Offline Programming Tool Operation Manual

DONE POWER OFFLINE PROGRAMMING TOOL V2.1

GUANGDONG DONE POWER TECHNOLOGY CO.,LTD

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1.Foreword

1.1 Objective

This document is the manual instruction for the off-line programming software, in order to help customer acknowledge the functions and methods of the software more convenient and clearly.

1.2 Background

DonePower was concentrated on the constant current/constant voltage products in the past.When customer required different output current/voltage, the only option is do customization, casing the increase of model number and could up to thousands of models. This could cause very complicated process of stock, manufacture and warehouse management for both customer and DonePower.

Because of the above situations, DonePower invent the new programmable driver with 0-10V, PWM, and timer dimming functions. It is able to manufacture the programmable drivers ahead of schedule and change according to the requirement of customer easily through software, which could reduce the stress of purchasing, manufacture, sales and warehouse for both customer and DonePower.

2.Software Overview

2.1 Objective

Help customer aware of the software installation and application method of the programming software and acknowledge the function through the description of the software.

2.2 Function

Function Description:

1.Interface Configuration;

2.Programmer and Driver Connection;

3.Language Change between Chinese and English;

4.Edit/Read/Save Configuration;

5.Write/Save Interface;

6.Set Series/Model Number;

7.Programmer Offline Burning Mode;

8.Set Output Current Parameters;

9.Set Dimming Mode (0-10V、0-5V、Three-in-one auto、Timing control dimming、PWM);

10.Set Timer Dimming Curve;

11.Set OLC Curve;

12.Set NTC Parameters.

3.Operating Environment

3.1 Hardware

2Ghz above Processor(32 bits Or 64 bits)、4G above RAM、20GB above available hard-disk space、Mouse and Keyboard.

3.2 Software

Operation system is Windows 7 or Windows 10 or above, with Microsoft NET Framework 4.0 environment or higher version.

4.Instruction

4.1 Software Installation

4.1.1 Detect if there have USB-SERIAL-CH340 Driver in your computer

1. Connect your computer and Driver;
2. Open the device manager;
3. If the USB-SERIAL-CH340 Driver is installed (you can see the “USB-SERIAL CH340” under the “Ports”), you can use the Driver right now and do not need to install again. Show in Figure 4.1.1.

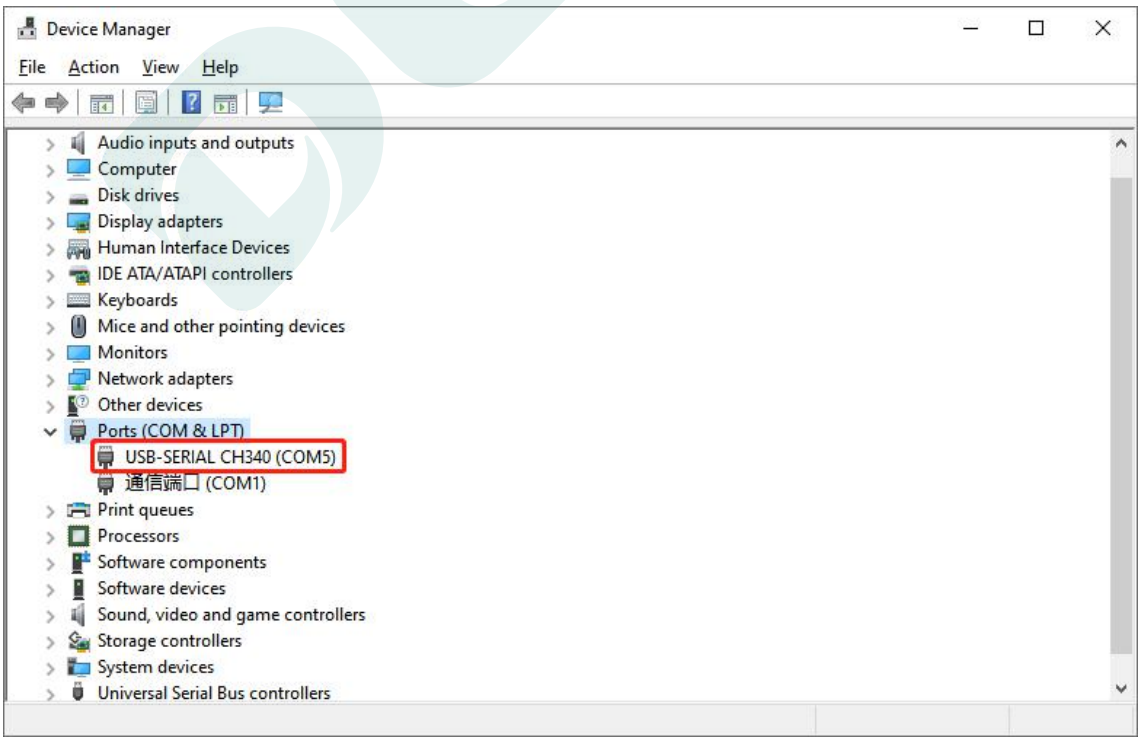


Figure 4.1.1 Device manager

4. If you can not find the “CH340” under the “Ports”. There are two solutions to different cases:

(1) If there appear an exclamation mark because of unknown device, uncompress the file CH340 CH341-Driver.rar to install. Show in Figure 4.1.2. If the driver is incompatible with computer, you can install driver from your installed auxiliary software.

(2) If the computer can not scan the device, you should pull out the USB, refresh computer and try again. If failed at last, you should update your computer or reinstall the system of your computer.

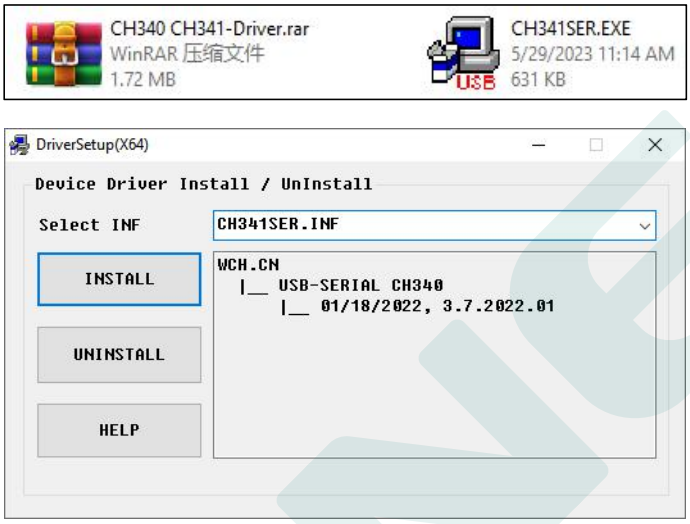
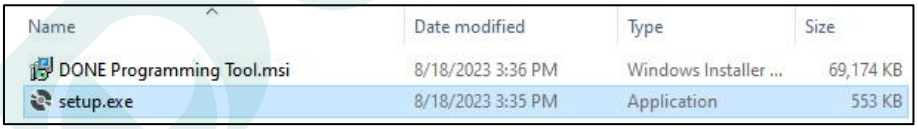


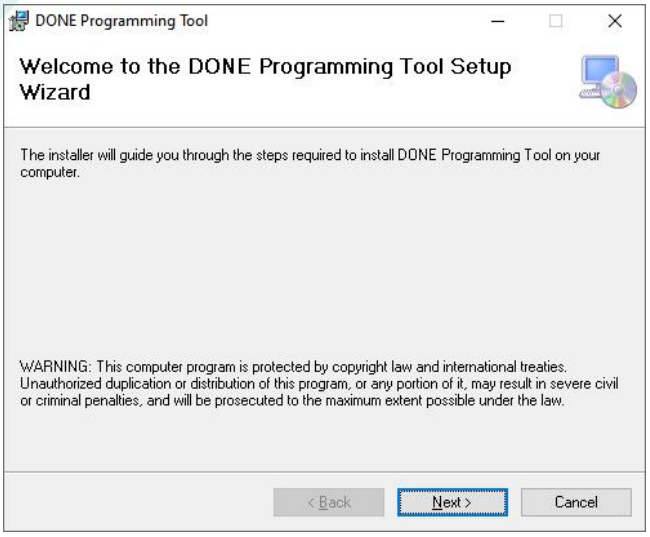
Figure 4.1.2 USB driver installation package

4.1.2 Software Installation

1. Decompress the file package.
2. Open document folder then double-click setup.exe to install it.



3. Enter the software installation wizard interface and click "Next".

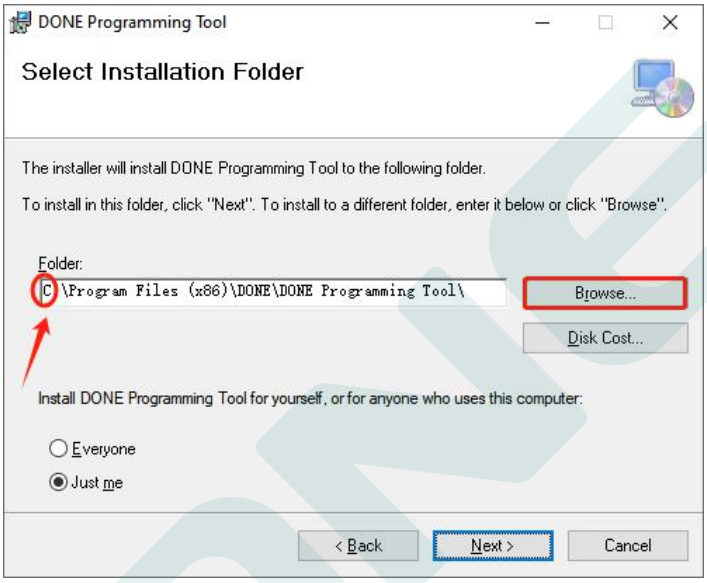


4. Select the path to install the software. The default path is C:\Program Files (x86)\DONE\DONE Programming Tool.You can click "Browse" to change the installation location of the software as required. After setting the software installation path, click "Next".

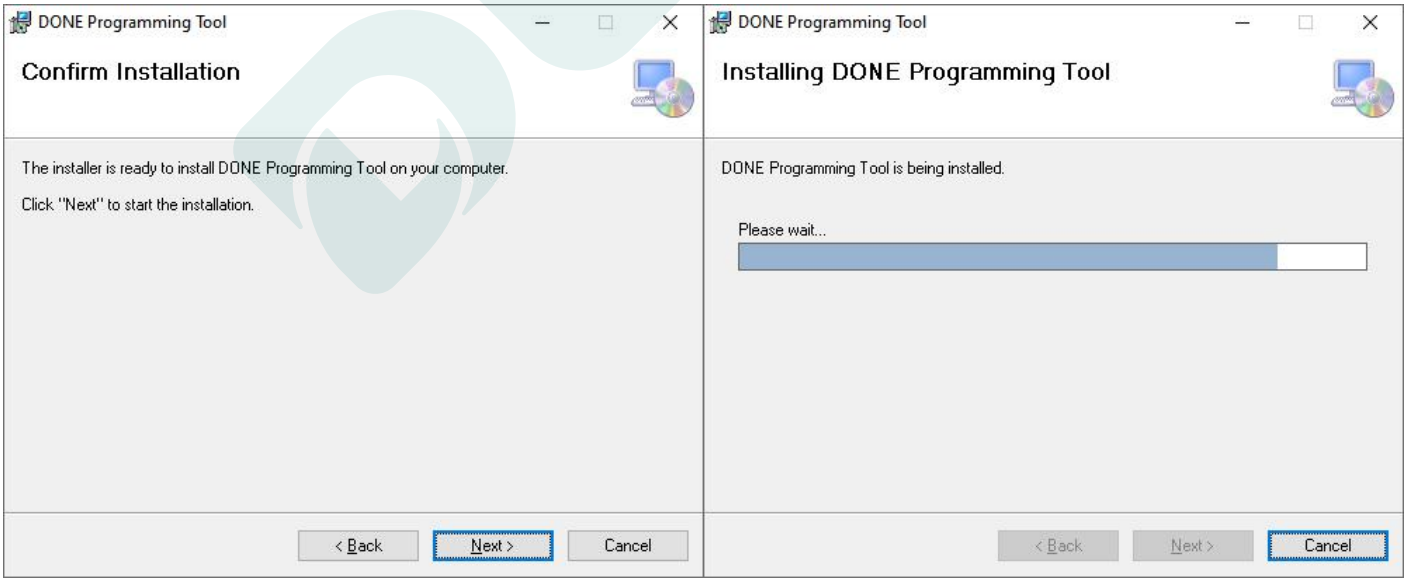
Note:

a. The path to save these files should not be named in Chinese.

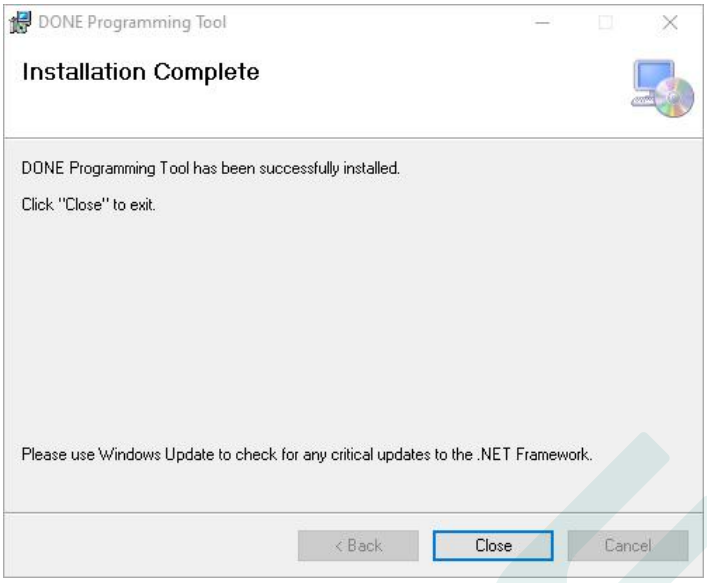
b. You are advised to select a disk other than drive C to prevent the computer from having insufficient permissions.



5. Confirm the installation and click "Next".And then,Installation is underway, please wait patiently.



6. After installation, click "Close".



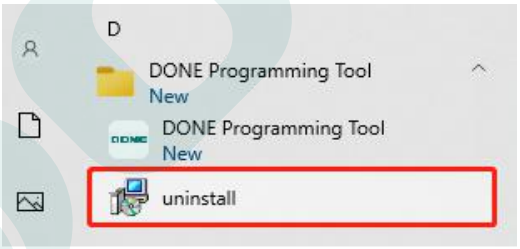
7. Return to your computer desktop, find the DONE Programming Tool icon, and open it.

4.2 Software Uninstallation

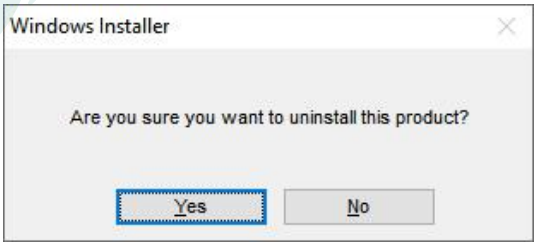
"DONE Programming Tool" can be uninstalled through system methods or by using third-party application software.

Specific Steps:

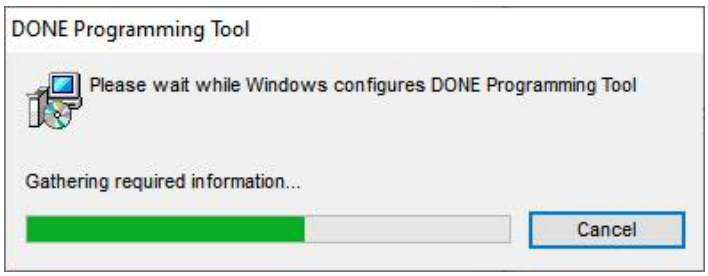
1. Find "uninstall" in the DONE Programming Tool folder in the Start menu.



2. Click uninstall, and a dialog box pops up. Select "Yes" to uninstall the software.



3. Wait for the loading to complete, and the DONE Programming Tool will be successfully uninstalled.



5.Offline Programming Operation Example

5.1 Hardware Connect and Software Start-up

5.1.1 Software Start-up:

Double-click to run the programming software and enter the product mode selection page. There are five offline programming modes available for product mode selection, as shown in Figure 5.1.1.Select the corresponding programming mode based on the product choice, click "Accept," and you will enter the programming interface.The "DALI," "DMX512," and "RS485" programming modes are currently not enabled. Single-channel offline programming is the conventional offline programming mode.

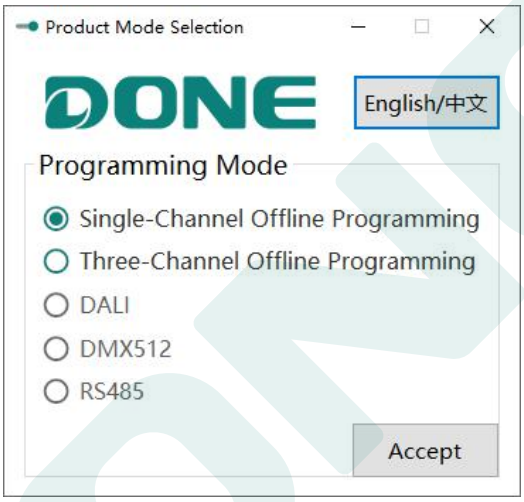


Figure 5.1.1 Startup Interface

1. When "Single-channel Offline Programming" is selected, you will enter the programming interface for the single channel, as shown in Figure 5.1.2.

2. When "Three-channel Offline Programming" is selected, you will enter the programming interface for multiple channels, as depicted in Figure 5.1.3. The system defaults to the main channel, while the other two channels are designated as "Secondary Channel (Fixed)" and "Secondary Channel (Changeable)." You can switch to the corresponding channels using the buttons provided on the interface.

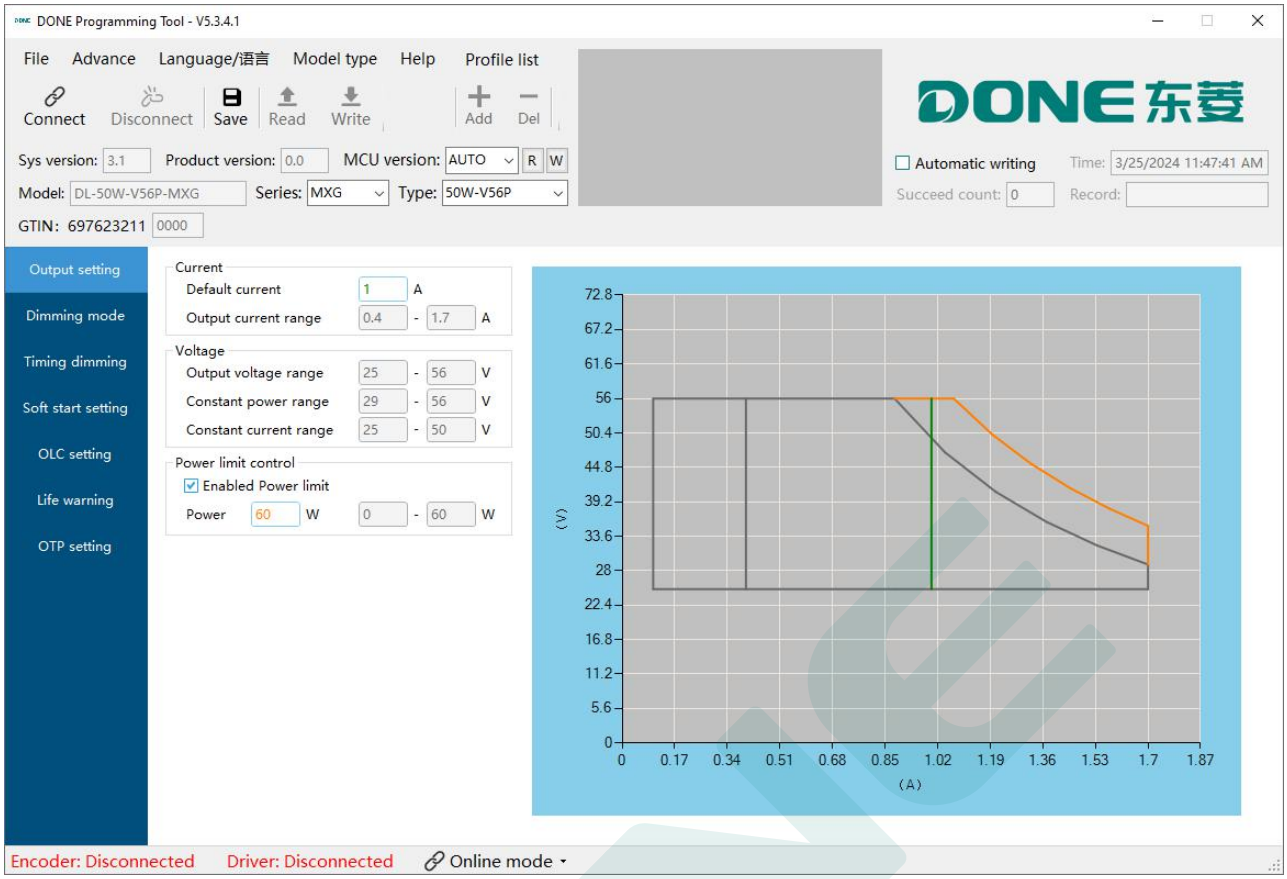


Figure5.1.2 Single-channel Offline Programming Interface

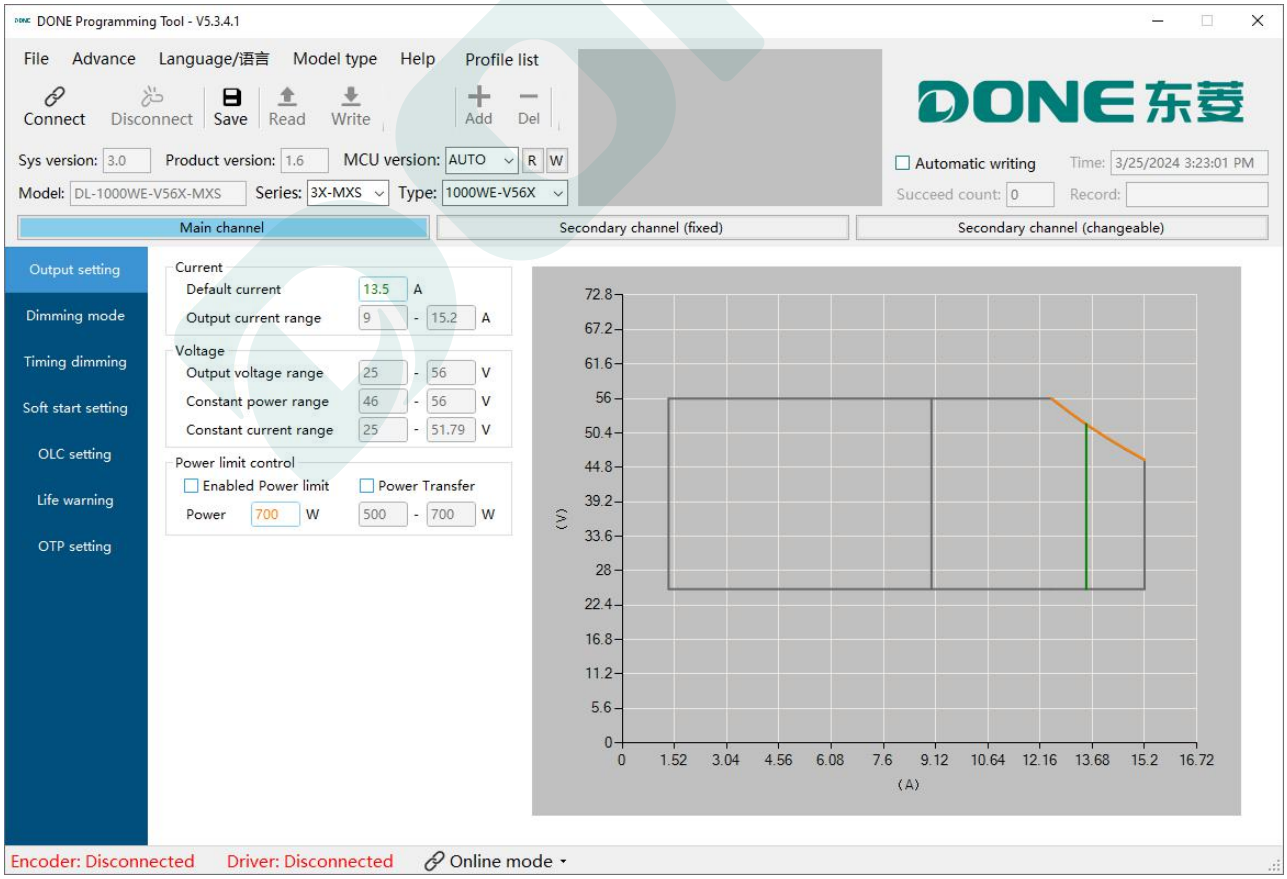


Figure5.1.3 Three-channel Offline Programming Interface

Note:

The setup and usage instructions for both single-channel offline programming and three-channel offline programming are mostly the same. Any differences will be explicitly indicated. The following feature descriptions are based on the single-channel offline programming mode as an example.

5.1.2 Hardware Connect

1. Launch Program Tool, enter the programming tool interface;

2. Click “Connect”, it will connect serial port. If failed to connected serial port, click “Advance” to select interface configuration and then select serial port and baud rate defaults to 57600. Show in Figure 5.1.4.

Note: Determining the Serial Port Number: Open the Device Manager on your computer and navigate to the "Ports" section. Look for a label containing "USB-SERIAL CH340 (COM + num)" indication，The "COM + num" represents the corresponding serial port number.

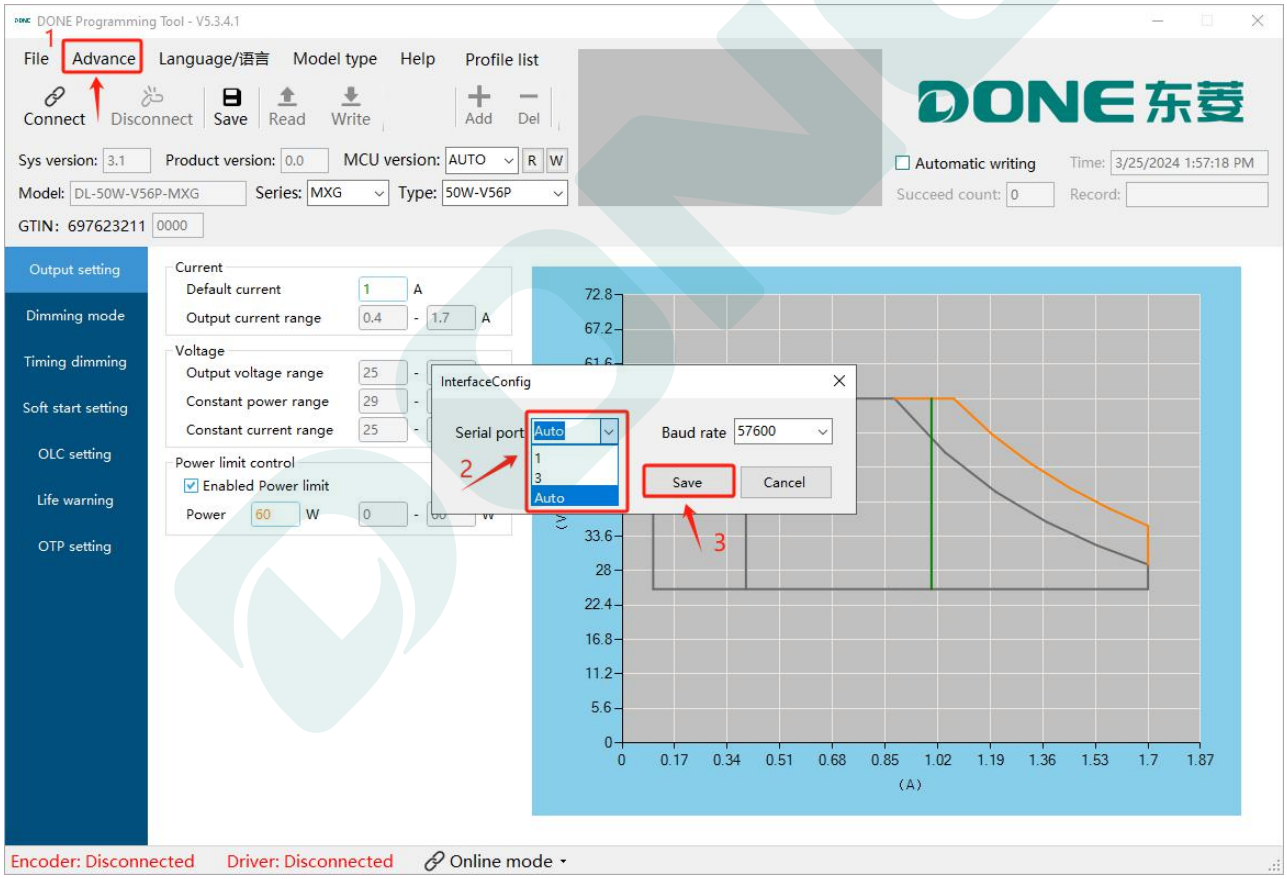


Figure 5.1.4 Interface Configure

3. Click on "Connect" and wait for a few seconds. If the programmer's status displays "Connected," then the connection to the programmer is successful. Connect the driver to the programmer and select the online mode. Wait for a few seconds. If the driver's status displays "Connected," then the driver connection is

successful. If it shows "Disconnected," please check the hardware components of the dimming circuit.Show in Figure 5.1.4.

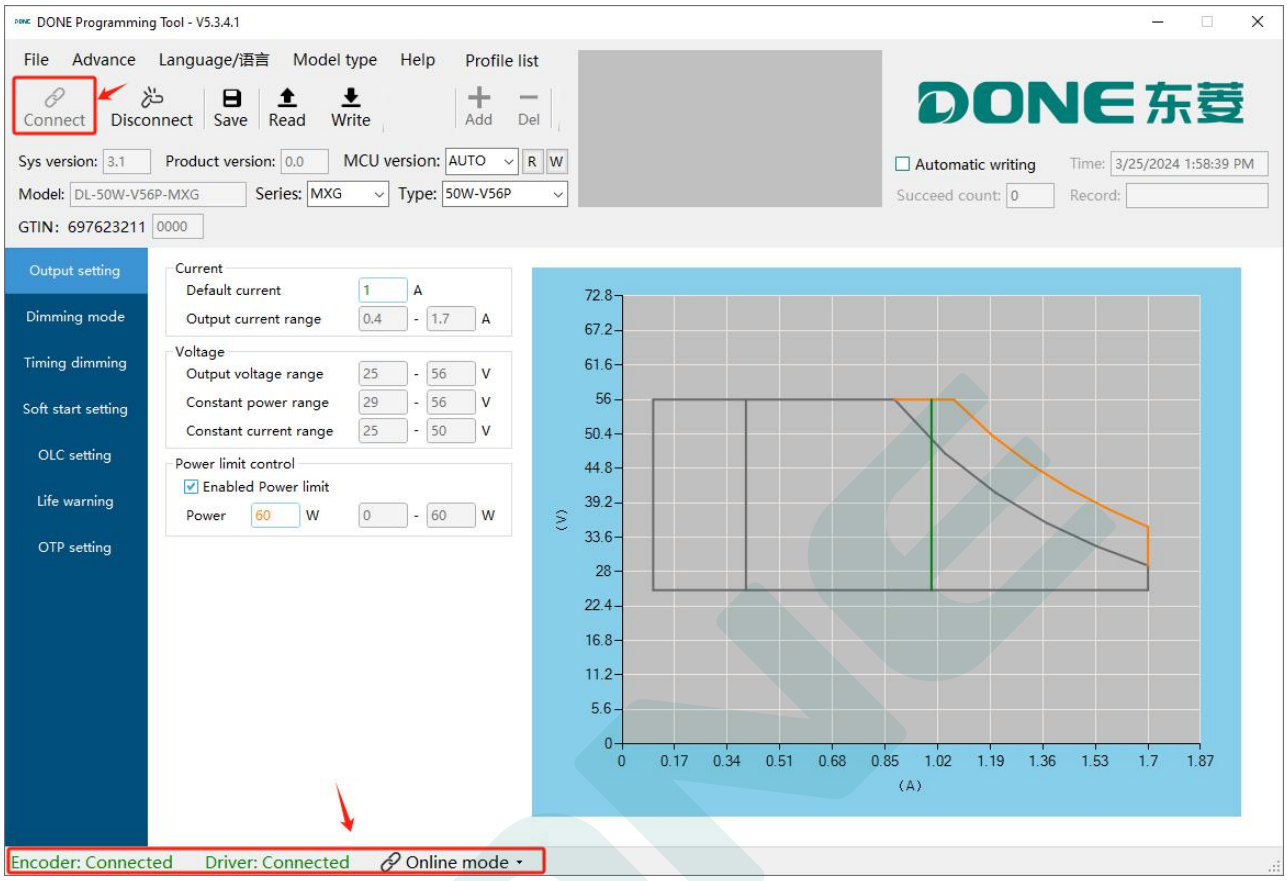


Figure 5.1.5 Online mode connection interface

4. The programmer is compatible with two types of microcontrollers: Nuvoton and Cmsemicon. Currently, there are four adaptation modes for the programmer to support microcontrollers. The first mode is AUTO mode, the second mode is E003 mode for Nuvoton, the third mode is CMS mode for Cmsemicon, and the fourth mode is undefined.

The "W" button is used for writing, and the "R" button is used for reading. These operations indicate the adaptation status of the programmer to the microcontroller. Depending on the product requirements, you can select the corresponding adaptation mode for writing and reading with the programmer. In general, the default mode is AUTO mode, where the initial connection between the programmer and the microcontroller may require a few seconds for scanning and response.Show in Figure 5.1.6.

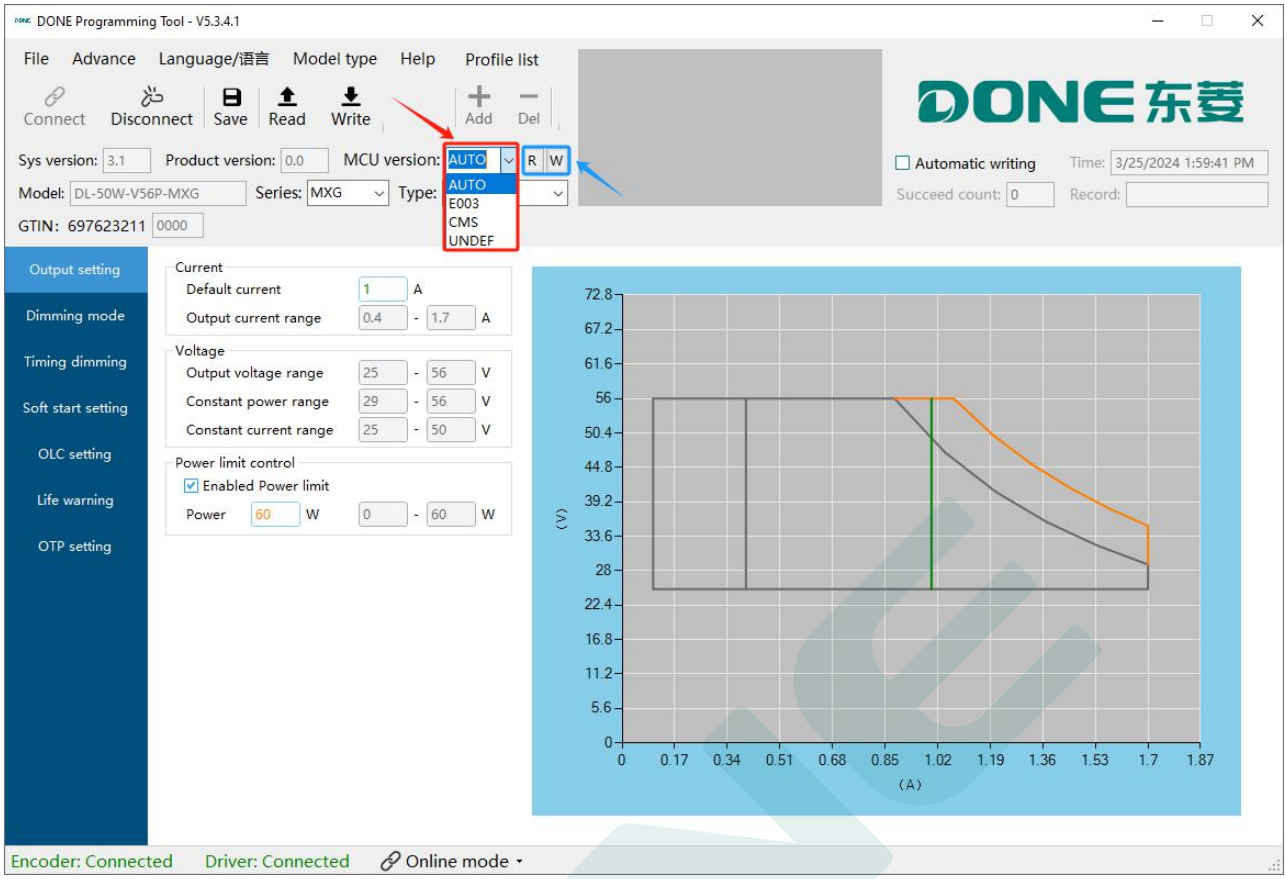


Figure 5.1.6 Programmer mode selection

5. The GTIN code is a globally unique identification code used on DALI, and each model of DALI product shares a common number.This feature is unique to the single-channel offline programming mode of DALI dimming and is not present in the three-channel offline programming mode.

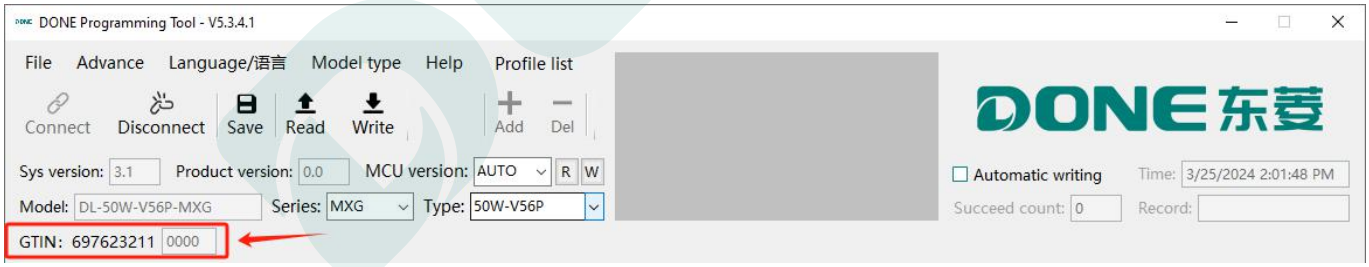


Figure 5.1.7 GTIN(Single-channel Offline Programming)

5.2 Language Change Between Chinese and English

Default language is same to the last interface you close. If you click “Language” and select Chinese, then the interface is Chinese, if you select English, then the interface is English. Show in figure 5.2.1.



Figure 5.2.1 Language switching interface

5.3 Update Model

When a new product model is added to the server, you can update the file online. After downloading successfully, you will be prompted to restart the program before using it.Show in figure 5.3.1.

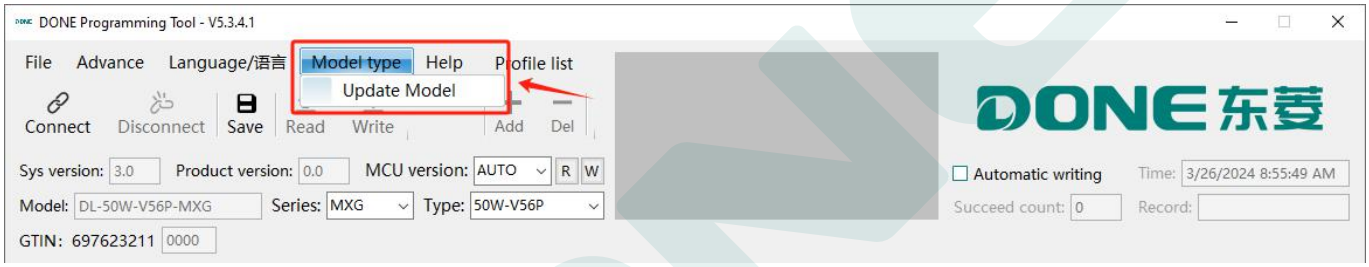


Figure 5.3.1 Model update interface

5.4 Help

1. The operation manual for the offline programming tool software can be accessed through two methods: the first method involves locating the corresponding file within the file package; the second method is to open the programming software interface, then click the "Help" button to access the operation manual, as shown in Figure 5.4.1.

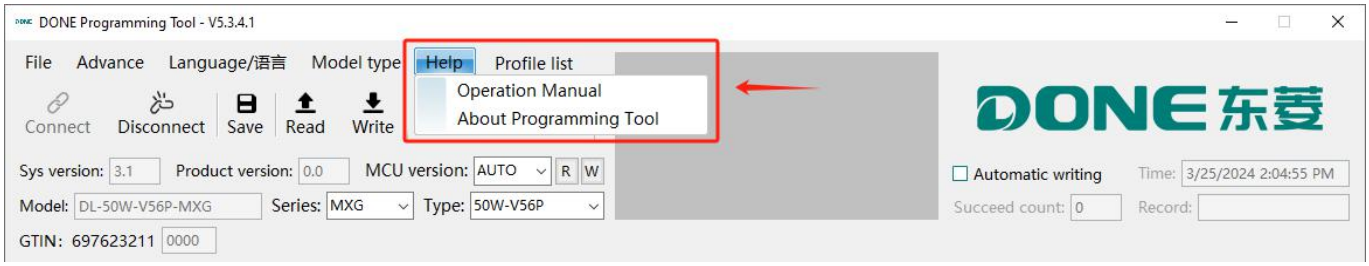


Figure 5.4.1 refer to the manual

2. Select "About Programming Tool" to view the programming tool version update content, including new, optimized and repaired content, as shown in Figure 5.4.2.

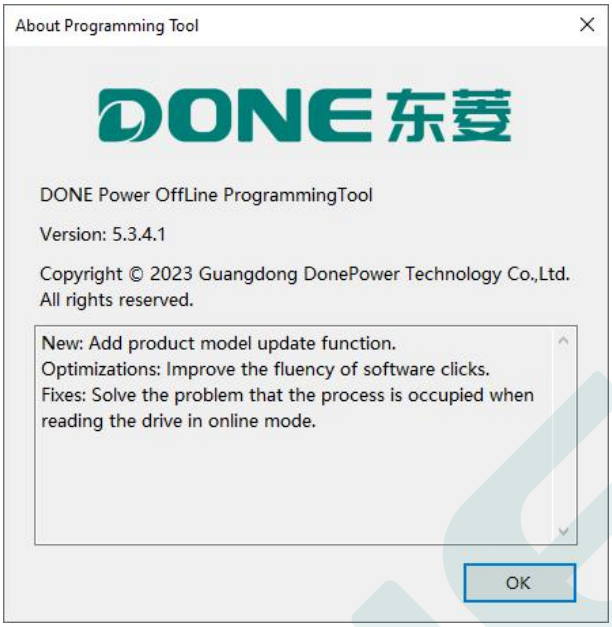


Figure 5.4.2 About Programming Tool

5.5 Read/Edit/Save Configuration

1. Configuration Reading:

When the programmer is successfully connected to the driver power supply, you can directly click on the "Read" button in the software interface. Wait a few seconds to read the configuration file (.xml file) corresponding to the driver power supply model. Interface reminder: Read successful, profile updated.Show in figure 5.5.1.

2. Configuration Editing:

After opening the graphical interface programming tool, you can directly edit. Once the editing is complete, click on "Save" first, and then proceed to write to the driver power supply. Interface reminder: Write successful,written to the driver. Show in figure 5.5.2.

3. Configuration Saving:

Save all the configuration parameters (series, type, current settings, dimming mode, etc.) in the software interface as a file with the .xml extension.

Save Methods: Click the “File” button and choose “Save as” to directly save the configuration file. After saving, there will be a corresponding prompt for updating the configuration file.Show in Figure 5.5.3.

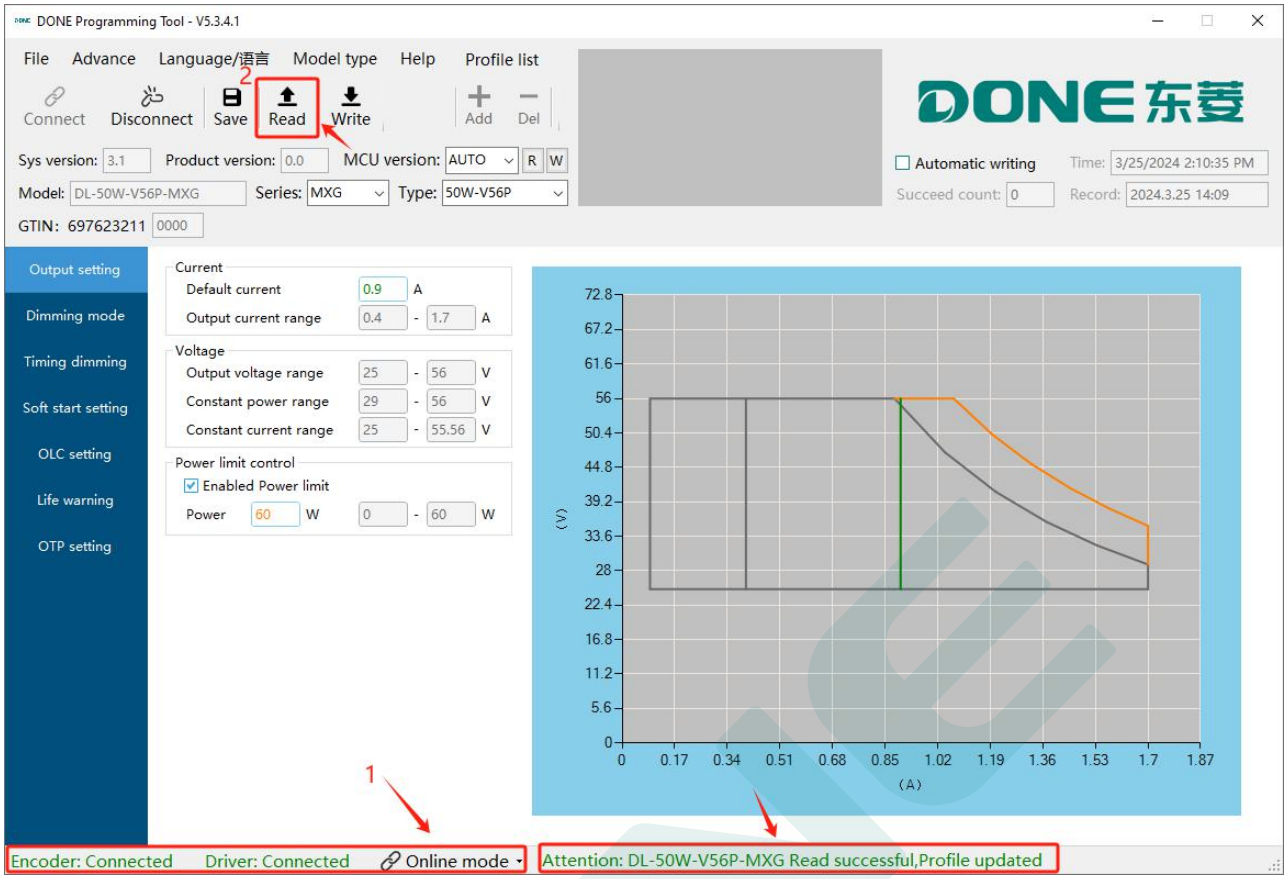


Figure 5.5.1 Configuration Reading Operation Interface

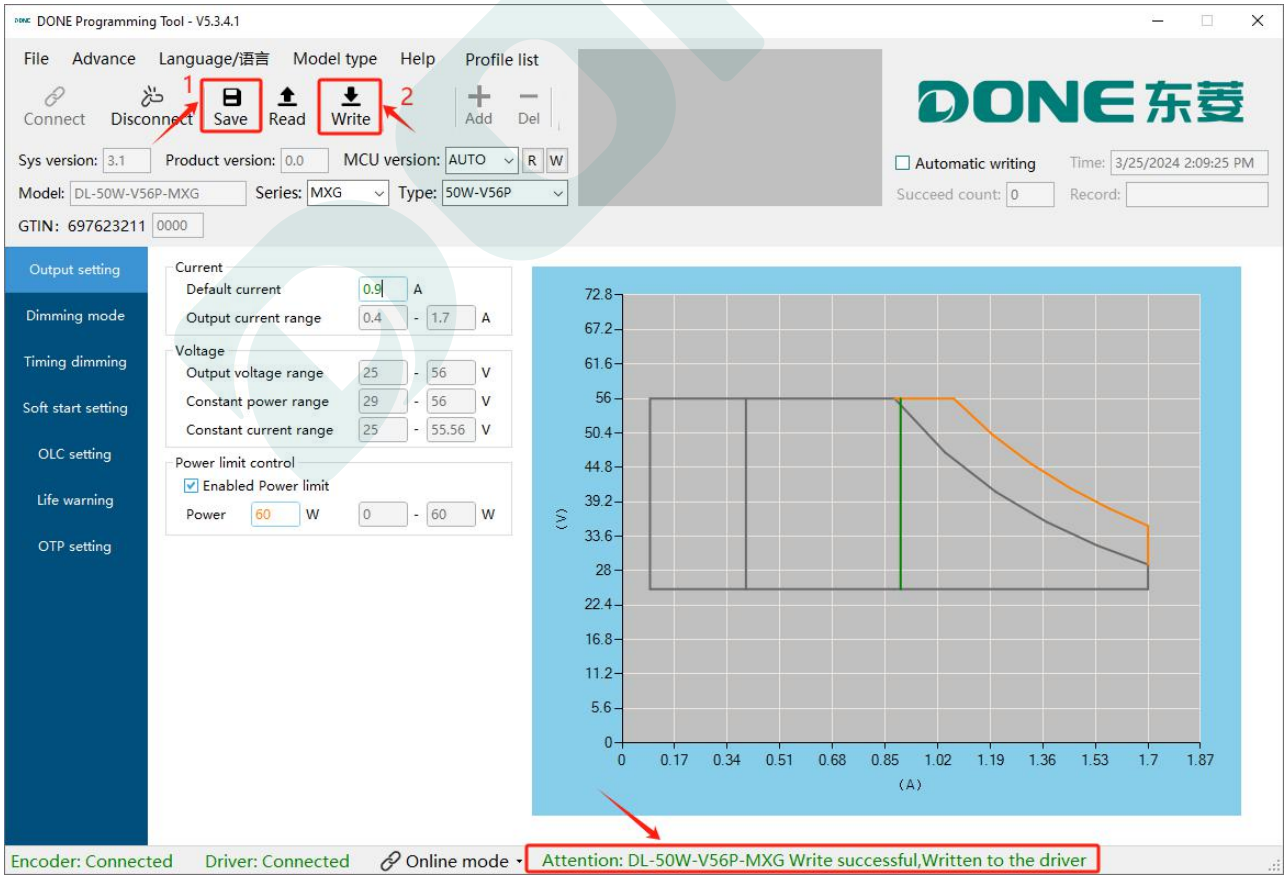


Figure 5.5.2 Configuration Writing Operation Interface

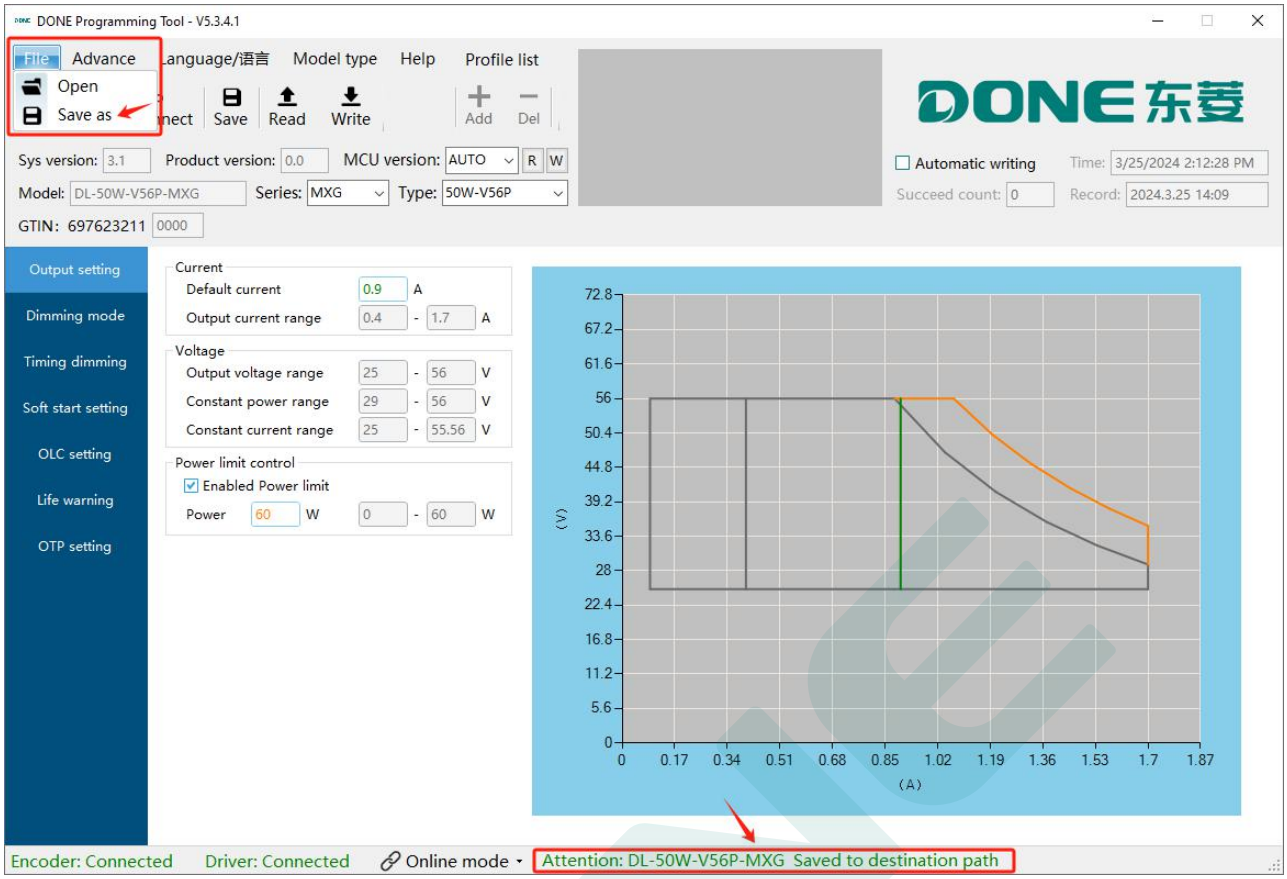


Figure 5.5.3 Configuration Saving Operation Interface

5.6 Programmer Offline Burning Mode

The offline programmer allows pre-downloading various series and models of driver power supplies, storing them in the programmer. Subsequently, it is possible to independently download configurations to driver products without relying on a PC. It is necessary to select the corresponding driver series and model based on the specific device type for the operation. Show in Figure 5.6.1.

Specific Steps:

1. Switch to "Offline Mode." The programmer is in the "Connected" state, while the driver is in the "Disconnected" state.

2. Select the series and model corresponding to the configuration file you want to download to the offline programmer.

3. Click the "Add" button. The model name of the added file will appear in the configuration file list.

4. Then click “Write” button, interface will remind “write successful, written to the driver ”, it indicates the file is written successfully.

5. Delete the profile in the programmer: first select the corresponding file name in the configuration file list, then click "Delete," and finally click "Write" to remove the respective configuration file.

6. You can download 8 profile to programmer at most.When the programmer is disconnected from the PC and connected to the driver product, it can automatically recognize the corresponding configuration file for downloading.

Note: This feature is primarily used in scenarios such as outdoor settings, customer service, and production lines where direct computer connection is not convenient.

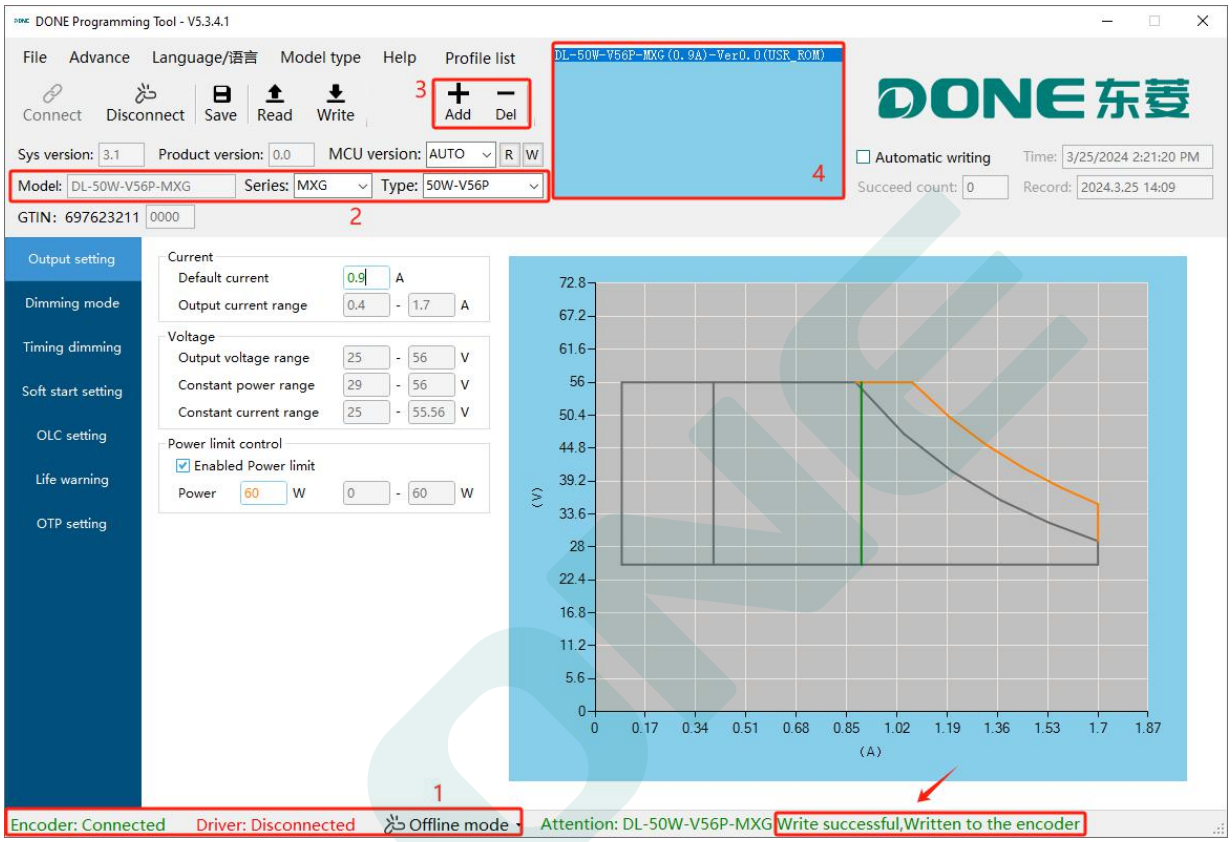


Figure 5.6.1 Offline Download Operation Interface

5.7 Output Parameter Setting

Selecting different series of drivers on the "Output Setup" page will allow you to draw the operating region graph based on the set current values. Additionally, it will display the input fields for current parameters (rated output current, output current range), voltage parameters (output voltage range, constant power operating range, constant current operating range), and power limit control parameters (power limit).Show in Figure 5.7.1.

1. If you need to set current value, the value can not lower or higher than output current range, otherwise will set in vain. If you need to set constant power value, the value can not lower or higher than output current range, otherwise will set in vain.

Note: The maximum allowable input value for output power in "Power Limit Control" is 1.2 times the maximum value within the power limit range. If parameters are set outside the specified range, the interface will display a prompt: "Value out of range."

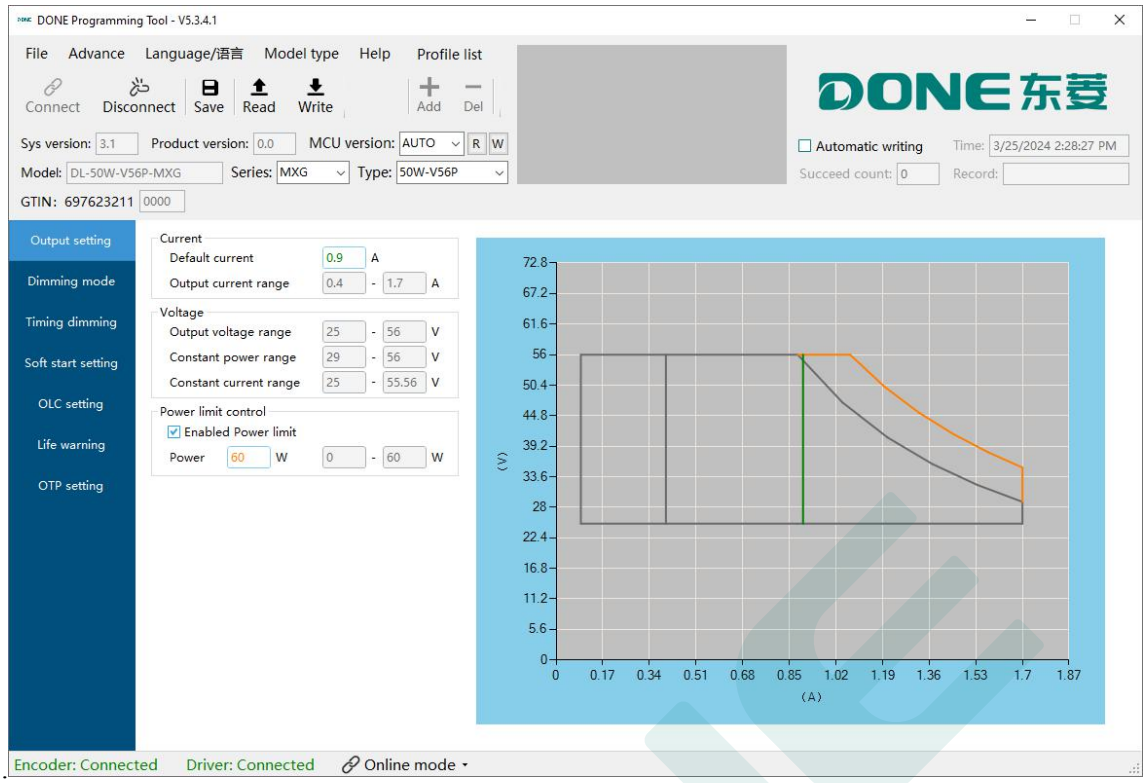


Figure 5.7.1 Output parameter setting interface(Single-channel)

2. Special Note: In the three-channel offline programming mode, the power limit control setting includes the "Power Transfer" feature (only available in the main channel, not in the other two channels), as shown in Figure 5.7.2.

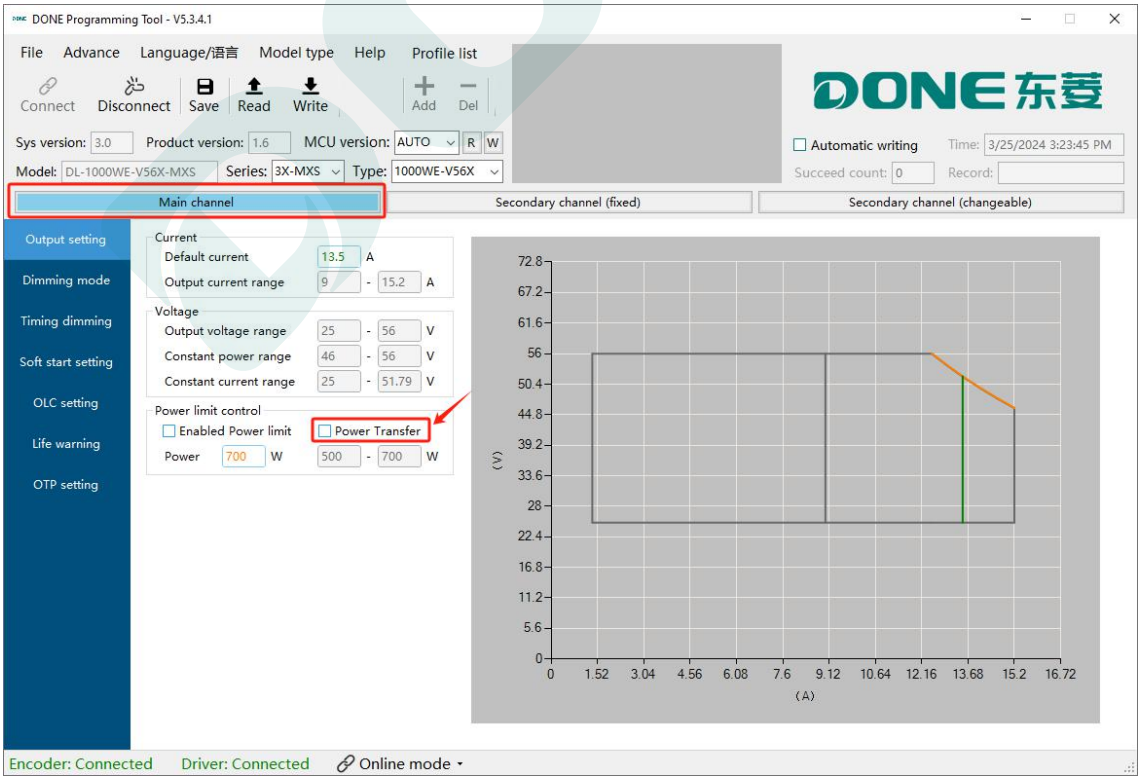


Figure 5.7.2 Output parameter setting interface(Three-channel)

3．Select different series of driver models and adjust the working area curve based on the set current value data. Show in Figure 5.7.3.

(1) The blue section represents the dimming working area (adjustable using dimming lines from a dimmer for control purposes; this cannot be set within the software).

(2) The green area indicates the recommended working area (set based on the factory current output range).

(3) The orange section represents the constant power working area (when the set output current value falls within the orange area, in order to maintain constant power, the input current increases as the output voltage decreases).

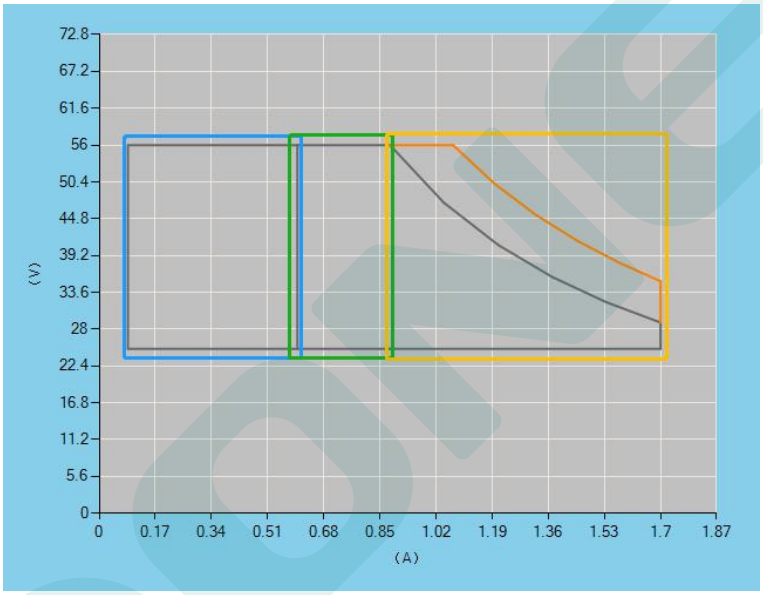


Figure 5.7.3 Working curve

5.8 Dimming Mode Setting

Select the "Dimming Mode Setting" page, you can set the dimming parameters: dimming mode setting, signal logic setting and color setting, etc. Select the corresponding options and modify the corresponding content according to your needs, as shown in Figure 5.8.1.

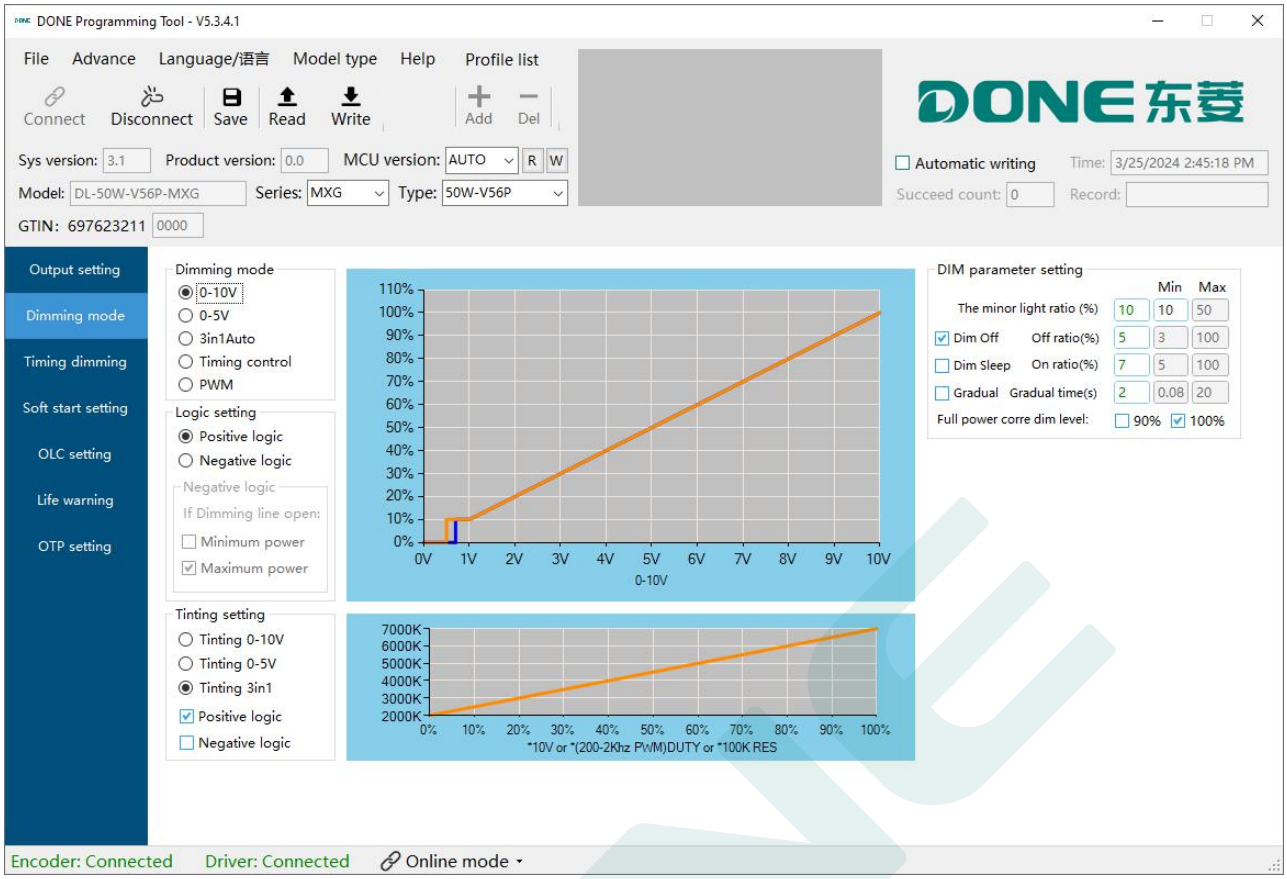


Figure 5.8.1 Dimming Mode Setting Interface

1．There are 5 optional dimming modes:

(1) 0-10V: Dimming with external 0-10V analog voltage.

(2) 0-5V: Dimming with external 0-5V analog voltage.

(3) 3 in 1 Auto: PWM/Voltage/Resistance, automatic recognition of input signal.

(4) Timing control: This option applies to the implementation of timed dimming settings and allows for sequential power control in 6 stages.

(5) PWM：Dimming with external PWM signal.

2．Signal logic setting:

There are “Positive logic” and “Negative logic” two option.

When selecting "Positive Logic," the signal is positively correlated with luminance, whereas choosing "Negative Logic" results in a negative correlation with luminance.

(1)**Positive logic:**For example, select the positive logic mode of 0-10V dimming, as shown in Figure 5.8.2.

(2)**Negative logic:**Under the Negative logic mode, you can choose "Minimum power" or "maximum power".

①If you choose "Minimum power", it will result in the output of the minimum current when the dimming line is open. Show in Figure 5.8.3.

②If you choose "Maximum power",it will result in the output of the maximum current when the dimming line is open. Show in Figure 5.8.4.

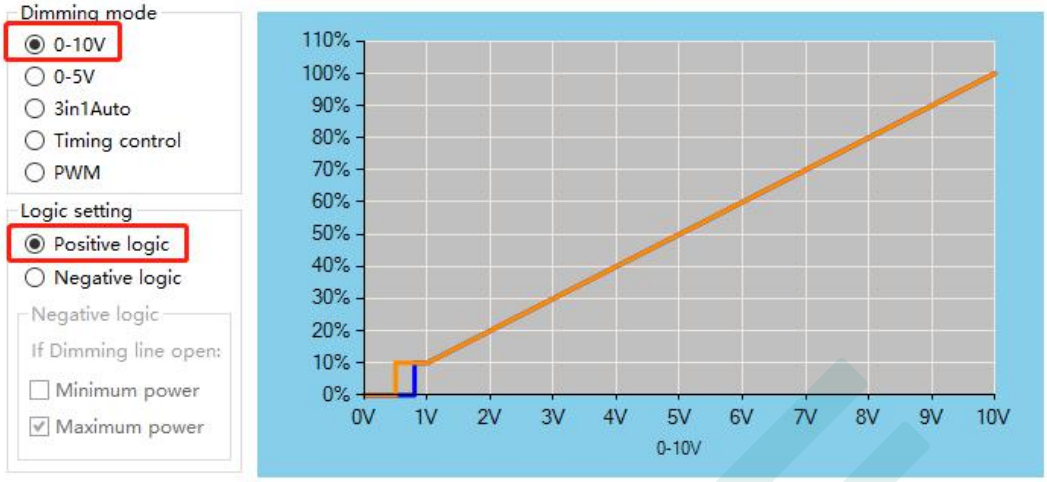


Figure 5.8.2 0-10V dimming positive logic diagram

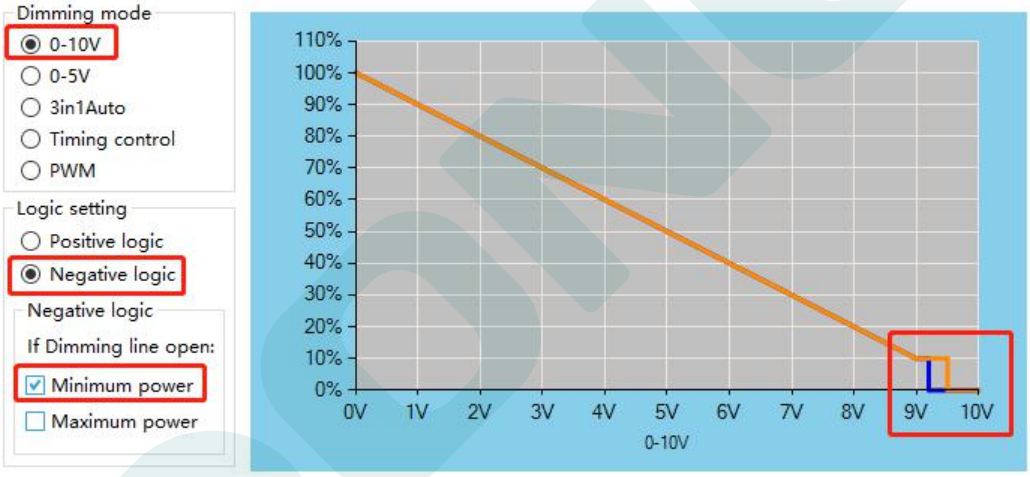


Figure 5.8.3 output minimum current

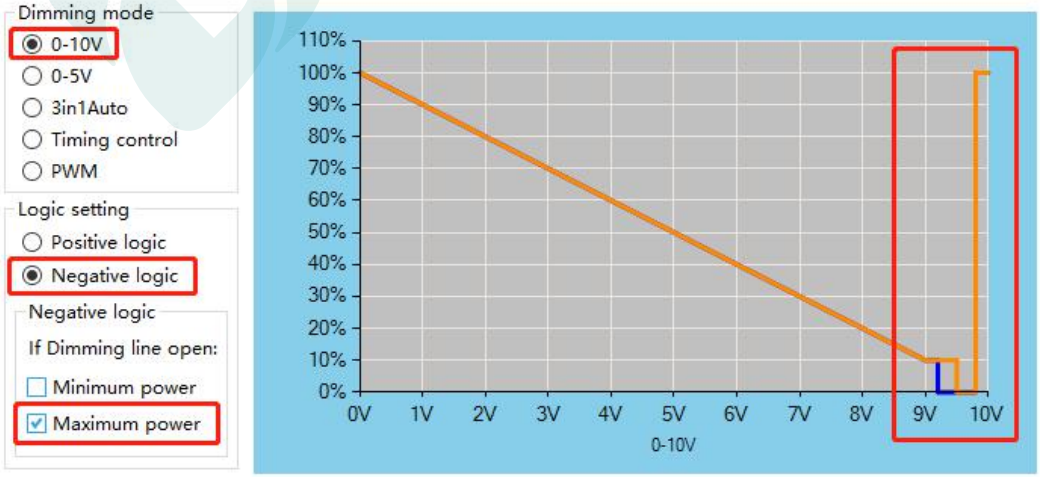


Figure 5.8.4 output maximum current

3. DIM parameter setting:

(1) The minor light ratio(%):

You can set minimum value of dimming ratio.The configured value must not be lower or higher than the minimum dimming ratio range, otherwise the configuration will be invalid.

(2) Dim off and Dim sleep:

If the "Dimming Off" checkbox is available for selection, it indicates that the model supports dimming off; conversely, if the checkbox is not selectable, the model does not support dimming off. The device will turn off when the output signal ratio is lower than the Off Ratio, and it will turn on when the output signal ratio exceeds the On Ratio.

For example, if the configured minimum dimming ratio value is 10%, and the off ratio is set to 5%, without selecting "Dim Off", when the dimming signal amplitude is adjusted to values below 10% or within the range of 5% to 10%, the product's output will remain locked at a constant 10% of the default output current, as shown in Figure 5.8.5.

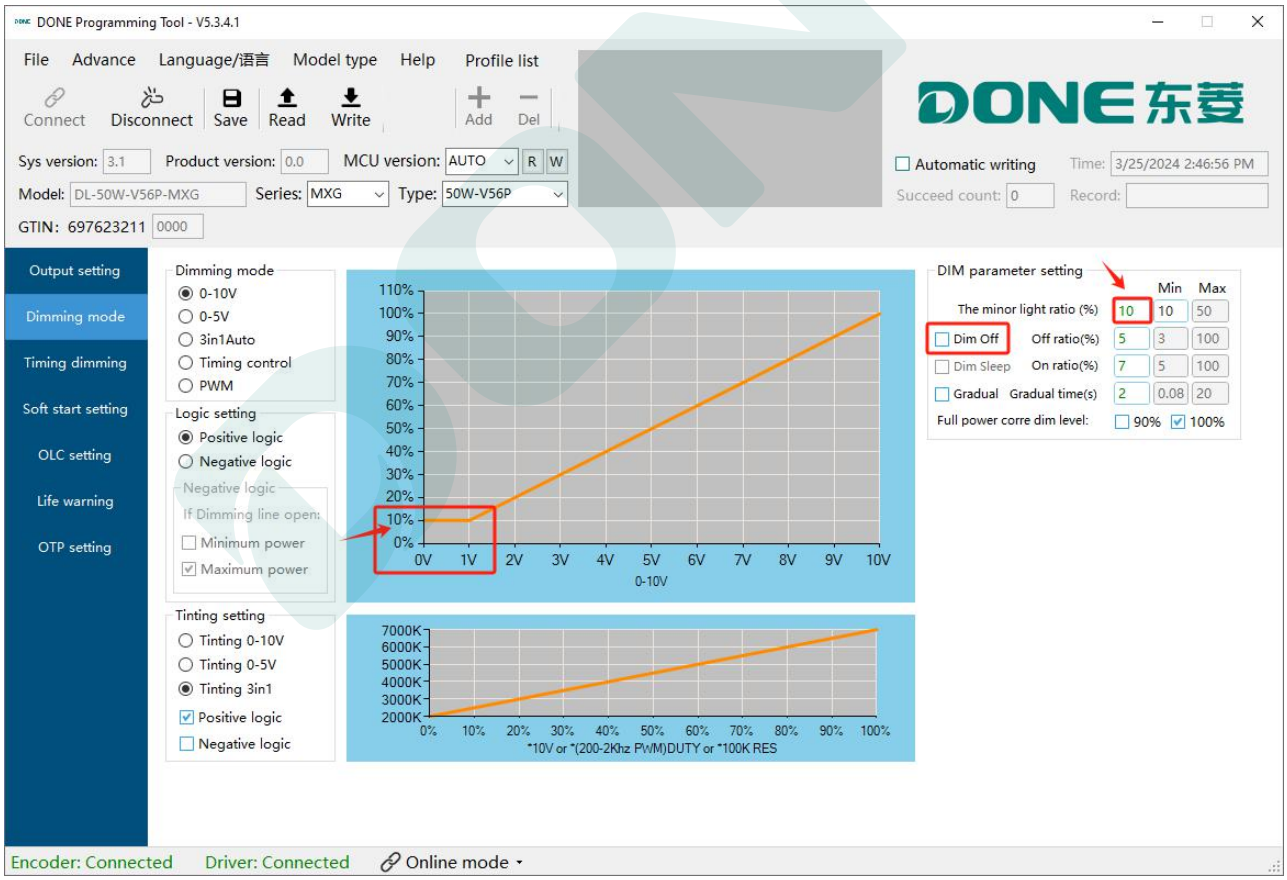


Figure 5.8.5 DIM Parameter Setting(Unchecked: "DIM off")

Note: When adjusting parameters, it's crucial to establish a hysteresis window of more than 2% between the "Off Ratio (%)" and "On Ratio (%)" thresholds to prevent flickering when dimming to critical brightness.

(3) Dimming Sleep:

After checking the “Dim off”, the “Dim sleep” function is activated. If check the “Dim Sleep”, the model will support dim off function.

(4) Off Ratio (%):

Set the "Off ratio" value. When the incoming analog signal falls below the set "Off ratio" value, the device will shut off. For instance, when "0-10V dimming" is selected, if the external input signal drops below 0.5V, the device will turn off, as depicted in Figure 5.8.6. (The configured value must not fall below or exceed the "Off ratio" range, as this will render the configuration invalid.) The "Off ratio" parameter input value can now be extended from 25% to 100%.

(5) On Ratio (%):

Set the "On ratio" value. When the external analog signal exceeds the set "On ratio" value, the device will turn on. For instance, in the case of selecting "0-10V dimming," the device will turn on when the external input signal is higher than 0.8V, as shown in Figure 5.8.6. (The configured value must not be lower or higher than the "On ratio" range, otherwise the configuration will be invalid.) The "On ratio" parameter can accept values extended from 25% to 100%.

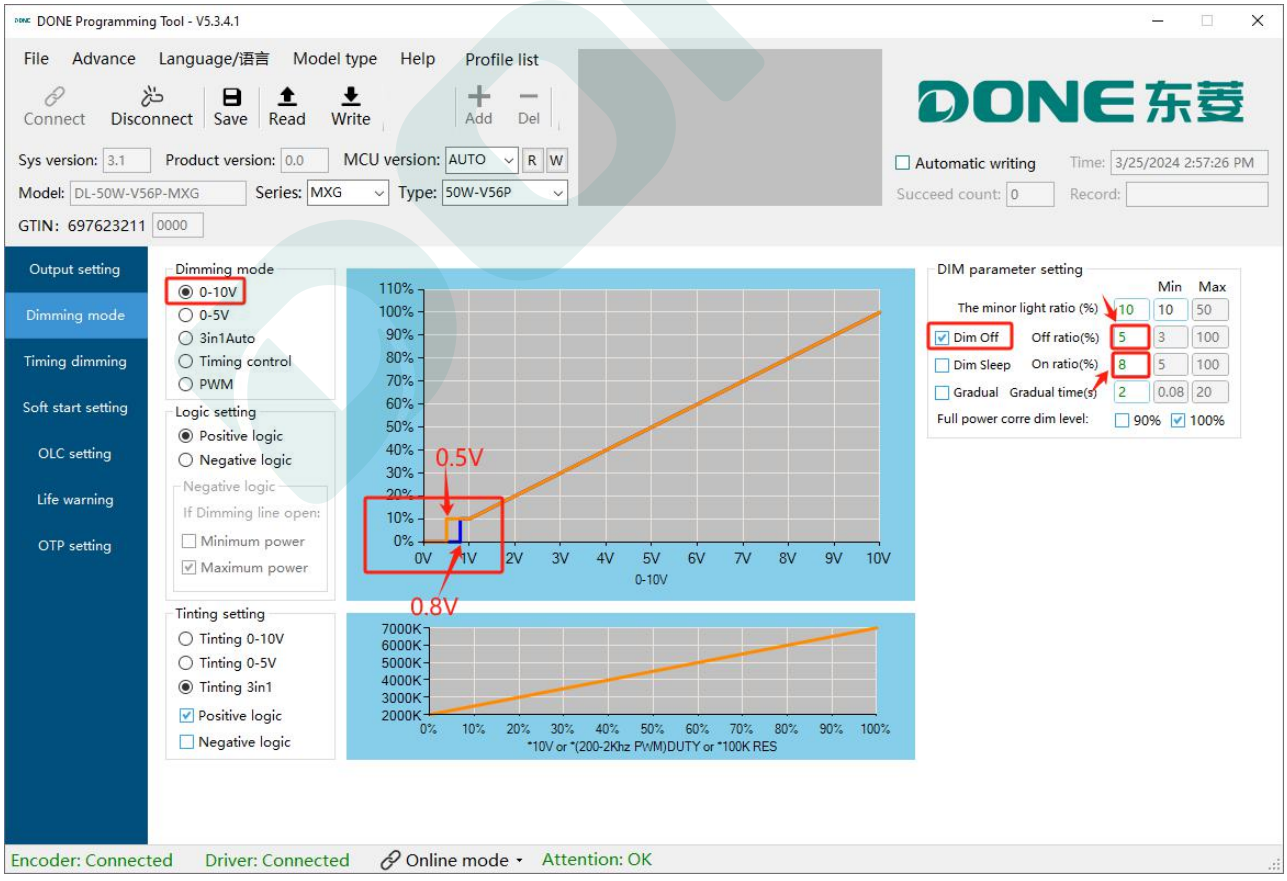


Figure 5.8.6 DIM Parameter Setting(Checked: "DIM off")

(6) Gradual time:

During dimming, if you check "Gradient" and set the gradient time, the current will slowly and linearly change.The effective change time is between 0.08 seconds and 20 seconds.(The set value must not be lower or higher than the gradient time range, otherwise the setting will be invalid.)

(7) Full power correspond dim level:

If you select "100%", the device will reach full power when the signal ratio reaches 100%. If you select "90%", the device will reach full power when the signal ratio reaches 90%. This is because the device has inherent power, and if you select 100% under negative logic, it cannot reach full power. However, there is a slight drawback in the case of "90%": the dimming curve will not be linear. When you use the signal to dim the brightness, there will be a slight offset.Show in Figure 5.8.7 and Figure 5.8.8.

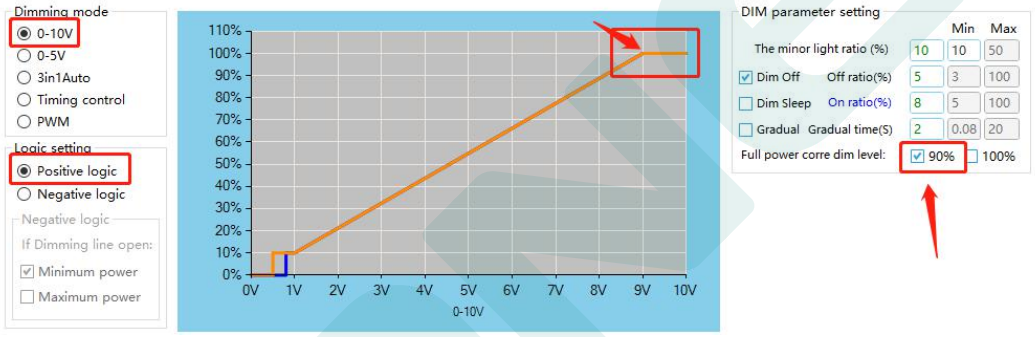


Figure 5.8.7 Full power correspond dim level:90%

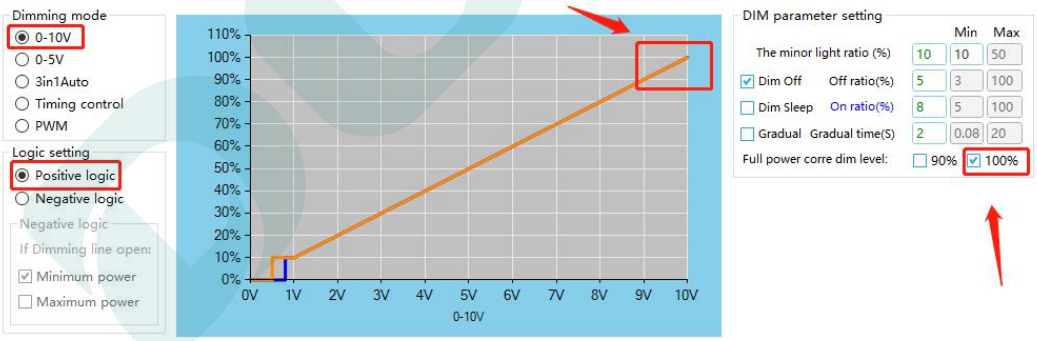


Figure 5.8.8 Full power correspond dim level:100%

4. Tinting Setting:

If the color temperature control panel is visible, it indicates that the model supports color temperature adjustment; otherwise, the function is not available. The color temperature control panel allows you to set the mode and signal logic for the color temperature input signal.Show in Figure 5.8.9.

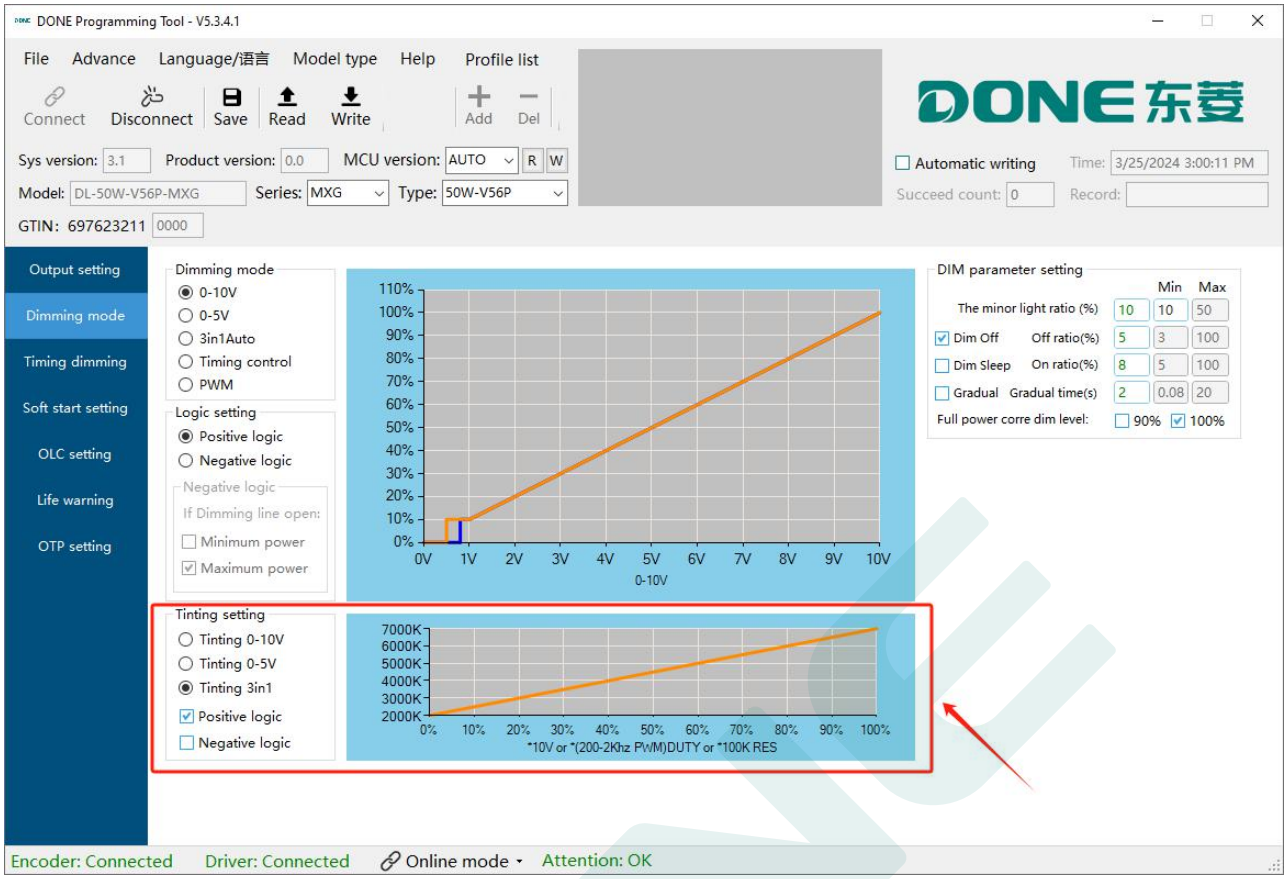


Figure 5.8.9 Tinting Setting

5.9 Timing Dimming Setting

When you select the "Time Control Dimming Settings" page, enabling timed dimming requires configuring the time control dimming feature.

Steps: Switch to "Dimming Mode Settings," select "Time Control Dimming" as the dimming mode.

There are three optional timing dimming setting: Traditional Timer Mode, Self-Adaptive Midnight Timer Mode, Self-Adaptive Percentage Timer Mode.

Then, after selecting one of the modes, you can enter the secondary page for setting the timed output power percentage, timed output duration, and timed switching duration.Once done, simply close the secondary page, and the "Timing Dimming Settings" page will depict the corresponding setting curves, as shown in Figure 5.9.1.

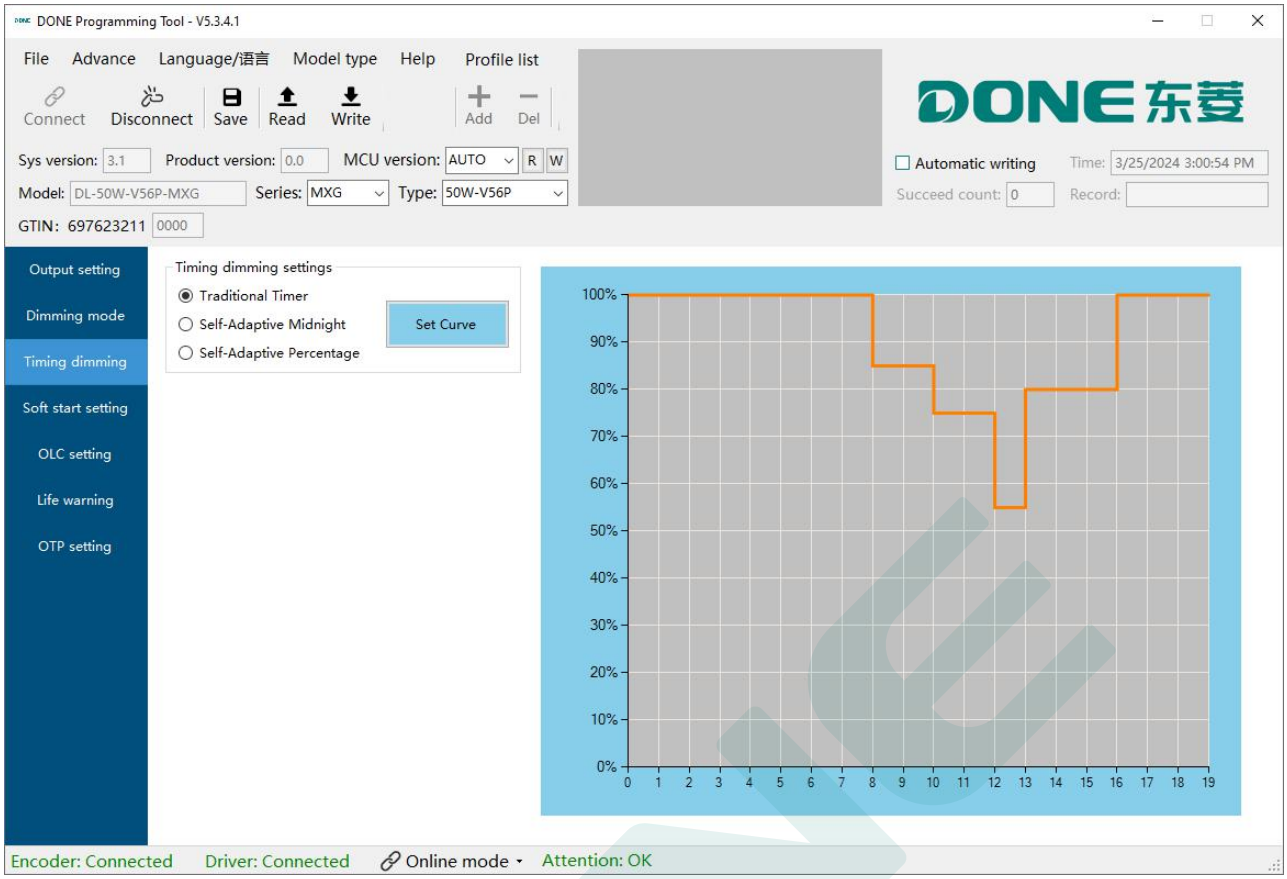


Figure 5.9.1 Timing dimming setting interface

5.9.1 Traditional Timer Mode

Select the Traditional Timer mode, and then click on "Set Curve". The initial setting provides a default curve. Clicking on "Set Curve" will open a secondary window where you can customize the dimming curve according to your requirements. Show in Figure 5.9.2.

Note:

1. Timing output power range in the secondary window (1%~100%).
2. Timing output duration: Six segments of time setting, with each individual segment not exceeding 10 hours, and the total duration setting not exceeding 19 hours.
3. Timing output power: The output power will follow the set power within the specified timing output duration.
4. Characteristics of timing switching time: As the duration changes between each segment, the output power will gradually change within the set time.

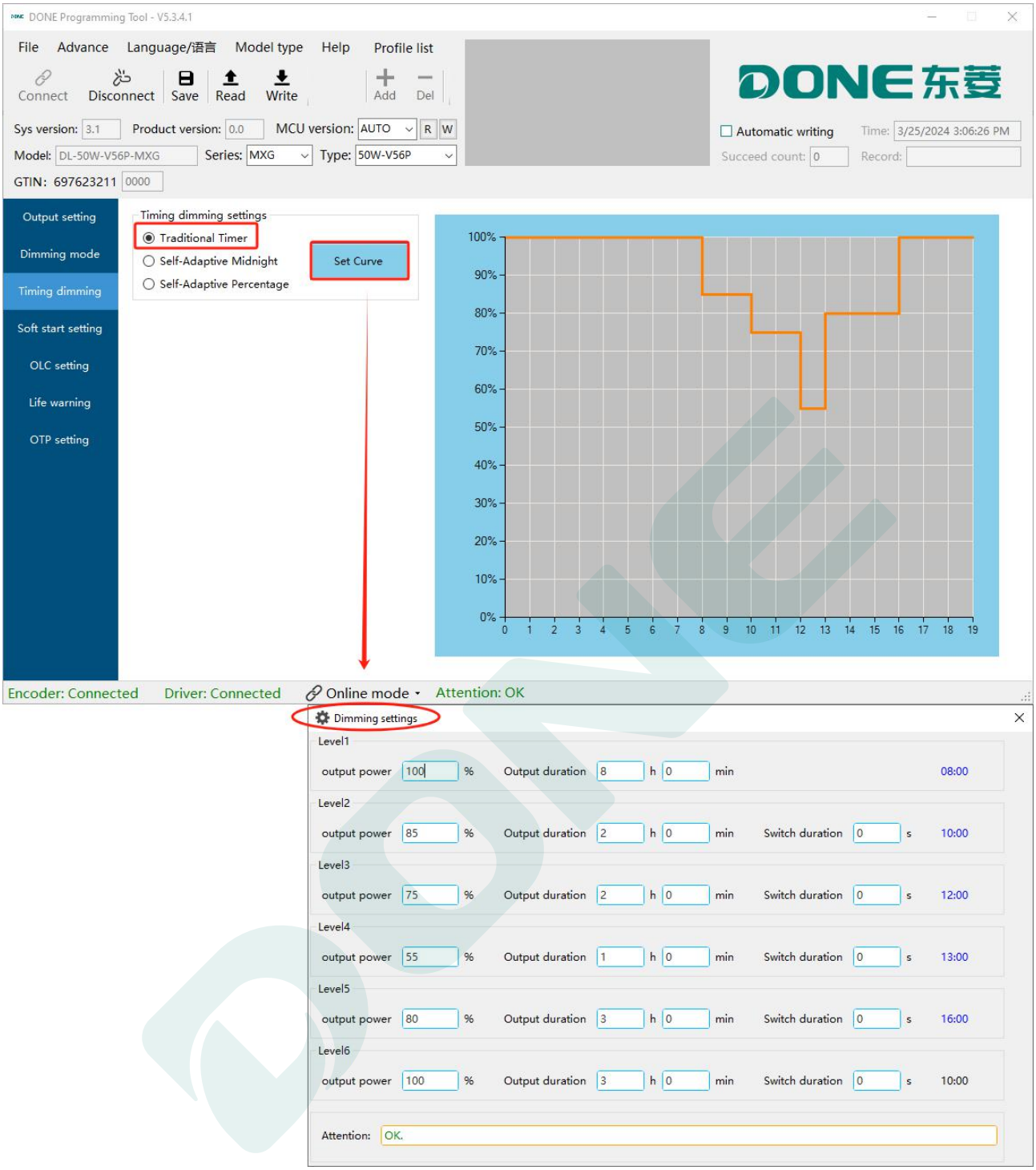


Figure 5.9.2 Traditional timing mode

5.9.2 Self-Adaptive Midnight Timer Mode

Select the Self-Adaptive Midnight Timer Mode, this page can set “Standard duration” and “Midnight time”. Compared with the Traditional Timer mode, in this mode, the effect is based on the set curve and remains unaffected by the seasons.Show in Figure 5.9.3.

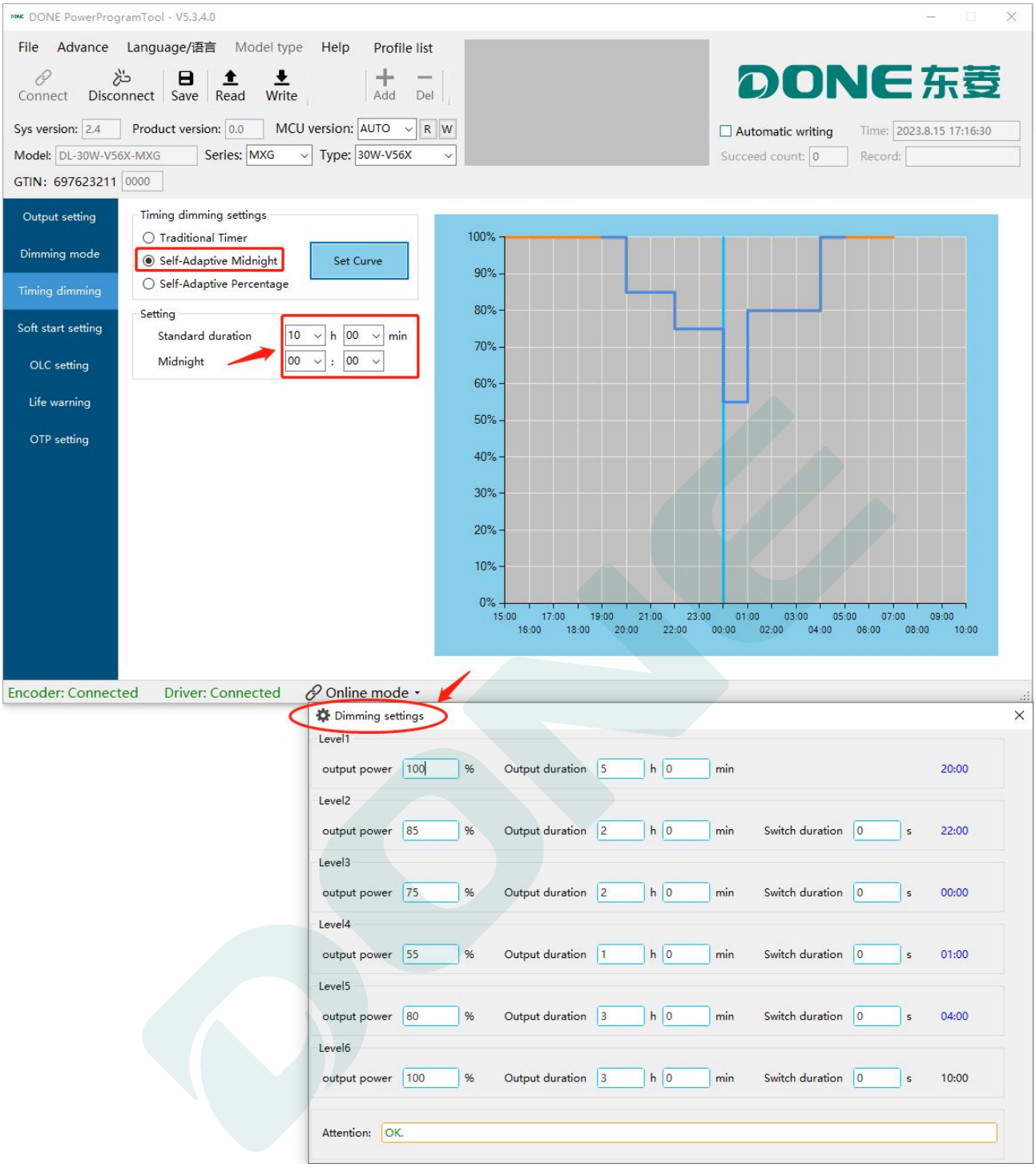


Figure 5.9.3 Self-Adaptive Midnight Timer Mode

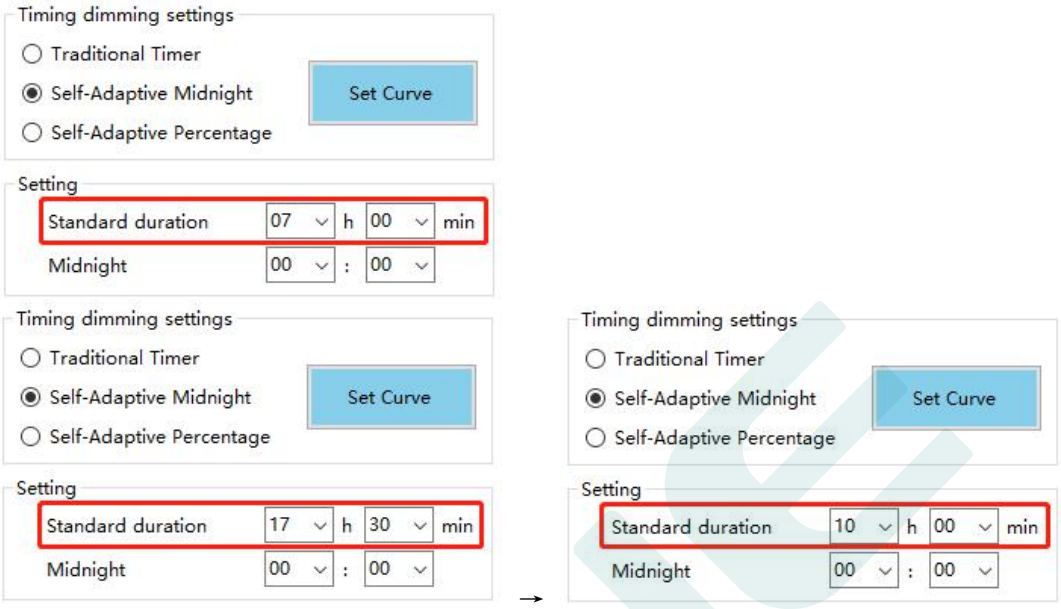
Note:

1. This mode can make appropriate time adjustments based on the changing day and night durations of the four seasons. The driver can adapt the dimming duration according to the duration of two consecutive power cycles, and select the starting dimming curve point for operation based on midpoint and duration choices when powering on.

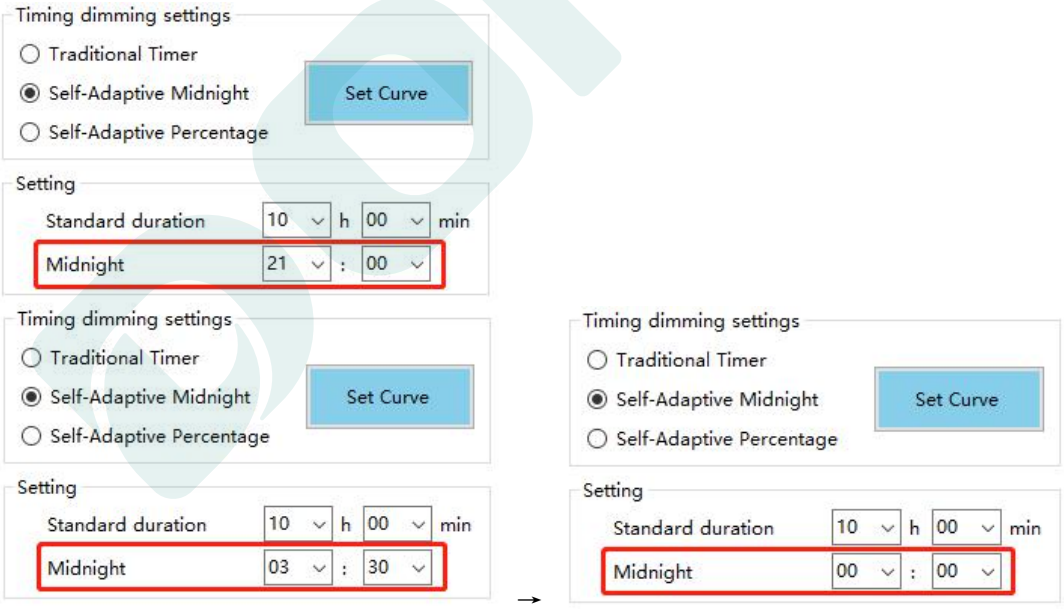
2. Set the standard duration and standard midpoint of the time control dimming setting, and set the

default value when the range is beyond the selected range.

①The standard duration ranges from 07h00min to 17h30min. If the input value is not in this range, the default value is 10h00min.



② The optional range of standard midpoint is from 21:00 to 03:30. If the input value is not within this range, the default value is assigned to 00:00.



3. The standard duration is typically set to 12 hours.

4. The standard midpoint should be set according to the local day-night pattern.

5. Timing output power range in the secondary window (1%~100%).

6. Timing output duration: Six segments of time setting, with each individual segment not exceeding 10 hours, and the total duration setting not exceeding 19 hours.

7. Timing output power: The output power will follow the set power within the specified timing output

duration.

8. Characteristics of timing switching time: As the duration changes between each segment, the output power will gradually change within the set time.

The standard duration is adaptive and refers to the time interval from the startup to shutdown. Each time the power is turned on and off, the driver power system records it as a working cycle.

A compliant power cycle includes two consecutive working cycles, each lasting more than 2 hours, with a time difference of less than 15 minutes between adjacent cycles. The system considers this as a valid cycle and adopts it as the duration for the next working cycle. Otherwise, it will follow the standard duration value you have set.

The actual midnight total time will replace the manually set total time; it will vary with the seasons, being longer in winter and shorter in summer. Different levels will adjust different luminance because the switch times of each level relative to the midpoint are constant. (The blue line represents the actual total time, while the orange line represents the maximum range you can set.)

For example, there have a requirement:

Level 1: 5 hours 100% power, Level 2: 2 hours 85% power, Level 3: 2 hours 75%, Level 4: 1 hour 55% power, Level 5: 3 hours 80% power, Level 6: 3 hours 100% power.

You can adjust the parameters of timed output to achieve the requirement of entering the second phase (output power is 85%) at 23:00. This can be done by modifying the timed output duration to 8 hours, aligning the second phase with 23:00, as shown in Figure 5.9.4.

Additionally, you can further adjust the midpoint to align with the desired power-on duration, as depicted in Figure 5.9.5.(The blue line represents the standard duration, i.e., the time from power-on to power-off; the orange line represents the total duration of timed output.)

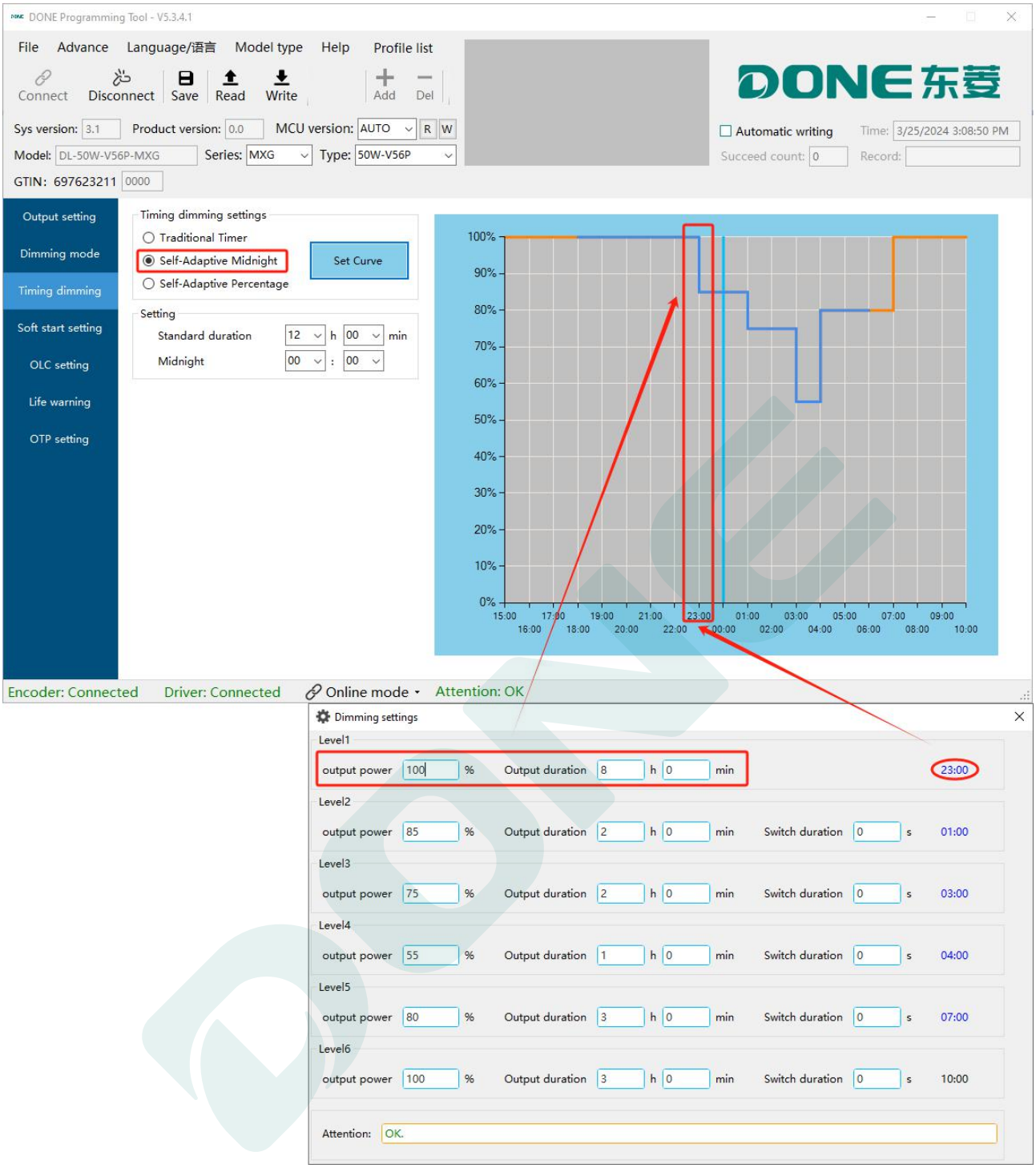


Figure 5.9.4 Edit output duration

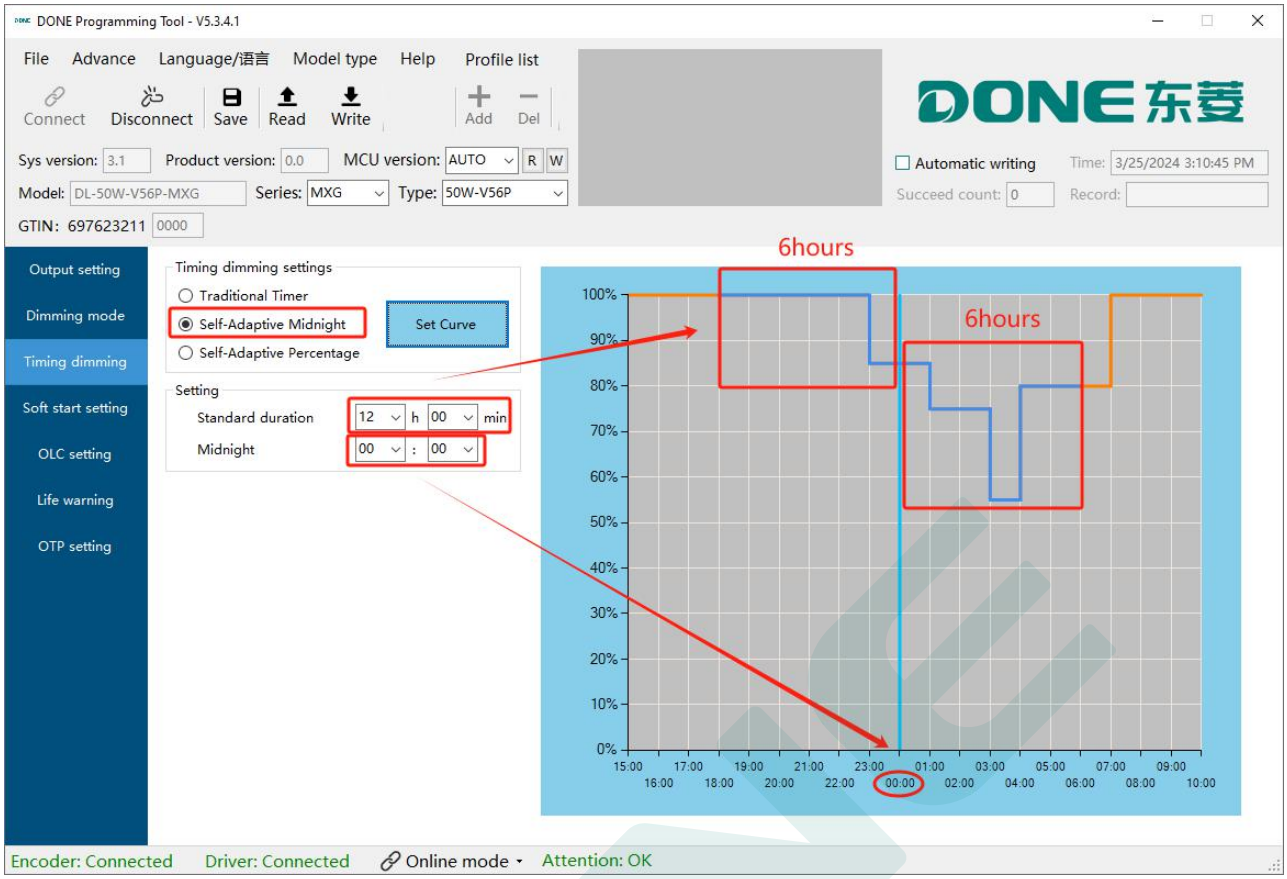


Figure 5.9.5 Edit standard duration

5.9.3 Self-Adaptive Percentage Timer Mode

Select the Self-Adaptive Percentage Timer Mode.In this mode, the page allows you to set the total duration of the timed control runtime. Based on this total time and the percentages you set for each section, you can control the dimming duration. Adjust these values on the secondary page before configuring the curve.

Note:

1. The output duration is calculated as the product of the set standard duration and the percentage of the configured timed output duration (e.g., if the standard duration is set to 12 hours and the timed output duration is set to 20%, then 12h * 20% = 2.4h).

2. Timing output power range in the secondary window (1%~100%).

3. Set timed output duration: distributed according to the proportion of the standard duration.

4. Characteristics of timing switching time: As the duration changes between each segment, the output power will gradually change within the set time.Show in Figure 5.9.6.

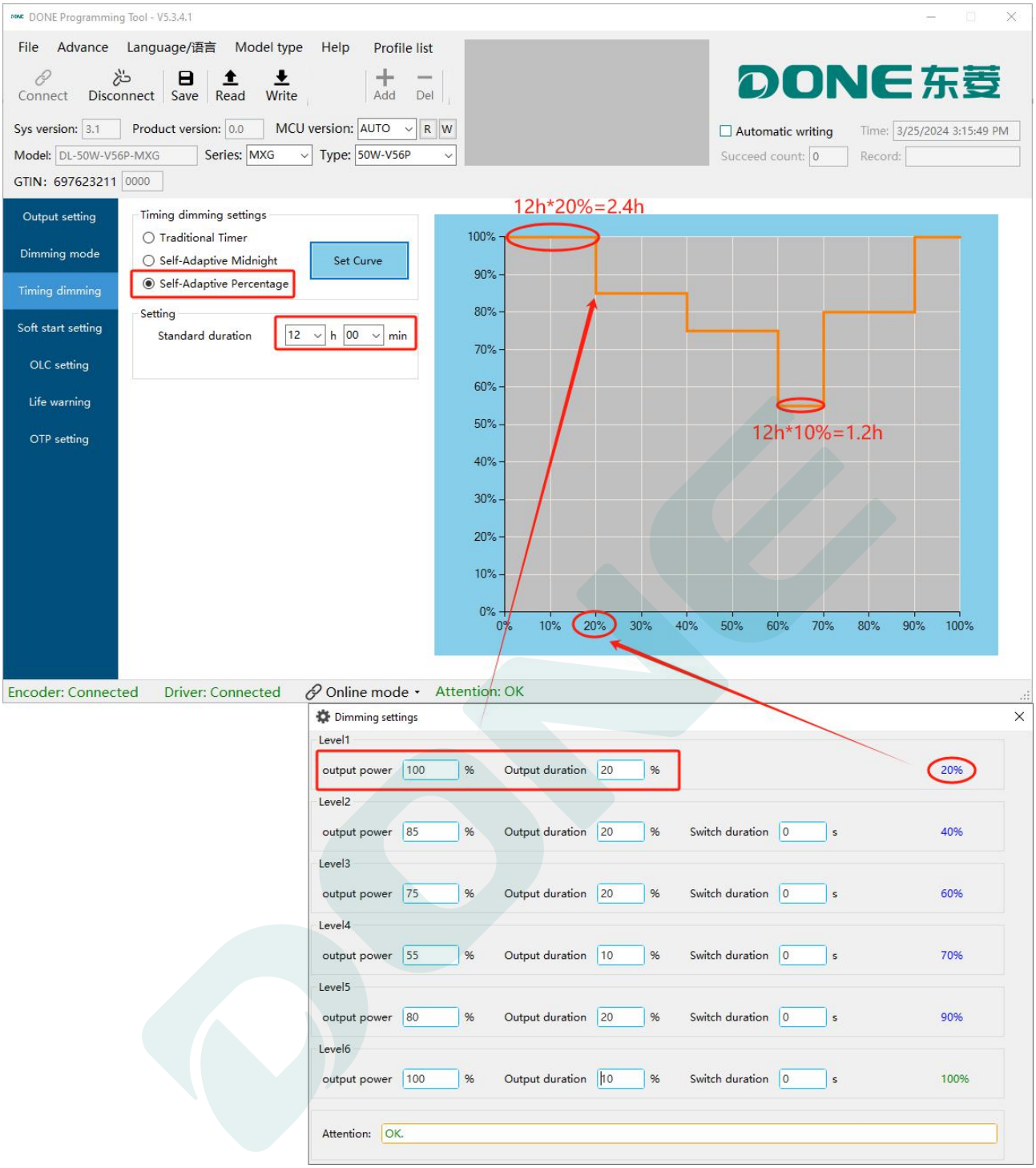


Figure 5.9.6 Self-Adaptive Percentage Timer Mode

5.10 Soft Start Setting

Select “Soft Start” page, this part is to set “soft start time”, meanwhile option box setting can create soft start curve to make it more clearly and directly. Show in Figure 5.10.1.

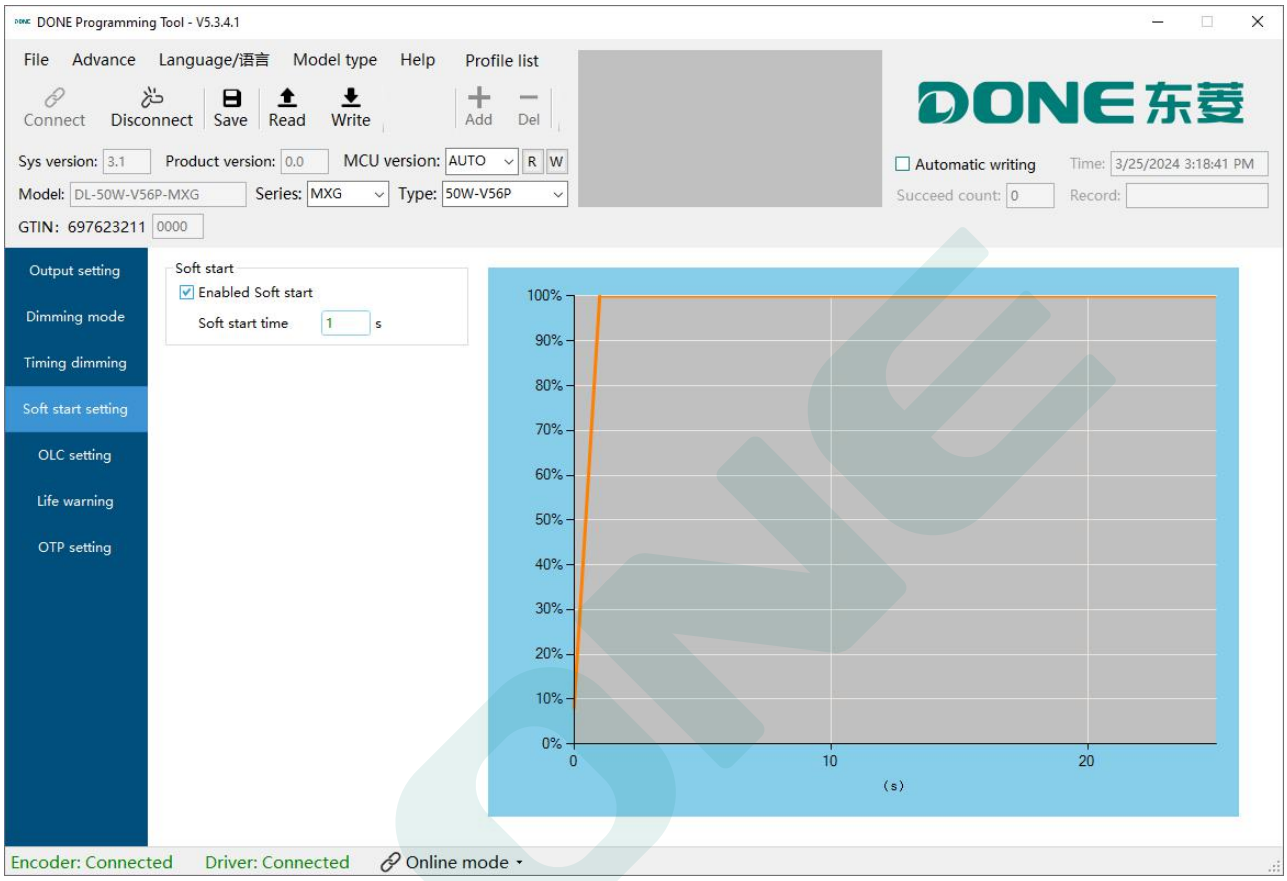


Figure 5.10.1 Soft start setting interface

5.11 OLC Setting

Tip:The full name of "OLC" is "Optical Loss Compensation".

Select the “OLC Setup” page and check the modification checkbox. Here you can configure the OLC "Run time" and "Output power". (Please note: the unit of time is "kh" which stands for "thousands of hours" and the running time is cumulative.)

By setting the OLC run time, the current will vary based on the change in time and temperature. The calculation result can be obtained from the control chip, allowing the driver to regulate its current increment as the total illumination time increases for compensation. Show in Figure 5.11.1.

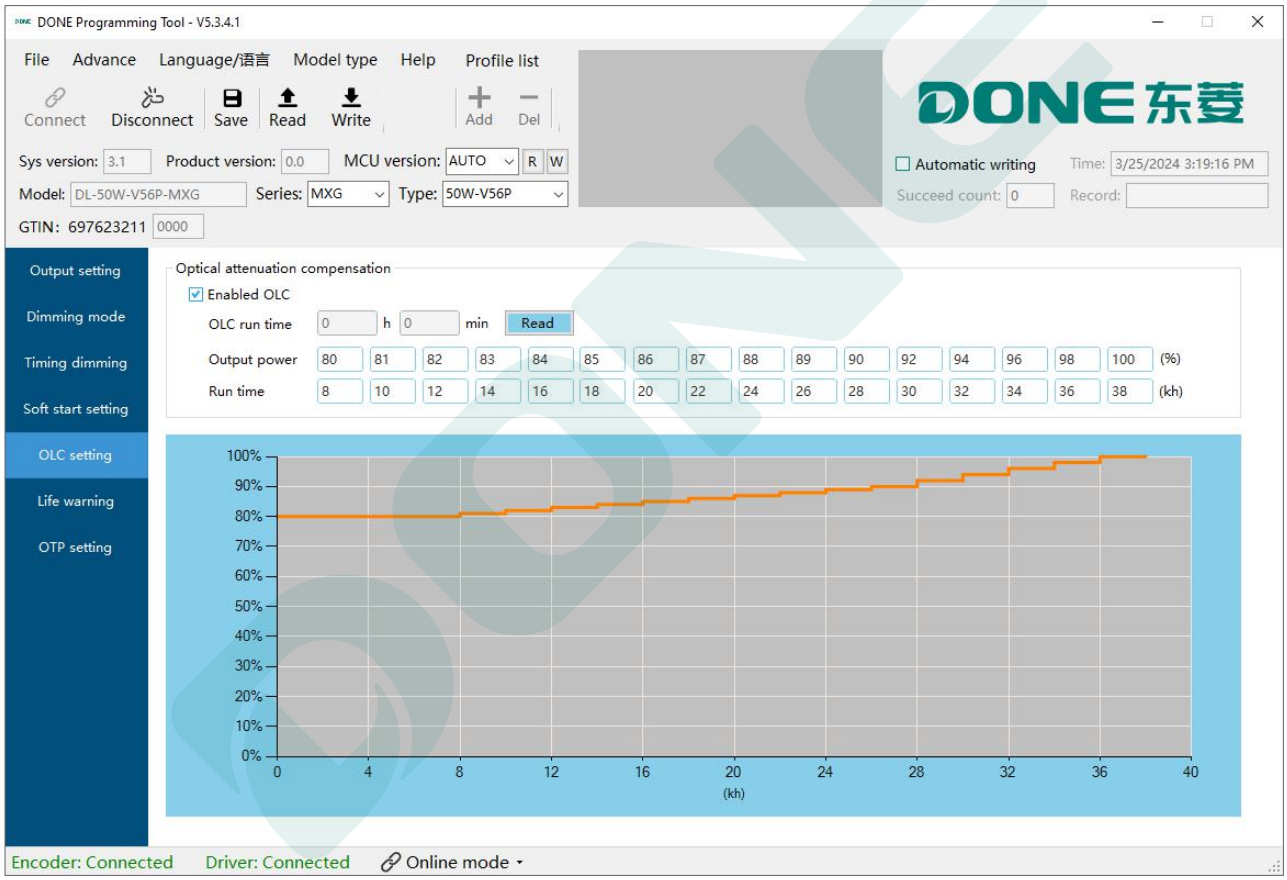


Figure 5.11.1 Optical Loss Compensation Interface

5.12 Life Warning Setting

Select the "Lifetime Warning" page, where you can enable the "Enable Life Warning" option. Slide the lifetime warning time scale bar (maximum setting of 127,500 hours) to set the desired time, as shown in Figure 5.12.1.

The manifestation of the lifetime warning is as follows: When the accumulated operating time of the driver reaches the "Lifetime Warning Time," a warning will be issued. The accumulated operating time can be read in real-time by connecting to the driver online.

During the warning period, it will blink for 0.5 seconds and then remain off for 0.5 seconds, with 15 blinks followed by 15 pauses. After reaching the "Warning Interval Time," the alarm continues, and each set of 15 blinks counts as 1 warning. Once the predefined warning count is reached, the alarm will stop.

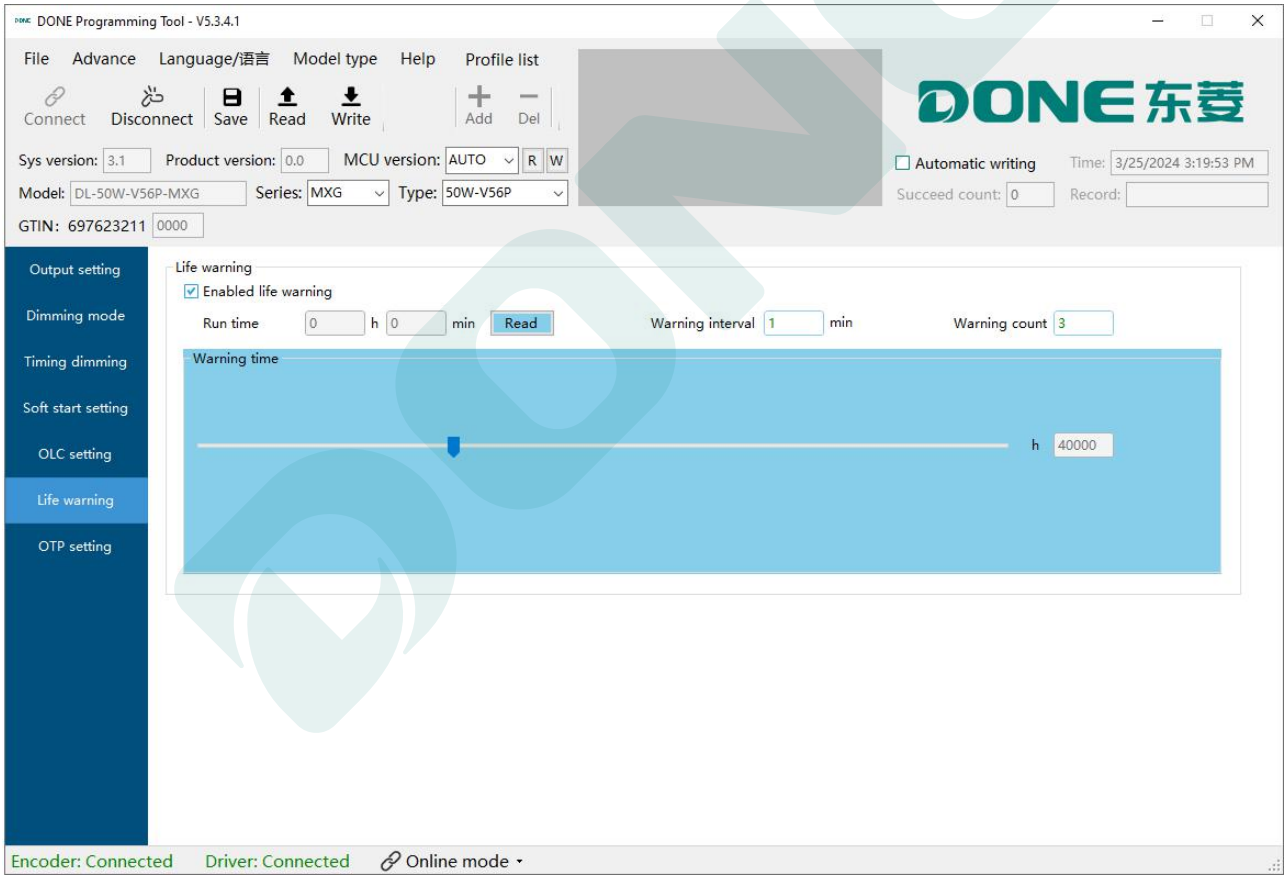


Figure 5.12.1 Life Warning Setting Interface

5.13 OTP Setting

Tip:The full name of "OTP" is "Over-Temperature Protection".

Select the "OTP Setting" page, which is designed for three NTC types used by the driver (including NCP18XH103J03RB, TSM2A103F3951RZ, CN0805X104F3950FB) in order to configure parameters for temperature control and driver protection. By configuring the recovery point, protection point, and current value, temperature protection can be achieved effectively, as shown in Figure 5.13.1.

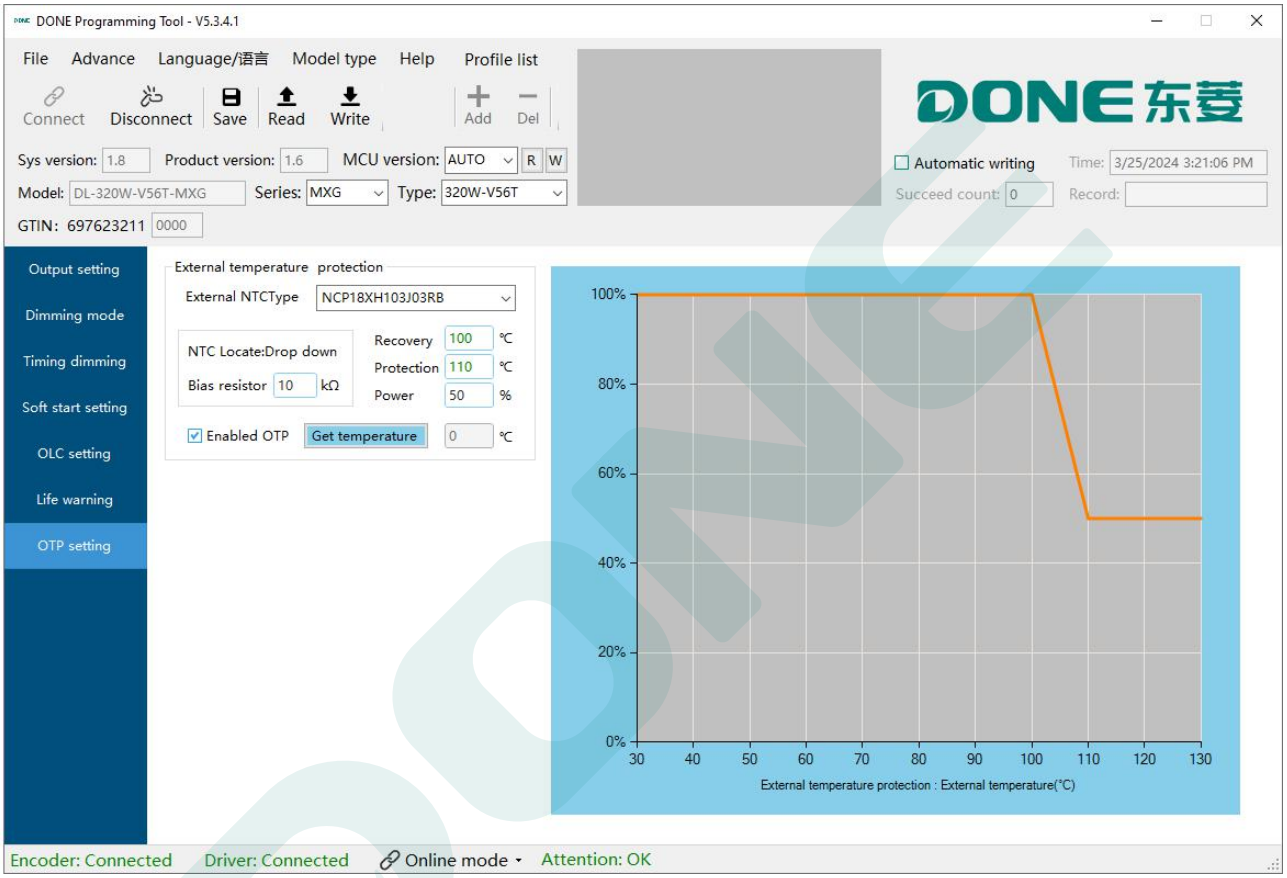


Figure 5.13.1 Over-Temperature Protection Setting Interface

Explanation:

Based on the curve in Figure 5.13.1, it can be intuitively observed that as the temperature of the driver increases, the current control becomes effective when the temperature reaches the recovery point. When the temperature exceeds the recovery point, the output current will decrease as the temperature rises until the temperature reaches the protection point. At the protection point, the output current will be executed according to the set current value percentage.

When the temperature continues to decrease and falls below the set protection point, the current will increase as the temperature decreases. Once the set recovery point is reached, 100% current will be output.

Here is a recommendation:the difference between Recovery point and Protection point is at least 10℃.

Example:

When the driver product supports external temperature protection (i.e., "Enable Temperature Protection" is editable and selected), first select the corresponding NTC type, then set the bias resistor (default 10K), and configure the recovery point, protection point, and current value parameters. When the temperature exceeds the recovery point parameter of 100°C, the current will gradually decrease. When the temperature reaches the protection point parameter of 110°C, the current will decrease to the set value of 50%. When the temperature falls back to the recovery point of 100°C or below, the output current will be restored to 100%.

Version

DATE	DESCRIPTION	REV.	CHECK
2022.4.6	DONE-POWER-OFFLINE-PRG TOOL Initial Version.	V1.0	
2022.6.30	DONE-POWER-OFFLINE-PRG TOOL Amend Version.	V1.1 software(V4.2.8.0)	

2022.9.1	New: 1.The main interface displays the real-time time; 2.Added PWM dimming mode; Optimizations: 1. The time to deliver a common query is increased to 0.5 seconds per query. 2. Windows can match different computer resolutions. Fixes: 1. The timing output time of the minute is given 60 flashback problem; 2. Backspace operation problems of hours, minutes, and seconds. 3. The "CN0805X104F3950FB" NTC model cannot be read; 4. The error in the maximum value of the constant current working range in the output setting; 5. The problem of dialogs which display "Value is too large or too small for Decimal"and "Value is too large or too small for unsigned bytes",when selecting a product type.	V1.2 software(V4.2.8.1)	
2022.10.25	1. Both the current value of the over temperature protection recovery point 1 of the internal temperature and external temperature are assigned a value of 100.(Note:The unit is %.) 2. Optimize the LOGO icon of the software. 3. Fixed the problem"InvalidArgument='0' is not valid for 'index' ."when deleting the configuration file in offline mode and switching other function Settings.	V1.3 software(V4.2.8.2)	
2023.03.01	New: 1. Added the customized product type "MZ" to the list (MXG series). Optimizations: 1. Modify the display value of the minimum power limit range in Output parameter Settings. 2. When the soft-start time reads 0 seconds, perform an action (save or write) on it, the default is assigned 0.3 seconds. 3. To avoid the product entering protection prematurely due to the low default value, assign a value of 120 to the two temperature protection points and recovery points inside and outside the upper computer of the old version.(Note:The unit is °C.) Fixes: 1. The "value is too large or too small for an unsigned byte" problem. 2. When writing to the product, the failure of one of the data packets in the configuration file also prompts the problem of success.	V1.4 software(V4.2.8.3)	
2023.05.26	New: 1. Added GTIN display to the main interface. 2. Added "Dim sleep" function in dimming mode.	V1.5 software(V4.2.8.4)	

2023.08.28	New: 1. Added startup interface (Product mode selection). 2. Added Three-channel offline programming mode. 3. Modify the power-on and power-off ratio parameters, expanding the allowable input range from 25% to 100%. 4. Added configuration file version number attribute recognition. 5. Software packaging services; 6. Version information about DONE programming tool. Optimizations: 1. Real-time data reading triggers save events to ensure data accuracy. 2. Product Model recording feature: The software interface defaults to the last saved product model. 3. Eliminate save operations when switching sub-interfaces to improve software responsiveness. Fixes: 1. Resolve the issue of backspace exception in dimming mode settings when dimming parameters are empty. 2. Recognize version number attribute and clear incorrect data bits in old configuration files.	V2.0 software(V5.3.4.0)	
2024.03.26	New: Add product model update function. Optimizations: Improve the fluency of software clicks. Fixes: Solve the problem that the process is occupied when reading the drive in online mode.	V2.1 software(V5.3.4.1)	

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EDIT	CHECK	APPROVE
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