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SosenProgrammer User Manual

V1.1



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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).

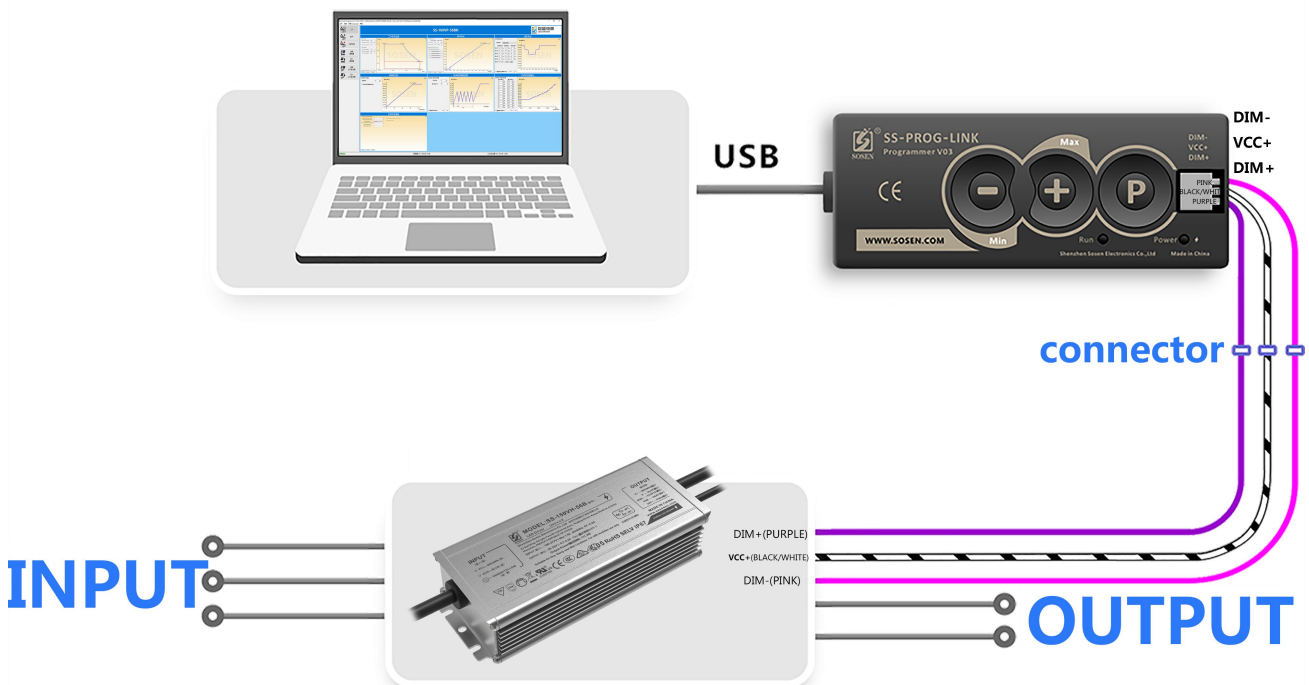
The function of the button "-" is to reduce the current output by up to 10%. With one click, reduce the ratio to 0.5% of the maximum output current of the LED driver.

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+” .

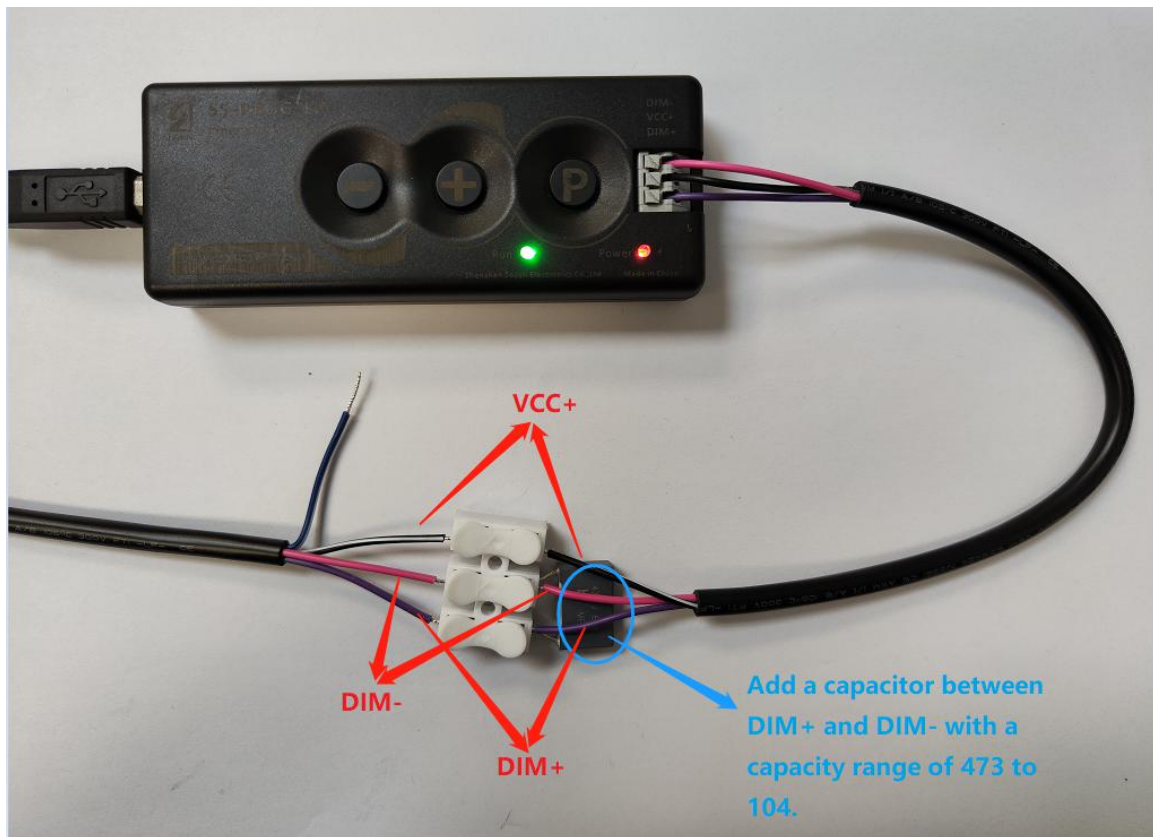
The programmer is connected to the computer's USB port, and the programmer recognizes the LED driver.

Connection correct: "di" sound.

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

Programmer does not match the LED driver software version: "didididi" 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. Software installation and use

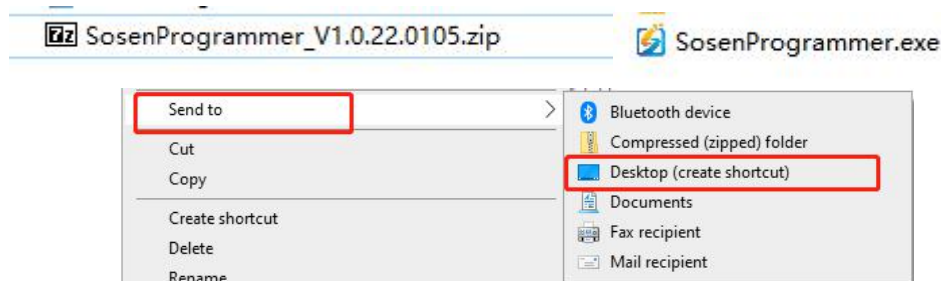
3.1. Operating system requirements

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

3.2. Software installation

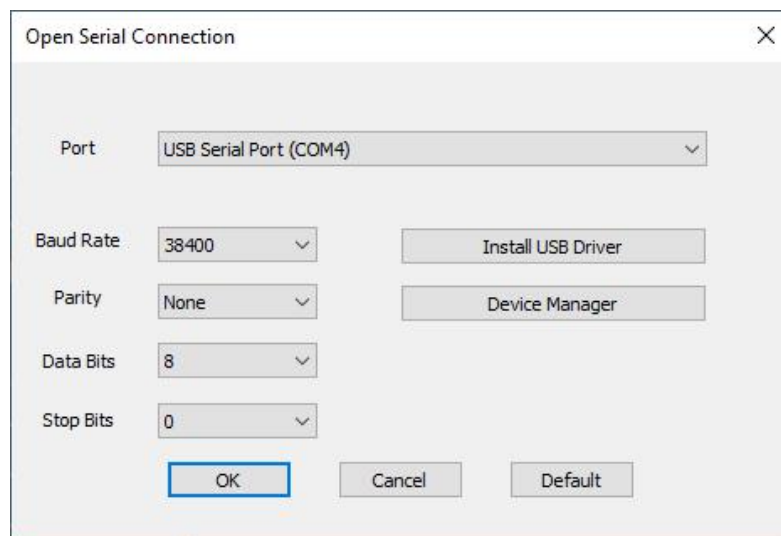
3.2.1. Software decompression

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



3.2.2. Driver installation

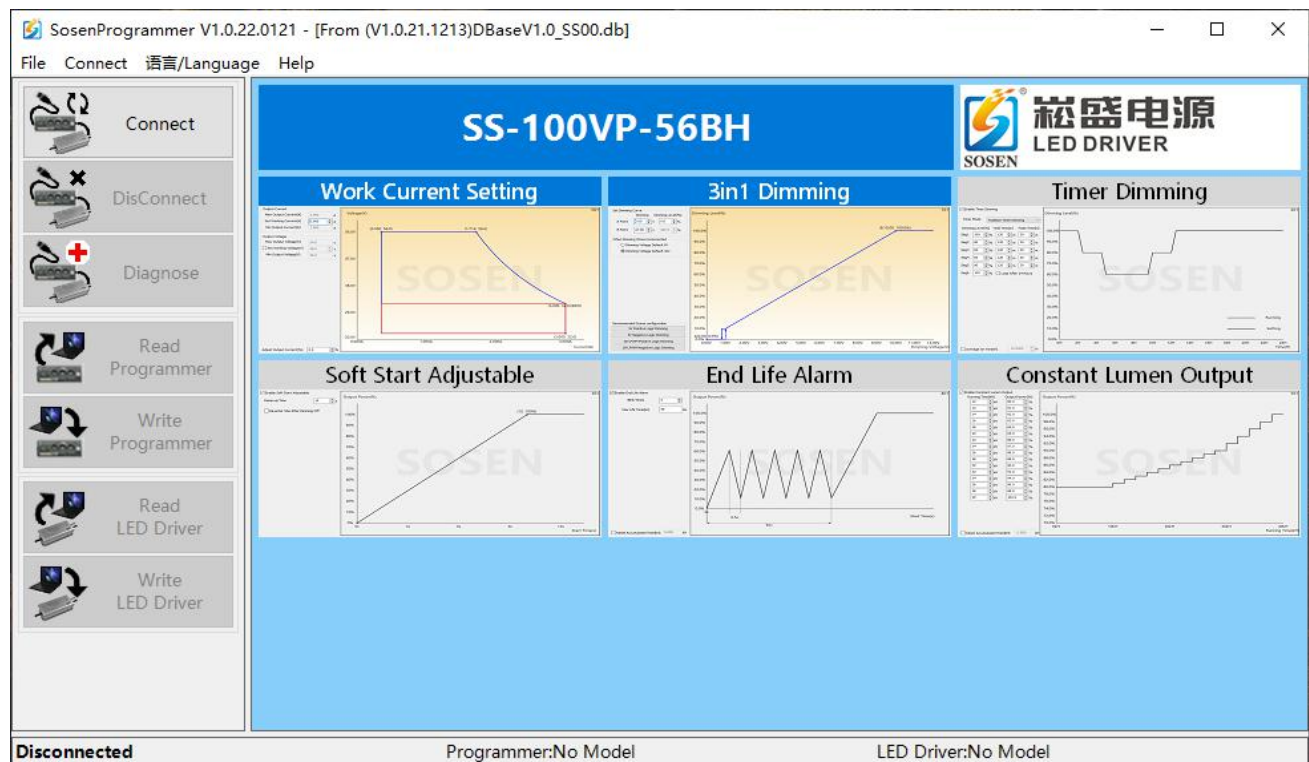
Open the SosenProgrammer software and click Connect. When the USB Serial Port (COM x) is not displayed at the port, click "Install USB Driver" and the USB driver will be installed.



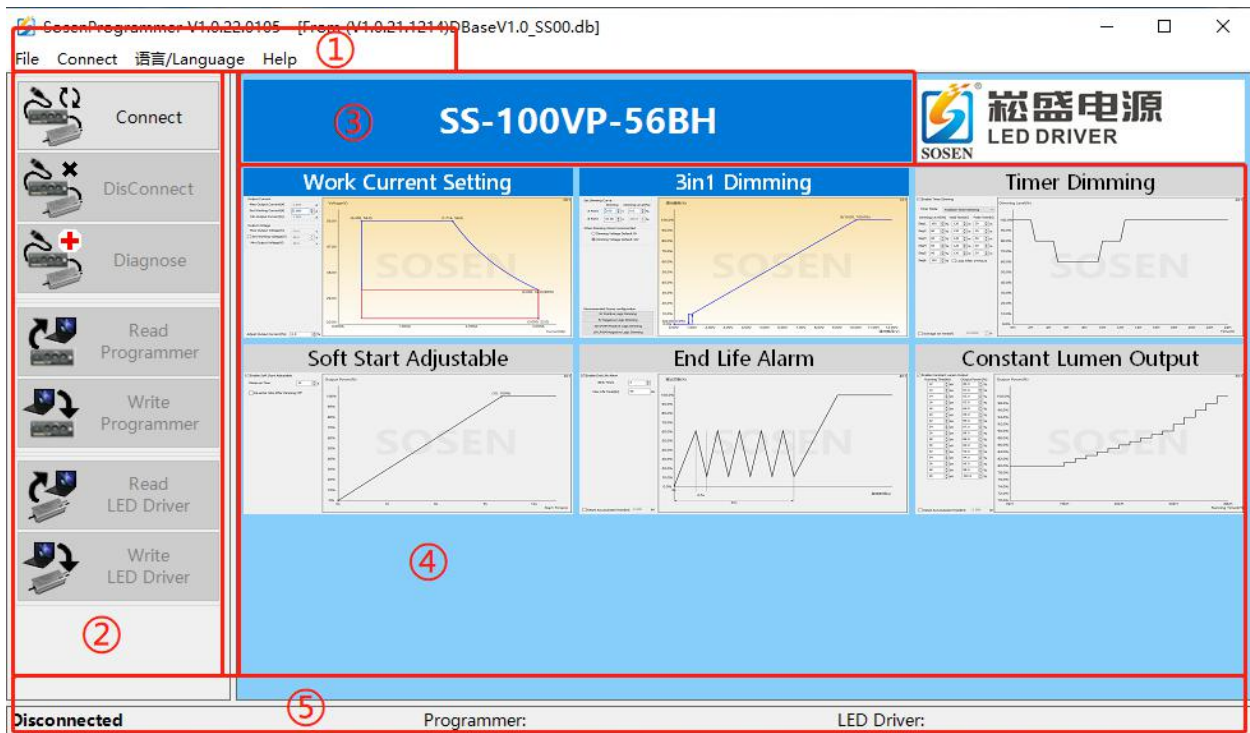
3.3. Functional description of the software

3.3.1. Software main interface

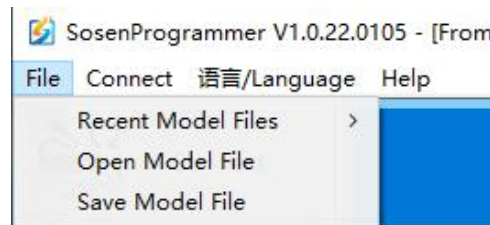
After "Read LED Driver" or "Load Default Values". Displays the features that the model has, orange for the functions that have been enabled, and gray for the functions that are not enabled.



3.3.2. 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.

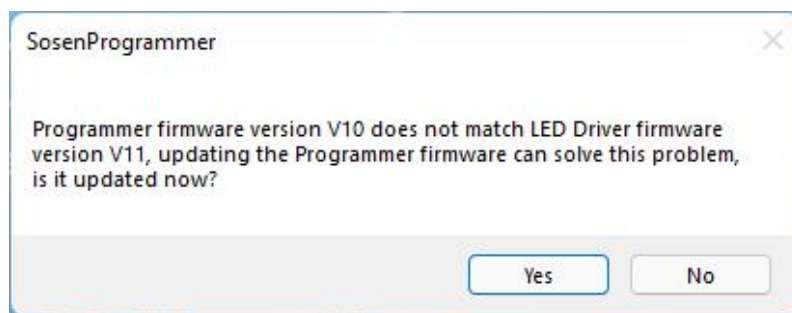
③ Load default values and display model names: Left mouse button opens the model list and displays the model name.

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

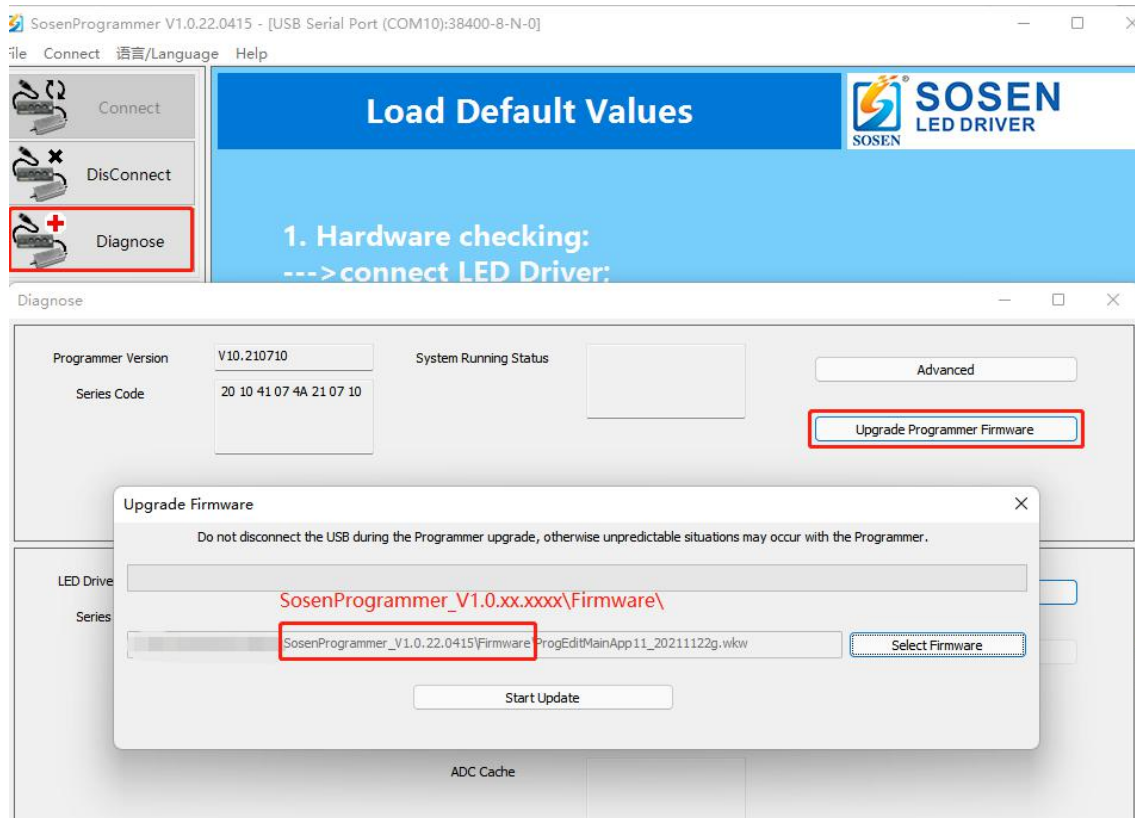
⑤ Model name display: Displays the operating status, the model saved by the current programmer and the model of the LED driver access.

3.4. 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).



3.5. 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.

4. Introduction to programmable LED driver functions

4.1. Programmable LED driver functions

- (1) Work Current Setting (Current and voltage can be set)
- (2) 3in1 Dimming (Compatible with PWM dimming, 0-5V, 0-10V, 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)

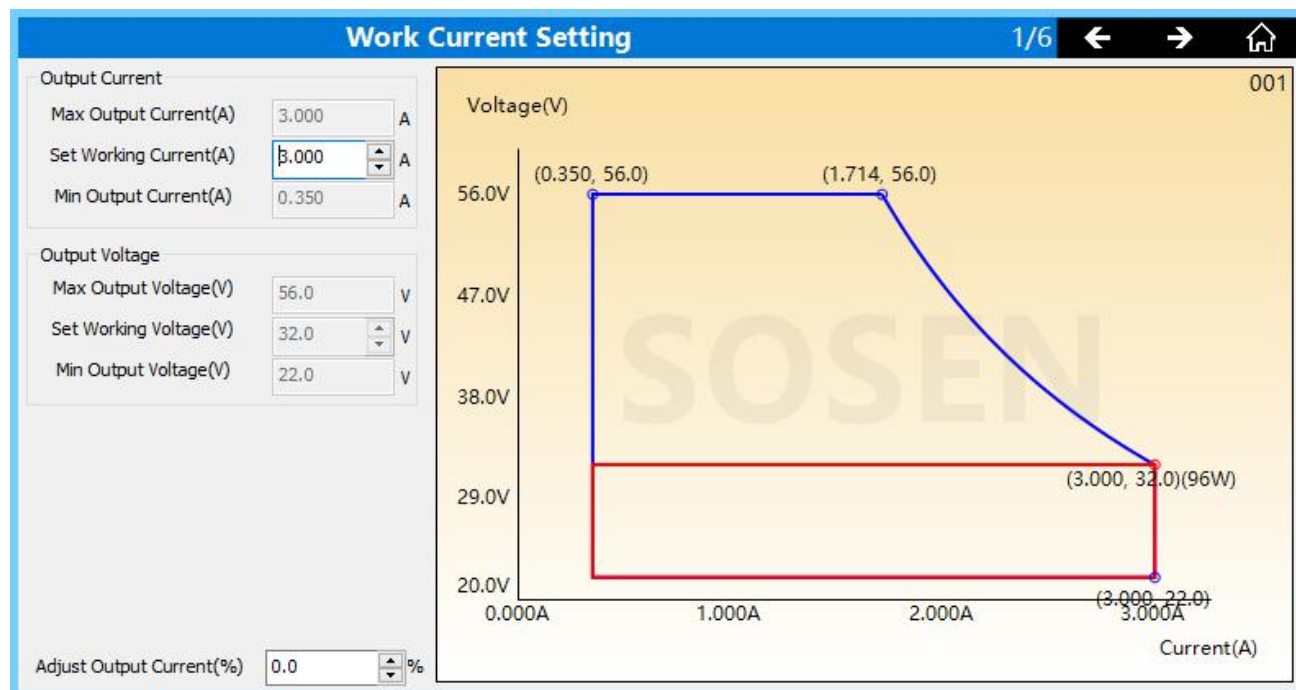
4.2. Programmable LED driver functions explained in detail

4.2.1. 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

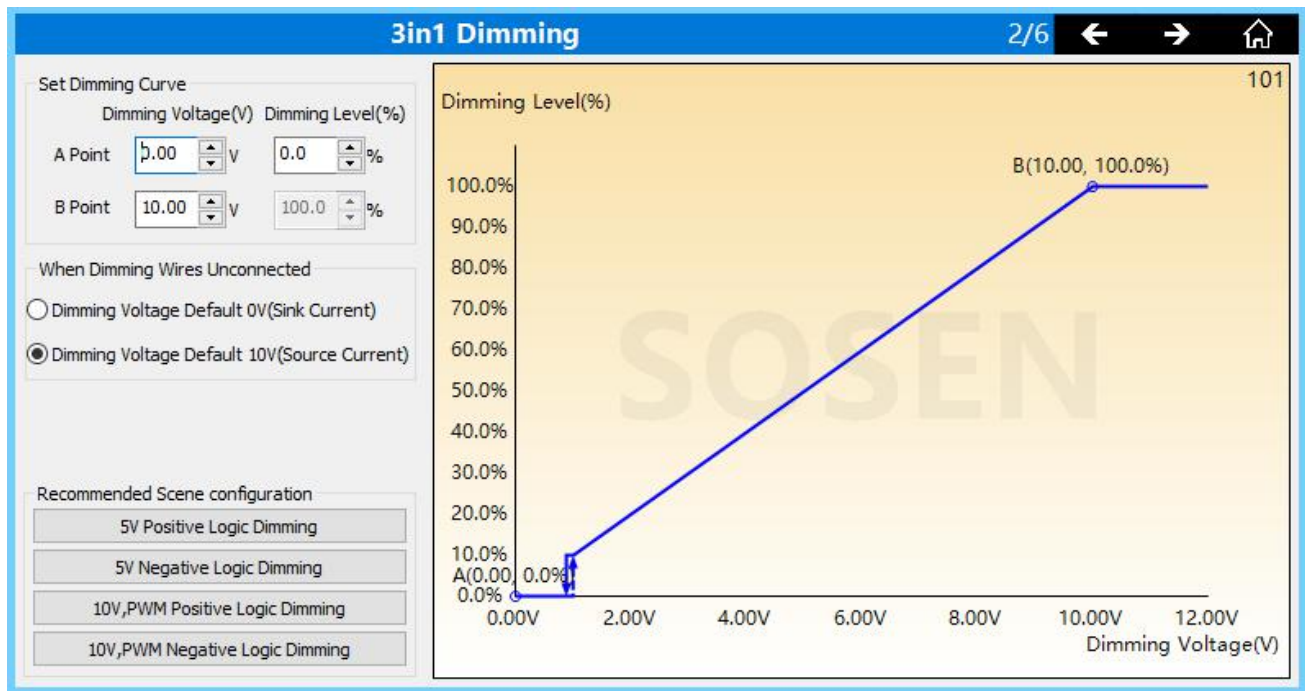
parameters (according to the maximum output current of the LED driver is the calculation base).



4.2.2. 3in1 Dimming

Set 3in1 Dimming (PWM dimming integrated into 0-10V dimming). The dimming voltage of point A and the dimming voltage of point B can be adjusted according to actual use and can be used in recommended scenarios. Dimming is suspended, and the output voltage of the dimming light can be set (only the hardware support of some LED drivers). Set the dimming level of point A to the minimum dimmable brightness (if the dimming level of point A is set to 100%, the dimming will not respond).

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



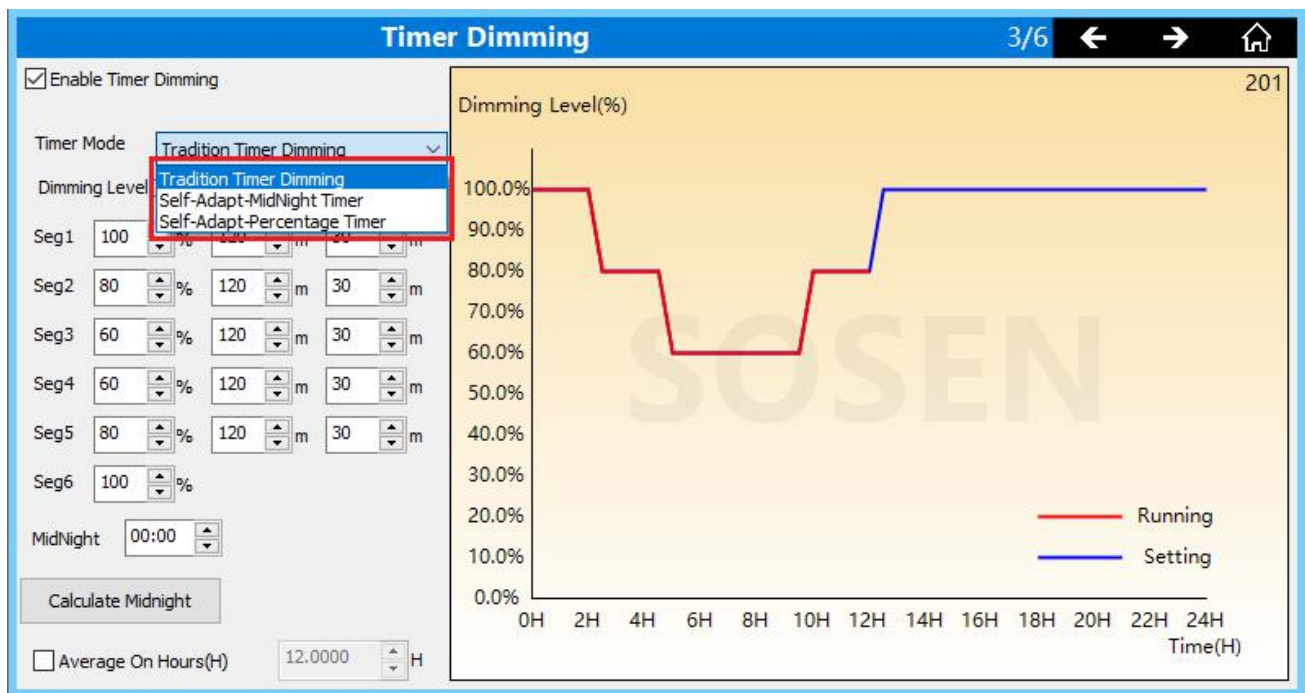
4.2.3. Timer Dimming

Traditional Timer Dimming, Self-Adapt-Midnight Timer, Self-Adapt-Percentage Timer. Time-controlled dimming settings can be made by setting 6 curves.

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).

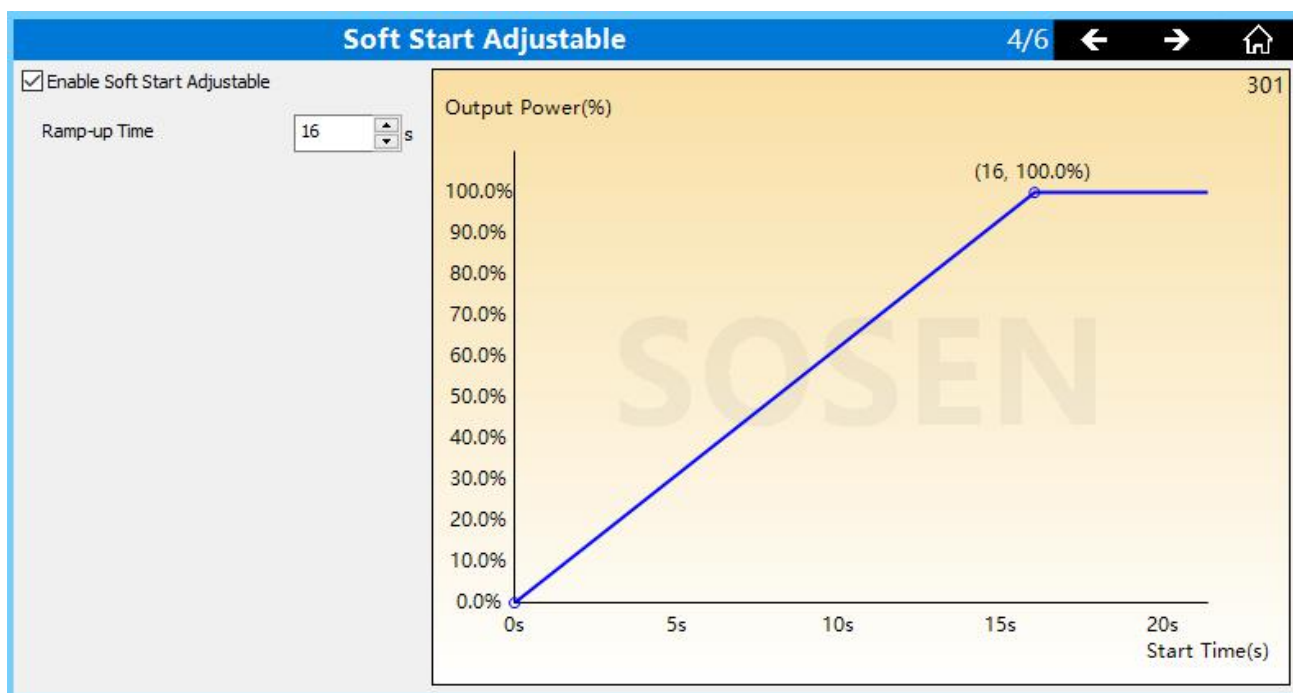
Self-Adapt-Midnight Timer: The 4th segment of the adaptive midnight timer curve acts as the midnight point. The LED driver automatically saves the effective power-on time and automatically calculates the adaptive cycle time through the effective calculation time of 4 times.

Self-Adapt-Percentage Timer: The adaptive percentage runs according to the automatically calculated adaptive cycle time according to the initially set dimming curve.



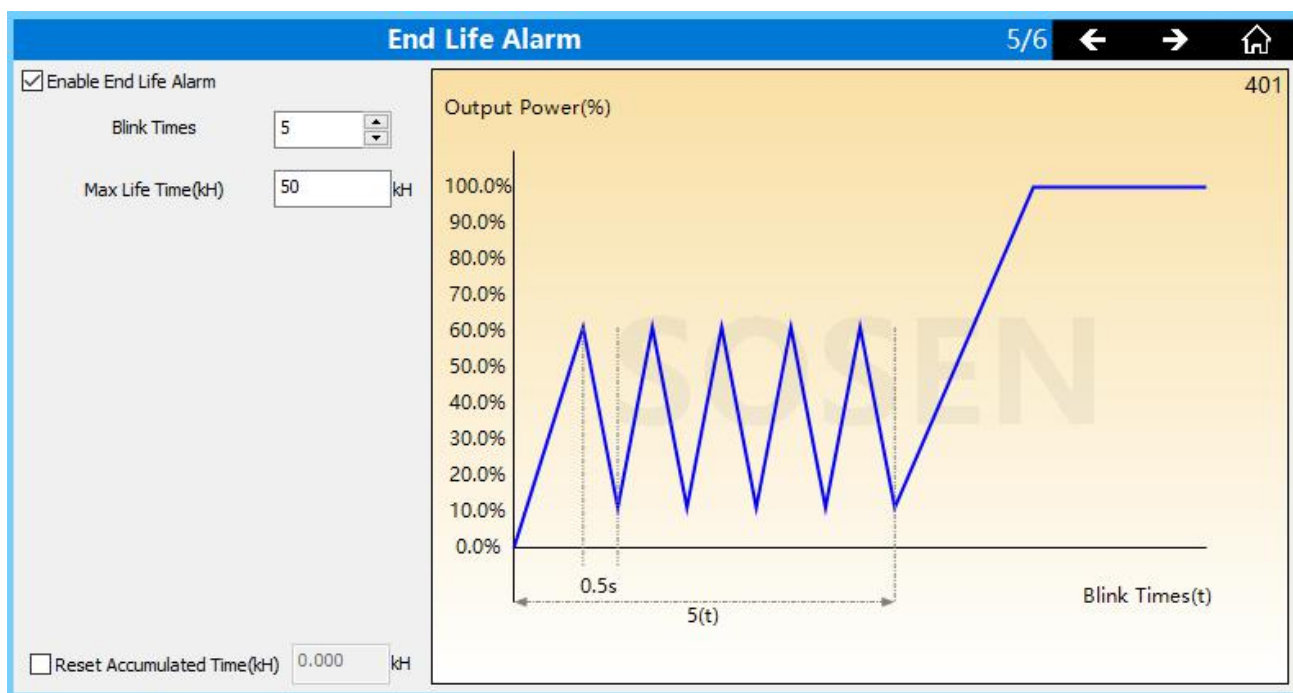
4.2.4. Software Start Adjustable

The LED driver start-up time can be programmed and set arbitrarily from 1 second to 255 seconds. Applicable scenes such as road lighting, tunnel lighting, square lighting, stadium lighting, plant lighting, etc. Can effectively prevent the process of turning on the lights, the lamp suddenly lit up, causing glare to people, causing traffic accidents. When multiple LED drivers are turned on at the same time, it can effectively prevent the AC line load power consumption from being too large at the moment of boot, and achieve the effect of protecting the AC line.



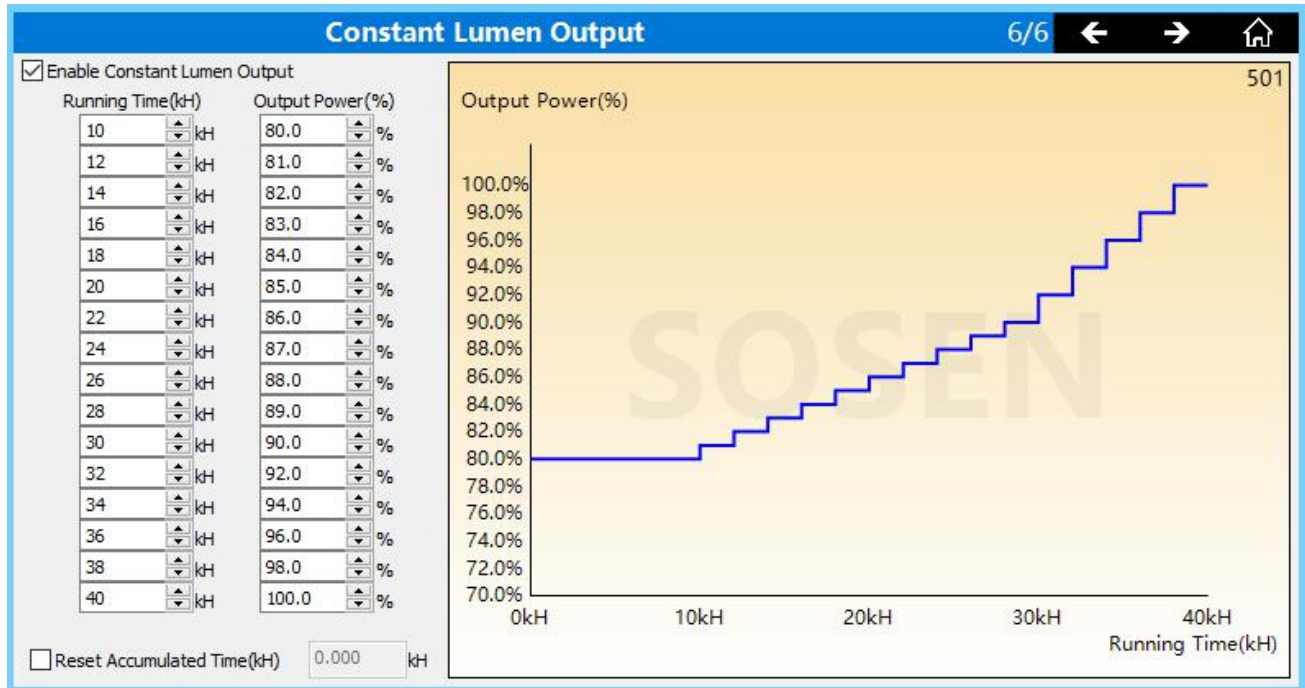
4.2.5. End Life Alarm

By presetting an LED driver life time, such as 50KH life, when the luminaire use time accumulates more than 50KH, the lamp will flash 5 times every time the lamp is turned on, reminding the user to replace the LED driver.



4.2.6. Constant Lumen Output

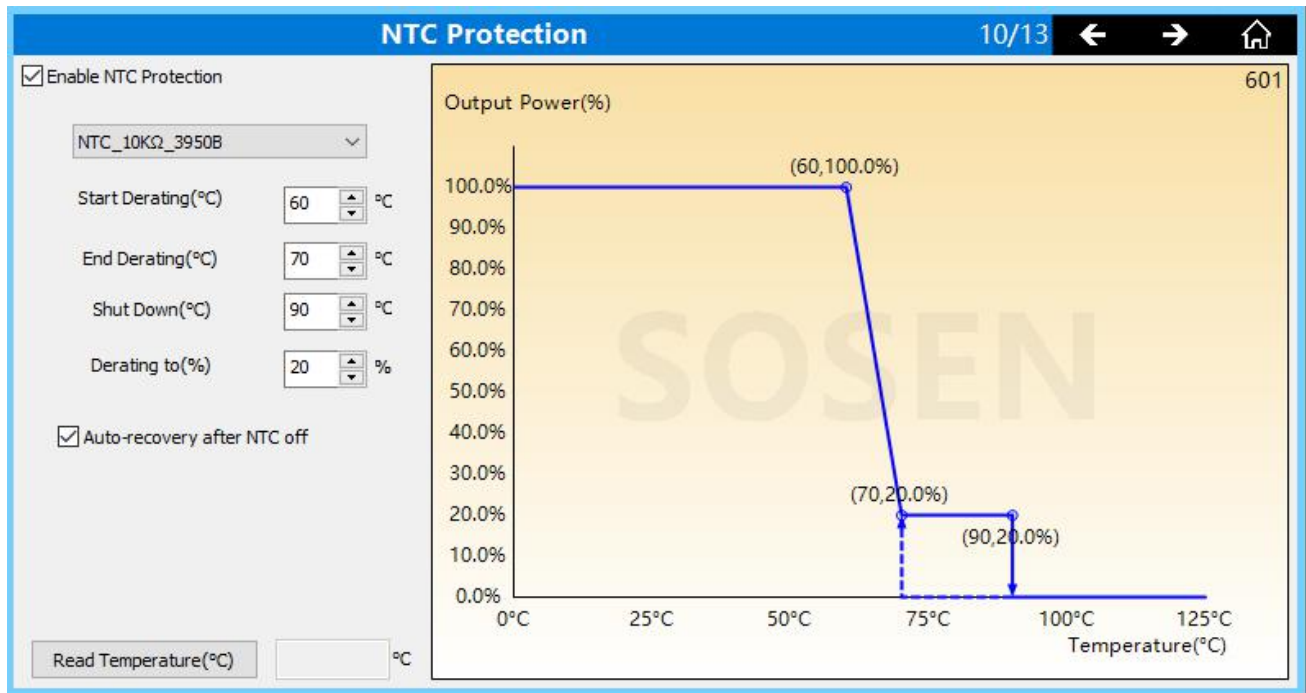
Light decay compensation function, according to the LED lamp light decay curve, in the life cycle of the lamp, by gradually increasing the output current, to achieve a constant output of LED luminous flux, the overall luminous effect remains unchanged.



4.2.7. NTC Protection

At the LED driver end, a wire is connected to the NTC temperature control switch sensor to feed the temperature on the LED module to the internal controller of the LED driver.

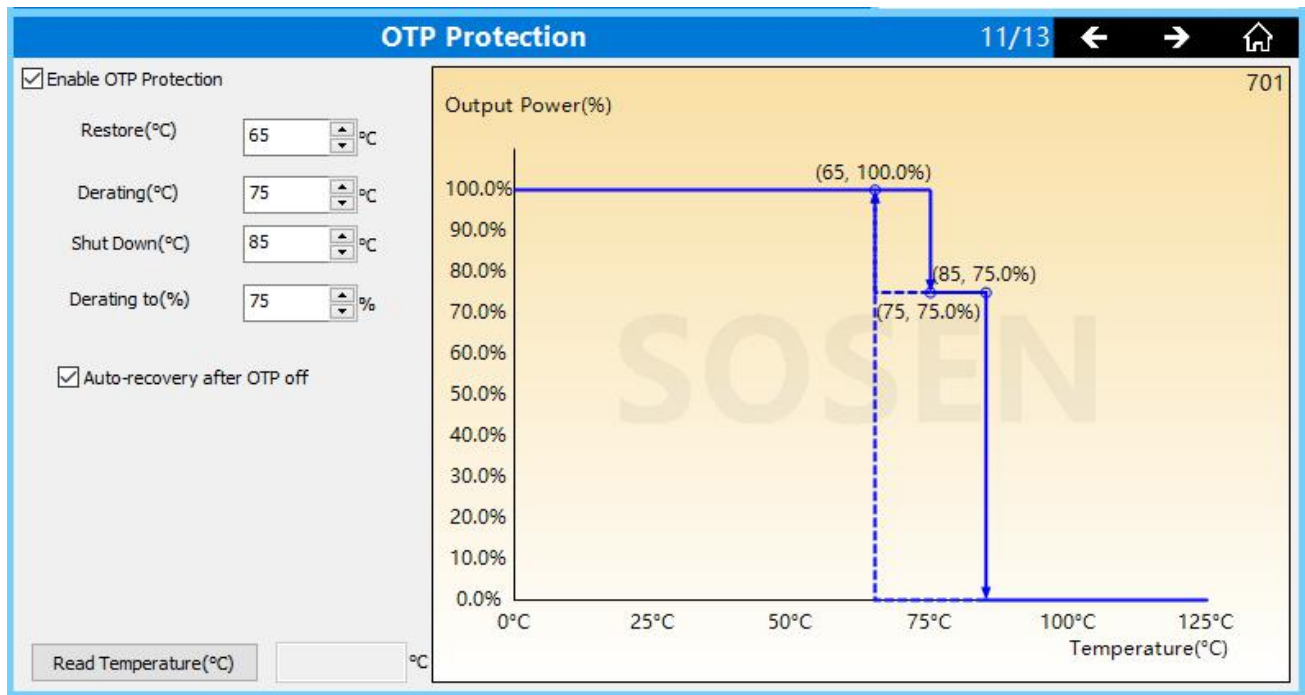
Note: The LED driver hardware must support NTC functionality.



4.2.8. OTP Protection

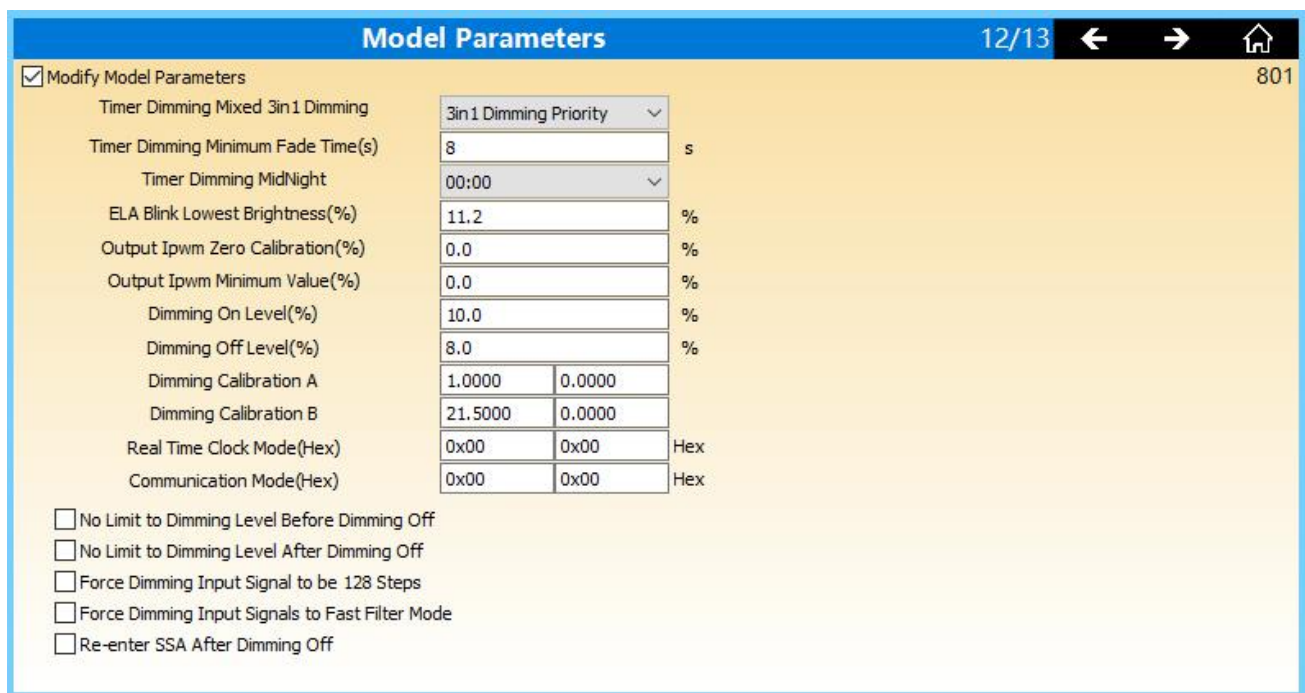
There is a temperature sensor inside the LED driver that detects the internal temperature of the LED driver. The internal temperature protection point of the LED driver can be set via the programming interface.

Note: The LED driver hardware must support OTP functionality.



4.2.9. 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).



Model Parameters 12/13

☒ Modify Model Parameters

Timer Dimming Mixed 3in1 Dimming 3in1 Dimming Priority

Timer Dimming Minimum Fade Time(s) 8 s

Timer Dimming MidNight 00:00

ELA Blink Lowest Brightness(%) 11.2 %

Output Ipwm Zero Calibration(%) 0.0 %

Output Ipwm Minimum Value(%) 0.0 %

Dimming On Level(%) 10.0 %

Dimming Off Level(%) 8.0 %

Dimming Calibration A 1.0000 0.0000

Dimming Calibration B 21.5000 0.0000

Real Time Clock Mode(Hex) 0x00 0x00 Hex

Communication Mode(Hex) 0x00 0x00 Hex

☐ No Limit to Dimming Level Before Dimming Off

☐ No Limit to Dimming Level After Dimming Off

☐ Force Dimming Input Signal to be 128 Steps

☐ Force Dimming Input Signals to Fast Filter Mode

☐ Re-enter SSA After Dimming Off

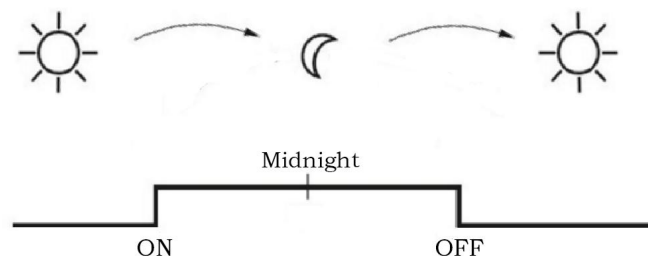
4.3. Introduction to the adaptive timer function

4.3.1. 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".

4.3.2. Adaptive time calculation

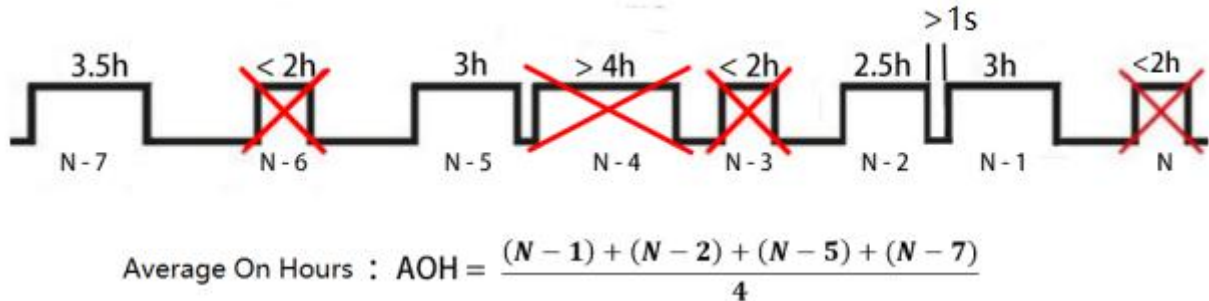
(1) Manually switch on and off the machine at least once a day



(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 difference between the most recent effective running time and the absolute

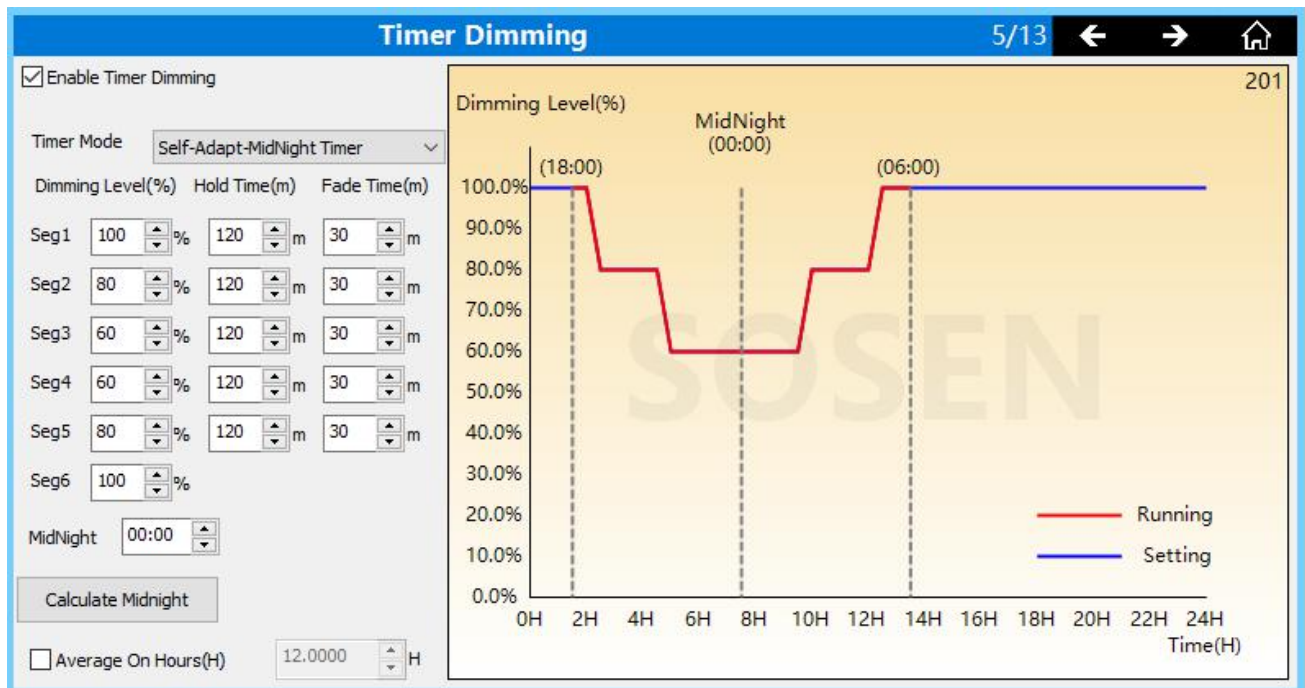
value of the effective running time in front of it is not more than 1 hour, which is the valid calculation data. 4 valid calculations to get "Average On Hours" (AOH).



4.3.3. Adaptive timer dimming

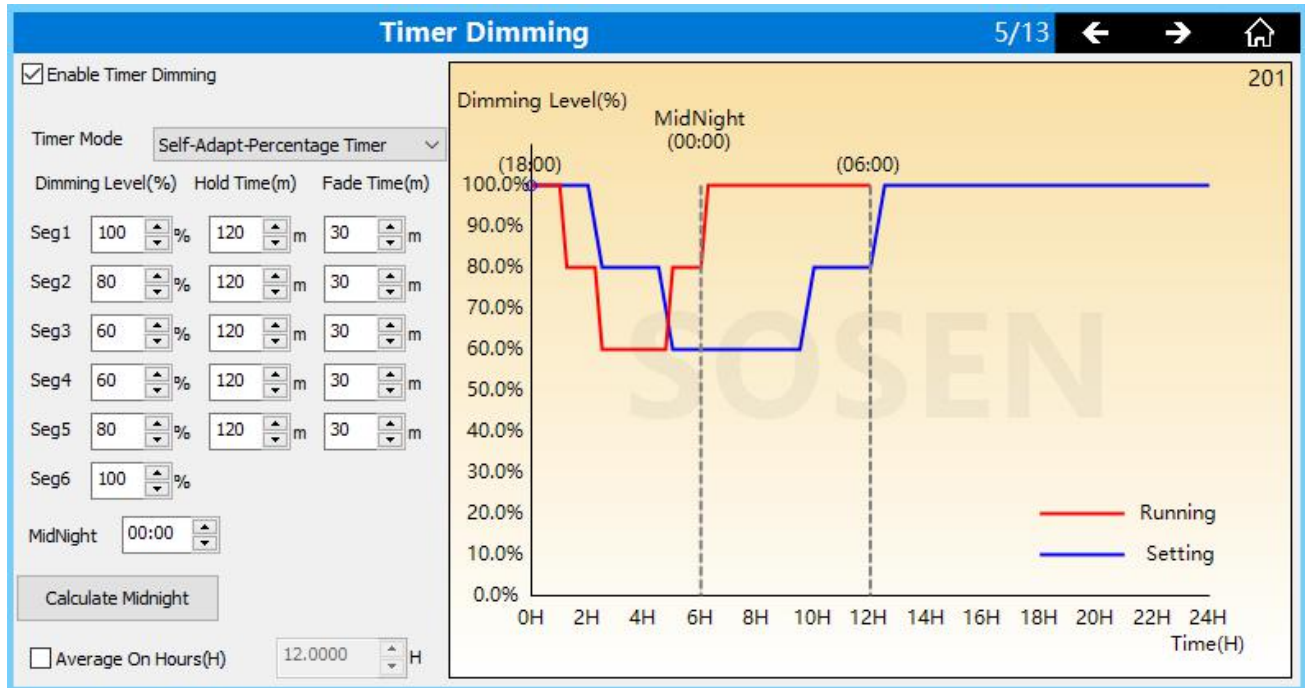
(1) Self-Adapt-Midnight Timer

- Use the starting point set in the 4th segment of the dimming curve as the adaptive midnight point.
- 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.



(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





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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