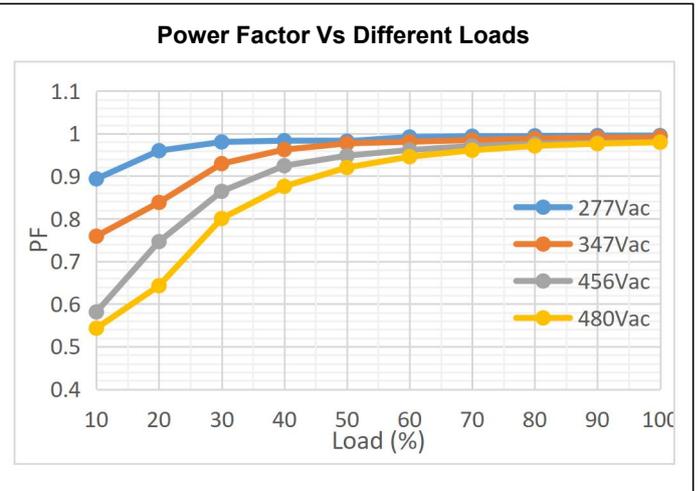
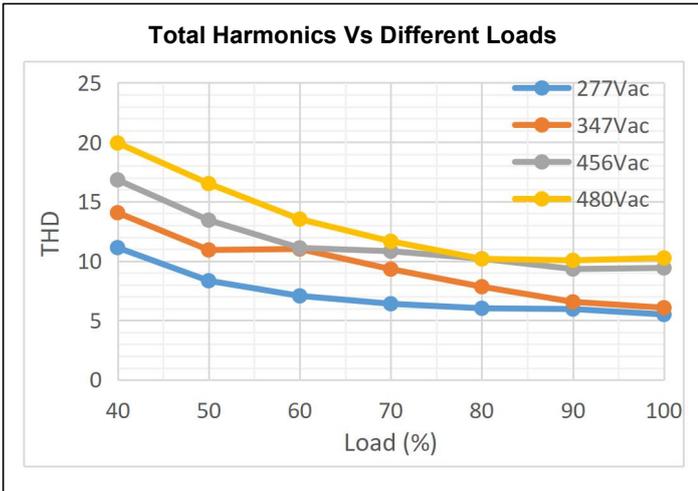
Isolation

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



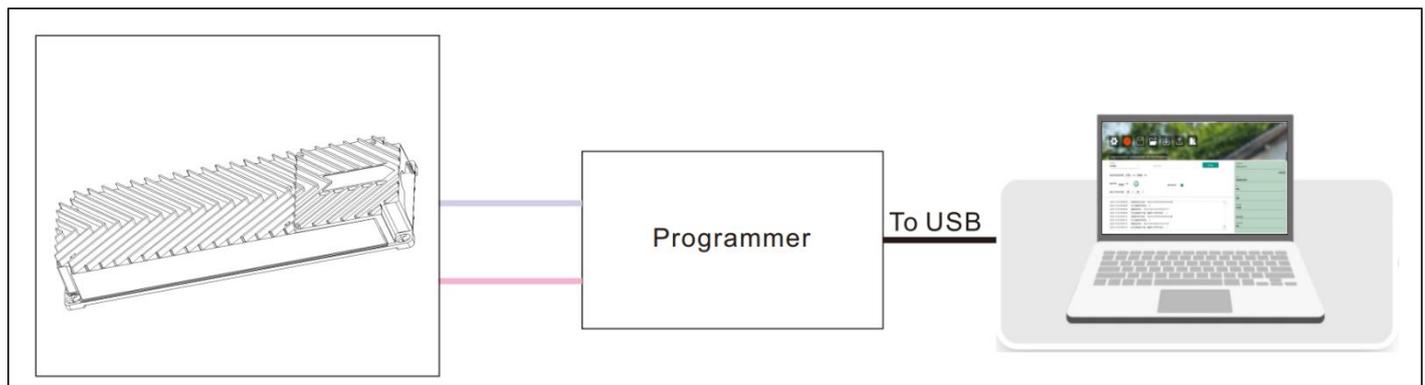
Inrush Current Data

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											
			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

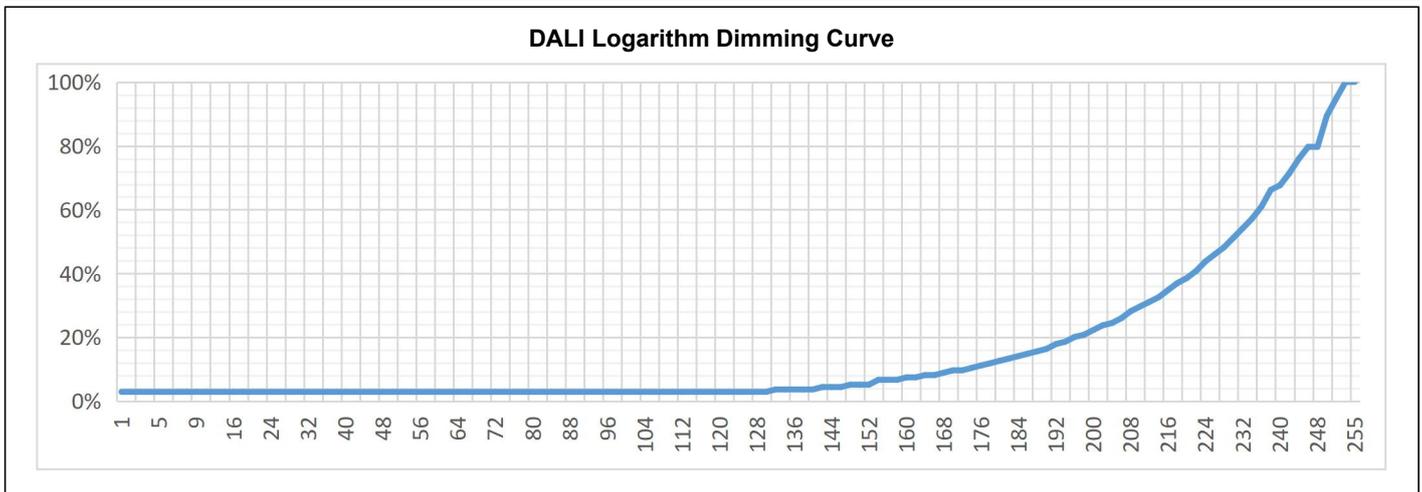
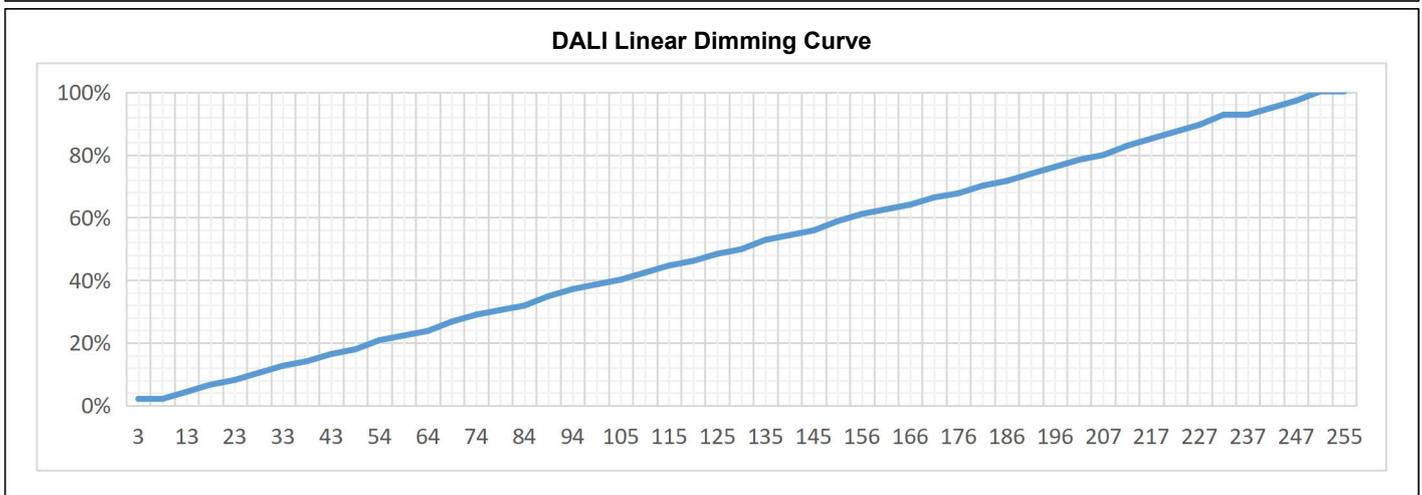
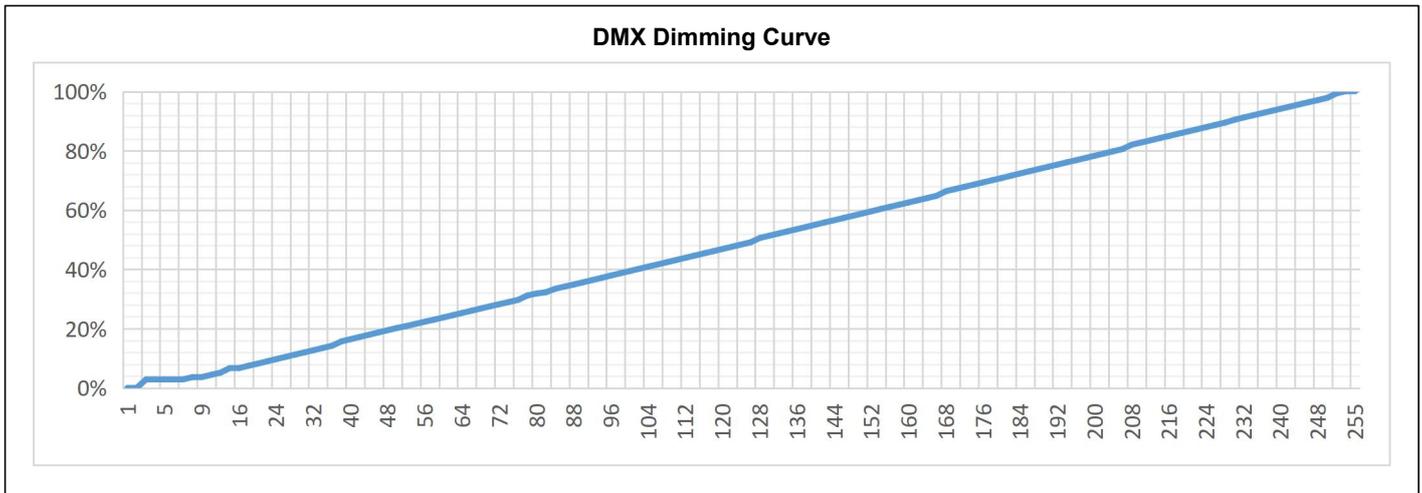
Vin(Vac)	Fin(Hz)	I inrush(A)	T inrush(ms)
277	60	13.2	0.252
380	50	18	0.384
480	63	25.6	0.29

Programming



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

Dimming Curve



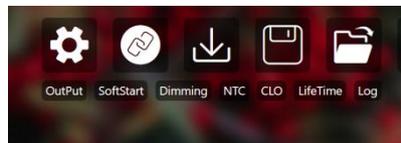
NTC

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.

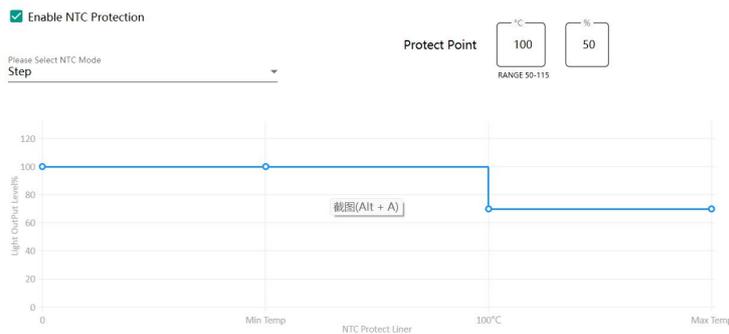


If use the NTC function, select “Enable NTC Protection”. The recommended normal temperature resistance of external selected NTCS is 100K ohms. Place at the end of high temperature device to be detected.

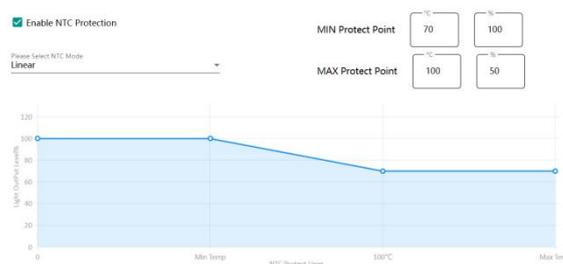
After clicking with this function. The NTC temperature protection mode and temperature point can be set. There are two situations, step protection and linear protection.



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.

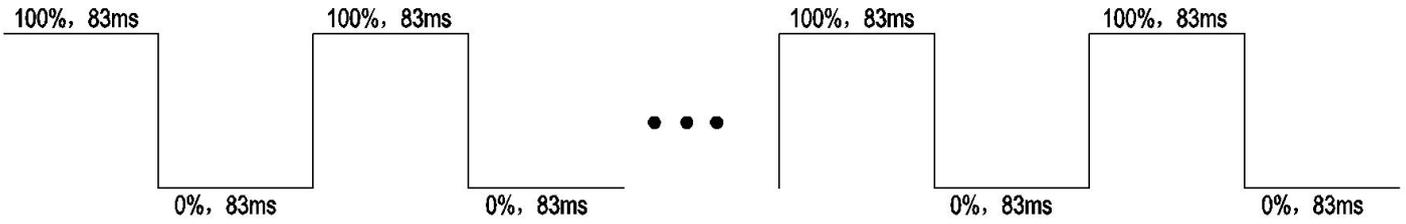


If you choose linear protection. As you can see from the figure below, you can set the temperature protection point at which the descent begins, and the maximum temperature protection. And the power drop amplitude when the maximum temperature protection point is reached.

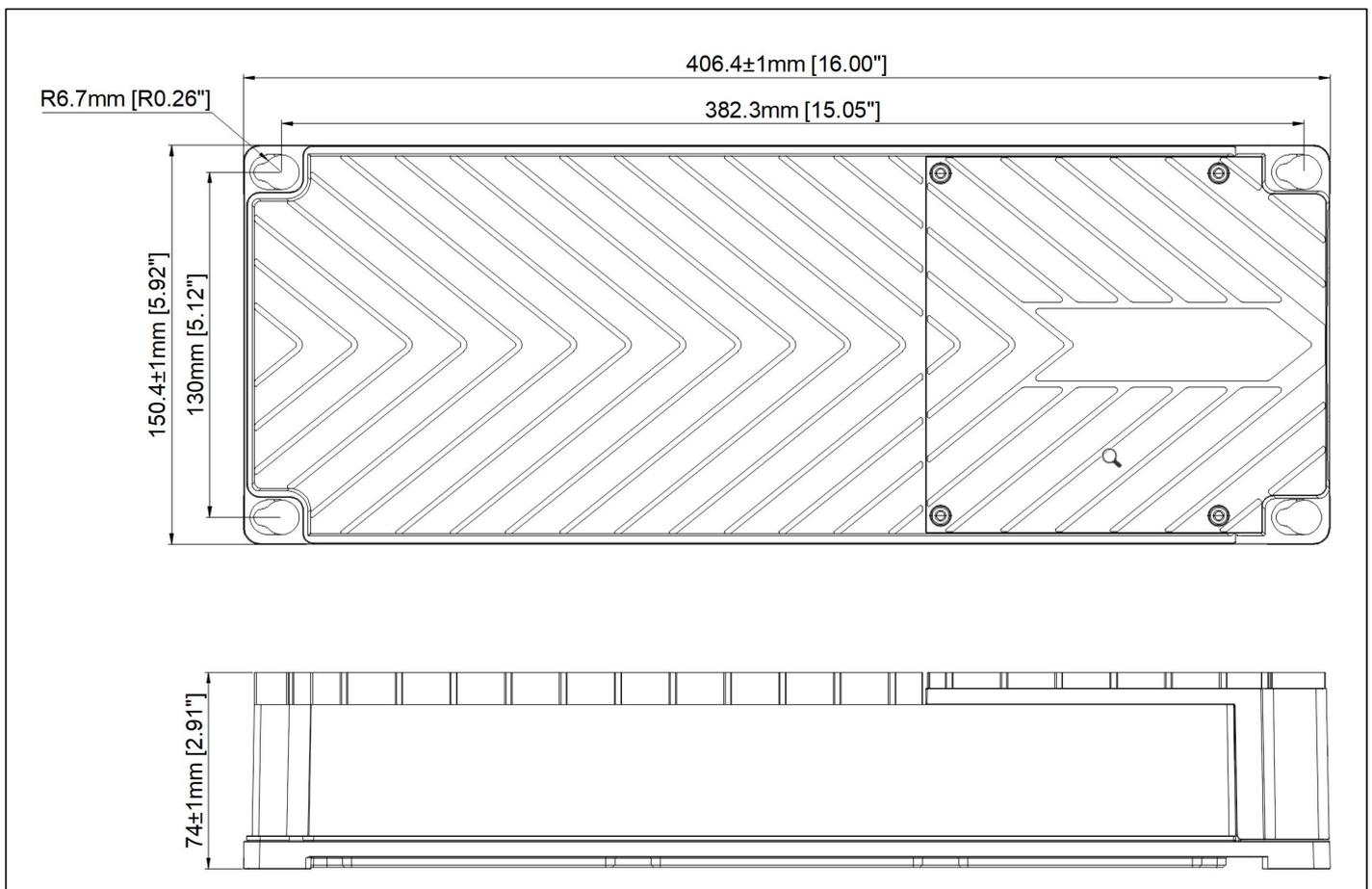


Strobe function

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

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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. The main area is divided into two sections. The left section is for 'Independent mode' and includes a 'Connection' button. Below this, the 'Output Mode' is set to 'Constant Current'. Under 'The First OutPut', there are input fields for 'Programmable Current range' (300 mA to 4560 mA), 'Output Current' (4560 mA), and 'Output Working Volatage Range' (200 V to 263 V). The right section, titled 'Config Result', shows the model name '1200STH420C-PLD' and a list of 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.

The screenshot shows the 'SoftStart mode' configuration window. The navigation bar is the same as in the previous screenshot. The 'Enable SoftStart' checkbox is checked. Below it, the 'Setting SoftStart Time(30000ms)' is set to 3000. A graph plots 'Light Output Levels' on the y-axis (0 to 100) against 'Time(ms)' on the x-axis (0 to 30000). The graph shows a linear ramp from 0% at 0ms to 100% at 3000ms, followed by a constant 100% output level until 30000ms. The right section, 'Config Result', shows the same settings as the previous screenshot, with SoftStart set to ON and Dimming set to DALI.

3. Dimming mode

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

1). 0-10V mode

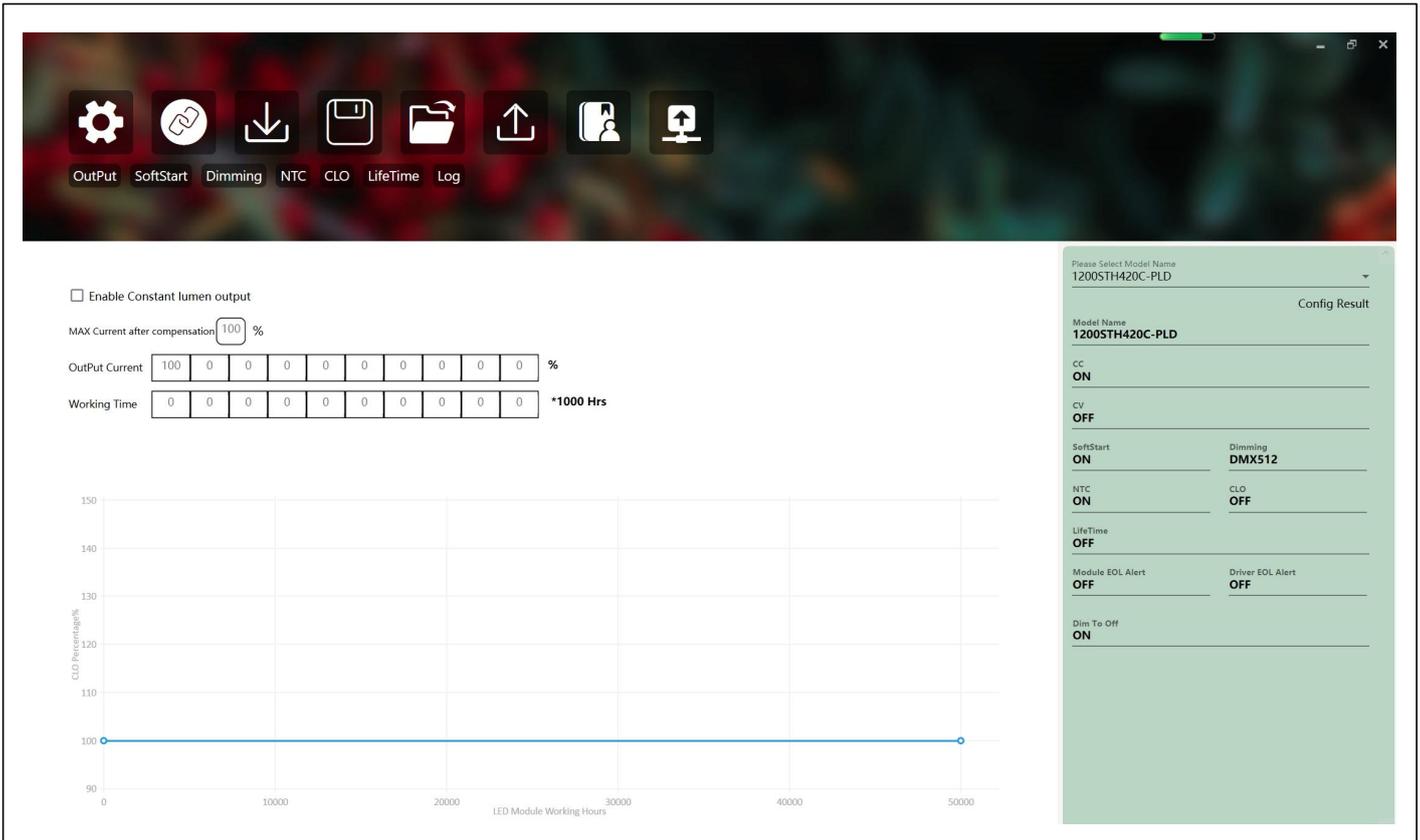
Note: PWM mode is included in 0-10V mode.

2). DALI mode

3). DMX512 mode

4. NTC mode

5. CLO mode

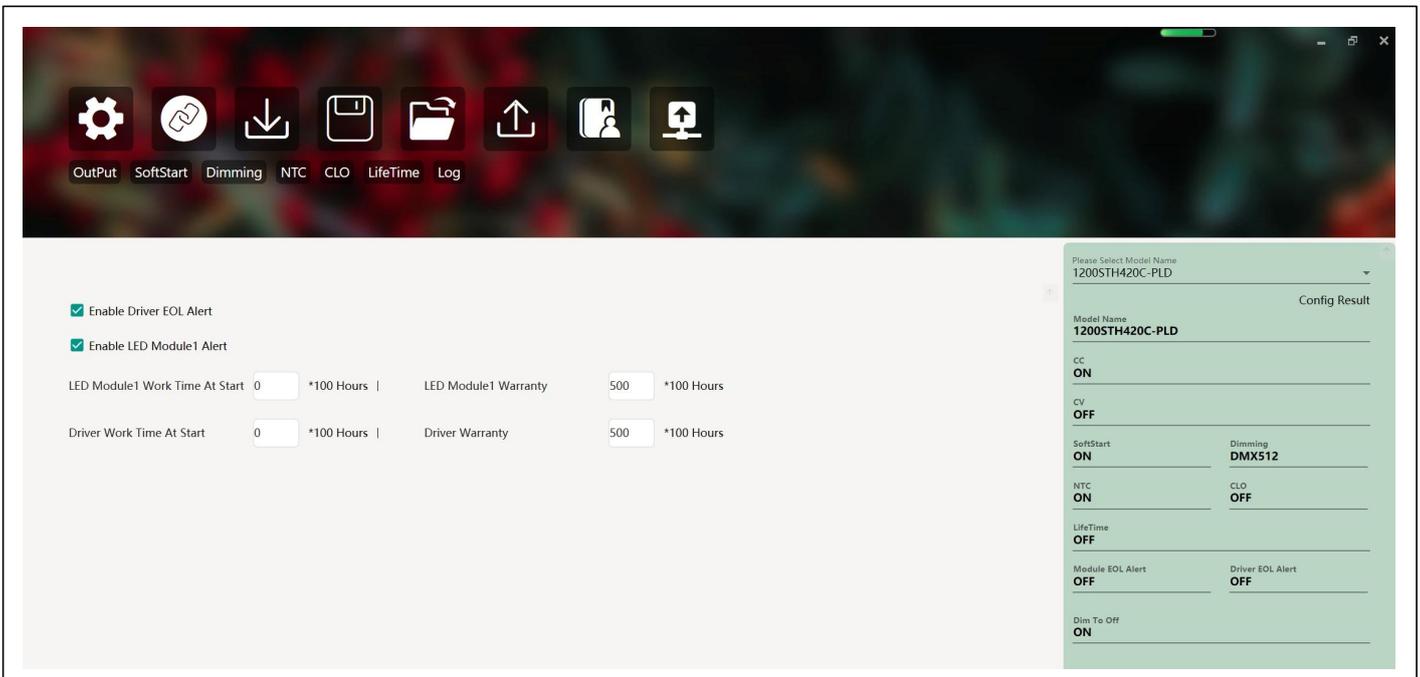


Enable Constant lumen output
 MAX Current after compensation %
 OutPut Current: %
 Working Time: *1000 Hrs

CLO Percentage vs LED Module Working Hours graph showing a constant 100% output.

Config Result:
 Please Select Model Name: 1200STH420C-PLD
 Model Name: 1200STH420C-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

Config Result:
 Please Select Model Name: 1200STH420C-PLD
 Model Name: 1200STH420C-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	1200STH420C	1200STH420C-PLD
		Standby power	Max: 1A	Max: 0.5A
		Update Input AC Current		