Shenzhen SOSEN Electronics Co Ltd
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# SosenProgrammer
# User Manual

V1.3

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CONTENTS

# 1.Preface

## 1.1.Objective

Helps users proficiency in using SosenProgrammer programming software, programmer (SS-PROG-LINK) connection, and quickly set up LED driver functions.

## 1.2.Programmable LED driver product family

VP series, M series, VB series, VP-H series, VA series, VA-T series, VH series, VH-E series, PA series,etc.

# 2.Introduction to programmer hardware and software

## 2.1.Introduction to the Programmer Panel


The wiring sequence from top to bottom is: DIM-, VCC+, DIM+.

After the LED driver is connected, the programmer is powered on and can be operated by the "-""+""P" three keys (the "-""+" key is used only as a fine adjustment).

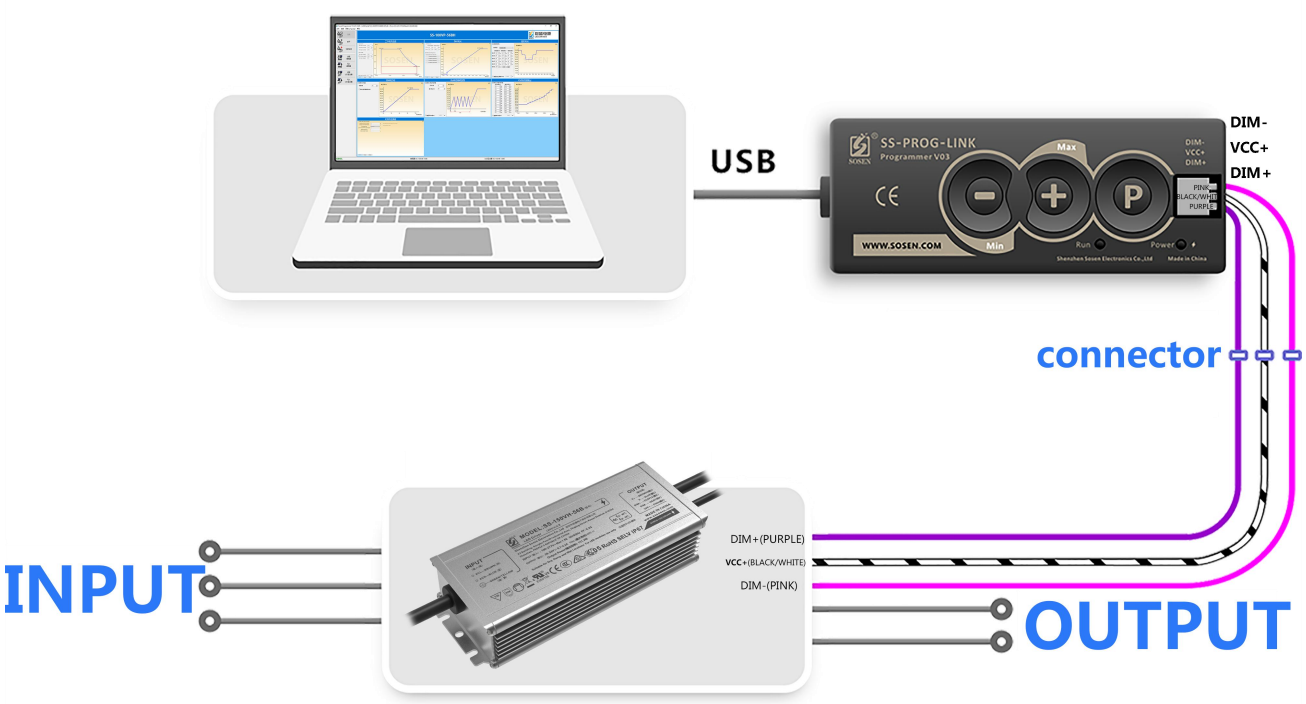
The function of the button "-" is to reduce the current output by up to 10%. With one click, reduce the ratio to 0.5% of the maximum output current of the LED driver.

The function of the button "+" is to increase the current output by up to 10%; with one click, the proportion of the increase is 0.5% of the maximum output current of

the LED driver,

The function of the button "P" is used for offline programming. You can write the internal model information of the programmer to the LED driver and modify the LED driver settings. When using offline programming, the internal model of the programmer must be the same as the LED driver model.

## 2.2.The programmer is wired to the LED driver




Dimming colors may change, and it is best to distinguish the wiring order according to the label of the programmer and LED driver:

**“Programmer : DIM-” is connected to “LED driver: DIM-”.**

**“Programmer : VCC+” is connected to “LED driver: VCC+”.**

**“Programmer : DIM+” is connected to “LED driver: DIM+”.**

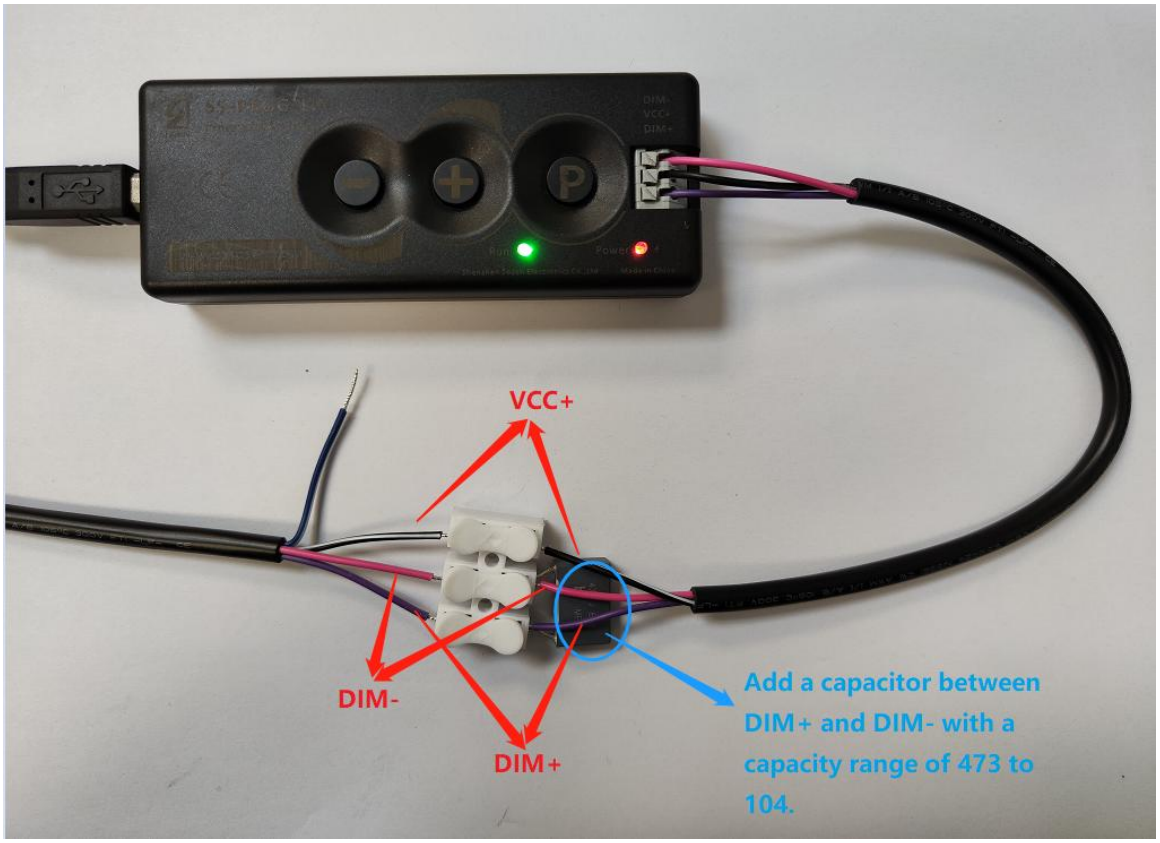
The programmer is connected to the computer's USB port, and the programmer recognizes the LED driver.

Connection correct: "di" sound.

Programmer connection to LED driver failed: continuous "dididi~dididi~..." sound.

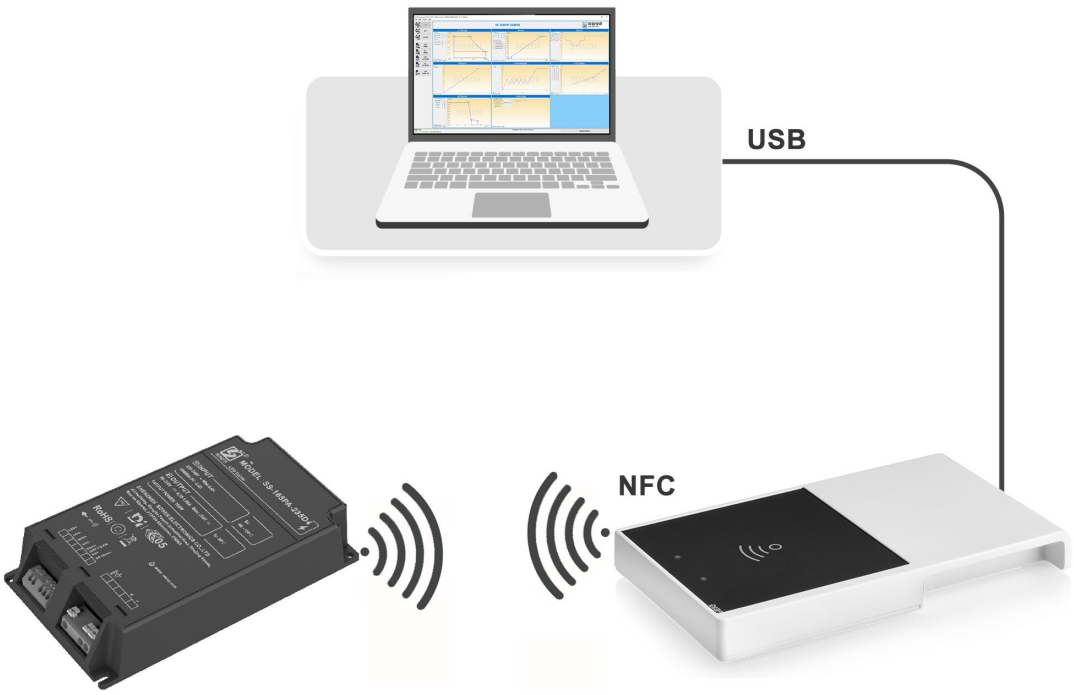
Programmer does not match the LED driver software version: "dididididi" sound.

2.3.In specific cases, if the AC is disconnected, it can be programmed, but the AC cannot be programmed when it is opened. Between "DIM+" and "DIM-", a capacitor in the range of 473 to 104 (47nf to 100nf) is connected in parallel. Excessive capacitance can also cause programming failures.




**Please confirm that the above operation steps are correct, and then perform the following operations.**

# 3.Introduction to NFC mode LED driver programming




Schematic diagram of the NFC mode LED driver programming cable

## 3.1 Introduction to NFC reader

The models of NFC reader which SosenProgrammer software supported are as below:

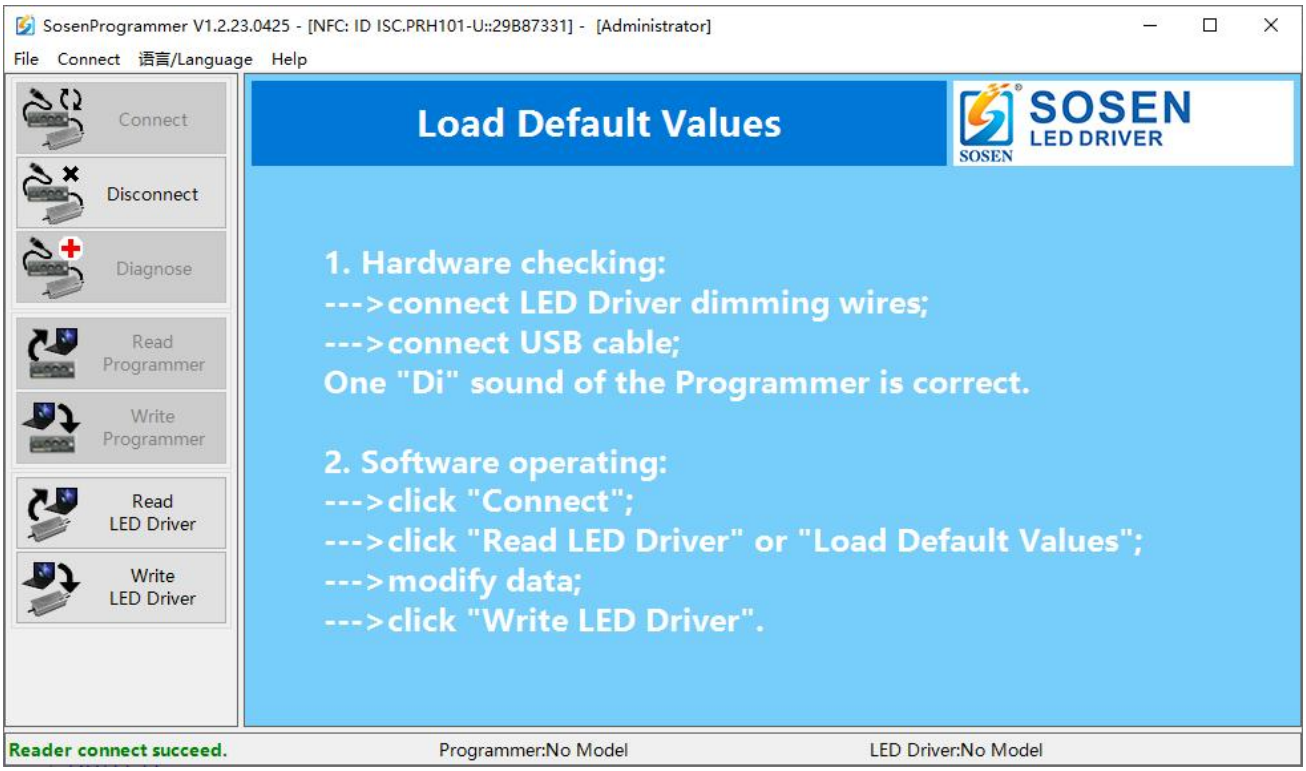
1. FEIG ID CPR30+ reader.
2. FEIG ID ISC. PRH101-USB reader.

FEIG ID CPR30+ reader

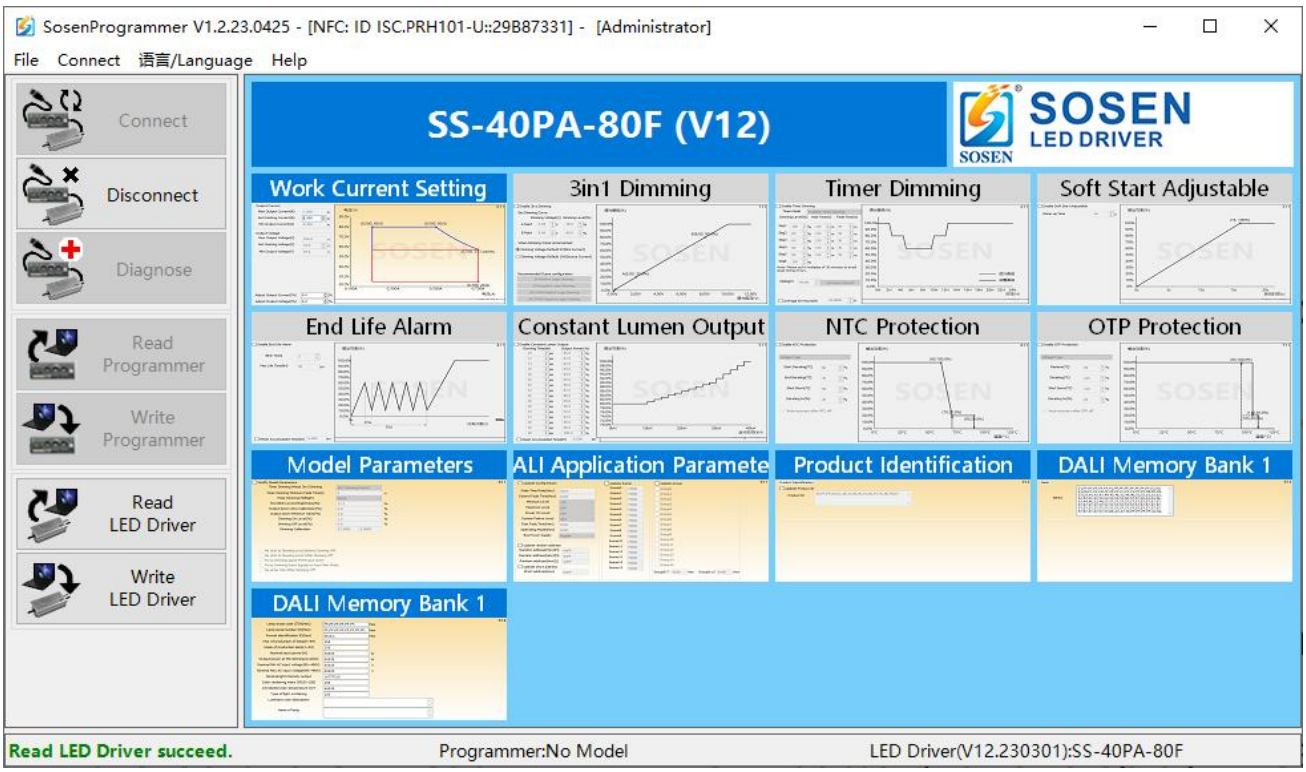
FEIG ID ISC.PRH101-USB reader

## 3.2 Connect the NFC reader with the LED driver

Connect the NFC reader to the USB port of the computer, click the "Connect" button of the software, and display "Reader connect succeed.", indicating that the reader connection is successful.




Close the NFC area of the LED driver to the NFC reader near the NFC reader, click the software "Read LED Driver" button, and display "Read LED Driver succeed.", indicating that the LED driver reading is successful.



# 4.Software installation and use

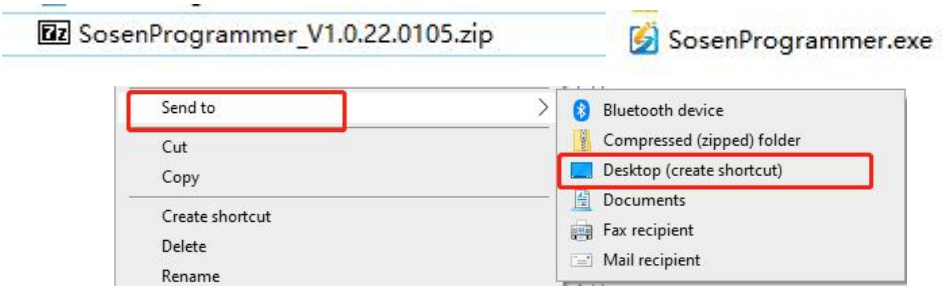
## 4.1.Operating system requirements

Supports Windows 7, Windows 8, Windows 10, Windows 11.

## 4.2.Software installation

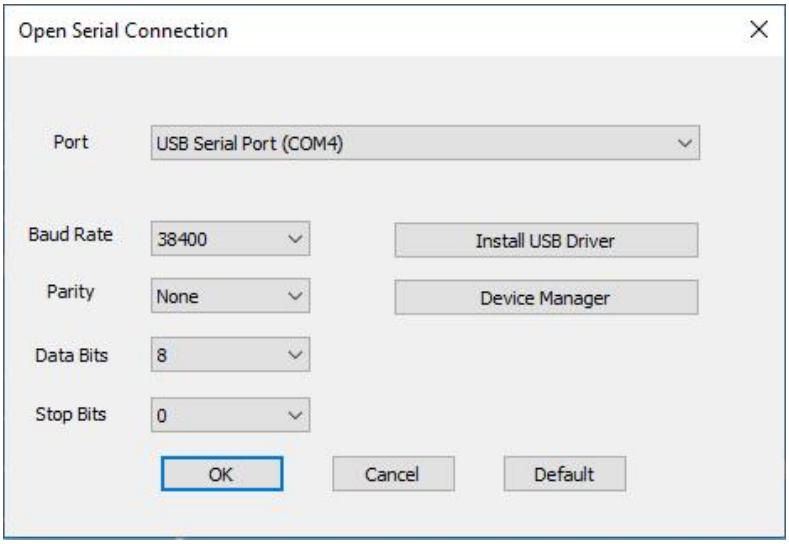
### 4.2.1.Software decompression

Extract the software package to the appropriate location, go to the software folder and send the shortcut to the desktop.




### 4.2.2.Driver installation

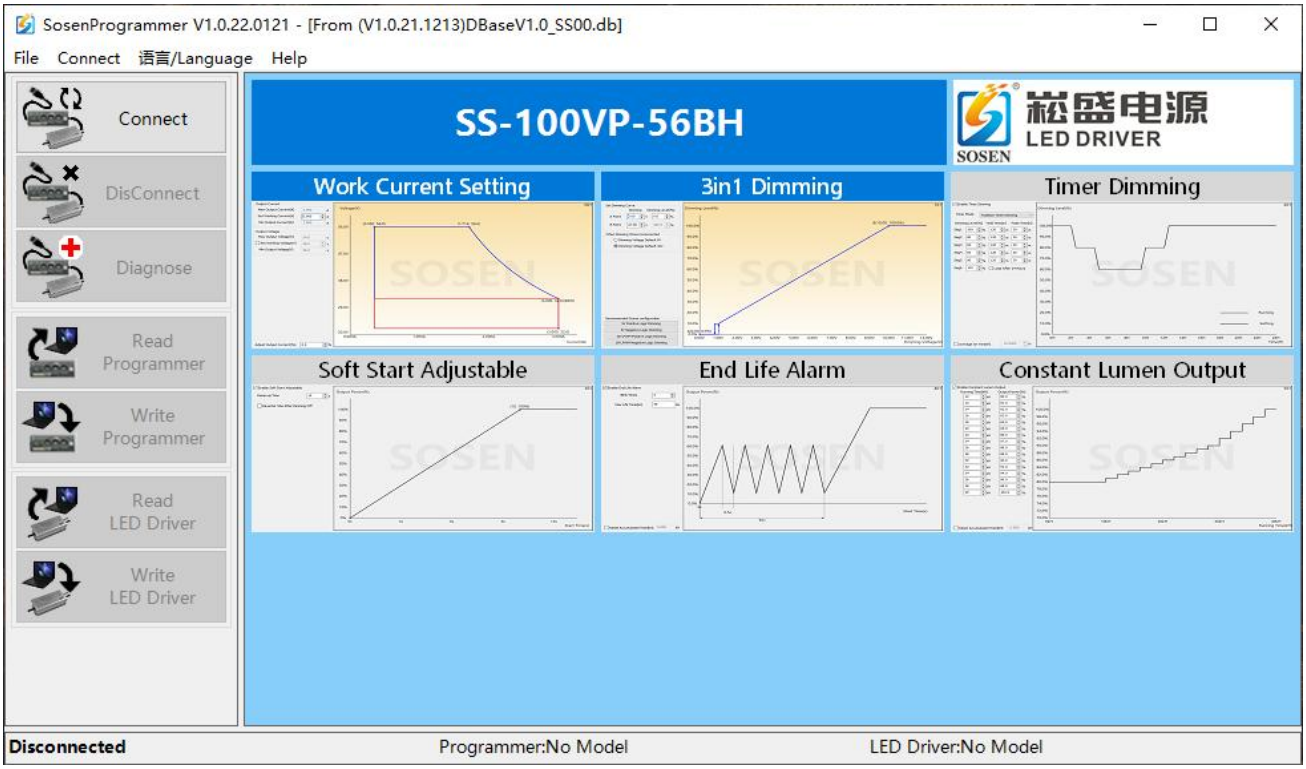
Open the SosenProgrammer software and click Connect. When the USB Serial Port (COM x) is not displayed at the port, click "Install USB Driver" and the USB driver will be installed.



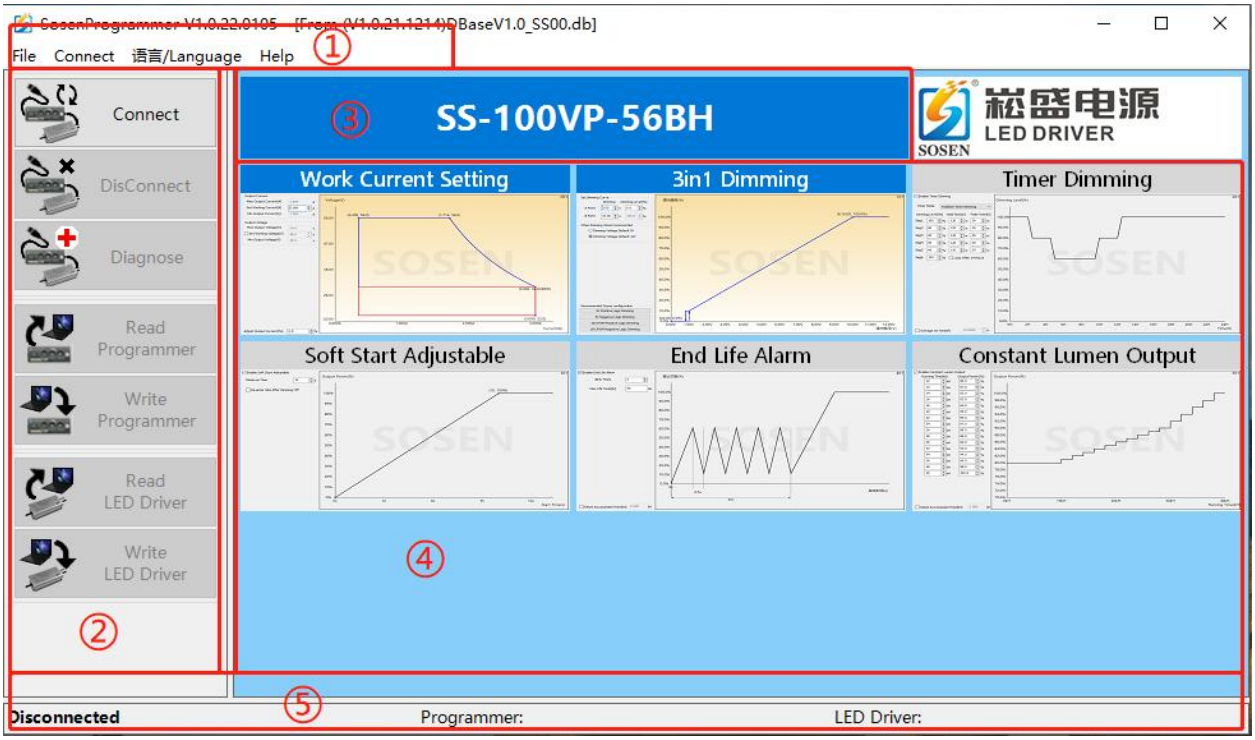

## 4.3.Functional description of the software

### 4.3.1.Software main interface

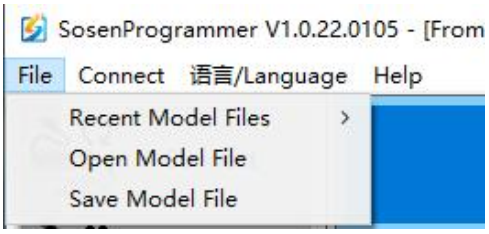
After "Read LED Driver" or "Load Default Values". Displays the features that the model has, orange for the functions that have been enabled, and gray for the functions that are not enabled.



## 4.3.2.Window area description




① Menu bar: With the function of saving and opening the model data file, switching languages, opening the user manual, upgrading software and so on.




Open Model File: Loads the saved model file from a folder.

Save the model file: Save the loaded model as a data file, and the next time you can directly load the saved data by "Opening Model File".

② Operation bar: Operates the programmer and LED driver.

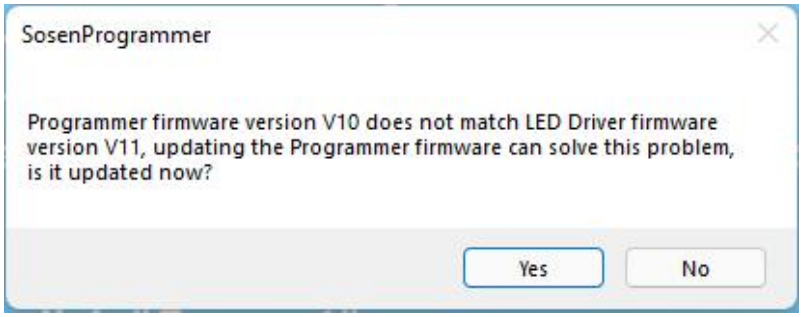
③ Load default values and display model names: Left mouse button opens the model list and displays the model name.

④ Function Settings: Set the parameters of the current page of this model.

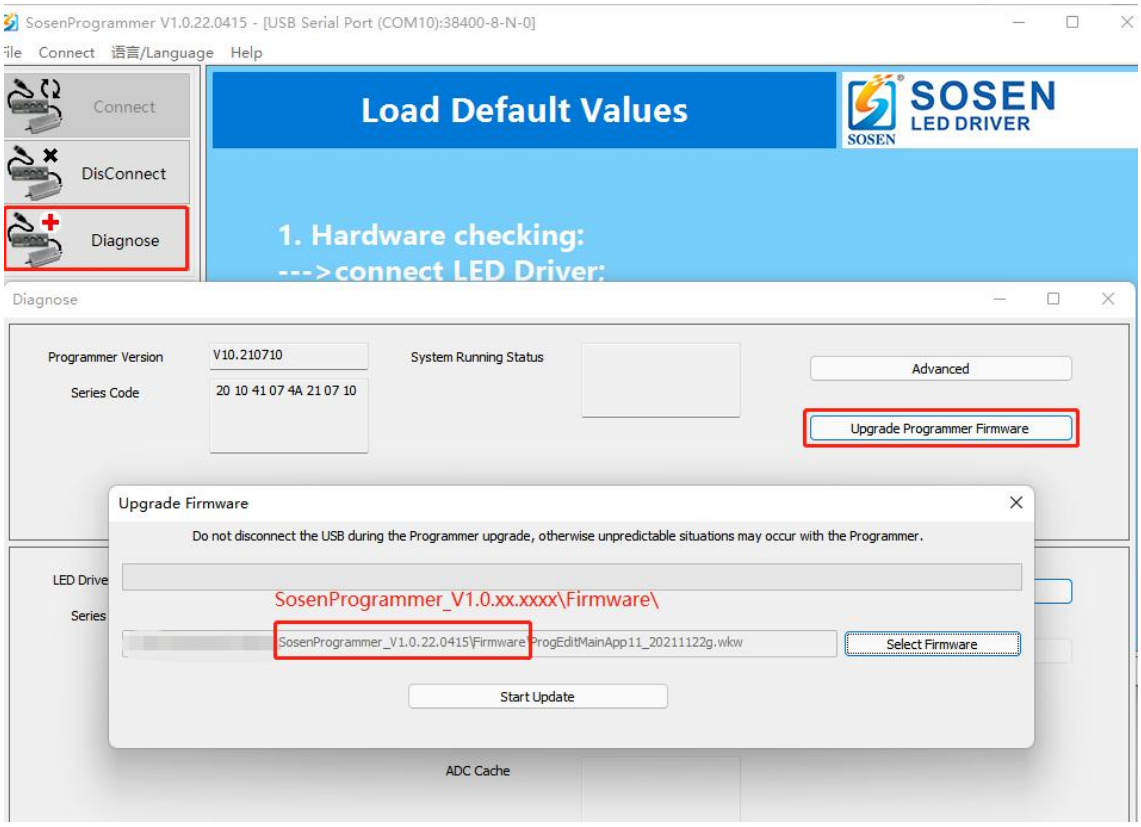
⑤ Model name display: Displays the operating status, the model saved by the current programmer and the model of the LED driver access.

## 4.4.Programmer firmware upgrade

(1) Automatic detection of upgrades: the programmer is connected to the LED driver and then connected to the computer. Click "Connect" and the SosenProgrammer software will automatically detect the programmer version and pop up the box to indicate if an upgrade is required. When a new version of the programmer is available, a box prompts you to upgrade the new version.




(2) Manual upgrade: Plug the programmer into the computer, connect to the SosenProgrammer software, click "Diagnose", click to "Upgrade Programmer Firmware", click "Select Firmware". In the "SosenProgrammer_V1.0.xx.xxx \ Firmware" folder, find the firmware package that needs to be upgraded, click "Start Upgrade", and wait for the upgrade to complete (do not power off the programmer during the upgrade process).




## 4.5.Online programming and offline programming

When writing to the LED driver, make sure that the model selected is the same as the model of the connected LED driver. If the model is different, the programmer will refuse to program and report an error.

### 3.5.1. Online programming

Online programming operation method: **Open “SosenProgrammer” -> Connect -> Read LED Driver / Load Default Values -> modify data -> Write LED Driver**

**Connect:** Click "Connect", the serial connection dialog box will pop up, select the correct COM port (USB Serial Port (COM x)).

**Read LED Driver:** Reads all data from the connected LED driver and refreshes the SosenProgrammer software interface.

**Load Default Values:** If you want to restore the default parameters of the model, you can click "Load Default Values", select the correct model, and load the default data into the software interface.

**Write LED Driver:** Write the set working current data, 3in1 dimming, timer dimming and other parameters to the LED driver.

**Note:** When writing to the LED driver or reading the LED driver, do not set the SosenProgrammer software parameters, there may be incorrect parameters written or read.

### 3.5.2. Offline programming

① Make an offline programmer

Making offline programming method: **Open “ SosenProgrammer ” -> Connect -> Read LED Driver / Load Default Values -> modify data -> Write Programmer**

The first four steps are the same as online programming, and the last step is to write Programmer to prepare the offline Programmer of this model.

② Batch programming

Offline programming method: **Made offline programmer -> USB power supply -> press the "P" key to program**

The model number of the writer programmer must be the same as the model of the LED driver for the write to succeed. If the models are different, the programmer will refuse to program and alarm.

Press the "P" key to program the LED driver. After programming is complete, replace

the other LED drivers that are ready for programming and repeat this operation.

# 5. Introduction to programmable LED driver functions

## 5.1.Programmable LED driver main function

(1) Work Current Setting (Current and voltage can be set)

(2) 3in1 Dimming (Compatible with PWM dimming, 0-5V, 0-10V, Resistance dimming，etc.)

(3) Timer Dimming (Traditional Timer Dimming, Self-Adapt-Midnight Timer, Self-Adapt-Percentage Timer)

(4) Software Start Adjustable (turns on gradually brightening)

(5) End Life Alarm (Reminder to replace the LED driver)

(6) Constant Lumen Output (LED lamp pearl attenuation compensation)

(7) NTC Protection (LED module over-temperature protection function)

(8) OTP Protection (LED driver over-temperature protection function)

(9) DALI Application Parameters （Configure DALI application parameters for LED driver)

(10) Product identification（Product identification parameters of LED driver)

(11) DALI Memory Bank 1（Set DALI block 1 parameters)

(12) DALI Dimming（Set DALI control parameters)

(13) ACI Dimming（LED driver undervoltage protection)

(14) Switch Dimming（Multi-gear dimming)

(15) Conversion efficiency（Current power calibration)

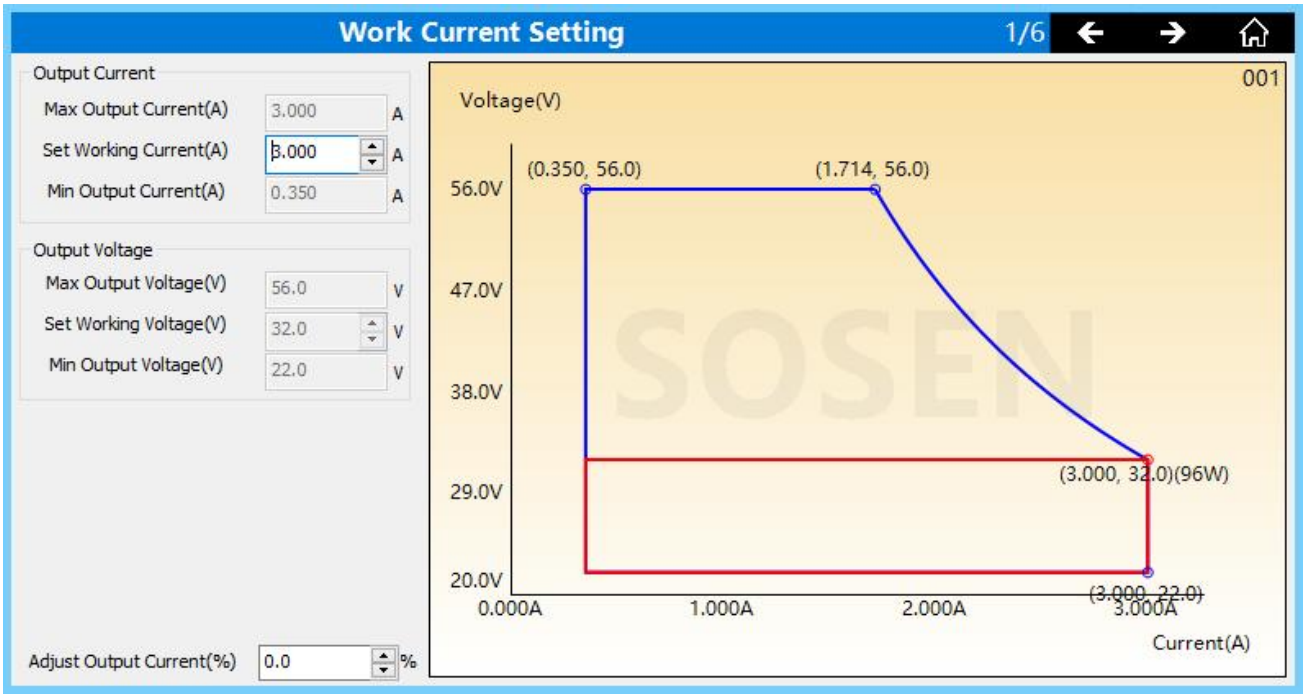
Note: The power supply of the company distinguishes between DALI models and 3-in-1 models, and the following function details will be distinguished.

## 5.2.Programmable LED driver functions explained in detail

### 5.2.1.Work Current Setting

The output current of the LED driver can be freely adjusted, and the parameters obtained by the LED driver are read by the programmer and displayed on the programming software interface. Modify the current parameter at the set operating current to change the output current of the LED driver. Modifying the parameters at the set operating voltage can reduce the operating voltage of the LED driver.

Fine-tune the output current, for the programmed current data and the actual output current of the LED driver error, the input error ratio, you can get the accurate current parameters (according to the maximum output current of the LED driver is the calculation base).

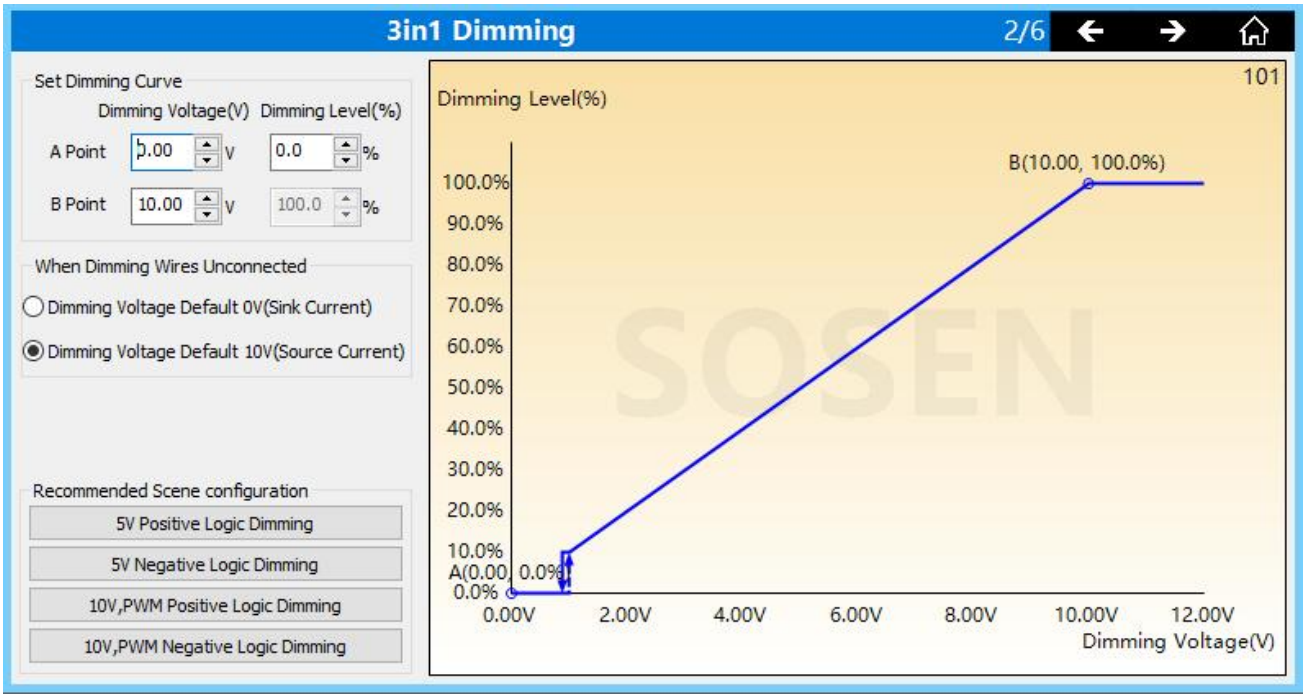


## 5.2.2.3in1 Dimming

Set DIM dimming (PWM dimming, resistance dimming integrated into 0-10V dimming).The dimming voltage of point A and point B can be adjusted according to the actual use.Adjustable light output voltage can be set when the adjustable light is suspended (only some hardware support).Set the dimming level of point A to the lowest level brightness that can be dimmed (If the dimming level of point A is set to 100%, it will not be dimmed).

The off voltage and on voltage are set on the Model Parameters page.

Note: This function is only available for 3-in-1 power supply, as shown below:

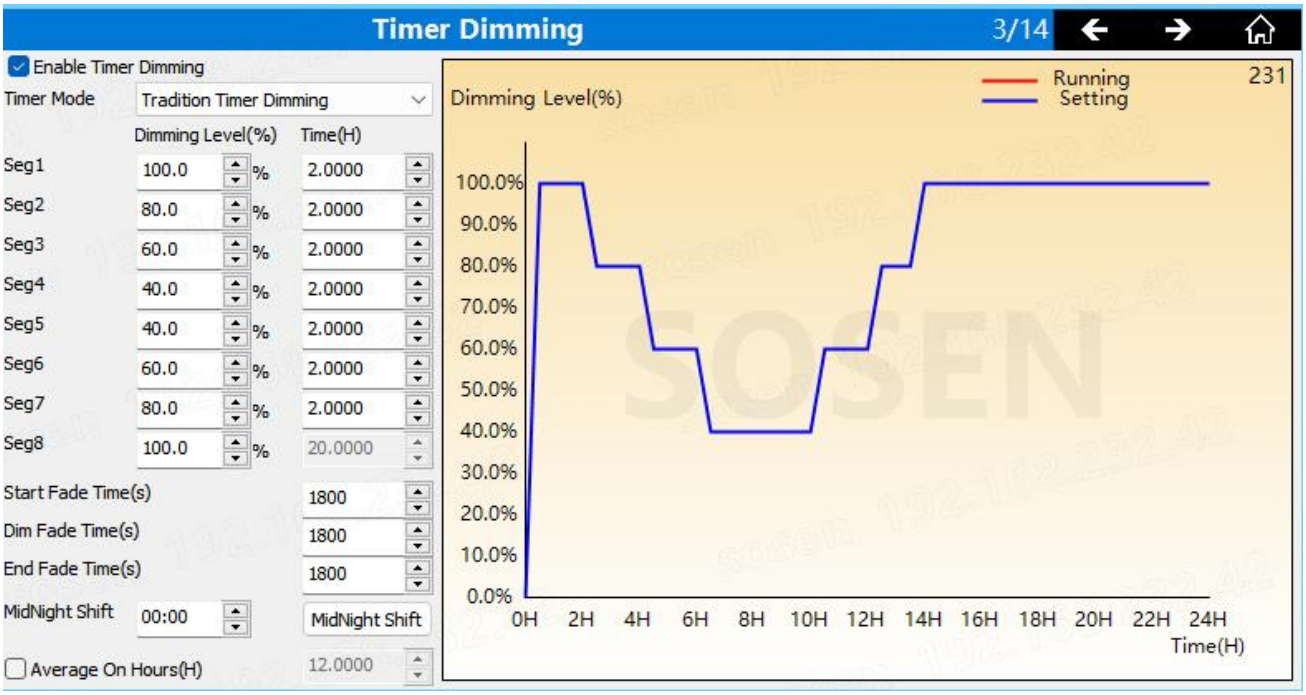



## 5.2.3.Timer Dimming

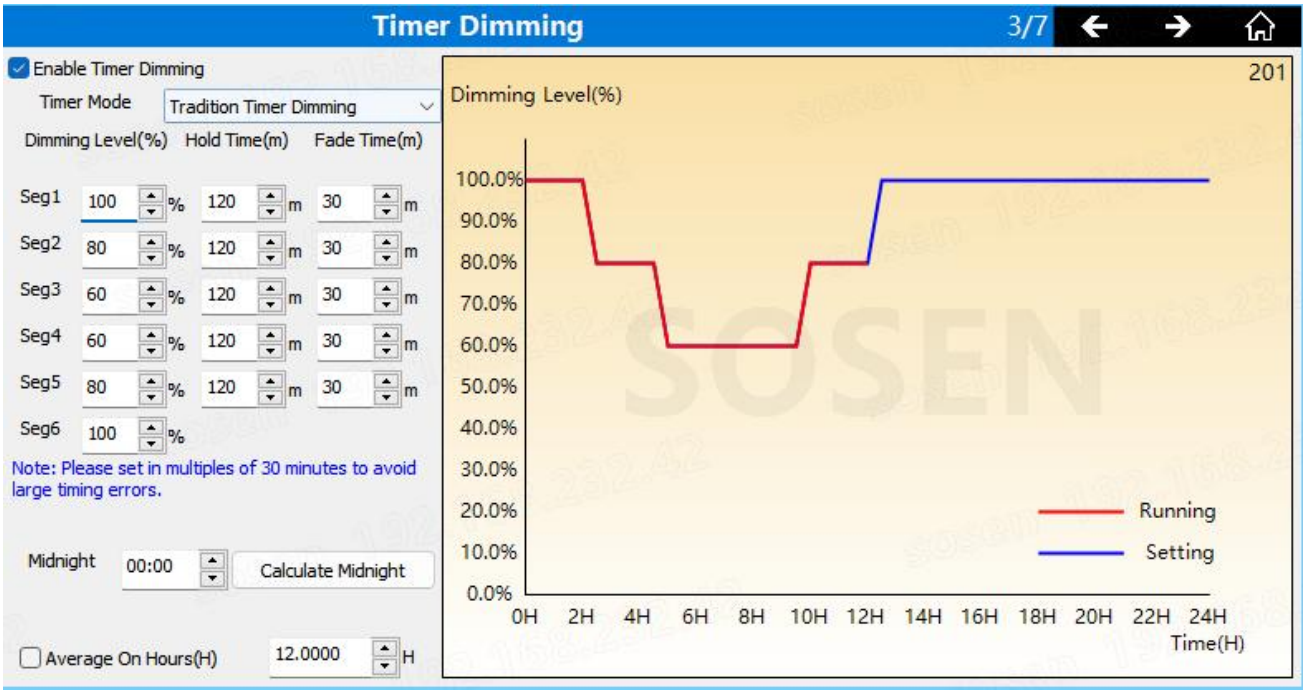
Automatic conversion of daylight and winter time, adaptive midpoint alignment, adaptive percentage, traditional timing dimming.The time control dimming

percentage can be set by setting each period of time.

**Traditional Timer Dimming:** After the LED driver is powered on, it works according to the set dimming curve (adding a gradient time can slowly change between different dimming levels to prevent sudden changes in brightness and cause glare). DALI power dimming curve consists of eight sections, including the beginning of the gradual transition time into the next section of the curve holding time (such as the beginning of the gradual transition time into the first section of the curve holding time), as shown below:




The dimming curve of the three-in-one power supply consists of six sections, without a starting section of the gradual time, and the gradual time is not incorporated into the curve holding time.As shown below:




**Self-Adapt-Midnight Timer:** Timing mode Select Adaptive midpoint dimming. Adaptive midpoint dimming runs according to the auto-calculated adaptive cycle time based on the initially set dimming curve.The user can reset the adaptive cycle.

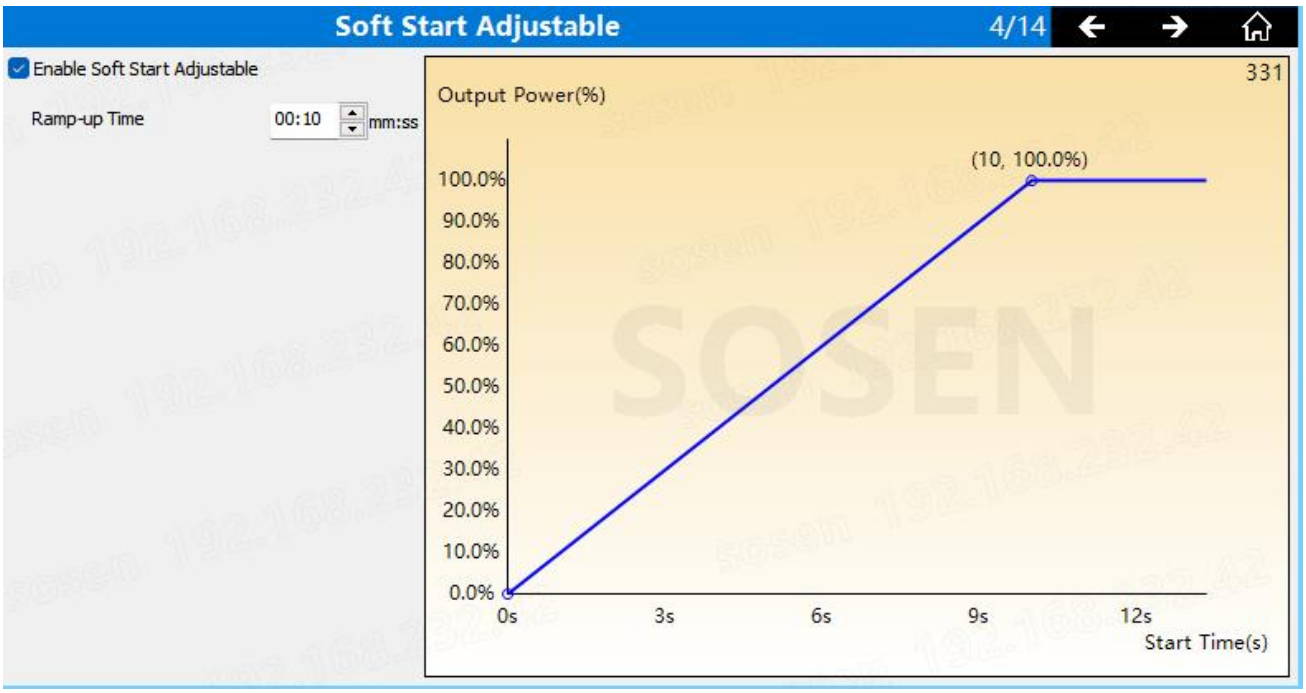
**Self-Adapt-Percentage Timer:** Timing mode Select Adaptive midpoint dimming. Adaptive percentage dimming runs according to the automatically calculated adaptive cycle time based on the initially set dimming curve.The user can reset the adaptive cycle.

### 5.2.4.Software Start Adjustable

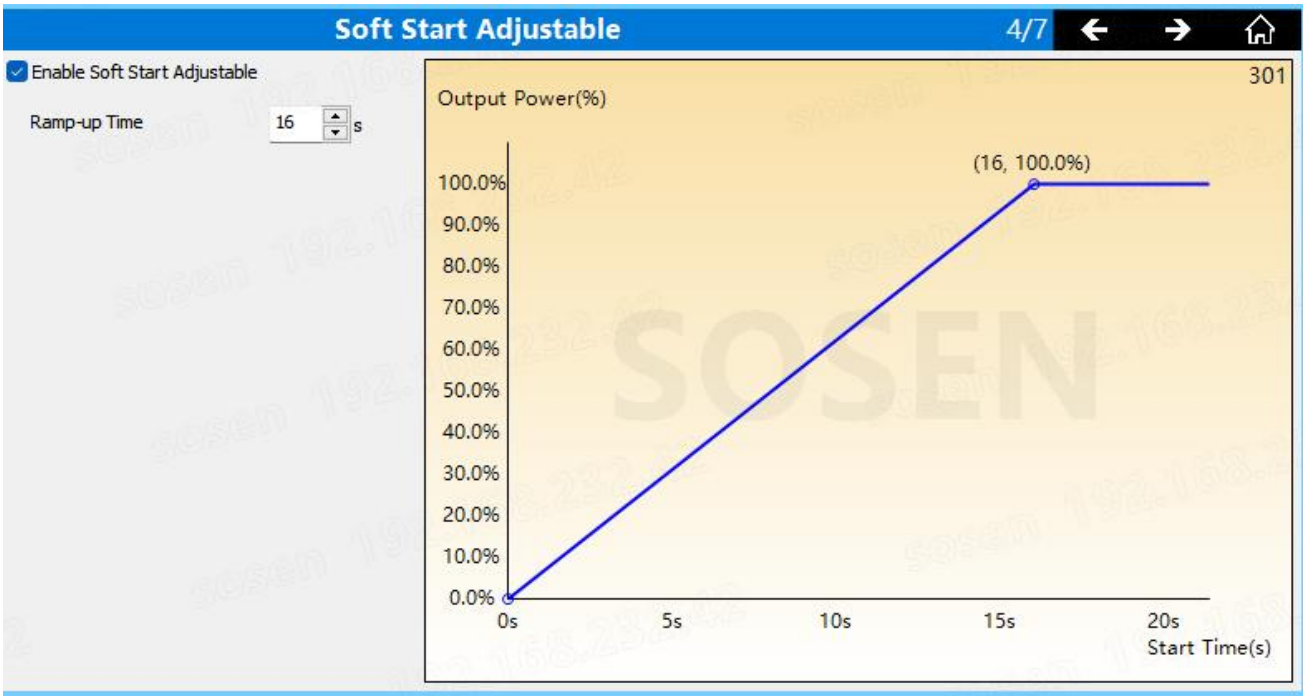
The LED driver boot time can be set in the user interface.Applicable scenes such as road lighting, tunnel lighting, square lighting, stadium lighting, plant lighting, etc., can effectively prevent the lighting process, the lamp suddenly lit up, causing glare to people, causing traffic accidents.When the multi-LED driver is opened at the same

time, it can effectively prevent the boot moment, the AC line load is too large, and achieve the effect of protecting the AC line.

The SSA dimming time of DALI power supply ranges from 1s to 63 minutes.As shown below:



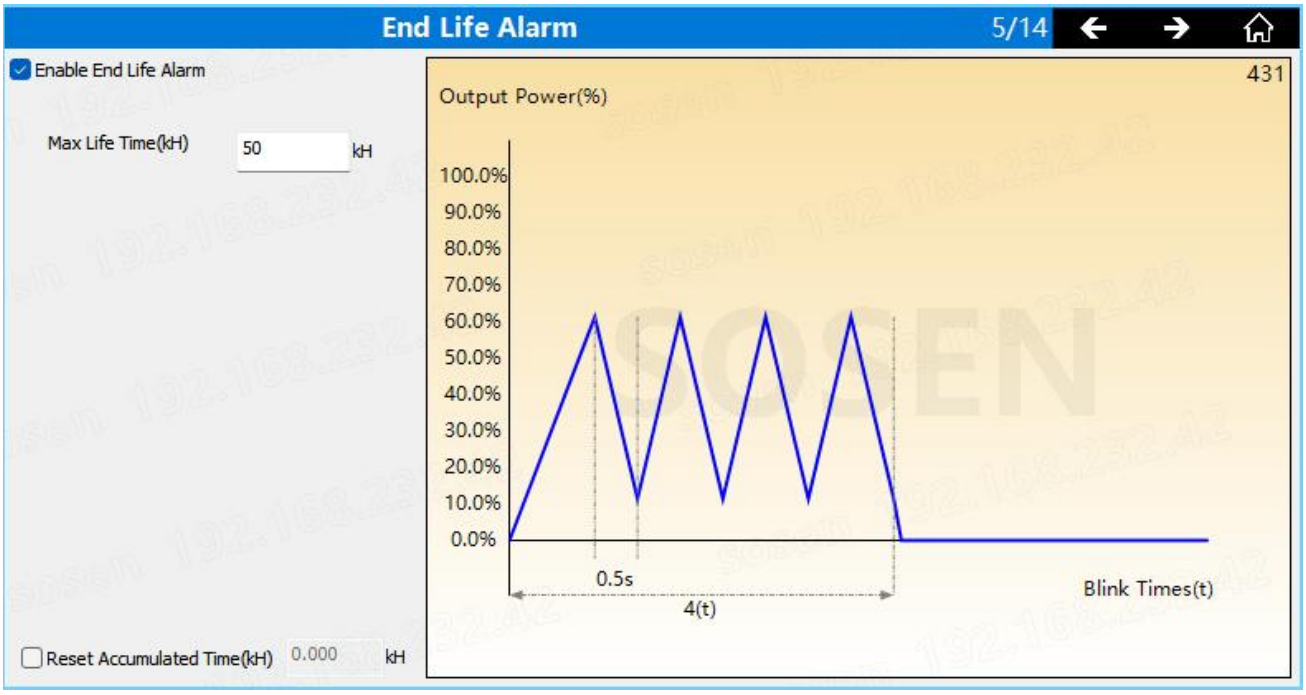

The SSA dimming time range of the three-in-one power supply ranges from 1s to 127s.As shown below:



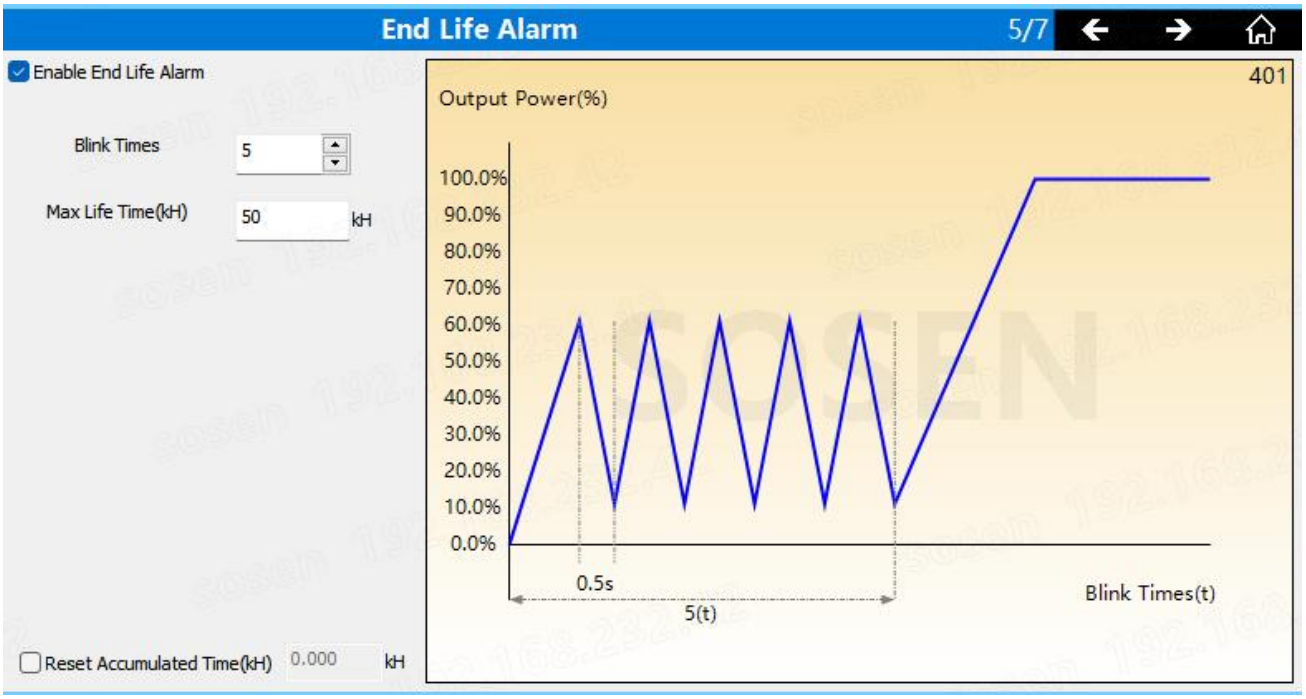

## 5.2.5.End Life Alarm

The user interface can set the maximum life time of the LED driver, such as the life of 50KH, when the lighting time accumulates to 50KH, each time the lamp is powered on, it will flash to remind the user to replace the LED driver.At the bottom of the interface, the accumulated time can be reset. If the reset accumulated time is 50KH, the light will blink.

DALI power supply ELA limit blinks 4 times, the model characteristic parameters can be checked ELA life warning and turn off the output, as shown in the figure below:




The ELA blinking times of the 3-in-1 power supply can be 1 to 7 times, and the function is turned off after no ELA blinking, as shown in the following figure:

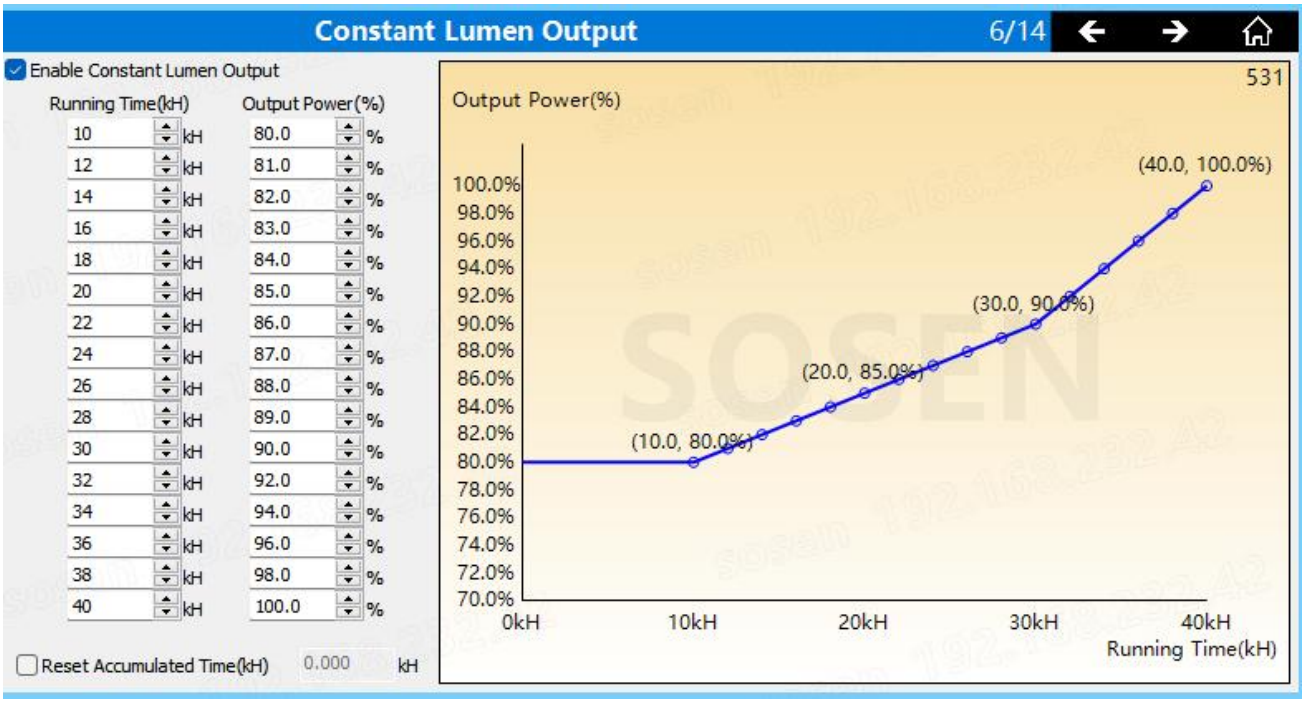



## 5.2.6.Constant Lumen Output

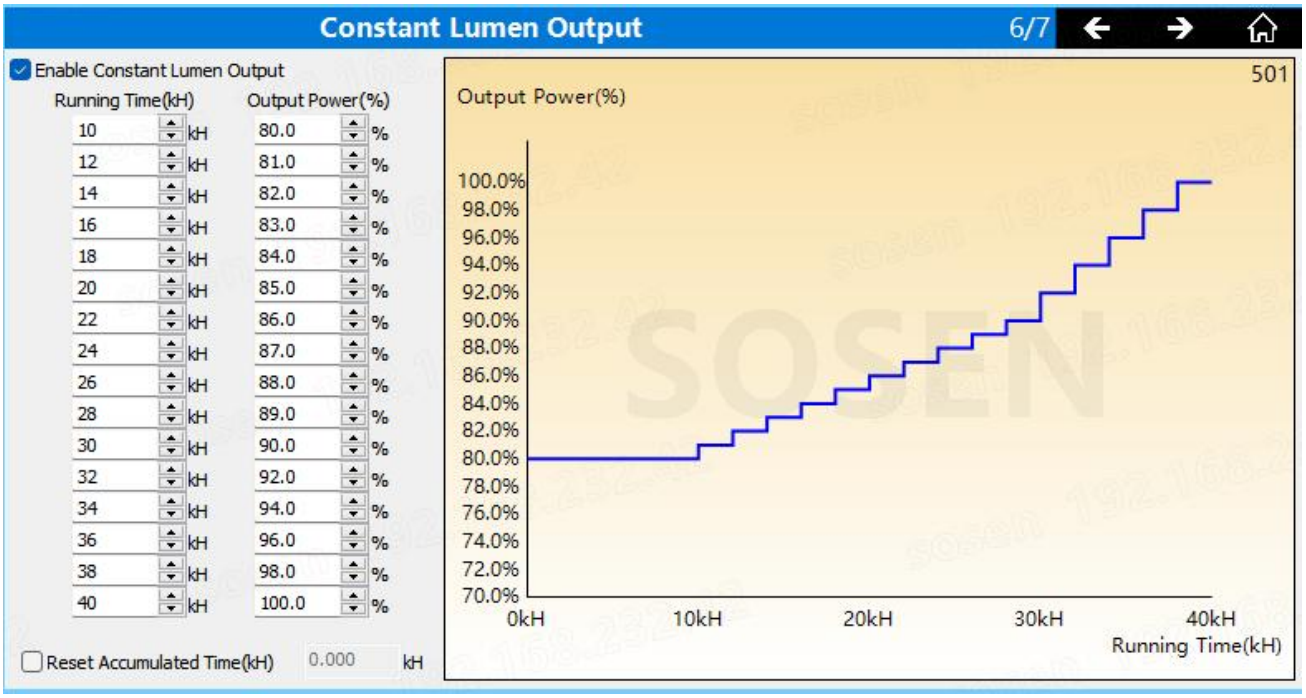
Light decay compensation function, according to the LED lamp light decay curve, in the life cycle of the lamp, by gradually increasing the output current, to achieve a

constant output of LED luminous flux, the overall luminous effect remains unchanged.

DALI Power CLO user interface is as follows:




3-in-1 Power CLO user interface is as follows:



## 5.2.7.NTC Protection

At the LED driver end, a line is drawn to the NTC temperature switch sensor to feed the temperature on the LED module back to the internal controller of the LED driver.

Note: The LED driver hardware must support the NTC function.

1. Currently LED driver NTC functions are divided into two categories:

a.The NTC functions supported by the a.D4i model are shown in the functional interface shown in Figure 1.Models that support this feature include the 22PA-32F.Note: DALI2 models do not have NTC function.

b.The NTC functions supported by the 3-in-1 model are shown in the functional interface shown in Figure 2 and Figure 3.This model supports two types of NTC logic, which can be selected on the Model Characteristics page.Models that support this feature include the 1200NP-M430BHN.

2. NTC function on D4i models:

a. Three types of thermistors are supported: 10KΩ_B3950K, 10KΩ_B3435K, and 10KΩ_B3380K. A thermistor "Temperature Value - Resistance Value" mapping table is attached at the end of this section.

b. Operation Logic:According to the parameter setting shown in Figure 1, as shown in the blue line, when the temperature is lower than 60℃, the output power is 100%; when the temperature is greater than 60℃ and less than 70℃, the output power runs according to the slanting line between 60℃ and 70℃, and the output

power will be accompanied by this lowering and raising as the temperature increases and decreases; when the temperature is greater than 70℃, the output power will be lowered to 10%, and keep at 10%; when the temperature is greater than 90℃, the output power will be turned off. ; when the temperature is greater than 90°C, the output will be turned off. Alternatively, setting the shutdown temperature to less than or equal to the temperature at which the end derating occurs will turn off the shutdown function and neither shutdown.

c. After the NTC is turned off, the output can be restored according to 3 different recovery conditions. The first condition is when the temperature drops to the end derating temperature and the output is restored. The second condition is when the LED driver is re-powered and the output is restored. The third condition is when power is restored after reprogramming the LED driver. The output power level specified at the time of end derating will be restored.

3. NTC function for 3-in-1 models

a. Supports two types of NTC runtime logic: runtime logic 1 and runtime logic 2.

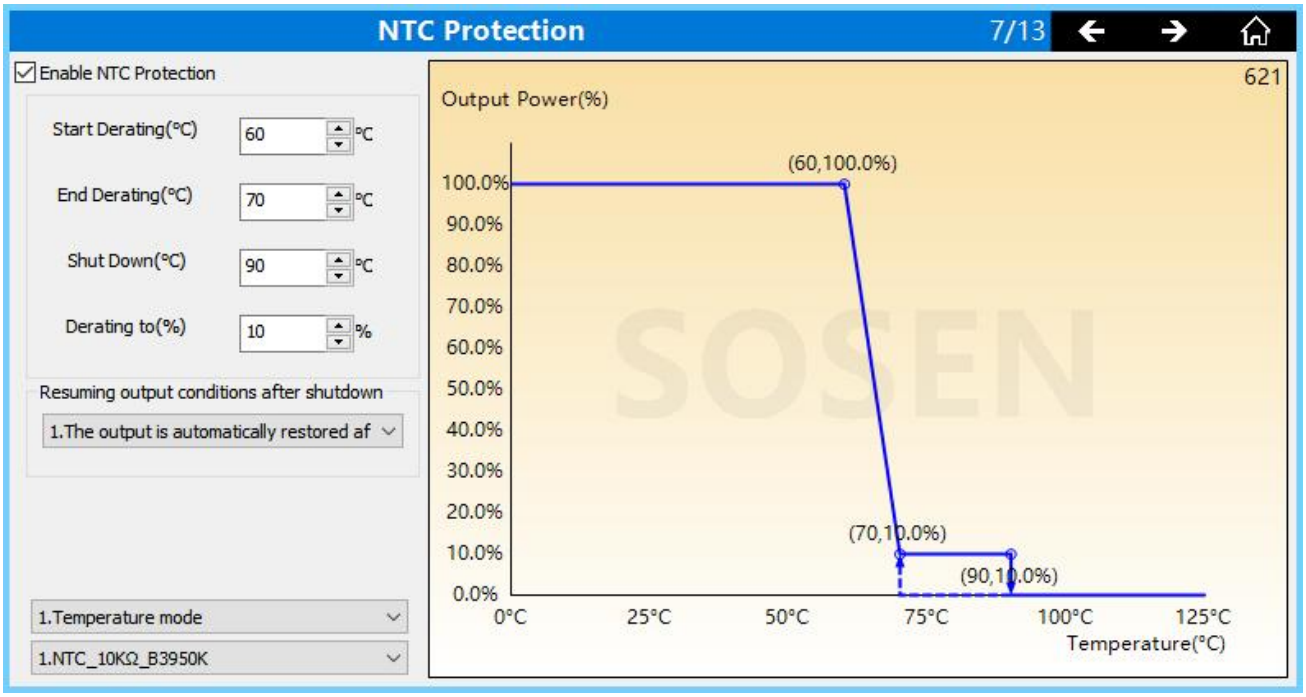
b. Two types of thermistors are supported: 10KΩ_B3950K, 10KΩ_B3435K. A thermistor "Temperature Value - Resistance Value" mapping table is attached at the end of this section.

c. Running logic 1: According to "Model Characteristic Parameters" interface - "NTC running logic" option, select "Running logic 1", set the parameters as shown in Figure 2, as shown in the blue line, when the temperature is below 60℃, the output power is 100%; when the temperature is greater than 60℃ and less than 70℃, the

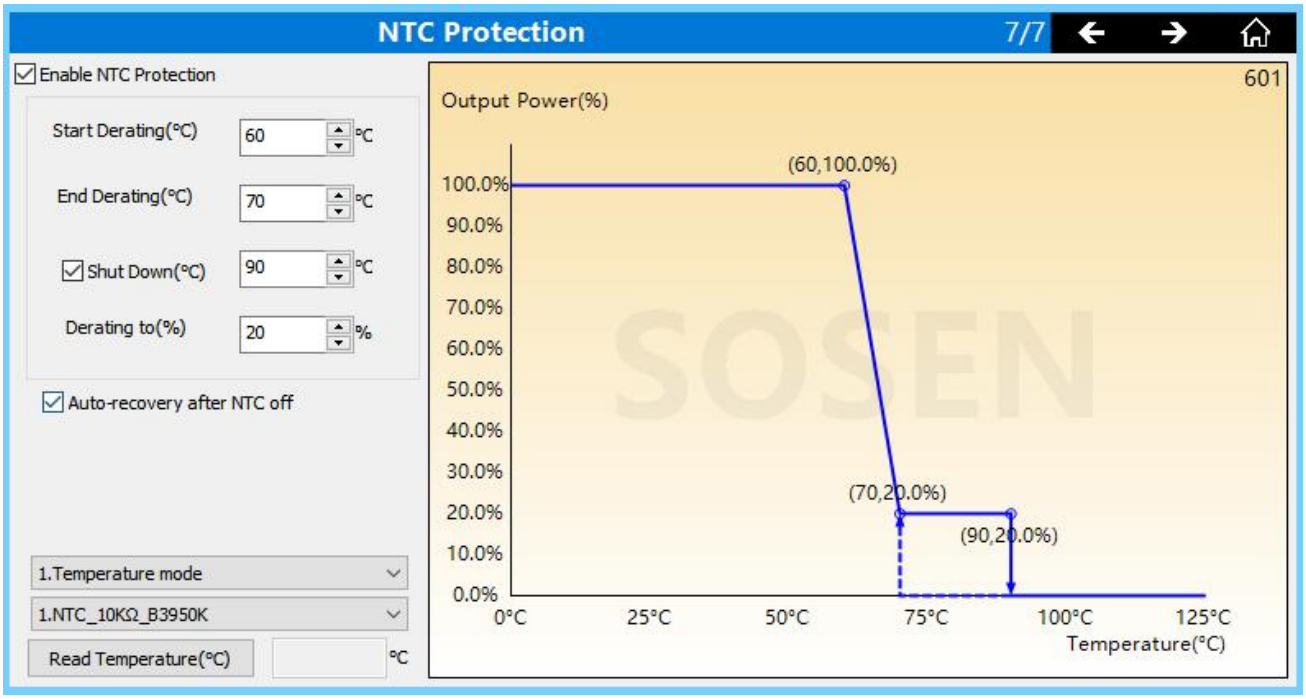
output power will run according to the slant line between 60℃ and 70℃. As shown in the blue line, when the temperature is lower than 60℃, the output power is 100%; when the temperature is greater than 60℃ and less than 70℃, the output power runs according to the slanting line between 60℃ and 70℃, and the output power will be accompanied by the lowering and raising as the temperature increases and decreases; when the temperature is greater than 70℃, the output power will be reduced to 20% and kept at 20%; when the temperature is greater than 90℃, the output will be turned off; after NTC is turned off, you can choose to restore the output according to the checkbox option, and then the output will be restored. The output can be restored or not according to the checkbox option. In addition, setting the shutdown temperature to less than or equal to the temperature of the end derating or unchecking the shutdown option will turn off the shutdown function, neither shutdown.

d. Running logic 2: According to "Model Characteristic Parameters" interface - "NTC running logic" option, select "Running logic 2", set the parameters as shown in Figure 3, as shown in the blue line, when the temperature is lower than 70℃, the output power is 100%; when the temperature reaches or greater than 70℃, a derating event will be triggered, and the output power will be derated by 5% from the current actual level. As shown in the blue line, when the temperature is lower than 70℃, the output power is 100%; when the temperature reaches or is greater than 70℃, a derating event will be triggered, and the output power will be derated by 5% from the current actual level, for example, if the current output power level is 100%, then the output level will be derated to 95%, and if the temperature is still greater than or

equal to 70℃ after a 2-minute time interval, a derating event will be triggered again, and the interval between two derating events will be at least 2 minutes. If the temperature is still greater than or equal to 70℃, a derating event will be triggered again. When multiple derating events occur, the output level will be reduced to a minimum of 20% and remain at 20%; regardless of the current output level at which the output level is at, when the temperature drops to 60°C, the output level will return to 100%. When the temperature is greater than or equal to 90°C, the output will be turned off; after the NTC is turned off, the output level will be restored to 20% when the temperature drops to 70°C; the output can be restored or not according to the checkbox. In addition, setting the shutdown temperature to less than or equal to the end derating temperature or unchecking the shutdown option will turn off the shutdown function, neither shutdown.




Figture 1




Figture 2

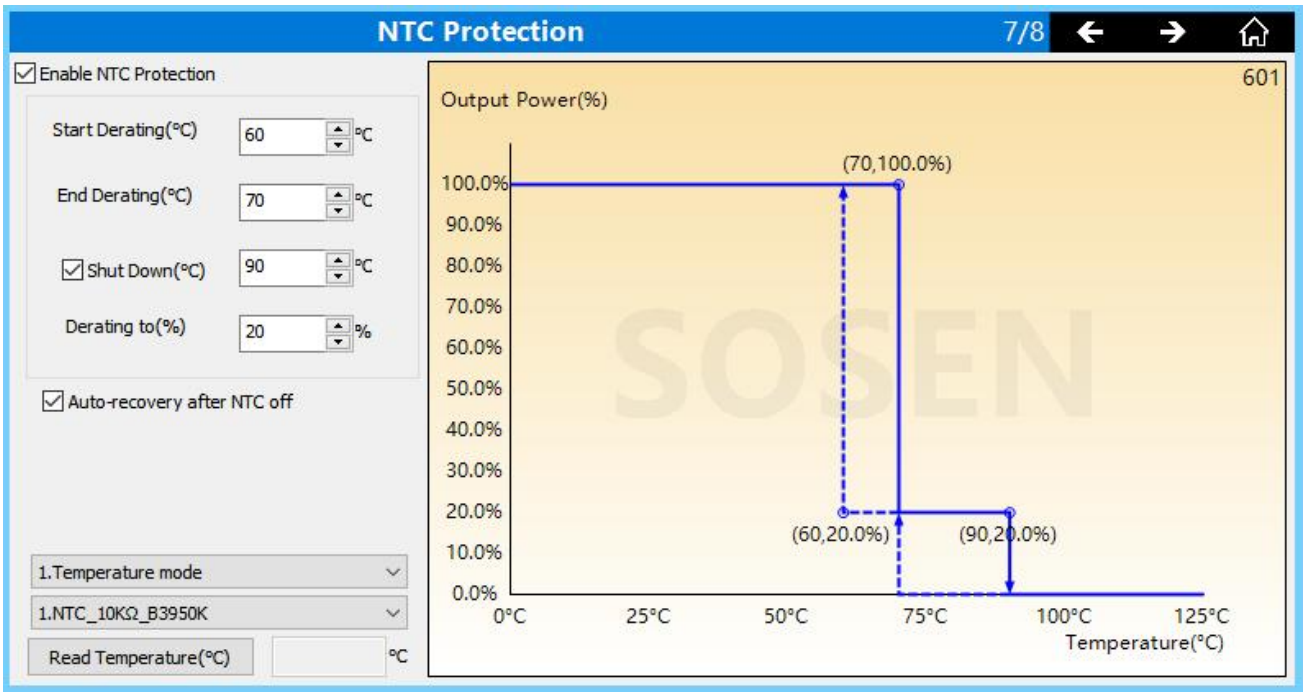



Figure 3

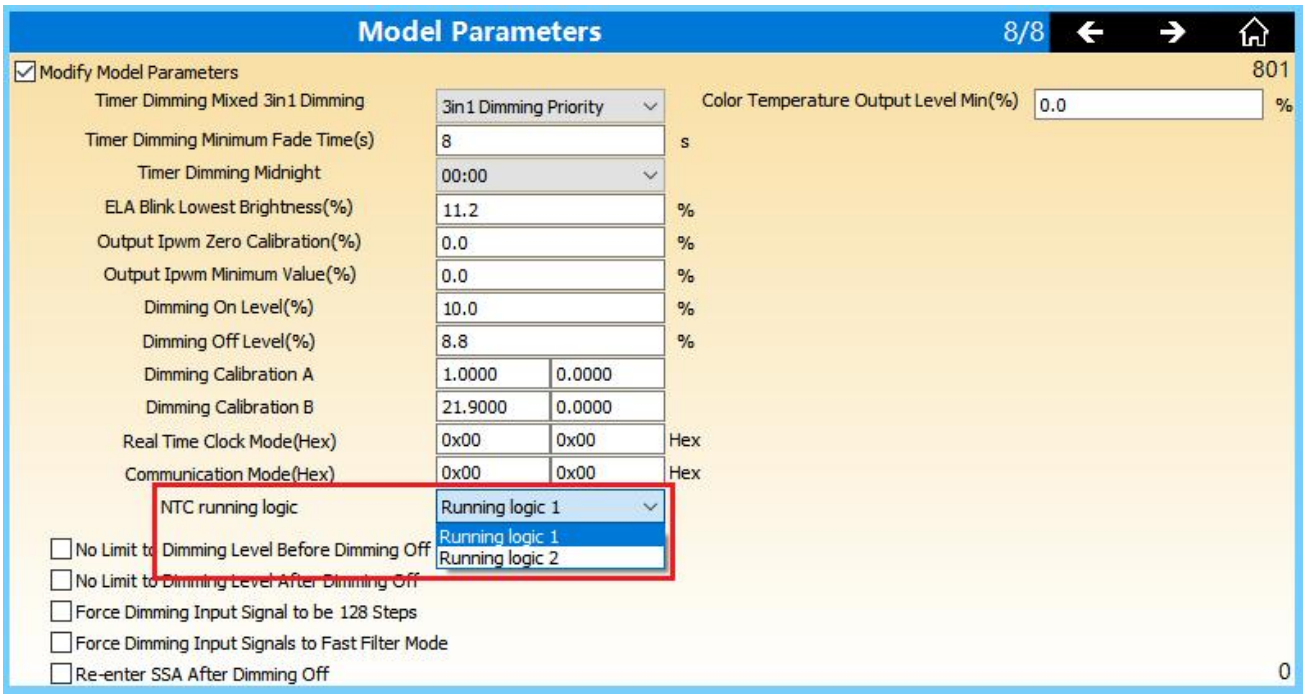



Figure 4

A thermistor "temperature-resistance" mapping table is attached.

| 10KΩ_B3950K | | 10KΩ_B3435K | | 10KΩ_B3380K | |
|---|---|---|---|---|---|
| Temperature | Resistance | Temperature | Resistance | Temperature | Resistance |

| ℃ | KΩ |
|---|---|
| 0 | 32.7547 |
| 1 | 31.1243 |
| 2 | 29.5847 |
| 3 | 28.1301 |
| 4 | 26.7556 |
| 5 | 25.4562 |
| 6 | 24.2274 |
| 7 | 23.065 |
| 8 | 21.965 |
| 9 | 20.9239 |
| 10 | 19.938 |
| 11 | 19.0041 |
| 12 | 18.1193 |
| 13 | 17.2807 |
| 14 | 16.4857 |
| 15 | 15.7317 |
| 16 | 15.0164 |
| 17 | 14.3376 |
| 18 | 13.6933 |
| 19 | 13.0816 |
| 20 | 12.5005 |
| 21 | 11.9485 |
| 22 | 11.4239 |
| 23 | 10.9252 |
| 24 | 10.451 |
| 25 | 10 |
| 26 | 9.5709 |
| 27 | 9.1626 |
| 28 | 8.7738 |
| 29 | 8.4037 |
| 30 | 8.0512 |
| 31 | 7.7154 |
| 32 | 7.3953 |
| 33 | 7.0903 |
| 34 | 6.7995 |
| 35 | 6.5221 |
| 36 | 6.2576 |
| 37 | 6.0051 |
| 38 | 5.7642 |
| 39 | 5.5342 |
| 40 | 5.3146 |
| 41 | 5.1049 |

| ℃ | KΩ |
|---|---|
| 0 | 27.4936 |
| 1 | 26.3245 |
| 2 | 25.2119 |
| 3 | 24.1527 |
| 4 | 23.1442 |
| 5 | 22.1835 |
| 6 | 21.2682 |
| 7 | 20.3959 |
| 8 | 19.5644 |
| 9 | 18.7714 |
| 10 | 18.0151 |
| 11 | 17.2935 |
| 12 | 16.6048 |
| 13 | 15.9475 |
| 14 | 15.3198 |
| 15 | 14.7203 |
| 16 | 14.1475 |
| 17 | 13.6003 |
| 18 | 13.0772 |
| 19 | 12.5771 |
| 20 | 12.0988 |
| 21 | 11.6413 |
| 22 | 11.2037 |
| 23 | 10.7848 |
| 24 | 10.3839 |
| 25 | 10 |
| 26 | 9.6324 |
| 27 | 9.2802 |
| 28 | 8.9428 |
| 29 | 8.6195 |
| 30 | 8.3096 |
| 31 | 8.0124 |
| 32 | 7.7275 |
| 33 | 7.4541 |
| 34 | 7.1919 |
| 35 | 6.9403 |
| 36 | 6.6987 |
| 37 | 6.4669 |
| 38 | 6.2442 |
| 39 | 6.0304 |
| 40 | 5.825 |
| 41 | 5.6276 |

| ℃ | KΩ |
|---|---|
| 0 | 27.2186 |
| 1 | 26.076 |
| 2 | 24.9877 |
| 3 | 23.9509 |
| 4 | 22.9629 |
| 5 | 22.0211 |
| 6 | 21.123 |
| 7 | 20.2666 |
| 8 | 19.4495 |
| 9 | 18.6698 |
| 10 | 17.9255 |
| 11 | 17.2139 |
| 12 | 16.5344 |
| 13 | 15.8856 |
| 14 | 15.2658 |
| 15 | 14.6735 |
| 16 | 14.1075 |
| 17 | 13.5664 |
| 18 | 13.0489 |
| 19 | 12.554 |
| 20 | 12.0805 |
| 21 | 11.6281 |
| 22 | 11.1947 |
| 23 | 10.7795 |
| 24 | 10.3815 |
| 25 | 10 |
| 26 | 9.6342 |
| 27 | 9.2835 |
| 28 | 8.947 |
| 29 | 8.6242 |
| 30 | 8.3145 |
| 31 | 8.0181 |
| 32 | 7.7337 |
| 33 | 7.4609 |
| 34 | 7.1991 |
| 35 | 6.9479 |
| 36 | 6.7067 |
| 37 | 6.4751 |
| 38 | 6.2526 |
| 39 | 6.039 |
| 40 | 5.8336 |
| 41 | 5.6357 |

| | | | | | |
|---|---|---|---|---|---|
| 42 | 4.9045 | 42 | 5.438 | 42 | 5.4454 |
| 43 | 4.713 | 43 | 5.2557 | 43 | 5.2623 |
| 44 | 4.53 | 44 | 5.0804 | 44 | 5.0863 |
| 45 | 4.3551 | 45 | 4.9119 | 45 | 4.9169 |
| 46 | 4.1878 | 46 | 4.7498 | 46 | 4.7539 |
| 47 | 4.0278 | 47 | 4.5939 | 47 | 4.5971 |
| 48 | 3.8748 | 48 | 4.4439 | 48 | 4.4461 |
| 49 | 3.7283 | 49 | 4.2995 | 49 | 4.3008 |
| 50 | 3.5882 | 50 | 4.1605 | 50 | 4.1609 |
| 51 | 3.454 | 51 | 4.0268 | 51 | 4.0262 |
| 52 | 3.3255 | 52 | 3.898 | 52 | 3.8964 |
| 53 | 3.2025 | 53 | 3.7739 | 53 | 3.7714 |
| 54 | 3.0846 | 54 | 3.6544 | 54 | 3.651 |
| 55 | 2.9717 | 55 | 3.5393 | 55 | 3.535 |
| 56 | 2.8635 | 56 | 3.4284 | 56 | 3.4231 |
| 57 | 2.7597 | 57 | 3.3215 | 57 | 3.3152 |
| 58 | 2.6603 | 58 | 3.2185 | 58 | 3.2113 |
| 59 | 2.5649 | 59 | 3.1191 | 59 | 3.111 |
| 60 | 2.4734 | 60 | 3.0234 | 60 | 3.0143 |
| 61 | 2.3856 | 61 | 2.931 | 61 | 2.9224 |
| 62 | 2.3014 | 62 | 2.8419 | 62 | 2.8337 |
| 63 | 2.2206 | 63 | 2.7559 | 63 | 2.7482 |
| 64 | 2.1431 | 64 | 2.6729 | 64 | 2.6657 |
| 65 | 2.0686 | 65 | 2.5929 | 65 | 2.5861 |
| 66 | 1.997 | 66 | 2.5156 | 66 | 2.5093 |
| 67 | 1.9283 | 67 | 2.441 | 67 | 2.4351 |
| 68 | 1.8623 | 68 | 2.369 | 68 | 2.3635 |
| 69 | 1.7989 | 69 | 2.2994 | 69 | 2.2943 |
| 70 | 1.738 | 70 | 2.2322 | 70 | 2.2275 |
| 71 | 1.6794 | 71 | 2.1673 | 71 | 2.1627 |
| 72 | 1.6231 | 72 | 2.1046 | 72 | 2.1001 |
| 73 | 1.5689 | 73 | 2.044 | 73 | 2.0396 |
| 74 | 1.5168 | 74 | 1.9854 | 74 | 1.9811 |
| 75 | 1.4667 | 75 | 1.9288 | 75 | 1.9245 |
| 76 | 1.4185 | 76 | 1.874 | 76 | 1.8698 |
| 77 | 1.3722 | 77 | 1.8211 | 77 | 1.817 |
| 78 | 1.3275 | 78 | 1.7699 | 78 | 1.7658 |
| 79 | 1.2845 | 79 | 1.7204 | 79 | 1.7164 |
| 80 | 1.2431 | 80 | 1.6725 | 80 | 1.6685 |
| 81 | 1.2033 | 81 | 1.6262 | 81 | 1.6224 |
| 82 | 1.1649 | 82 | 1.5813 | 82 | 1.5777 |
| 83 | 1.1279 | 83 | 1.5379 | 83 | 1.5345 |
| 84 | 1.0923 | 84 | 1.4959 | 84 | 1.4927 |

| | |
|---|---|
| 85 | 1.058 |
| 86 | 1.0249 |
| 87 | 0.993 |
| 88 | 0.9623 |
| 89 | 0.9326 |
| 90 | 0.904 |
| 91 | 0.8764 |
| 92 | 0.8498 |
| 93 | 0.8241 |
| 94 | 0.7994 |
| 95 | 0.7754 |
| 96 | 0.7523 |
| 97 | 0.73 |
| 98 | 0.7085 |
| 99 | 0.6877 |
| 100 | 0.6676 |
| 101 | 0.6482 |
| 102 | 0.6295 |
| 103 | 0.6113 |
| 104 | 0.5938 |
| 105 | 0.5769 |
| 106 | 0.5605 |
| 107 | 0.5447 |
| 108 | 0.5293 |
| 109 | 0.5145 |
| 110 | 0.5002 |
| 111 | 0.4863 |
| 112 | 0.4729 |
| 113 | 0.4599 |
| 114 | 0.4474 |
| 115 | 0.4352 |
| 116 | 0.4234 |
| 117 | 0.412 |
| 118 | 0.4009 |
| 119 | 0.3902 |
| 120 | 0.3799 |

| | |
|---|---|
| 85 | 1.4553 |
| 86 | 1.4159 |
| 87 | 1.3778 |
| 88 | 1.3408 |
| 89 | 1.3051 |
| 90 | 1.2704 |
| 91 | 1.2368 |
| 92 | 1.2043 |
| 93 | 1.1728 |
| 94 | 1.1422 |
| 95 | 1.1126 |
| 96 | 1.0839 |
| 97 | 1.056 |
| 98 | 1.029 |
| 99 | 1.0028 |
| 100 | 0.9774 |
| 101 | 0.9527 |
| 102 | 0.9288 |
| 103 | 0.9055 |
| 104 | 0.883 |
| 105 | 0.8611 |
| 106 | 0.8399 |
| 107 | 0.8193 |
| 108 | 0.7992 |
| 109 | 0.7798 |
| 110 | 0.7609 |
| 111 | 0.7425 |
| 112 | 0.7247 |
| 113 | 0.7074 |
| 114 | 0.6906 |
| 115 | 0.6742 |
| 116 | 0.6583 |
| 117 | 0.6429 |
| 118 | 0.6278 |
| 119 | 0.6132 |
| 120 | 0.599 |

| | |
|---|---|
| 85 | 1.4521 |
| 86 | 1.4129 |
| 87 | 1.3749 |
| 88 | 1.3381 |
| 89 | 1.3025 |
| 90 | 1.268 |
| 91 | 1.2343 |
| 92 | 1.2016 |
| 93 | 1.17 |
| 94 | 1.1393 |
| 95 | 1.1096 |
| 96 | 1.0807 |
| 97 | 1.0528 |
| 98 | 1.0256 |
| 99 | 0.9993 |
| 100 | 0.9738 |
| 101 | 0.9492 |
| 102 | 0.9254 |
| 103 | 0.9022 |
| 104 | 0.8798 |
| 105 | 0.858 |
| 106 | 0.8368 |
| 107 | 0.8162 |
| 108 | 0.7963 |
| 109 | 0.7769 |
| 110 | 0.758 |
| 111 | 0.7397 |
| 112 | 0.7219 |
| 113 | 0.7046 |
| 114 | 0.6878 |
| 115 | 0.6715 |
| 116 | 0.6556 |
| 117 | 0.6402 |
| 118 | 0.6252 |
| 119 | 0.6106 |
| 120 | 0.5964 |
| 121 | 0.5826 |
| 122 | 0.5692 |
| 123 | 0.5562 |
| 124 | 0.5435 |
| 125 | 0.5311 |

## 5.2.8.OTP Protection

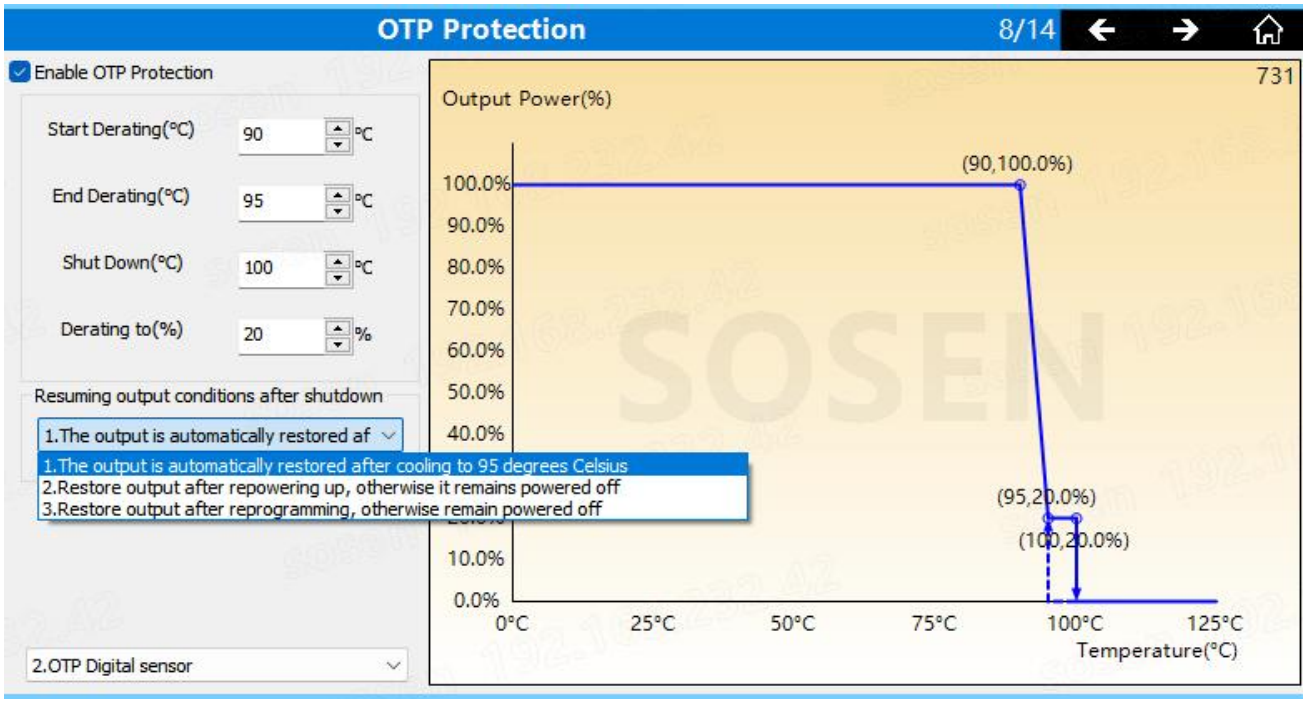
There is a temperature sensor inside the LED driver that detects the internal temperature of the LED driver. The internal temperature protection point of the LED driver can be set via the programming interface.

Note: The LED driver hardware must support OTP functionality.

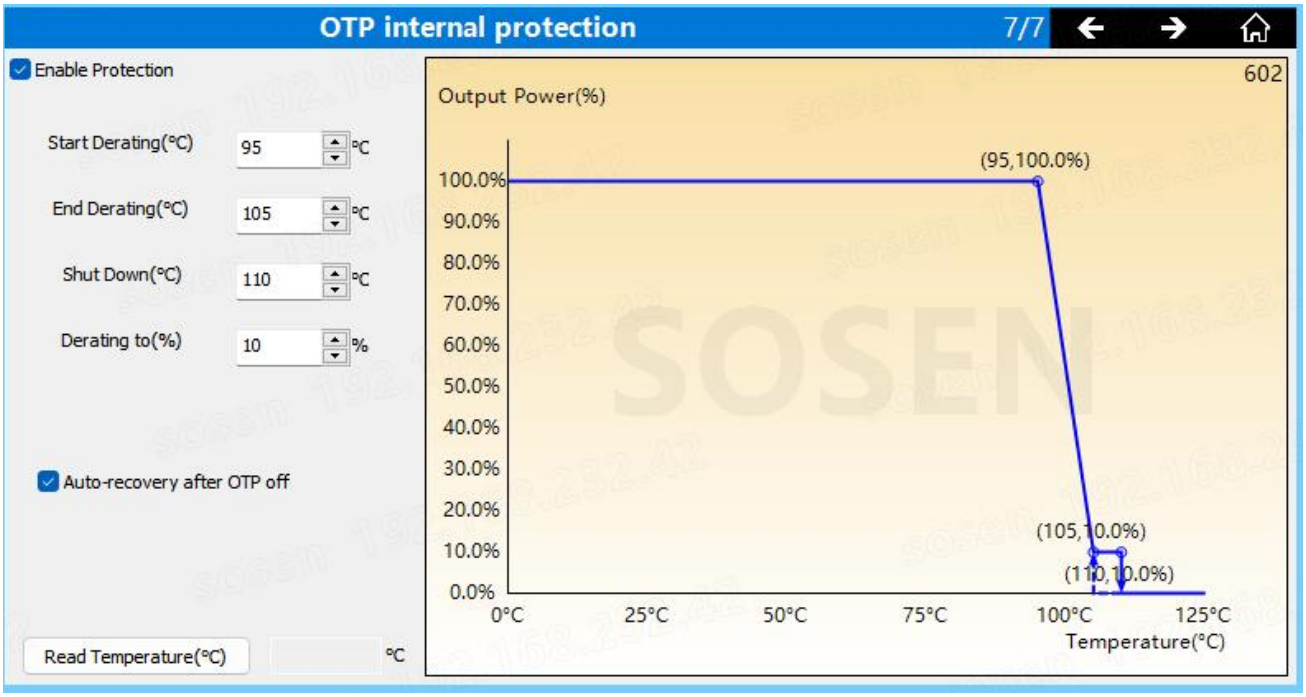
DALI power supply OTP operation logic: When the temperature is lower than 90 ° C, the output power is 100%;When the temperature is greater than 95 ° C and less than 75 ° C, the output power runs in an oblique line between 90 ° C and 95 ° C, with the increase and decrease of the temperature, the output power will be accompanied by this decrease and increase;When the temperature is greater than 95℃, the output power will be reduced to 20% and maintained at 20%;When the temperature is greater than 100 ° C, the output will be turned off.In addition, set the off temperature to be less than or equal to the temperature at which the derating ends. This disables the off function.

After OTP is disabled, output can be resumed according to three different recovery conditions.The first condition is to resume output when the temperature drops to the end derating temperature.The second condition is to restore the output when the LED driver is powered back on.The third condition is to restore power after reprogramming the LED driver.The output power level specified at the end of derating will be restored.

DALI Power OTP user interface is as follows:



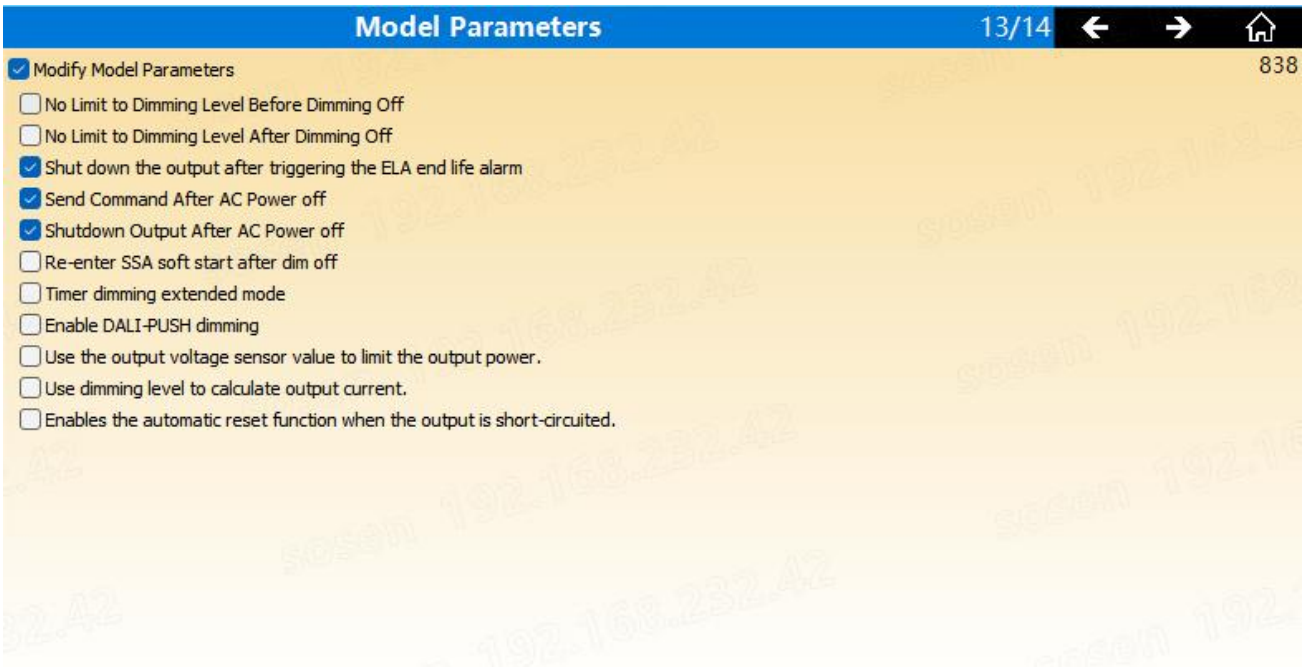

The 3-in-1 power supply runs the same logic as DALI.The difference is that the 3-in-1 power supply can only choose whether the OTP is automatically restored after shutdown, and the current temperature can be read in the user interface, as shown below:

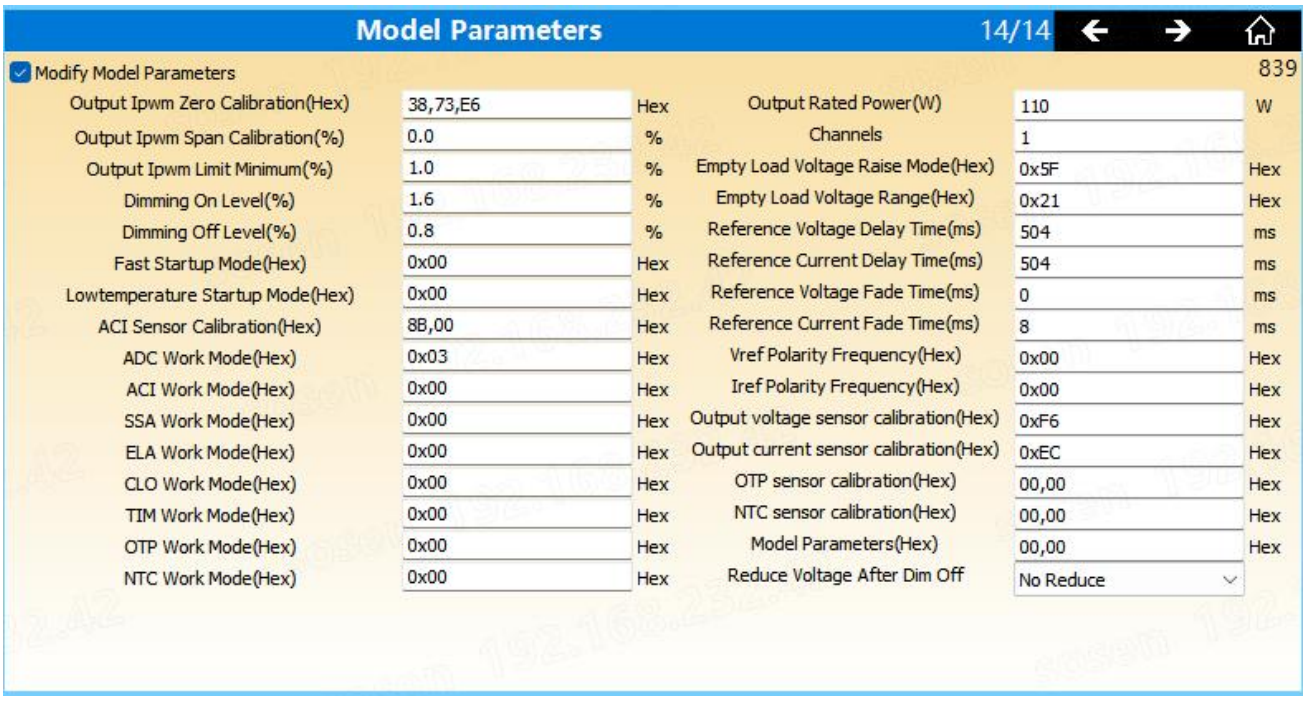



## 5.2.9.Model Parameters

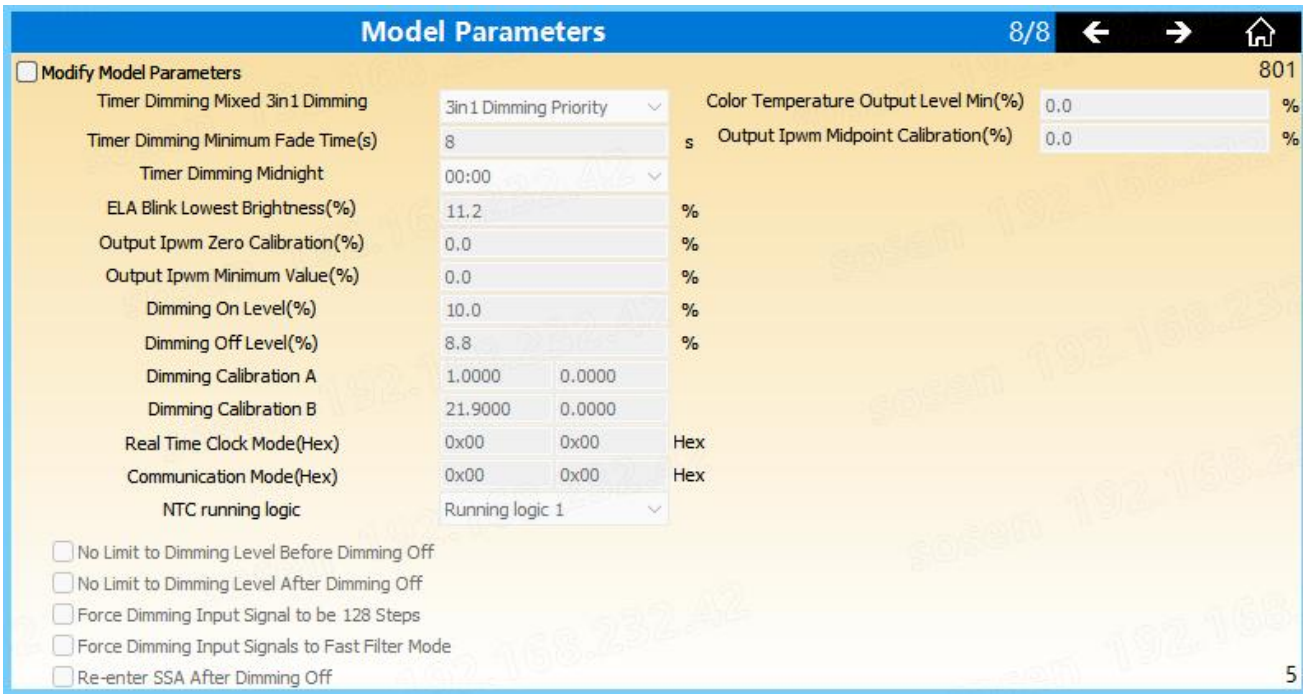
The model parameters page can set the dimming on voltage and dimming off voltage of the LED driver, as well as other parameters (the setting of the dimming on voltage and dimming off voltage requires hardware support).

The DALI power model feature parameter interface is as follows:



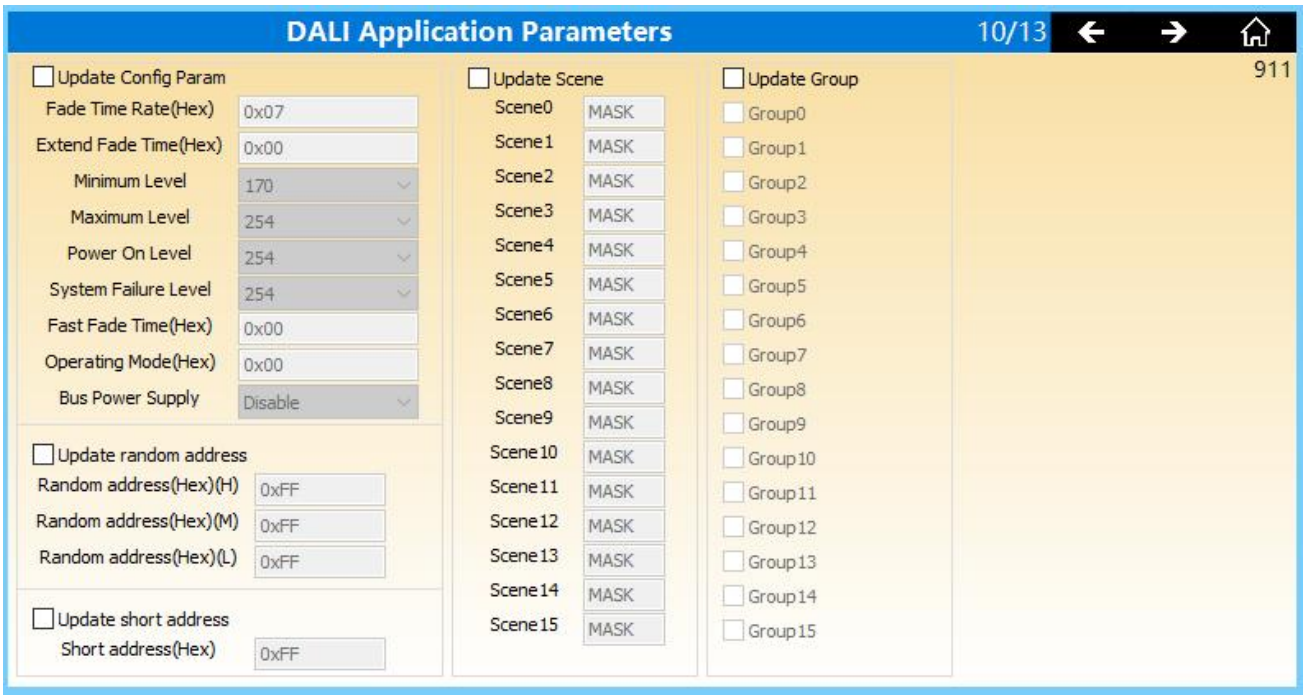



The three-in-one power model feature parameter interface is as follows:



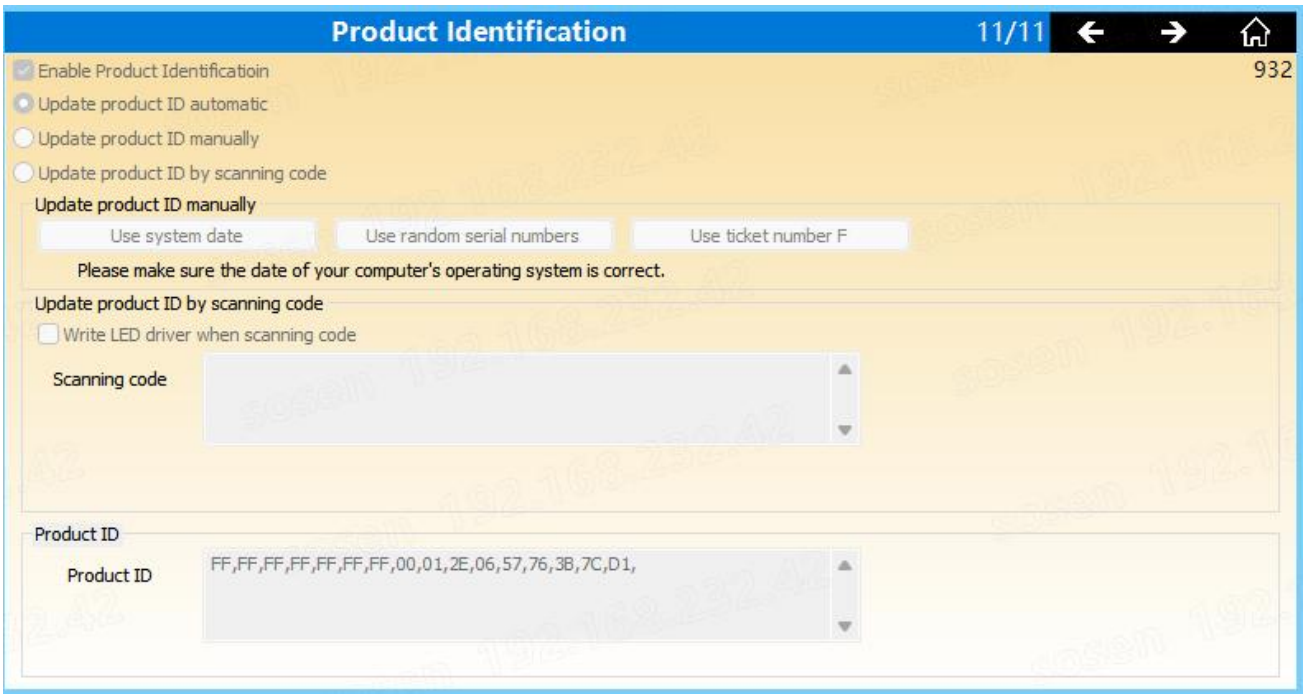
## 5.2.10.DALI Application Parameters

On this page, you can set the DALI application parameters of the LED driver, including configuration parameters, address parameters, scene parameters and group parameters (when setting parameters, you need to tick the corresponding box).DALI application parameters are available only for DALI power supply, as shown below:



## 5.2.11.Product Identification

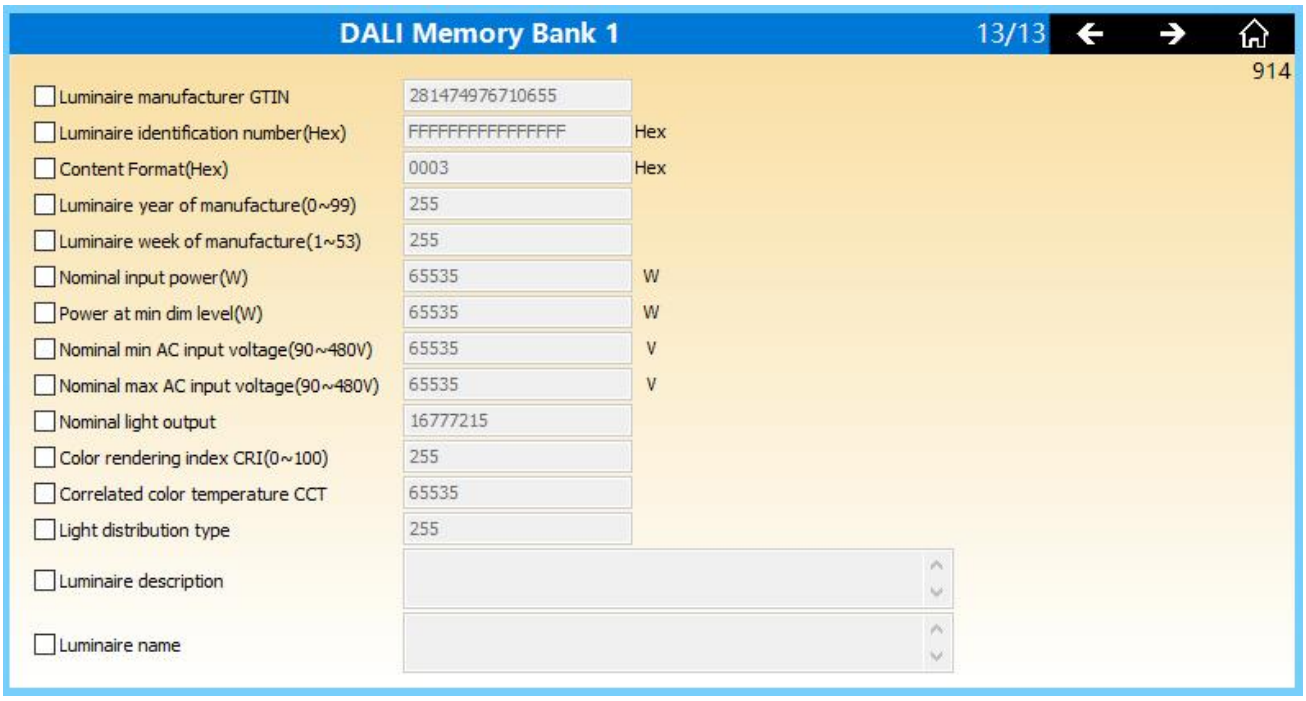
The product identification parameters of the LED driver can be displayed on this page, which cannot be changed.Product identification is only available for DALI models, as shown below:




## 5.2.12.DALI Memory Bank 1

On this page, you can set the relevant parameters of DALI Memory Bank 1 (when setting relevant parameters, you need to tick the relevant parameters).

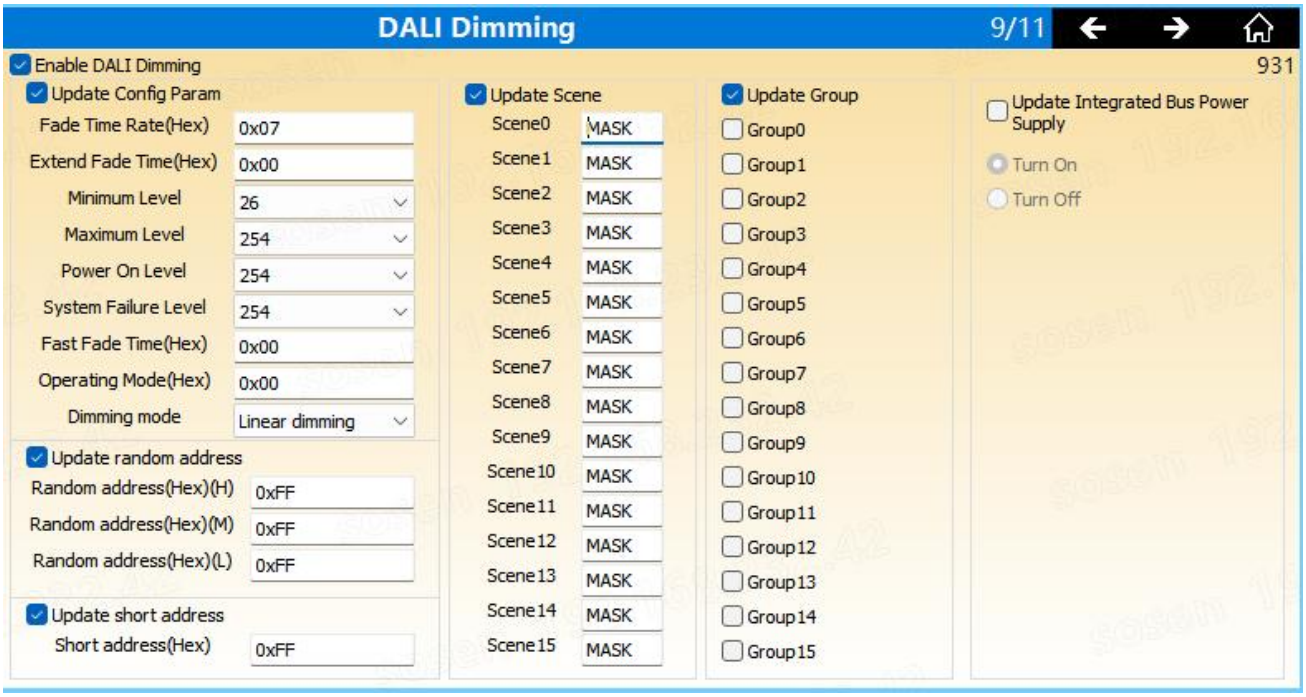
DALI storage blocks are available only for DALI models, as shown in the following figure:




## 5.2.13.DALI Dimming

This user interface cannot be used for DALI dimming control, but is only used to modify DALI dimming parameters, such as minimum brightness level, power-on brightness level, update address, scene, etc., with the DALI master and the corresponding software, the parameters set on this page can be read in the master software. On the right side of the interface, set the power switch status of the internal integrated bus.

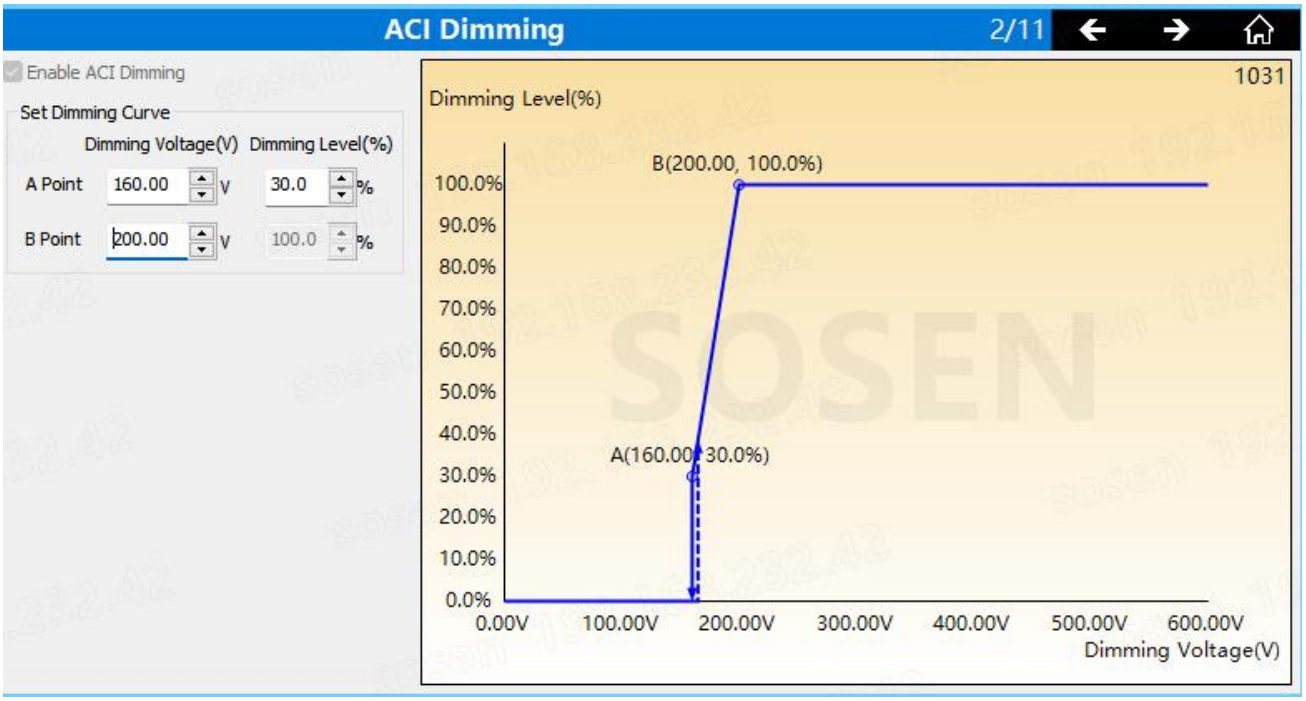
DALI dimming only DALI power supply, as shown below:




## 5.2.14.ACI Dimming

The LED driver has an under-voltage protection function, that is, ACI dimming, this interface can set the dimming voltage value of the protection starting point (point B), the dimming voltage value of the protection end point (point A), and the dimming level.

ACI dimming function only DALI model power supply, as shown below:

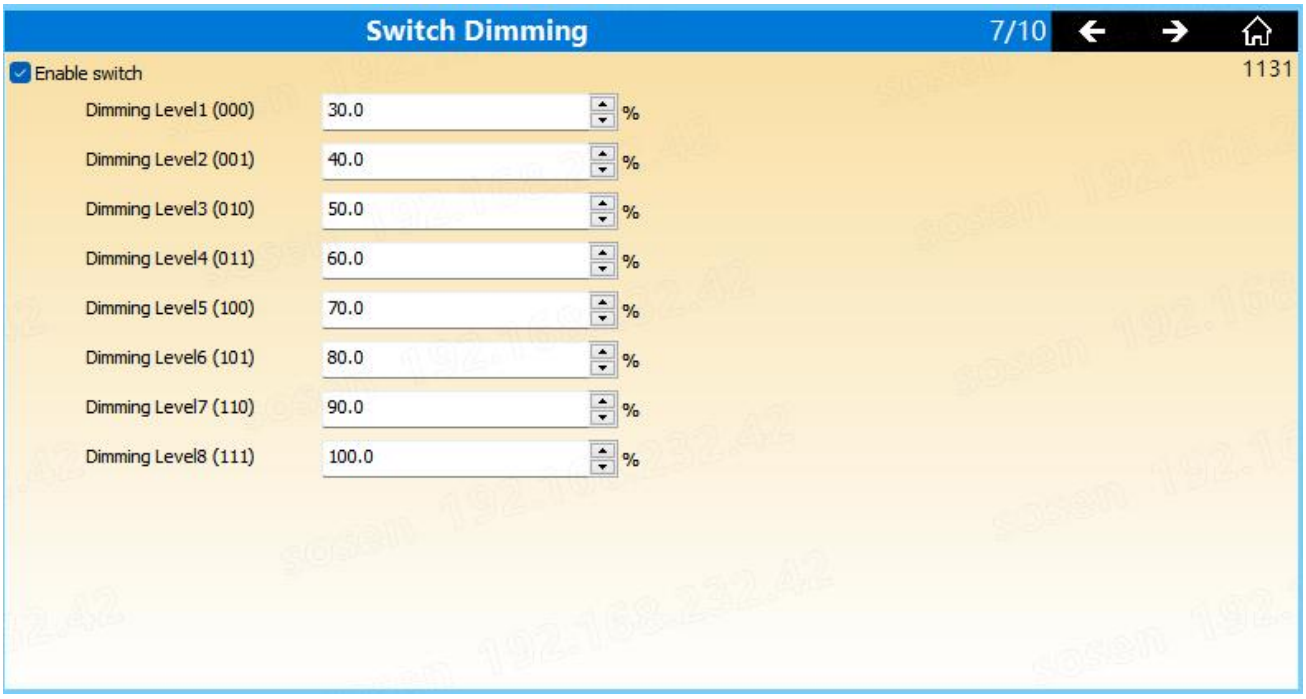



## 5.2.15.Switch Dimming

DALI power supply with SWT eight-speed dimming function LED driver has four lines, respectively black, white, red, yellow lines.In the following table, the selected lines are connected together to output corresponding dimming levels.

| Dimming grade | black | white | red | yellow |
|---|---|---|---|---|
| 1 | √ | √ | √ | √ |
| 2 | √ | √ | √ | × |
| 3 | √ | √ | × | √ |
| 4 | √ | √ | × | × |
| 5 | √ | × | √ | √ |
| 6 | √ | × | √ | × |
| 7 | √ | × | × | √ |
| 8 | √ | × | × | × |

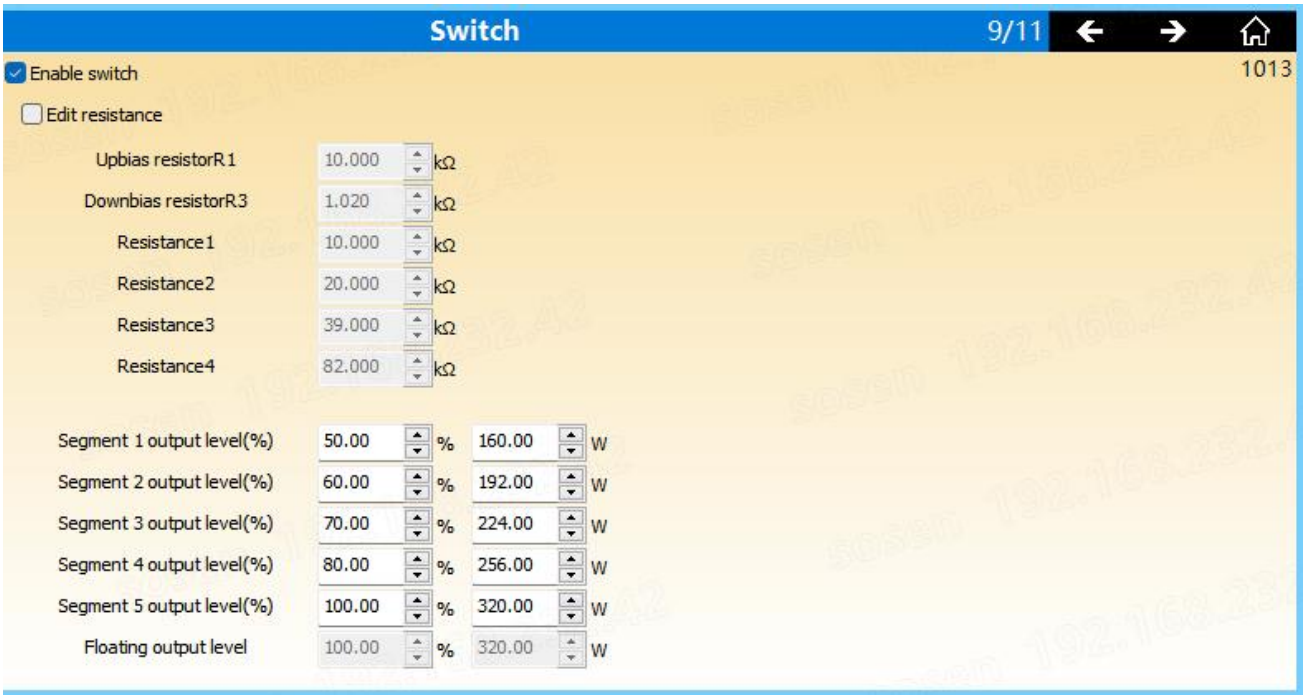
DALI power SWT user interface can set the corresponding dimming level of the gear, as shown below:




Three-in-one power supply SWT function is five-speed dimming, the following table is the dial gear resistance and the corresponding segment output parameter requirements:

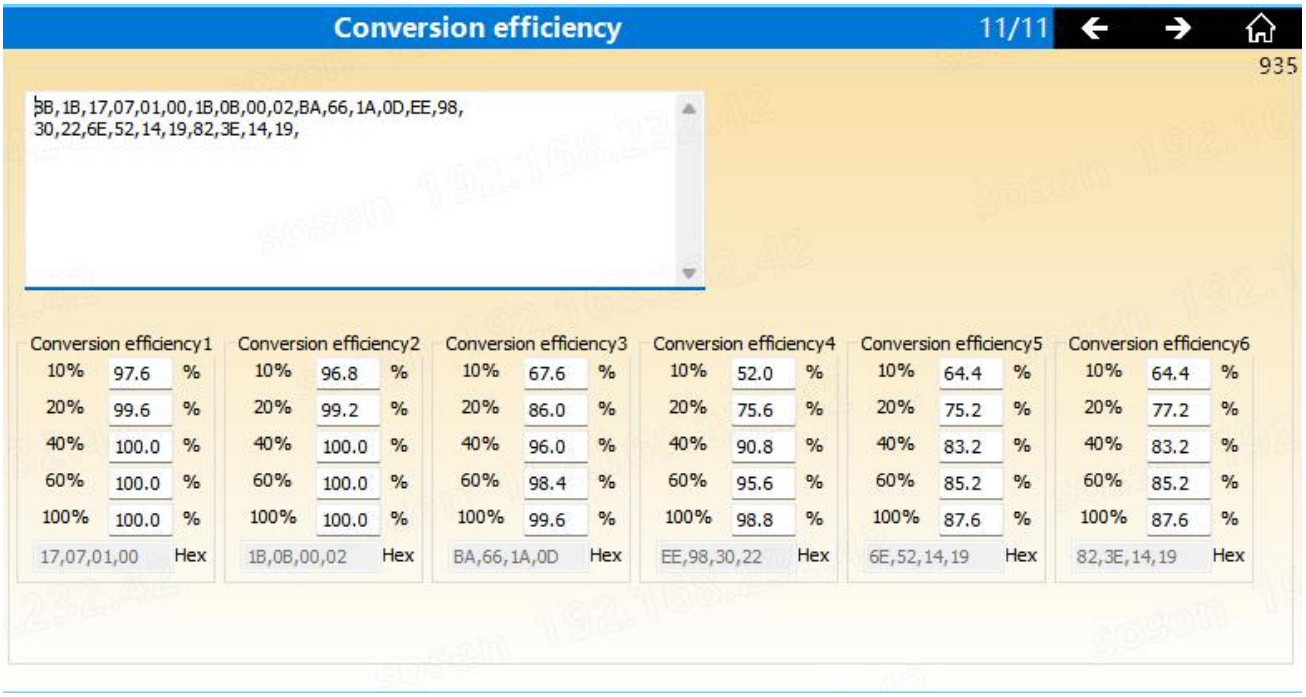
| | Resistance Range | Output Level | Software Setting Status |
|---|---|---|---|
| First Segment Output | 0kΩ~15kΩ | 50% | Output level can be set |
| Second Segment Output | 15kΩ~29.5kΩ | 60% | Output level can be set |
| Third Segment Output | 29.5kΩ~60.5kΩ | 70% | Output level can be set |
| Fourth Segment Output | 60.5kΩ~ | 80% | Output level can be set |
| Fifth Segment Output | Open-circuit | 100% | Not adjustable |

Three-in-one power supply SWT can set the resistance of the corresponding gear as well as the upper bias resistance and the lower bias resistance, but it is generally fixed because of the hardware circuit restrictions.As shown below:




## 5.2.16.Conversion Efficiency

This user interface is a correction value for the D4i power parameter for power calibration.



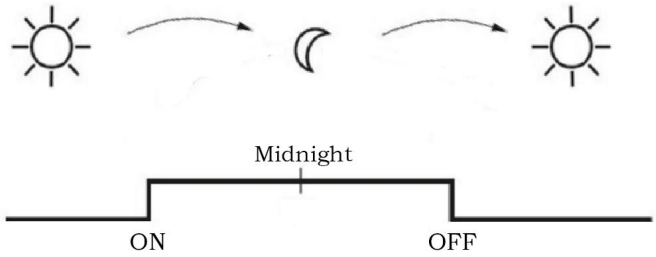

## 5.3.Introduction to the adaptive timer function

### 5.3.1.Adaptive timer function application

SOSEN's adaptive timer function takes into account the use of lamps and lanterns in different regions and different seasons. The LED driver automatically calculates the runtime in a "self-learning" manner, corresponding to the timer dimming curve set at the time of initial installation, to achieve adaptive timing dimming function. The timer dimming curve only needs to be set once before installation. SOSEN's adaptive timer dimming function consists of 2 modes: "Self-Adapt-Midnight Timer" and "Self-Adapt-Percentage Timer".

### 5.3.2.Adaptive time calculation

(1) Manually switch on and off the machine at least once a day

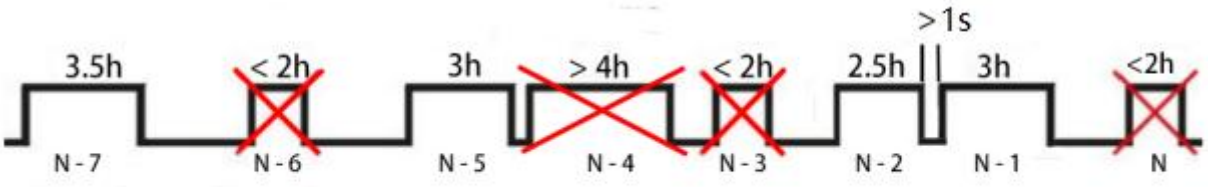



(2) The effective run time is calculated automatically

a. The power-on running time is not less than 2 hours, and it is recorded as 1 effective running time.

b. The LED driver power-down time is not less than 1s, which will be recorded as a new time.

c. The last effective running time, the difference between the absolute value of the effective running time before and not more than 1 hour, is valid calculation data.Three in one power supply 4 times effective calculation data, obtained "Average On Hours" (referred to as AOH), that is, "adaptive cycle".DALI power supply 2 effective time calculation AOH.




Average On Hours ： $AOH = \frac{(N-1)+(N-2)+(N-5)+(N-7)}{4}$

## 5.3.3.Adaptive timer dimming

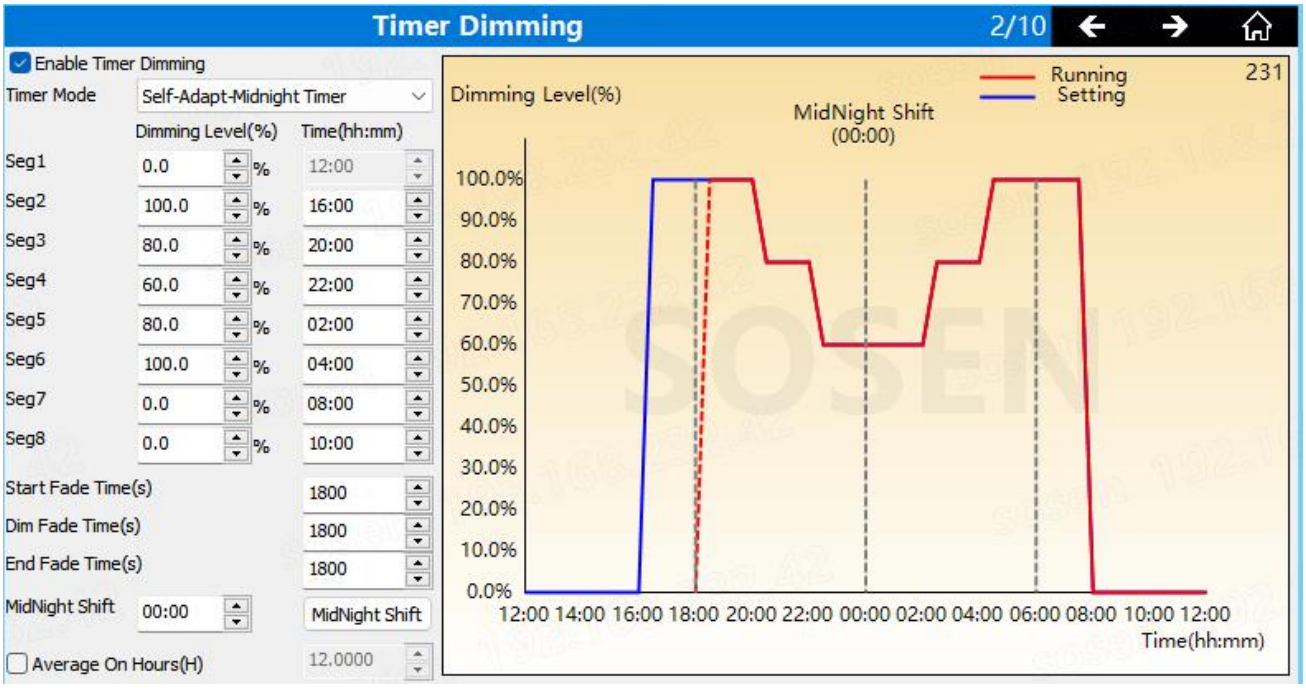
(1) Self-Adapt-Midnight Timer

a. The 3-in-1 power supply uses the start point set in section 4 of the dimming curve

as the adaptive midpoint.The DALI power supply is set at the start point in paragraph 5 as the adaptive midpoint.

b. Then according to "Average On Hours" (AOH), it corresponds to both sides of midnight. The red line is the change in power output when the LED driver is running.

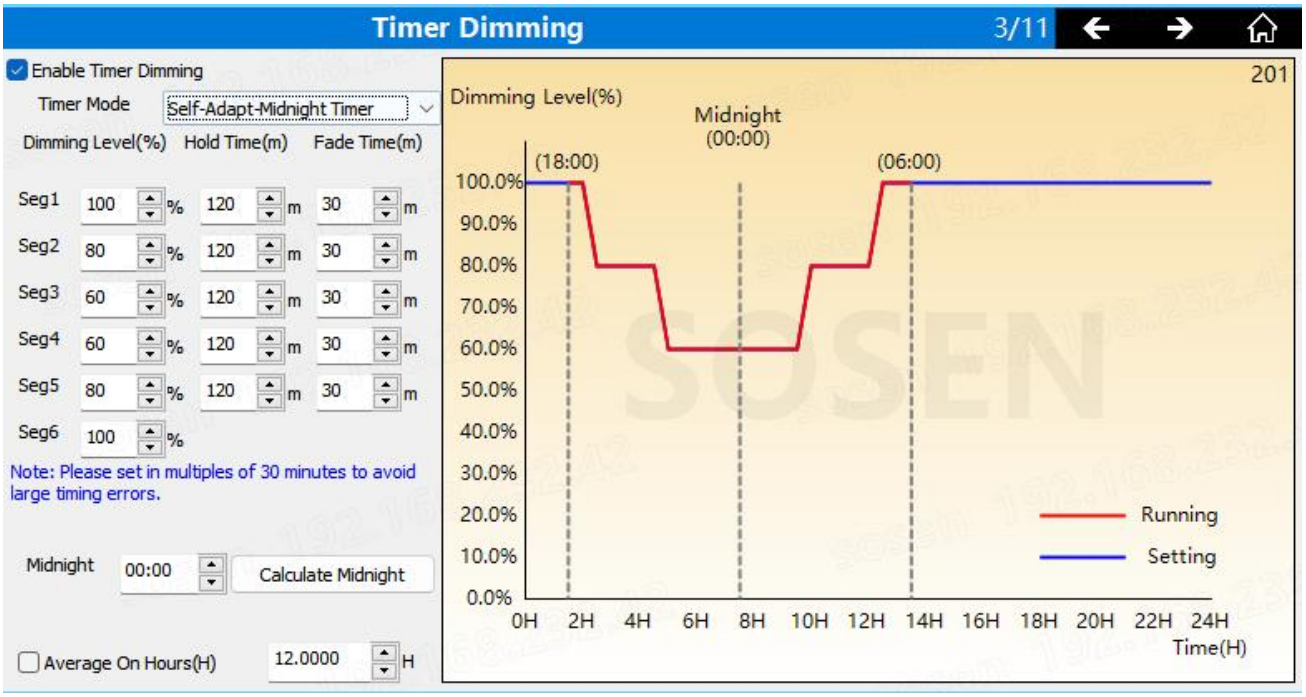
DALI electrical source ADAPTS midpoint dimming user interface as follows:



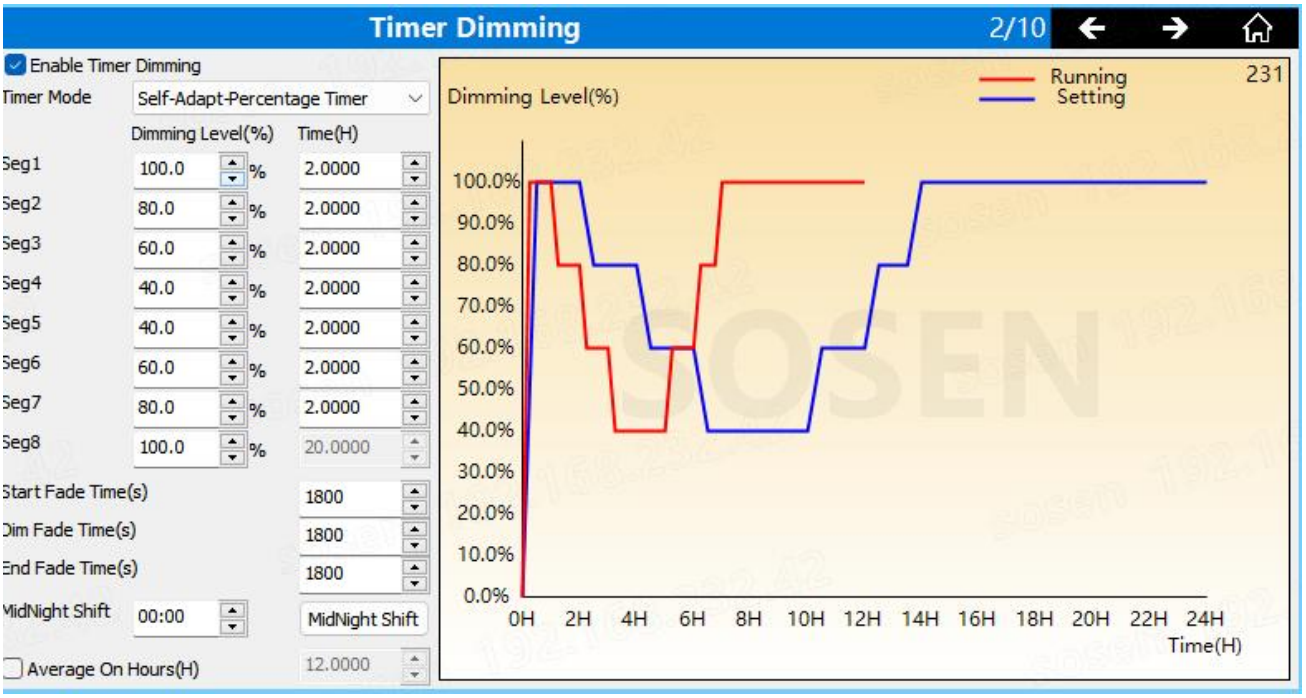

3-in-1 power source ADAPTS midpoint dimming user interface as follows:

(2) Self-Adapt-Percentage Timer

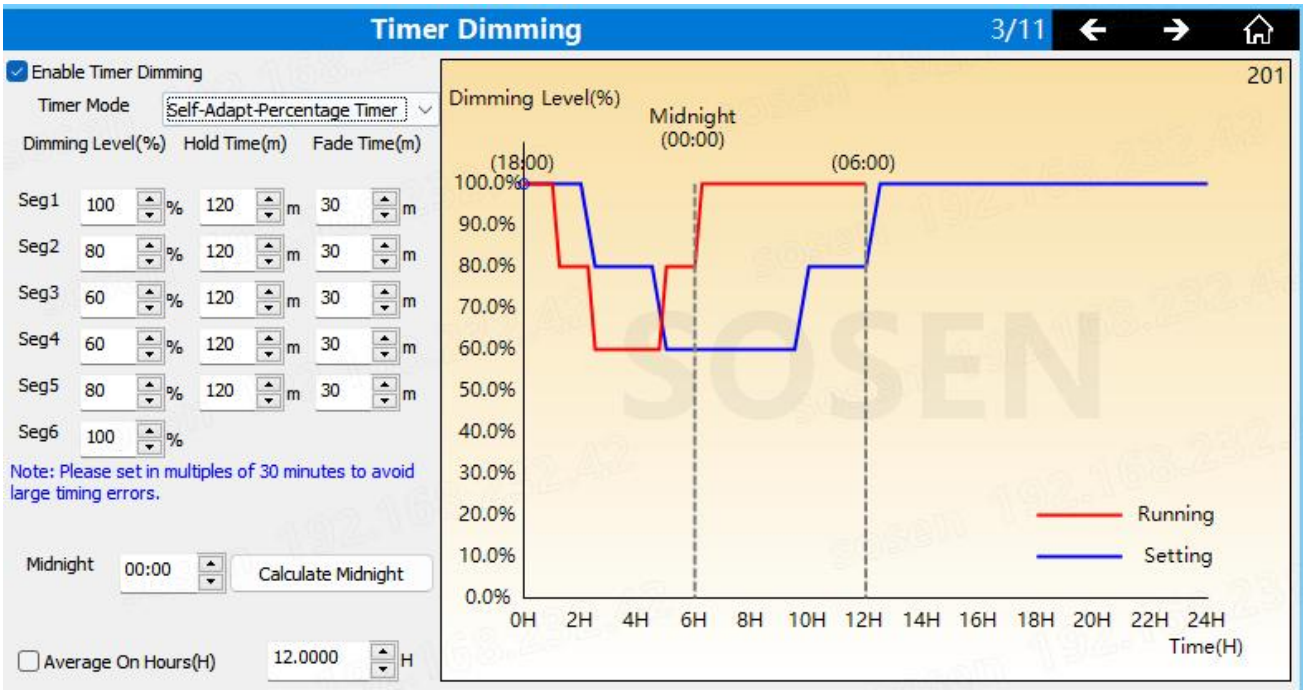
According to the percentage ratio of "Average On Hours" (AOH), the time of setting the curve is converted proportionally to obtain the LED driver running output change curve




DALI electrical source adaptive percentage dimming user interface is as follows:



The 3-in-1 electrical dimming user interface is derived from adaptive percentage dimming as follows:




| Versions | Date | Description |
|---|---|---|
| V1.00 | 2022/02/11 | Initial release |
| V1.01 | 2022/04/11 | Fixed some page display |

| | | |
|---|---|---|
| V1.1 | 2022/10/13 | Add some features |
| V1.2 | 2023/04/25 | Added new communication methods for models. |
| V1.3 | 2024/12/13 | Added distinction between DALI and 3-in-1 |
| | | |
| | | |
| | | |