

# **Programming Instruction Manual**

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## Part I Installation Operation Guide of Configurer Tool

1. First, click the installer in the software package. As shown in Image 1 below.

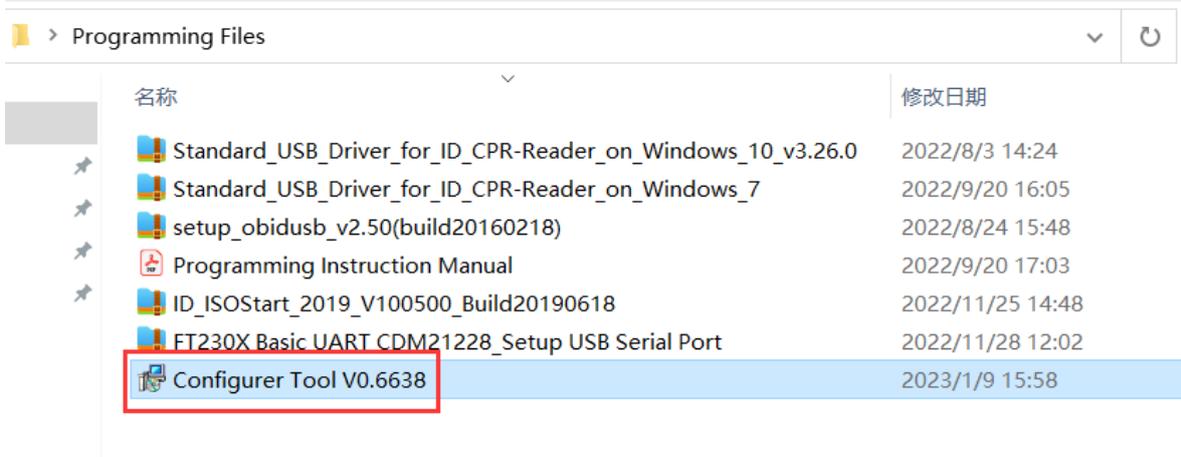


Image 1

**Note:** Please note that the latest version of the software is V0.7039, and the installation procedure is the same as the previous version

2. After opening the installer, we can see the following interface. Please click the “Next” button, enter the preparation stage of the installation program after selecting the appropriate installation path.

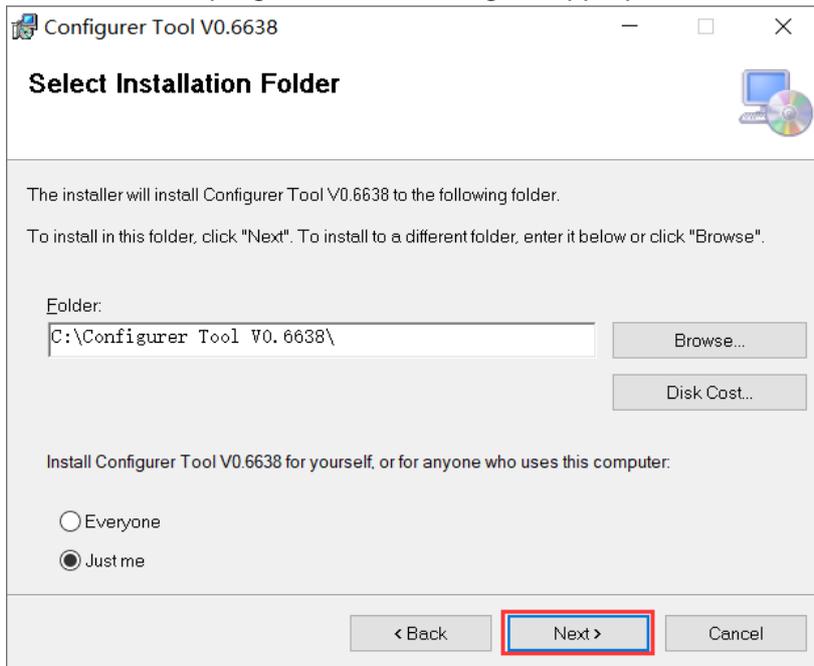


Image 2

3. Please click the “Next” button to start to install.

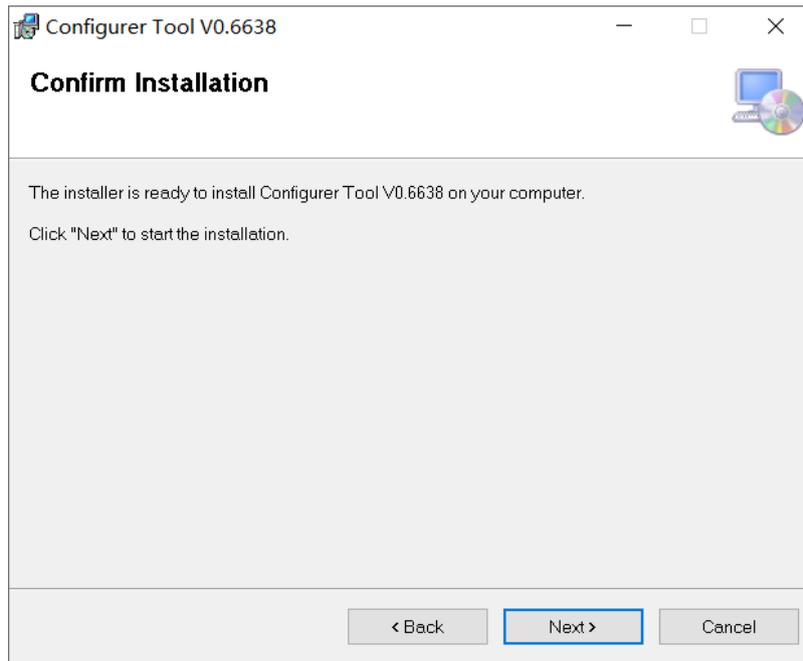


Image 3

4. If the following image appears, it means that you have completed the installation. Click “Close” to start using the LED Driver Configurer Tool.

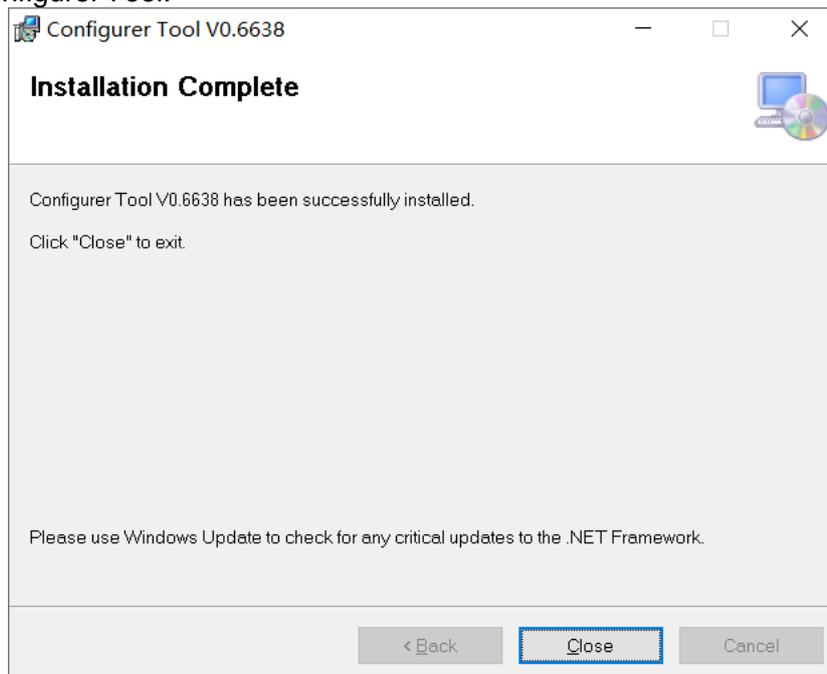


Image 4

- Please click the software icon to enter the software login interface. Then, click the "Login" button to enter the software as shown in Image 5.

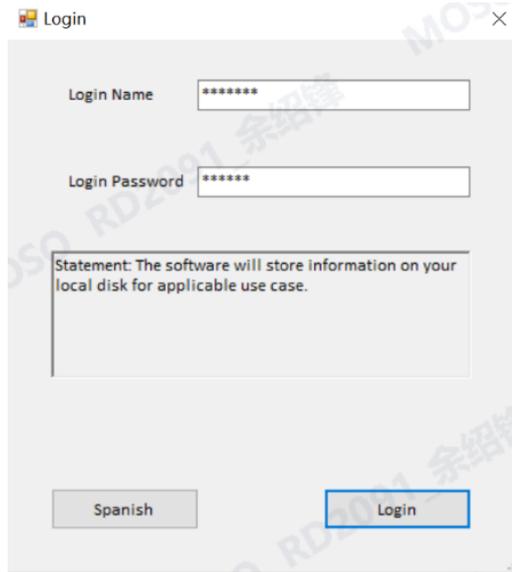


Image 5

- Finally, we have successfully entered the LED Driver Configurer Tool software interface.

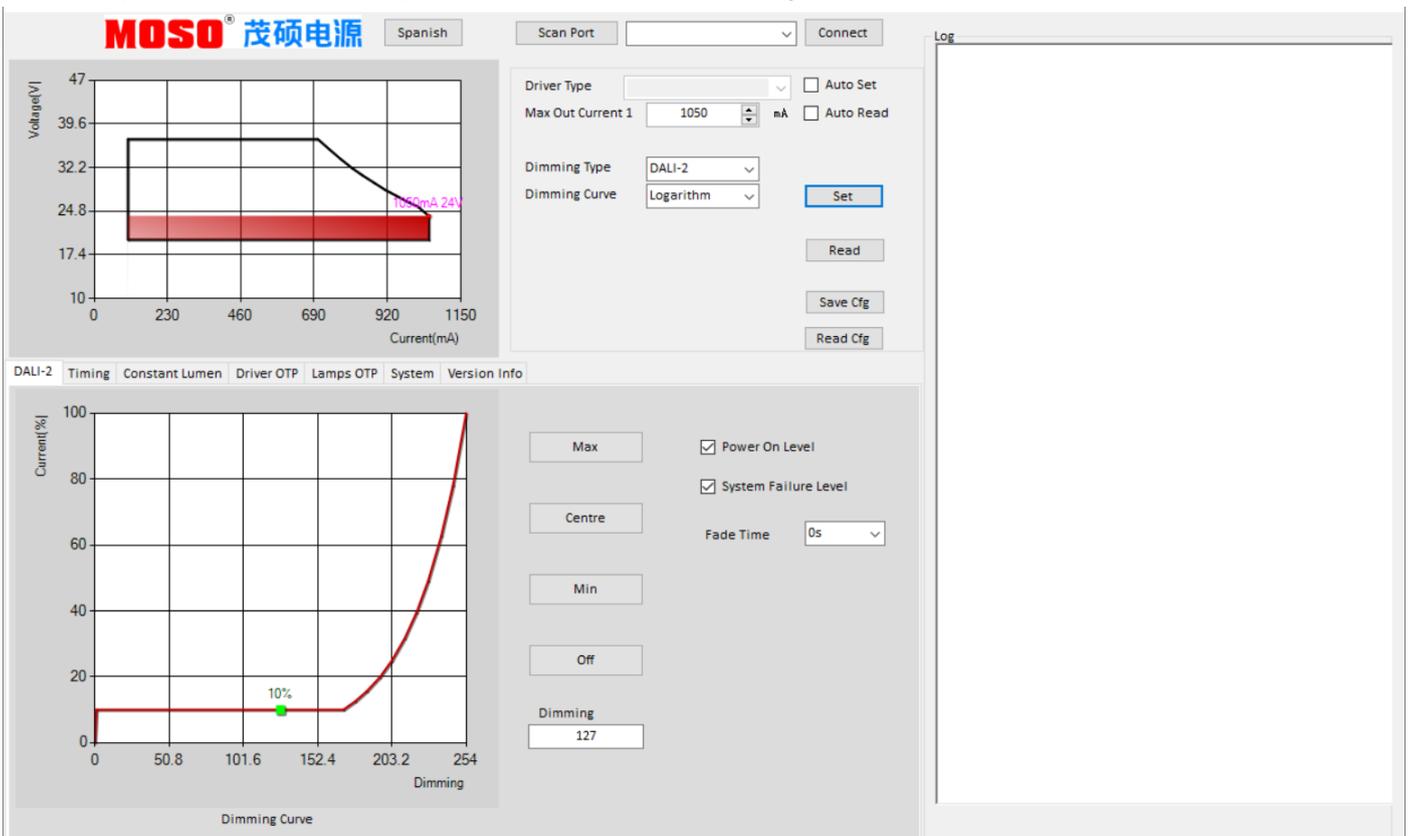


Image 6

## Part II Programmers

### 2.1 NFC Programmers

#### NFC Programmer type:



FEIG: CPR30-USB

#### NFC Programmer Features:

- ◆ Operating Voltage: USB 5VDC;
- ◆ RF Compatible: ISO15693;
- ◆ RF Output Power: Up to 1.4W (Max);
- ◆ Reading and Writing Distance: Within 30 mm;
- ◆ IP20
- ◆ Working temperature: 0~40°C;
- ◆ Shell Material: PC;



FEIG: ISC.PRH101-USB



MS-PRG-N1

#### Application:

Suitable for LED drivers with NFC function to program through wireless NFC, also suitable for current setting.

## 2.1.1 Description of NFC Programmer

NFC wireless programmer is based on near-field wireless communication technology, the signal is transmitted by electromagnetic induction coupling mode of the wireless frequency part of the spectrum, and the data transmission can be completed without power on, and to realize the LED driver parameter configuration. NFC technical operation distance is short, mainly to establish point-to-point data transmission between devices. NFC has the characteristics of close distance, high bandwidth, low energy consumption and high security. This programmer communicate LED driver with the upper computer through USB data lines. The communication is transmitted by encryption mode, that is, the data is configured from the upper computer, and then the programmer transmits the data encryption to the LED driver module to realize the adjustment of the driver's parameter, to make sure that the same LED driver can meet the different application with different configuration parameters. The programmer meets RoHS standard.

## 2.1.2 Configuration Connection Schemes



Image 7

(Note: When configuring, the LED driver does not need to be powered on. Programmer's the coil area must close to the LED driver's NFC coil position, and the distance is **less than 30 mm.**)

### 2.1.3 Warning Tone and Indicator Light

When reading the driver, if the indicator light of the NFC programmer turns to green (or blue), it means that the programmer has detected the driver. Click the "Read" button, the programmer will make a "Di" sound, and the information of the driver appears on the software log interface, which means that the driver has been read successfully.

#### **FEIG: CPR30-USB:**

When the programmer is connected to the computer, the red indicator light is always on, and the green indicator light flashes 3 times, indicating that the power on is normal, which means the programmer is ready to work.

When the LED driver which need to be configured is close to the programmer (distance less than 30mm), the green indicator light is always on, indicating that the LED driver has been sensed.

#### **FEIG: ISC.PRH101-USB:**

After the yellow light flashes five times with the warning tone, the indicator light turns green, which means that the programmer is ready to work.

#### **MS-PRG-N1**

When the programmer is connected to the computer, the red indicator light and the green light flash alternately for 3 times, and the red indicator is always on, indicating that the power on is normal, which means that the programmer is in a ready state.

## 2.1.4 Installation Operation Guide of Driver Software for NFC Programmers

The NFC programmer can be used normally only when the driver software of the corresponding programmer is installed. Therefore, please read the following installation guide carefully.

### FEIG: CPR30-USB:

Before installing driver software, please confirm whether the user's computer system is **WINDOWS 7** or **WINDOWS 10**, and then open the corresponding compressed package to install the software.

Name	Date modified
Standard_USB_Driver_for_ID_CPR-Reader_on_Windows_7.zip	17/12/2020 12:14
Standard_USB_Driver_for_ID_CPR-Reader_on_Windows_10_v3.26.0.zip	01/07/2021 08:48

Image 8

### Windows7:

Open the installation package for WINDOWS 7, and you will see a PDF file in the red box as shown in Image 9. This is a detailed installation manual officially issued by FEIG.

setup_cprusbio v2.50(build20161102)			File folder	2020-06-23 18:03
H02062-0de-ID-B.pdf	1.5 MB	1.2 MB	Microsoft Edge PD...	2020-06-18 22:31

Image 9

As shown in Image 10 below, inside the red box is the installer of driver.

license_english.txt	4.4 KB	1.8 KB	Text Document	2009-12-15 23:35
setup.bmp	152.1 KB	14.4 KB	BMP File	2013-02-15 17:50
setup.exe	1.1 MB	1.0 MB	Application	2016-06-13 20:06
setup.ini	1 KB	1 KB	Configuration setti...	2016-02-18 23:44

Image 10

### Windows10:

Open the installation package for WINDOWS 10, and you will see two PDF files as shown in the Image 11. These are the official detailed installation manual for FEIG NFC programmer.

H90500-3d-ID-B.pdf	1.2 MB	1.1 MB	Microsoft Edge PD...	2020-05-29 09:48
H90500-3e-ID-B.pdf	1.3 MB	1.2 MB	Microsoft Edge PD...	2020-05-29 10:14
IMPORTANT_ReadMe.txt	1.7 KB	1 KB	Text Document	2021-01-04 13:51
setup_feigcprusb_v3.26.0_win10_build2020120901.exe	2.0 MB	2.0 MB	Application	2020-12-09 14:13

Image 11

As shown in Image 12, the red box is the installer of driver.

H90500-3d-ID-B.pdf	1.2 MB	1.1 MB	Microsoft Edge PD...	2020-05-29 09:48
H90500-3e-ID-B.pdf	1.3 MB	1.2 MB	Microsoft Edge PD...	2020-05-29 10:14
IMPORTANT_ReadMe.txt	1.7 KB	1 KB	Text Document	2021-01-04 13:51
setup_feigcprusb_v3.26.0_win10_build2020120901.exe	2.0 MB	2.0 MB	Application	2020-12-09 14:13

Image 12

## FEIG: ISC.PRH101-USB:

The installation package shown below is the installation package corresponding to FEIG: ISC.PRH101-USB. Please open the installation package and install the driver.

setup_obidusb_v2.50(build20160218).zip	11/08/2022 16:31
--	------------------

Image 13

This NFC programmer can be compatible with the Configurer software only when the host mode is activated. The following is the operation guide for **activating the host mode**.

First, open the corresponding software installation package to install the software.

ID_ISOStart_2019_V100500_Build20190618	2022/11/25 14:48
--	------------------

Image 14

After successful installation, the icon of the software will appear, just like the Image 15 below.



Image 15

First click **File**, then click **New**, and then click **Reader (\* .xml)**.

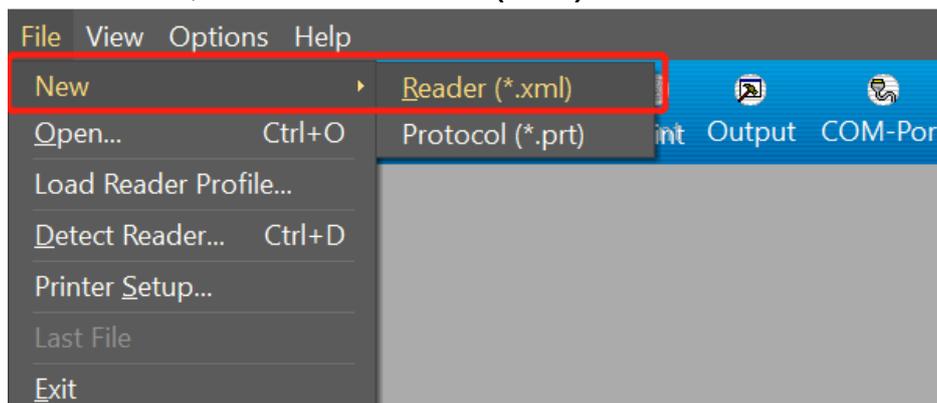


Image 16

Please select “ID ISC PRH101” option and click it to enter the operation interface.

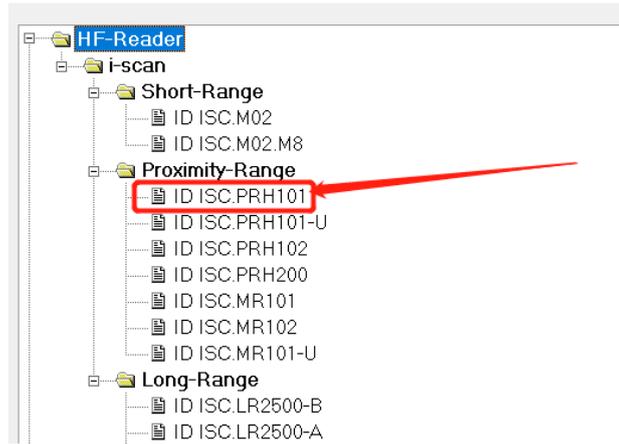


Image 17

Then, click the “Detect” button.



Image 18

Then, click the “Detect” button, As shown in Image 19 below, the model and data corresponding to the NFC programmer will appear in the red box.

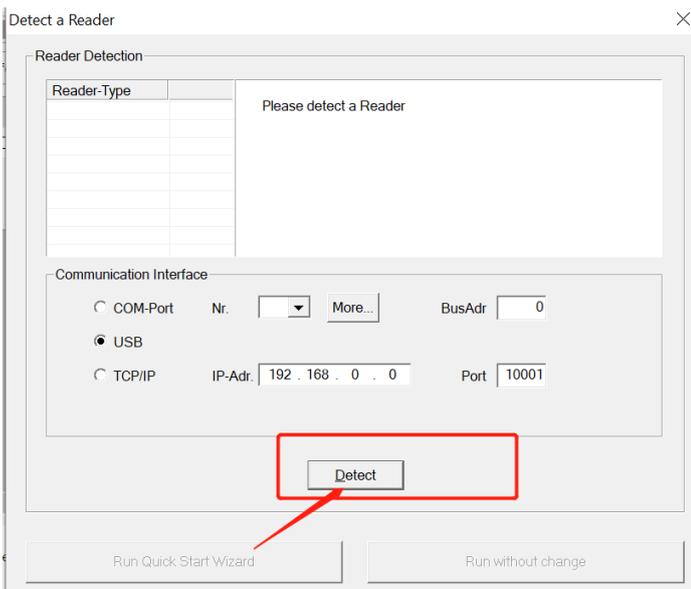


Image 19

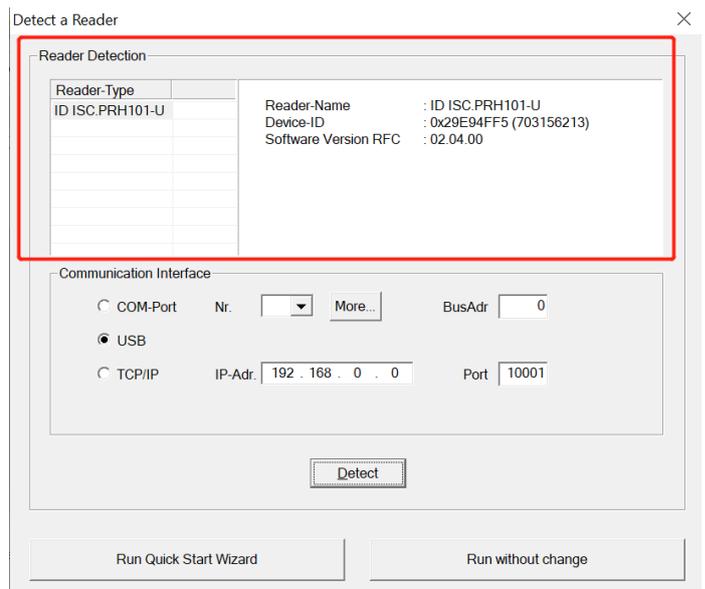


Image 20

If the software protocol interface displays **OK**, the NFC programmer has been read successfully.

```
Protocol | 09/20/22 15:14:13.709 >> 02 00 08 FF 66 56 3B 25  
09/20/22 15:14:13.709 << 02 00 08 00 66 82 61 73 Reader: Command not available  
09/20/22 15:14:13.709 >> 02 00 08 FF 66 57 B2 34  
09/20/22 15:14:13.709 << 02 00 08 00 66 82 61 73 Reader: Command not available  
09/20/22 15:14:13.709 >> 02 00 08 FF 66 60 8E 71  
09/20/22 15:14:13.718 << 02 00 08 00 66 82 61 73 Reader: Command not available  
09/20/22 15:14:13.718 >> 02 00 08 FF 66 80 80 96  
09/20/22 15:14:13.718 << 02 00 18 00 66 00 29 E9 4F F5 EF FF FF 00 02 00 09 00 00 00 02 78 B6 OK
```

Image 21

Then, Please click the “**Run without change**” button.

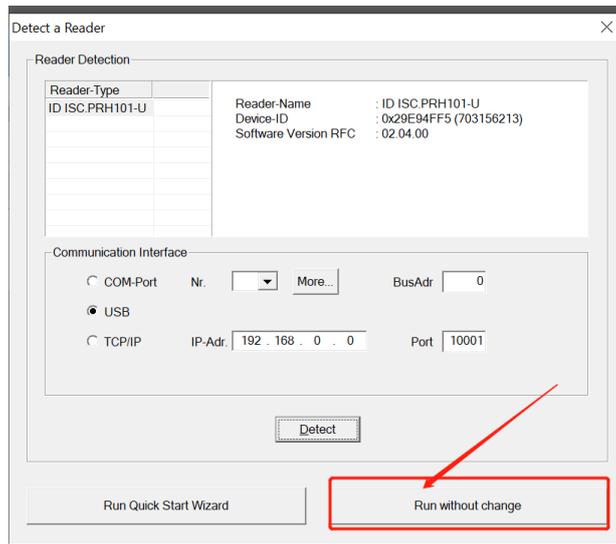


Image 22

Next, please click the “**Configuration**” button.

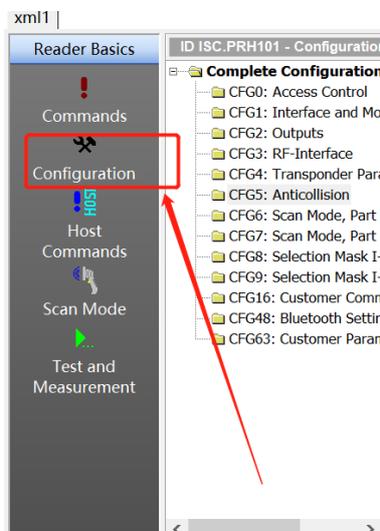


Image 23

Next please click the “**Configuration Presentation**” button, then click “**Physical View**” button.

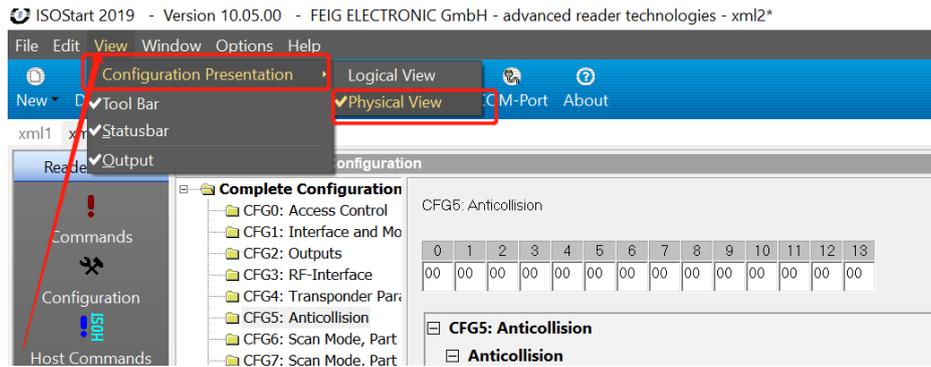


Image 24

At last, please click “**[0x81] Write**” button. The activating host mode process for NFC programmer is completed, and you can use the NFC programmer normally.

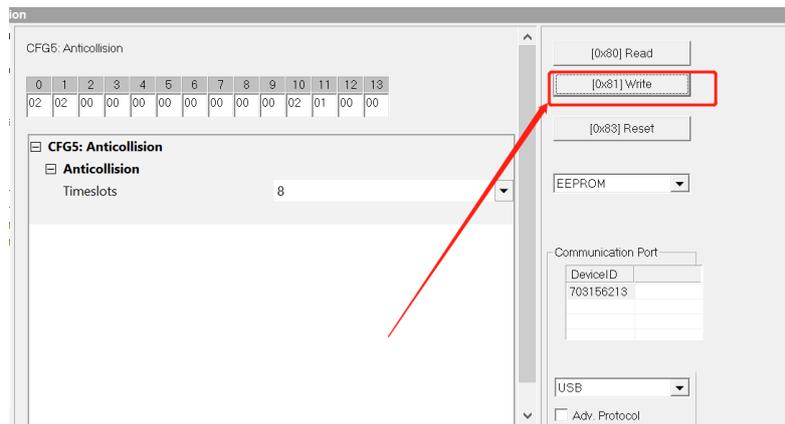


Image 25

## MS-PRG-N1:

As shown in Image 26 is the installer of driver software for MS-PRG-N1. Please ensure that you have installed the driver software correctly before using MS-PRG-N1.

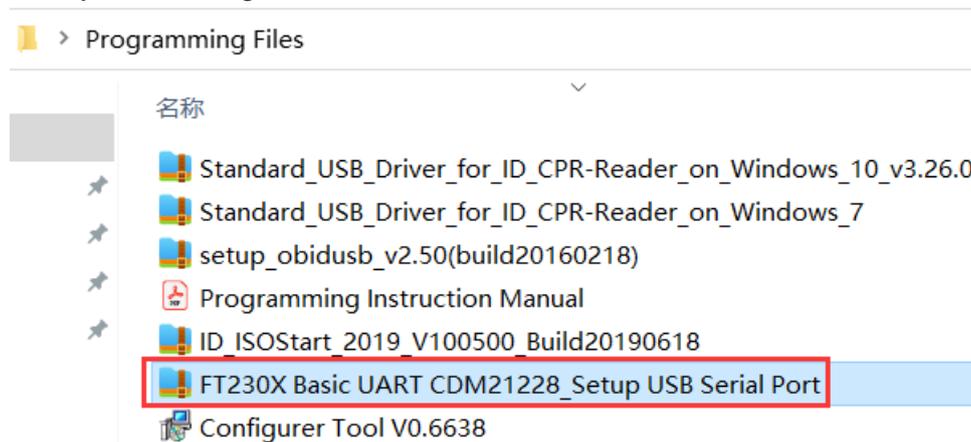


Image 26

## 2.2 DALI&DMX Programmer

DALI&DMX Programmer type:



DALI&DMX Programmer Features:

- ◆ Operating voltage: USB 5VDC;
- ◆ IP20;
- ◆ 1 year warranty.

### DESCRIPTION

DALI programmer or DMX programmer is a bridge between the computer and the driver, through the dimming wire to realize programming procedure. USB port connects the computer and the other end connects the dimming wire of the driver. Bring great convenience and cost-saving to production, make driver programming easier. The Configurer Tool can be used immediately without installing a USB driver software.

Connection Diagram:

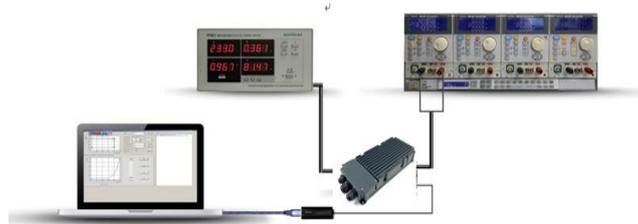
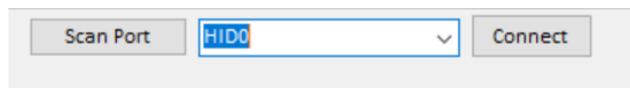


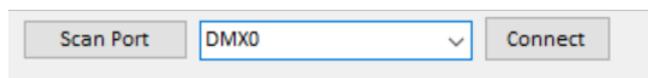
Image 27

### Precautions for connecting with DALI/DMX programmer:

- 1- Please confirm that after the DALI programmer is connected to the computer, the interface displays "HID0", indicating that the DALI programmer is connected successfully.



- 2- Please confirm that after the DMX programmer is connected to the computer, the interface displays "DMX0", indicating that the DMX programmer is connected successfully.



## Part III Definition of the Functions in the Configurer Tool

### 3.1 Description of Configurer Tool's Main Interface:

1. **“Driver Type”** bar in the Configurer is the present driver's model, cannot be changed, it has been set before leaving our factory.
2. **“Max Out Current 1”** The maximum output current can be set according to actual needs.  
(Note: The adjustable range of current is 10%Iomax ~ 100%Iomax).
3. **“Max Out Power 1”** set, set the maximum output power, ensure that the driver does not exceed this set Max power. If the output voltage is high resulting in the output power exceeding the set value, the output current will be decrease so that it does not exceed the set maximum power.
4. **“Constant Power”** ensures that the output power of the LED driver is constant during the dimming process.  
(For example, when the user change an 80W-driver into 60W maximum output by the "Max Out Power 1" function, and sets the dimming ratio to 50%, the output power of the driver will be 30W instead of 40W.)
5. **“Dimming Type”** has three options: DALI-2 dimming; Timing dimming; Timing\_ DALI-2 dimming.
6. After the above parameters are set, click on the **“Auto Set”** button for the batch programming.
7. To read the parameters set inside the driver, users may click the **“Auto Read”** button to realize the function of automatically reading configured data of drivers within 6s(Programmer read data once every six seconds).

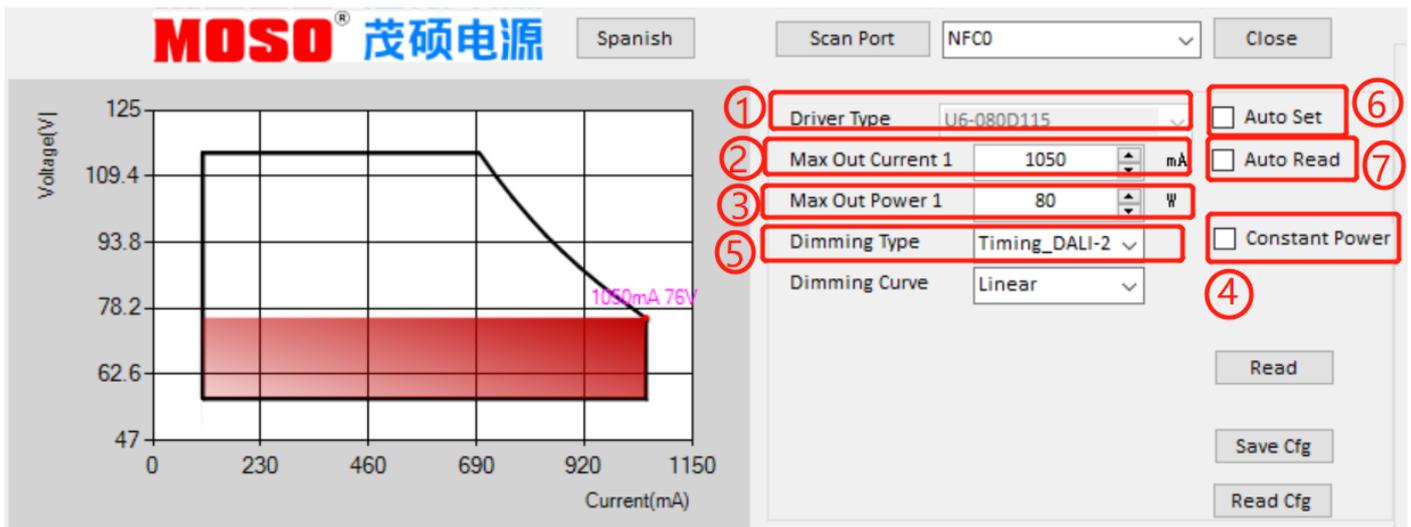


Image 28

## DALI-2 Part

**Power On Level:** This Function defined by DALI standard. When using **DALI controller or DALI programmer** to control brightness, this function will be turn on. After detecting that the output is normal, the brightness will be adjust according to the dimming value set last time.

**System Failure Level:** It defined by DALI standard and **also only available when using the DALI programmer or controller**. When the next operation cannot be performed or the operation fails during the usage of software, an error message will appear on the log interface on the right to remind the user of the operation error.

**Fade Time:** Defined by DALI standard, **but** it can be used with the NFC programmer. It can be set from the minimum value of 0s to the maximum value of 90s. When the selected Fade Time is determined, each subsequent dimming operation will be completed within the specified Fade Time. For example, when the fade time is set to 8s, it will take 8s to complete the dimming operations (Including adjustment to the maximum dimming value, adjustment to the minimum dimming value, and adjustment to the middle dimming value, as long as it is an action of changing the dimming value.

**NOTE:** When using timing mode, please confirm that the **“System Failure Level”** check box is not checked, otherwise **TIMING** dimming cannot operate. When the **“System Failure Level”** is turned on, if the driver detects that the dimming wire is open, it will judge that the drive is in a fault state. When the dimming wire is connected to the DALI controller and the fault is removed, the drive will run timing function.



Image 29

### 3.2 The Explanation of Charts in Configurer

#### 3.2.1 Output Current Vs Load Voltage Curve:

This chart represents the working voltage range and current range of the driver, and the constant power range of the driver. The red dot represents the current (within the current range defined in the specification) and voltage currently set.

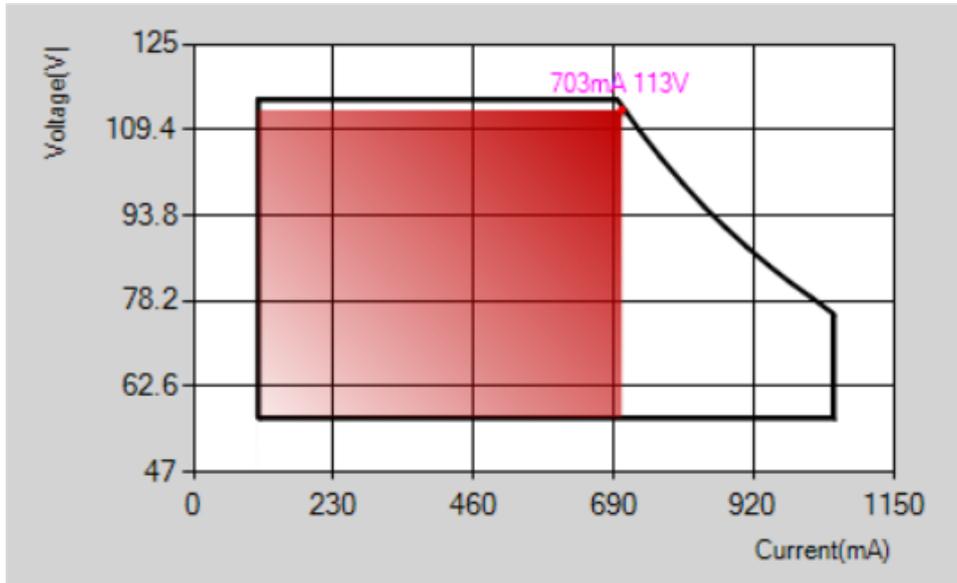


Image 30

#### 3.2.2 DALI-2 DIMMING CURVE:

The vertical axis represents the current percentage, and the horizontal axis represents the dimming value corresponding to the percentage current (we divide DALI from 0% - 100% dimming into 255 (0-254) parts)

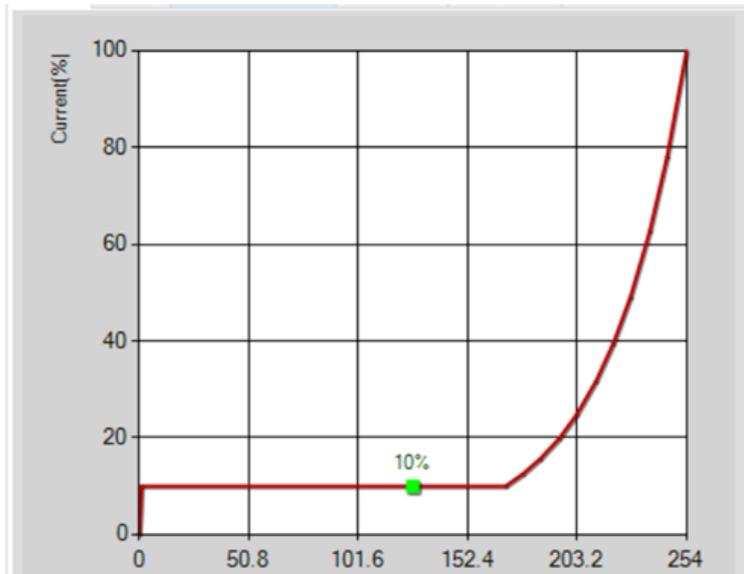


Image 31

## Part IV How to Set Dimming

Dimming types include DALI-2 dimming and Timing dimming. Logarithmic curve and linear curve can be selected for different dimming types. Logarithmic curve will be automatically selected by default when switching to DALI-2 dimming, while the linear one will be selected for Timing dimming.

(Note: When DALI-2 dimming is selected, the Timing dimming function will **not** be accessible.

While the Timing dimming is selected, the DALI-2 dimming function will **not** be accessible.)

### 4.1 Timing Dimming

After selecting "Timing Dimming", you can set relevant parameters within four Timing Dimming settings (Timing, Virtual Midnight, Self-Adaption, Customizations) according to your actual needs.

First, after reading the model, we need to select Dimming Type, and we can select Timing-DALI-2 mode.



Image 32

**Special examples:** Follow the principle of “the latter first” in this mode. If the user uses DALI-2 dimming to change the dimming value when using the Timing Dimming function, the driver will give priority to running the DALI-2 dimming function, but the timer of Timing Dimming keeps counting. If DALI signal is still present, DALI-2 dimming will always be run. When there is no DALI signal, the driver will switch back to Timing Dimming when the timer enters the next step; after using DALI-2 dimming, if the user uses the functions of the Timing Dimming, the driver will give priority to running the Timing Dimming function after the shutdown and restart.

Then select dimming curve. We need to select linear curve (Our software will automatically select the linear curve for Timing Dimming by default, which is the optimal dimming curve we recommend for Timing Dimming).

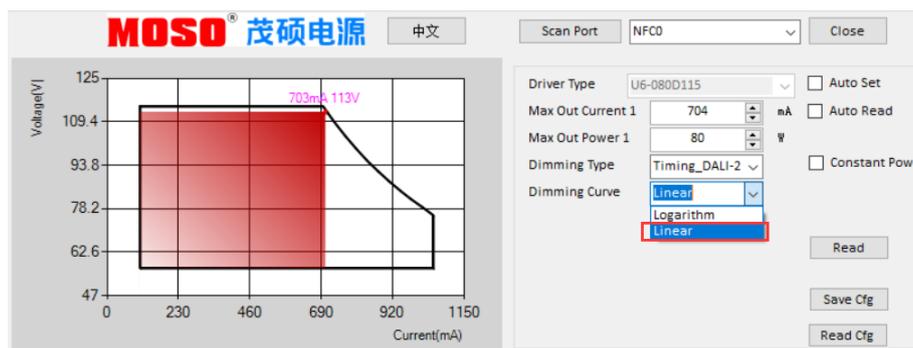


Image 33

## 4.1.1 Timing

For example: we set the parameters as shown in Image 34

Timer 1:	17:00
Timer 2:	19:00
Timer 3:	21:00
Timer 4:	00:00
Timer 5:	03:00
Timer 6:	05:00
Timer 7:	07:00

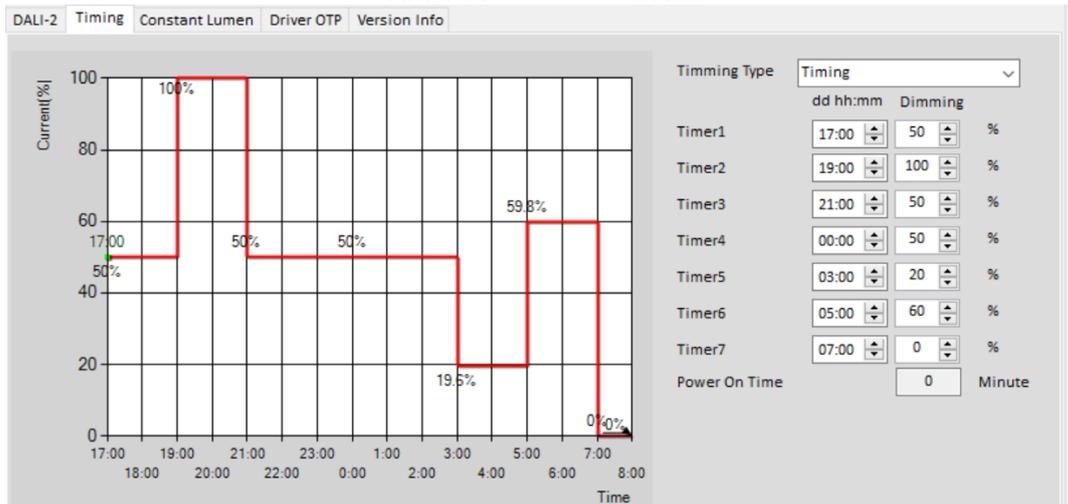


Image 34

The output current of the drive will drop to 50% of “**Max Out Current 1**” at the moment of power on (Timer1).  
 After two hours (Timer2), the current will become 100% of the “**Max Out Current 1**”.  
 After two hours (Timer3), the drive current will become 50% of the “**Max Out Current 1**”.  
 After three hours (Timer4), the current will become 40% of the “**Max Out Current 1**”.  
 After three hours (Timer5), the current will become 20% of the “**Max Out Current 1**”.  
 After two hours (Timer6), the current will become 60% of the “**Max Out Current 1**”.  
 And two hours later (Timer7), the current will become 0% of the “**Max Out Current 1**”.

**NOTE: The time we set is just for you to understand the usage of this function. When the program starts to run depends on when the driver starts to power on.**

## 4.1.2 Virtual Midnight

First of all, according to the parameter settings in the Image 35.

Timer 1:	19:00
Timer 2:	20:00
Timer 3:	22:00
Timer 4: (Midnight point)	00:00
Timer 5:	02:00
Timer 6:	04:00
Timer 7:	05:00

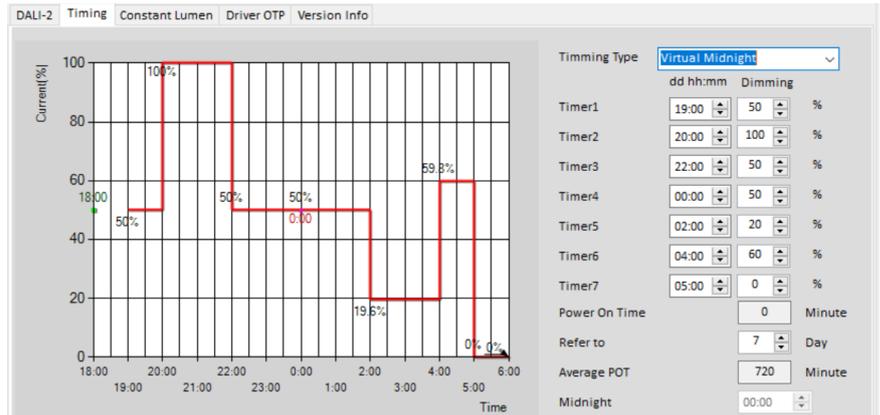


Image 35

Because the set working hours are 10 hours, it can be calculated that the midnight point is the fifth hour, and at the same time, the software will collect the average working time of 7 days (The basis of explanation is when the reference days are set to 7 days)). If the average working hours of 7 days is 12 hours, therefore, the daily working hours will be increased by one hour  $((12-10)/2)$  each day at **Timer1** and **Timer7**. According to the calculated average time, increase or decrease the front end and rear end of the timing curve of the driver.

The actual working hours will be automatically adjusted as follows:

Timer 1:	18:00
Timer 2:	20:00
Timer 3:	22:00
Timer 4:	00:00(Virtual Midnight Point)
Timer 5:	02:00
Timer 6:	04:00
Timer 7:	06:00

**NOTE: The time of settings is only for your understanding. "18:00" of Timer 1 doesn't mean the actual 18 o'clock, the program starts to run depends on the time when your driver starts power on.**

The customer is not allowed to modify midnight point. Every time the customer inputs the required parameters in the "Virtual Midnight" interface, the software will automatically calculate the total duration of Timer 1-Timer 7. For example: Timer 1 is 19:00(tonight); Timer 7 is 09:00(next morning), the software automatically calculates the midnight point as 02:00 and locks the midpoint to run the virtual midnight function according to this value.

**When the driver is used for the first time, there is no working data stored inside the driver. When the reference time is set to how many days, the driver will first run the corresponding days to set the parameters of this program.**

(We strongly recommend that customers use the reference day function according to this idea, because the error is minimal. For detailed explanation, please refer to 4.1.4.)

## 4.1.3 Self-Adaption

For example, we set the parameters like the Image 36 below:

Timer 1:	21:00
Timer 2:	22:00
Timer 3:	23:00
Timer 4:	00:00
Timer 5:	01:00
Timer 6:	02:00
Timer 7:	03:00

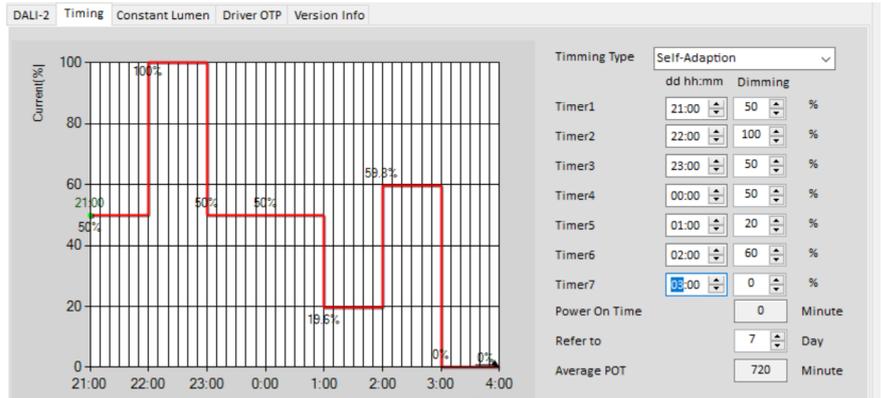


Image 36

This function is used to adapt to the situation that the night time varies with the seasons. The setting parameters of Timing Dimming also change accordingly. To use this function, you need to set the parameters in "Timing Dimming", and the software will calculate the night time length of tonight according to the night time length of the previous days (reference days).

When the software obtains that the average working time of 7 days is 720 minutes (12 hours), because the total working time we set is 6 hours for each day, and  $12 \div 6 = 2$ , the time interval will be 2 times longer than the previously set time.

The driver's actual working time will be change according to the following 7 timers:

Timer 1:	18:00
Timer 2:	20:00
Timer 3:	22:00
Timer 4:	00:00
Timer 5:	02:00
Timer 6:	04:00
Timer 7:	06:00

**Refer to:** Total duration of sampling



## 4.1.4 Customizations

Customizations (as shown in Image 37) is a new dimming setting designed when the above three dimming setting cannot achieve the customers' requirements. If customers want to use this function normally, they need to set the CSV file (as shown in Image 37) and import correctly.

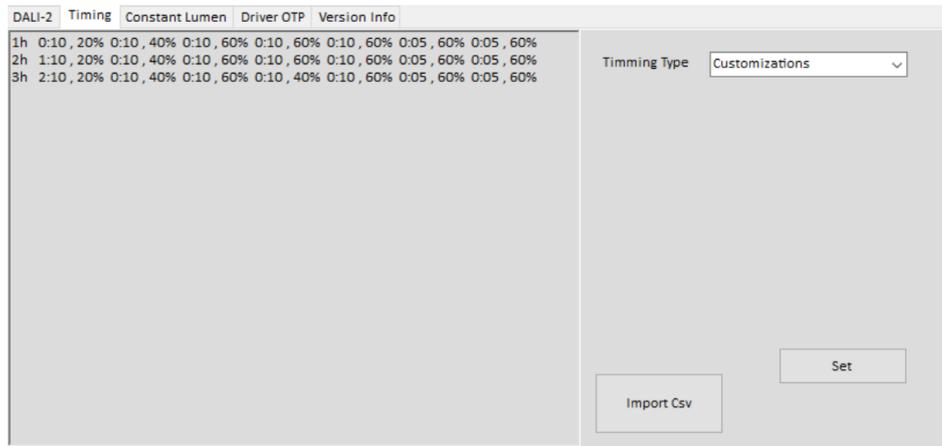


Image 37

**Note:** Customizations can only be used when the driver writes the latest bottom layer. This function cannot be used in versions before February 2023.

Customer need to open an Excel table and write it in the correct format and save it in the format of. CSV file (as shown in Image 38)

allhour	t1	p1	t2	p2	t3	p3	t4	p4	t5	p5	t6	p6	t7	p7
1	0:10	20	0:10	40	0:10	60	0:10	60	0:10	60	0:05	60	0:05	60
2	1:10	20	0:10	40	0:10	60	0:10	60	0:10	60	0:05	60	0:05	60
3	2:10	20	0:10	40	0:10	60	0:10	40	0:10	60	0:05	60	0:05	60

Image 38

All hour: Total working duration of each mode (Customers can set up to 10 modes to run this fuction)

T1-T7: Timer1-Timer7 (Customer can set at least one timer and at most seven timers)

P1-P7: Indicates the dimming value corresponding to Timer1- Timer7 (0≤ P≤ 100)

**Note:**

1. All hour must  $\leq 24$ Hrs ( If the All hour is set to 25 hours, an error will appear as shown in the following image )

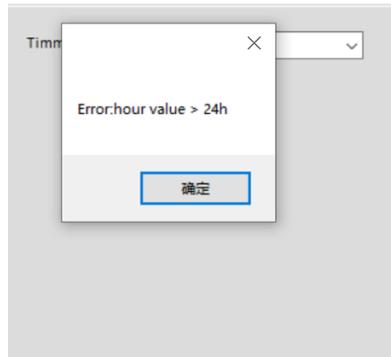


Image 39

2. When using multiple modes, the time sequence of the first column must follow the principle of “from small to large” (e.g. 1-2-3...8), not from “large to small” (e.g. 3-2-1), and the time length of All hour must be equal to the sum of the seven timers (All hour= $T_1+T_2+T_3+T_4+T_5+T_6+T_7$ ), and the format must be correct. When the customer does not follow the above three points, the software will prompt the following error (see Image 40).

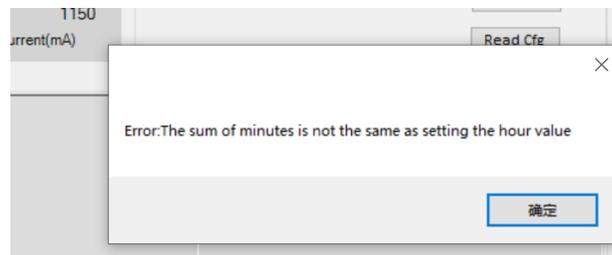


Image 40

3. CSV file must be closed before importing, otherwise the following error will be prompted.

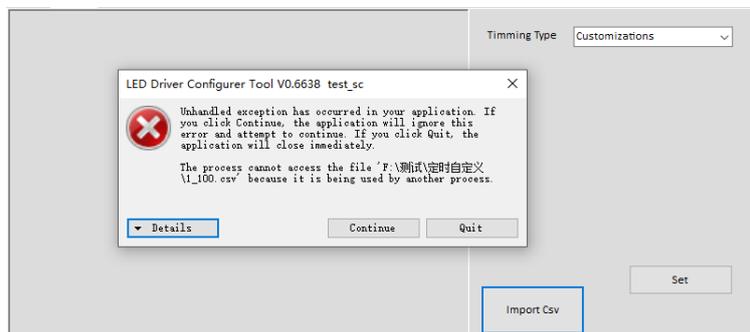


Image 41

After editing the CSV file in the correct format, click the Import Csv button to import the CSV file. When the C interface can present the parameters you just set, the import is successful.

Set the operation results as shown in Image 42:

The first mode (All Hour: 1h) will be triggered when the driver samples for 1 hour in the previous day. Complete the operation of Timer1-Timer7 according to the 1-hour mode in the first hour when power-on on the second day. If the driver continues to power on for up to two hours after one hour of operation on the second day, the driver will trigger the 2-hour working mode (All Hour: 2h), and the driver will operate according to the 2-hour working mode in the first two hours of the third day. If the driver continues to power on for up to three hours after two hours of operation, the driver will trigger the 3-hour working mode (All Hour: 3h). On the third day, the 3-hour working mode will be run in the first three hours, and so on. In the future, when the driver runs to the corresponding time, the driver will trigger the corresponding mode.

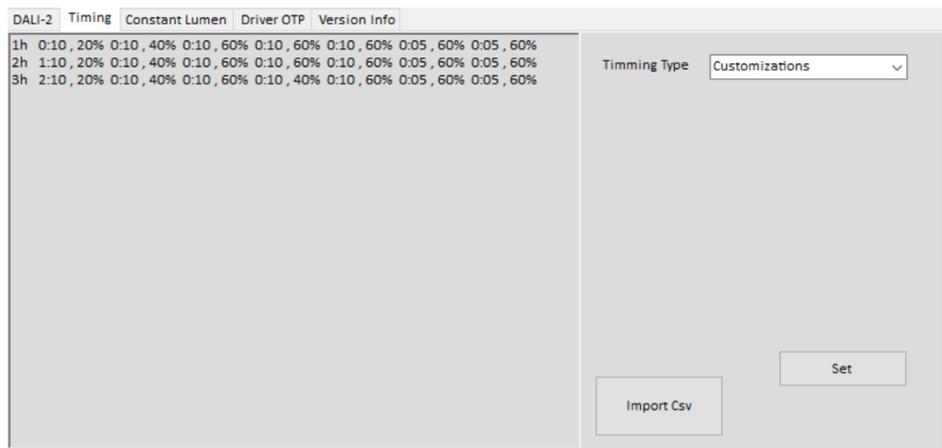


Image 42

**Note:** When the working time is within 2-3 hours, less than 2 hours and 30 minutes, driver will trigger the 2-hour working mode, if more than 2 hours and 30 minutes are counted as 3 hours.

Special example: When the working mode has only 2-hour mode and 4-hour mode. Power on time <2 hours and 30 minutes → trigger 2-hour working mode, Power on time >2 hours and 30 minutes → trigger 4-hour working mode.

Because this function uses a single-chip timer, the error from the actual time is five minutes.

## 4.1.5 Special Notes

**1. The reference days can be set by yourself. When the driver is used for the first time, a cycle will start to form after the continuous work within reference days.**

Refer to: Total duration of sampling

Refer to:  Day

**“Refer to” is a tool to reduce errors. In fact, when you set the Timing Dimming, the driver will immediately start running the Timing Dimming. The reference days are not a tool for activating the Virtual Midnight or Self-Adaption. Just like numerator and denominator, the number of reference days can be regarded as the denominator, and the total working duration as the numerator. When calculating the average working time, the more reference days, the more accurate for the average result calculated, and also for the error will be smaller. The length of the reference days will only affect the driver's error correction speed.**

### 2. How to judge a valid reference day:

When the actual power on time of the driver reaches **four fifths or more of the set working time**, and the driver is powered off, the driver will consider that it has completed the one reference day working cycle. **(PS: This explanation of the valid reference day is only applicable to drivers shipped before February 2023.)**

The driver judges a valid day basing on: Actual daily on/off hours  $\geq$  cfg file's total setting hours \* (4/5)

If cfg file total setting hours(Timer 1~Timer 7) set as 16hrs, while actual run time is as below:

Day 1 <b>13hrs</b>	Day 2 10hrs	Day3 <b>14hrs</b>	Day4 9hrs	Day5 <b>15hrs</b>	Day 6 12.5hrs	Day 7 <b>16hrs</b>
Day 8 11hrs	Day 9 8hrs	Day10 <b>16hrs</b>	Day 11 8hrs	Day 12 <b>18hrs</b>	Day 13 8hrs	Day14 <b>13hrs</b>

Because  $16 * (4/5) = 12.8\text{hrs}$

$\geq 12.8\text{ hrs}$  =valid working time (**valid day**)       $< 12.8\text{hrs}$  = invalid working time (invalid day)

Refer to : 7 valid days

Refer to:  Day

If the driver works 14 days continuously, when the 15<sup>th</sup> day begins without manual intervention,

DAY15:=(average hours for 7 valid woking days)

$$=(\text{Day1}+\text{Day3}+\text{Day5}+\text{Day7}+\text{Day10}+\text{Day12}+\text{Day14})/7$$

$$=(13+14+15+16+16+18+13)/7 =\underline{15\text{hrs}}$$

**(PS: For those drivers shipped after February 2023, please see the explanation below.)**

When the actual power on time of the driver reaches **four hours or more (less than 24 hours)**, and then the driver is powered off, the driver will consider that it has completed one reference day working cycle.

3. In the dimming type of Timing\_Dali-2, when the driver is running Timing Dimming mode, the DALI dimming control is performed. At this time, the driver's brightness will follow the DALI dimming value and will not change until the next timer is reached, and the remaining timer in Timing Dimming will automatically continue to run.

Let's take Timer 1: 18:00 & Timer 2: 20:00 as the example:

When DALI dimming is performed at any time from 18:00 to 22:00, the driver will follow the DALI dimming value and keep the light unchanged. Until 22:00, when the driver reaches the Timer 2, it will immediately switch back to the dimming value set by Timing Dimming.

Note: When the driver reaches timer7, it will execute DALI dimming and output the dimming value according to DALI dimming, and will not switch back to timing dimming.

4. When the actual power-on time of the driver is more than 24 hours, the driver will return to Timer1, which is equivalent to a cycle of 24 hours.

Note: The 24 hours are not included in the calculation of sampling time and are invalid.

## 4.2 How to Set Constant Lumen Output

As the red box 1 shown in Image 43 below. Set a current value in the “Max Out Current 1”, which must be lower than the maximum current value of 1050mA. After setting the value, user must press the “Enter” key on the keyboard. After pressing the key, you can see the following two non-overlapping curves on the Configurer interface, and then you can set the CLO function.

The “**Enable**” check box must be checked before the constant lumen function can be used normally. (Red box 2)

As the red box 3 shown in Image 43, Press “**Default**” button. The optimal setting for the curve of CLO function we recommend will appear. Of course, if you want to set the CLO according to your own needs, you can also enter the value where the red box 4 located.

Then, press “**Auto Set**” button (red box 5) write all parameters to NFC tag.

Follow the **red box 6** and press “**Read**” button to read the constant Lumen parameters on MCU through Configurer. After reading, when the curve set in the corresponding percentage column appears in the Configurer interface curve, it means that the setting is correct.

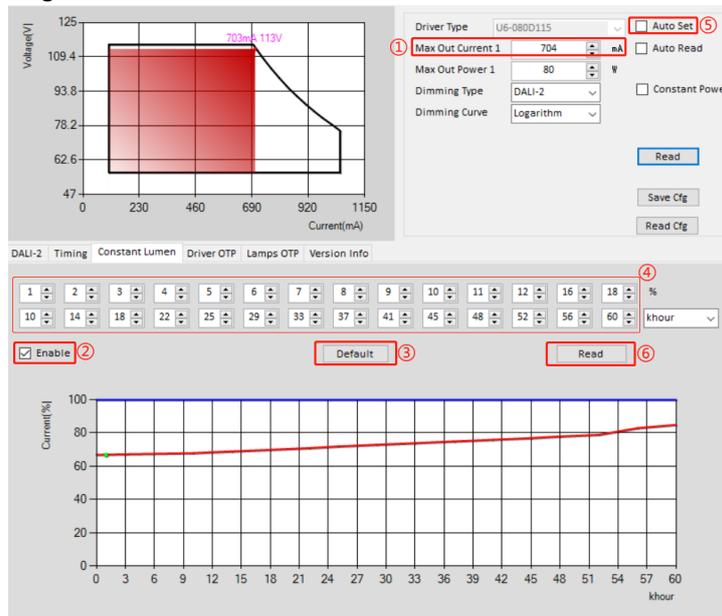


Image 43

**NOTE: The minute option bar is only for test verification. After running this function to verify that constant lumen can be used normally, power off the driver and reread the drive’s data. After finding that this option bar changes to hour display, don't worry. This function is normal. The minute option is only for test use. After the test is completed, the default hour option will be restored.**

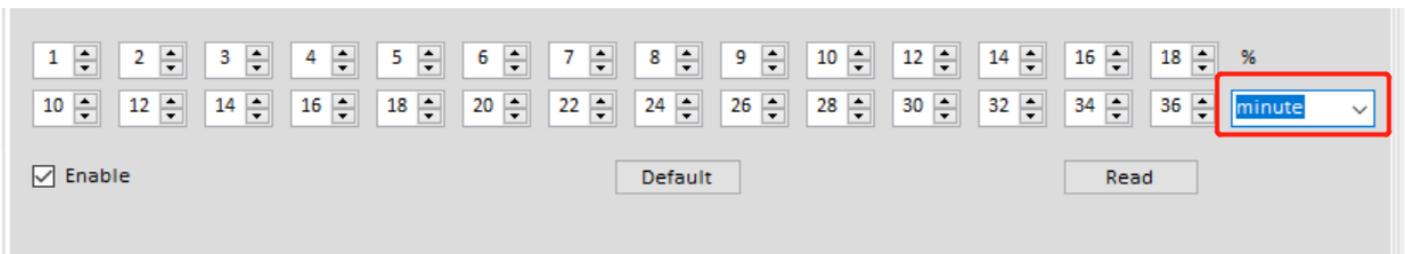


Image 44

### 4.3 About Driver OTP

Calculate the current dimming value according to the following formula,

$$\text{Val} = (254 - \text{Voor}) * (T - T_s) / (T_e - T_s) + \text{Voor}$$

Note :

Val is the current dimming value,

Voor is the corresponding dimming value of the OTP out Ratio, the OTP Out Ratio is the percentage of the maximum output current.

T<sub>e</sub> is the endderating temperature, End Derating

T<sub>s</sub> is start derating temperature, Start Derating

T is the current temperature

## 4.4 How to Set Lamps OTP

As “the red box 1” shown in Image 45 below. User can set the target value in the “**Start Derating**”, “**End Derating**”, “**OTP Out Ratio**” (Other parameters can be set based on actual needs).

The “**Lamps OTP**” check box must be checked to make sure that the Lamps OTP function can be used normally. (Red box 2)

Then, press “**Auto Set**” button (red box 3) write all parameters to NFC tag.

Step 4: Power on the driver and wait five seconds before powering it off (This is to ensure that the data edited by the NFC programmer is successfully written into the MCU of drivers.).

The “Read” button located in main interface (red box 5) is to read all parameters written into the MCU through NFC programmer.

The “Read” button located in “Lamps OTP” interface (red box 6) read only the Lamps OTP parameters from MCU. Only what Configurer read out is exactly the parameter the user set before, it means that the OTP function has been set successfully.

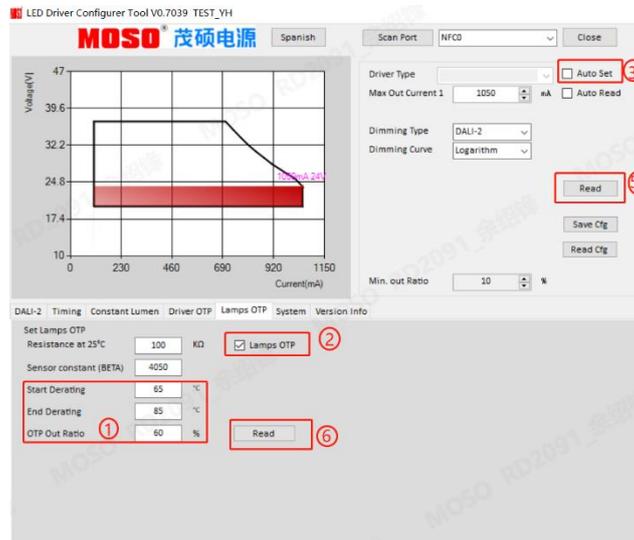


Image 45

**Note: At present, V0.6939 supports customers to set NTC freely. Please fill in the corresponding column in the following figure by correctly comparing the NTC resistance value and the corresponding BETA value of NTC. NTC resistance at 25°C recommended value 100KΩ, Sensor constant (BETA) value 4050. We still recommend the use of 100k Ω thermistors, because the error between the use of 100k Ω thermistors and the actual temperature is the smallest.**

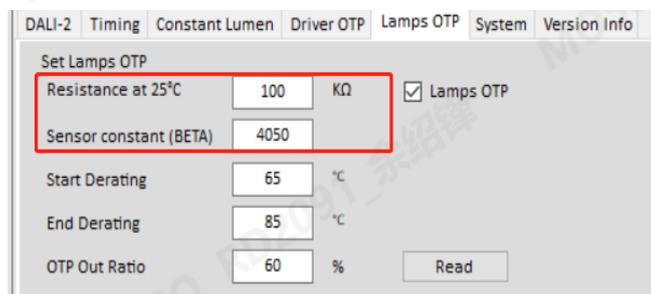


Image 46

## 4.5 How to Set Luminaire info

Note: At present, this feature only supports the implementation of the U7+ model can support DALI&NFC programmer for luminaire info programming operations, the original U7 model still only supports the DALI programmer for Luminaire info programming operations.

1. As shown in the following Luminaire info screen, the following information is currently supported for burning. Please fill in the corresponding information and click the "SET" button, as shown in the red box. After a few seconds, the prompt message "SET NFC tges success" will be displayed on the right side of the interface. At this time, it means that program is completed.

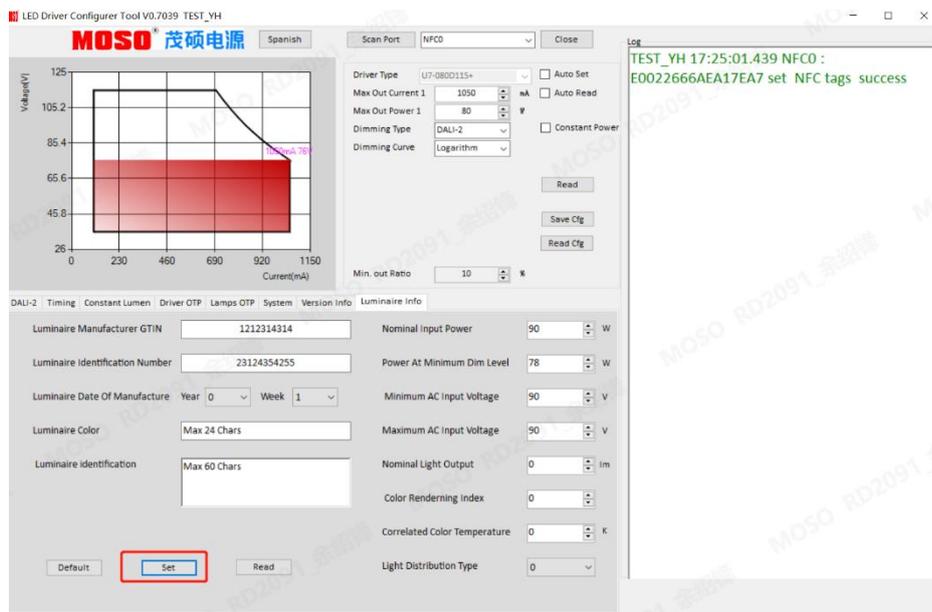


Image 47

2. If you want to read the Luminaire info stored in the driver, click "read", as shown in the red box in the following figure. After the read succeeds, the "read Luminaire info success" message will be displayed on the right log screen, indicating that the read succeeds

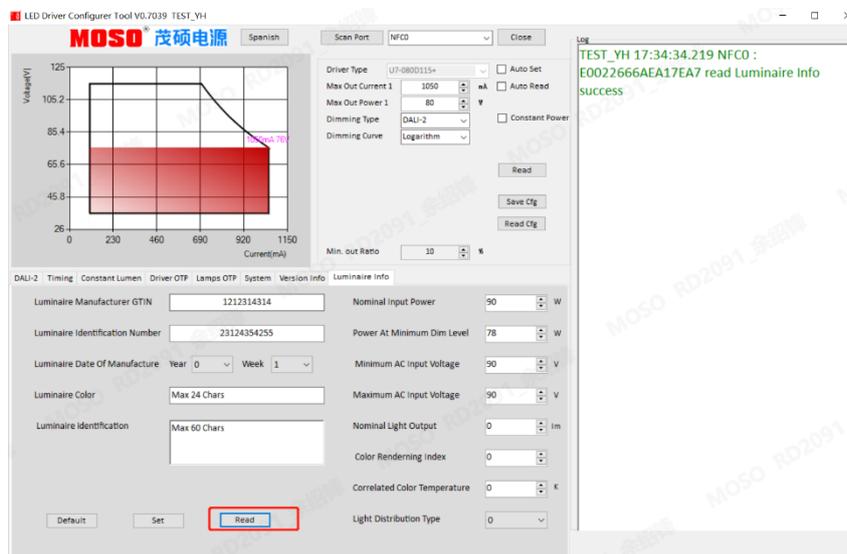


Image 48

## 4.6 Version information

The Configurer interface version function is used to display the number of version updates of the software and the contents of each version update.

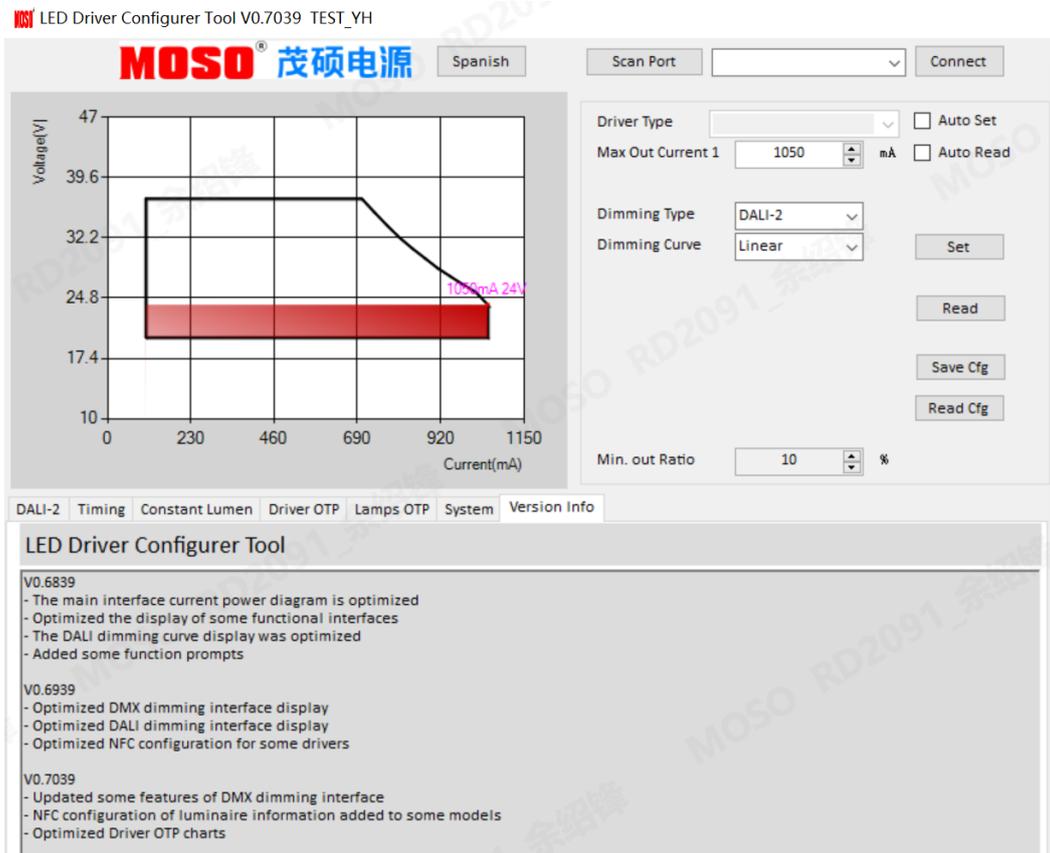


Image 49

## Part V Programming Practice Guide

### 5.1 NFC PART

#### 5.1.1 Install Configurer Tool and driver software for NFC Programmer

Before the user prepares to program, please ensure that Configurer Tool and the driver software corresponding to NFC programmer have been correctly installed on the computer.

Double clicking on the Configurer Tool, which automatically scans the connected NFC Programmer, shows like “NFC0” in Image 48.



Image 50

#### 5.1.2 Generating the Configuration File

Place the driver with the NFC programming function close to the NFC Programmer coil (at the NFC label).

The Configurer Tool automatically reads the driver’s model (type) that is in close proximity, as the red box 1 shown in Image 49 below and red box 2 shows the firmware revision and mode:

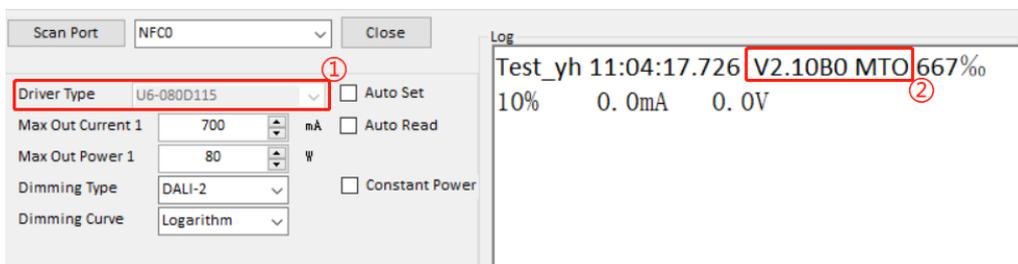


Image 51

Set all the functions that users want to change or use (including setting current, output power, selecting dimming mode, enabling OTP function, etc.) Next, please click the "Save Cfg" button to save the configuration file as *U6-080D115.Cfg*. This means that all the configuration files of U6-080D115 set by the user will be saved. Programming different drivers will have different file names.

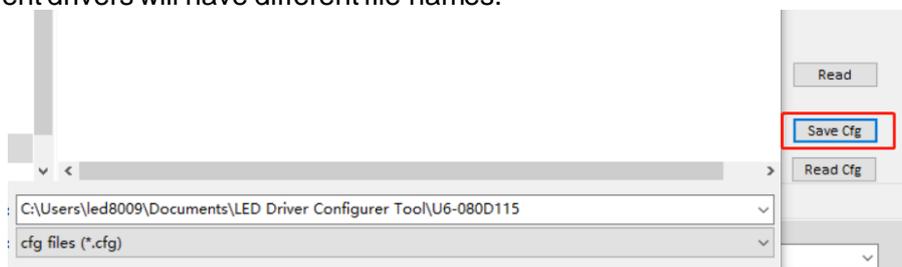


Image 52

## 5.1.3 Download the configuration file to the NFC tag of the driver

Click the “Read Cfg” button to read the configuration file *U6-080D115.Cfg*.

(Please check whether Auto Set is selected) Close the driver to the NFC Programmer. The Configurer Tool scans the driver and prompts “Reading and writing, please wait”.

The Configurer Tool automatically writes the set parameters together with the MTO into the NFC tag of the driver.

**DO NOT REMOVE the driver or NFC card Programmer at this time**

If the writing succeeds, the software interface will prompt the operation result with green text, as shown in Image 51 below:

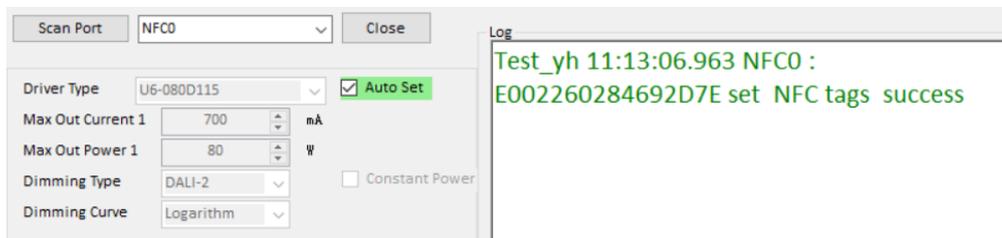


Image 53

If fails, the software interface will display the operation result in red text, as shown in Image 52:

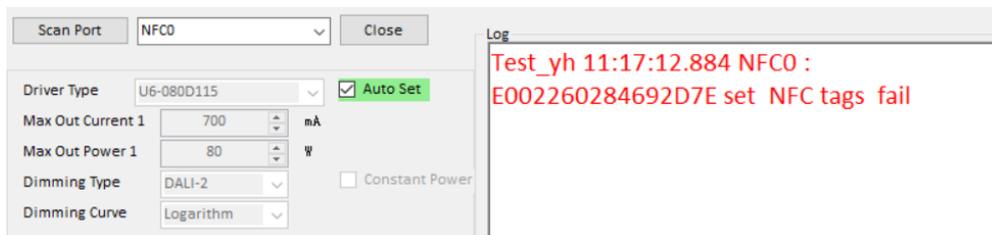


Image 54

After the display fails, remove the driver from the coil area of the Programmer, and repeat above steps.

## 5.1.4 Checking Programming Success or not

First, please power on the configured driver. Then, the MCU of driver reads what was written into NFC tag.

The MCU of the driver will write the setting parameters, driver firmware version, USER and other information back to the NFC tag, overwriting the previous content.

Power off the driver and use the Configurer Tool to read the content of the NFC tag in the driver. User please check whether the parameters are consistent, and whether the **MTO** in the log interface changes to **USER**.

If **MTO** is found in the prompt string, the MCU of driver does not read the NFC setting parameters, and the NFC programming fails;

If **USER** is found in the prompt string and all parameters are the same as the configuration parameters user set just now, it means NFC programming is successful.

### 5.2 DALI-2 PART

#### Precautions for programming with DALI function:

- 1- The DALI programmer can not only realize the DALI dimming function, but also modify the driver's current, output power, and dimming mode, enable OTP and other functions. Please refer to the **third and fourth** parts of this manual for details.
- 2- Only by ensuring that the driver's dimming wires are always connected to the DALI programmer can the driver maintain the set dimming value unchanged.
- 3- When the DALI dimming wires of the driver are not connected to the DALI controller/programmer, customer should **not select** the "System Failure Level" check box before using the timer dimming function.
- 4- When the customer uses the DALI programmer to program, after the log interface displays the setting parameters successfully, click the "Read" button on the main interface to read the driver's information again. If the displayed parameters are consistent with the preset values, it can be proved that the data has been successfully written into the driver.

The control range of the "Read" button on the main interface is different from that of the "Read" during NFC programming. When using DALI programmer, the "Read" button on the main interface can only control each individual function below the main interface (such as Constant Lumen, driver OTP, lamp OTP....).

## PART VI DMX-RDM

### Description of DMX Configurer Tool's Main Interface

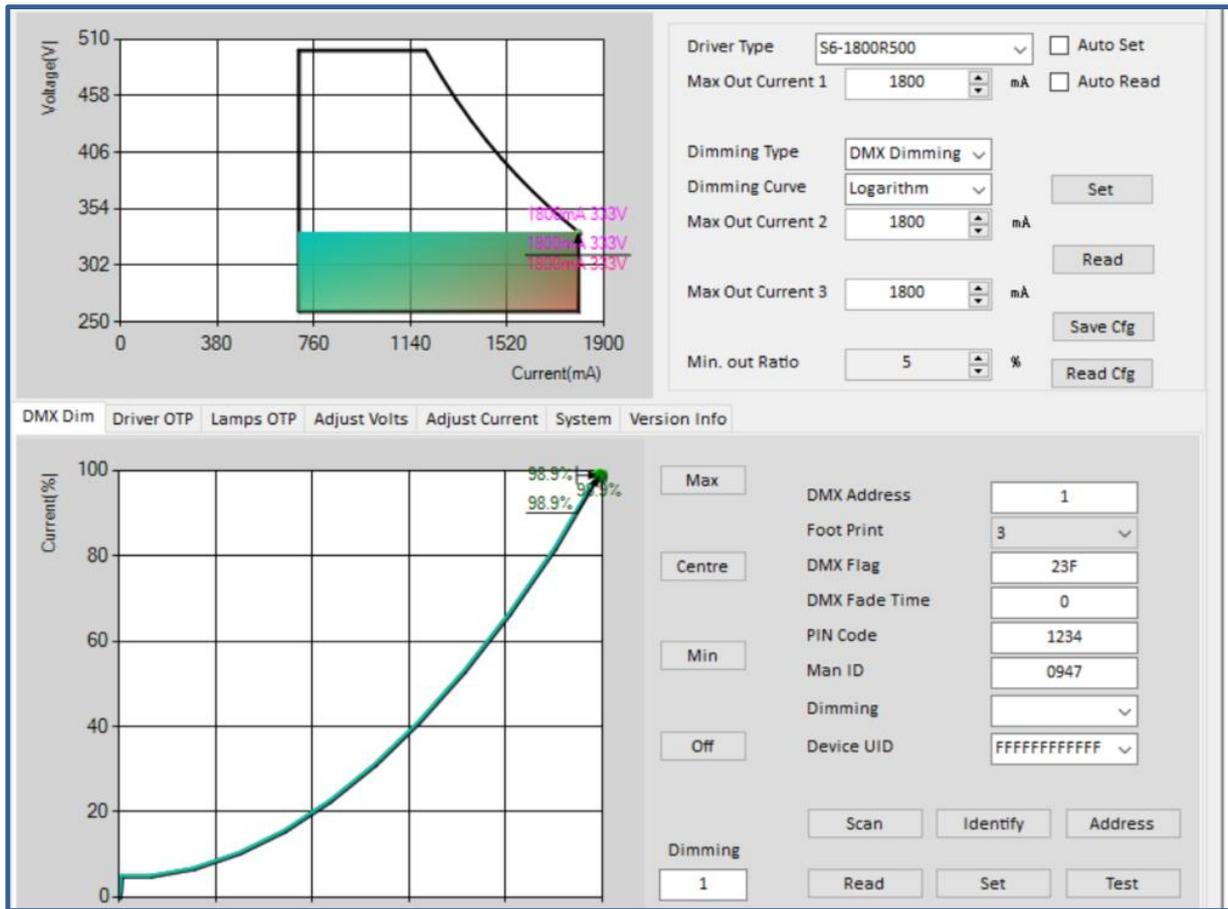


Image 55

**Scan:** When the DMX control system is connected to a new driver, you need to click the “**Scan**” button to scan the new driver. At this time, the Configurer Tool will automatically read the Device UID of the newly connected driver in the system. The UID of the driver is displayed on the right side - Log interface. When the Device UID displayed by the Configurer Tool is consistent with the actual device UID of the driver, you can perform the next operation on the DMX driver, otherwise the software will display “read basic parameter fail”.

**Identify:** The specific position of the driver can be identified by this function. Click the “**Identify**” button, and the light connected to the corresponding driver will flash to indicate its location.

In V0.7039, a “STOP” button is added, when the Identify button is clicked, the luminaire will blink, then “identify” button will automatically become “STOP” button, then click “STOP” button again, the luminaire will stop blinking, this button will automatically change back to “identify” button.

**Note:** The “STOP” button is available only for drivers made after March 2024. If the driver before this time is used with the “STOP” button, click the STOP button and the driver will not change.

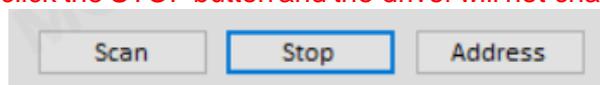


Image 56

**Set:** Unlike the “**Address**” button, which can only modify the DMX address of the driver, “**Set**” can set all the parameter modified by customer into the driver.

**DIMMING:** Customers can enter any number within 254 into the **Dimming (on the left one)** to change the dimming value. While “**DIMMING on the right one**” is used to read the real-time dimming value of the lamp feedback the system.

**Address:** Driver assignment DMX address can be modified. With this function, customer can enter any number within 512 into the “**DMX Address**” to reassign the DMX address of a driver. Entering the number, then click “**Address**” to complete the address setting.

**NOTE:** The number of driver’s channels corresponds to the number of DMX addresses occupied by the driver. The “**DMX Address**” displays the address of the first channel. For example, if the address of the first channel is 6, the address of the second channel is 7 and the address of the third channel is 8. For multichannel DMX drivers, the maximum configurable address equals = 512- (Number of channels) +1. So, if the driver has three channels, the maximum DMX address you can set is 510.

**Foot print:** This function is used to assign the number of addresses. If 1 is selected, the three channels share only one DMX address. If 3 is selected, the three channels use three different DMX addresses.

**DMX Flag:** The software displays the hexadecimal code and converts the corresponding binary code to correspond to 16 different functions. 1 indicates that the function is enabled and 0 indicates that the function is disabled.

For example, 23F=0000, 0010 ,0011 ,1111 indicates that functions 7, 11, 12, 13, 14, 15 and 16 are enabled, FFFF=1111 ,1111, 1111 ,1111, Indicates that all 16 functions are enabled.

**DMX fade time:** The Fade Time will be started when the system changes the dimming value. The maximum of Fade Time for each steps can reach 250ms. The longest total time spent will be 63.5 seconds when dimming value has changed from 0 to 254 with maximum Fade Time. The calculation formula is as follows:

**254 steps** (whole dimming value has changed)\***250ms** (maximum fade time) ÷**1000** (Unit conversion: from microseconds to seconds) =**63.5 seconds**.

**PIN CODE:** The password for each driver to join the customer’s control system.

**Device UID:** A window used to select the device UID of the driver. Use the “**Scan**” button to automatically switch the device UID of the driver newly connected to the system, or manually select the device UID previously connected.

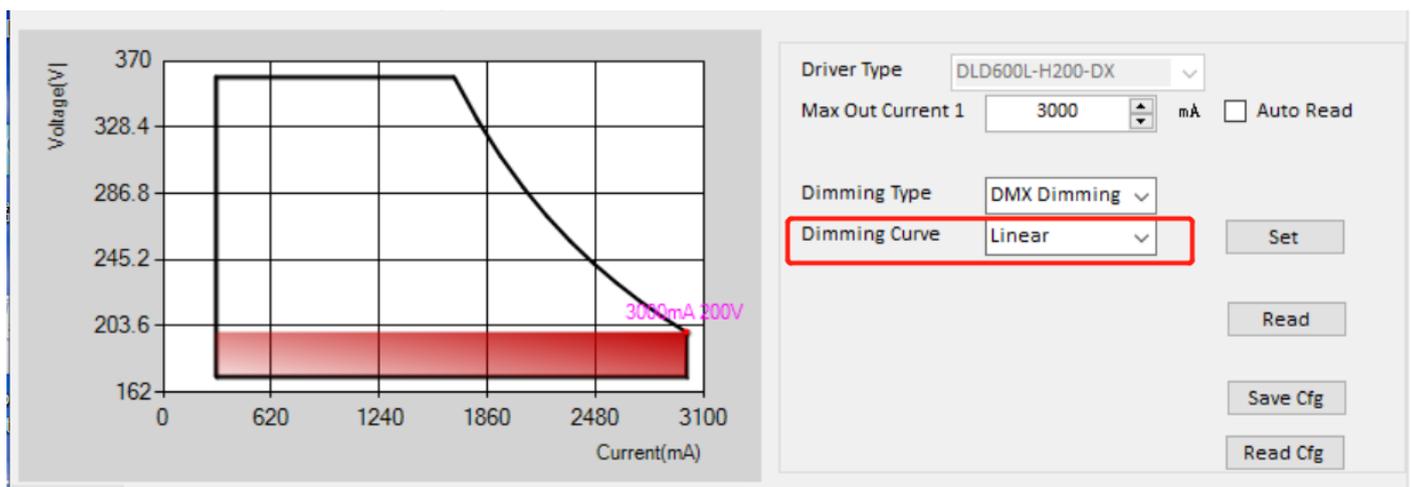


Image 57

It is recommended to select linear curve for DMX dimming curve.

The essence of DALI is a dimming mode to gently protect human eyes. Therefore, DALI dimming is optimized to select logarithmic curve, while DMX is mainly used in stage lighting control, requiring extremely accurate control, so linear curve is optimized.

**For other functions, please refer to the DALI function part (Part IV).**

## PART VII Dimming Mode Switching for DALI-2 & DMX-RDM

Note: When the DALI-2 driver switches to DMX-RDM dimming, programming can only be done using the DMX programmer. Similarly, when DMX-RDM driver switches to DALI-2 dimming, programming should use the DALI programmer. The software version needs to be above V0.6939. It is necessary to confirm that the firmware version of the driver is combine DALI&DMX version (If the log interface displays V4.5 and above, which means this driver is combine SKU version) before proceeding with dimming switching.

### 7.1 Switching from DALI-2 Dimming to DMX-RDM:

Taking S6-1800D500 as an example, the driver's current dimming mode is DALI-2, shown as follow:

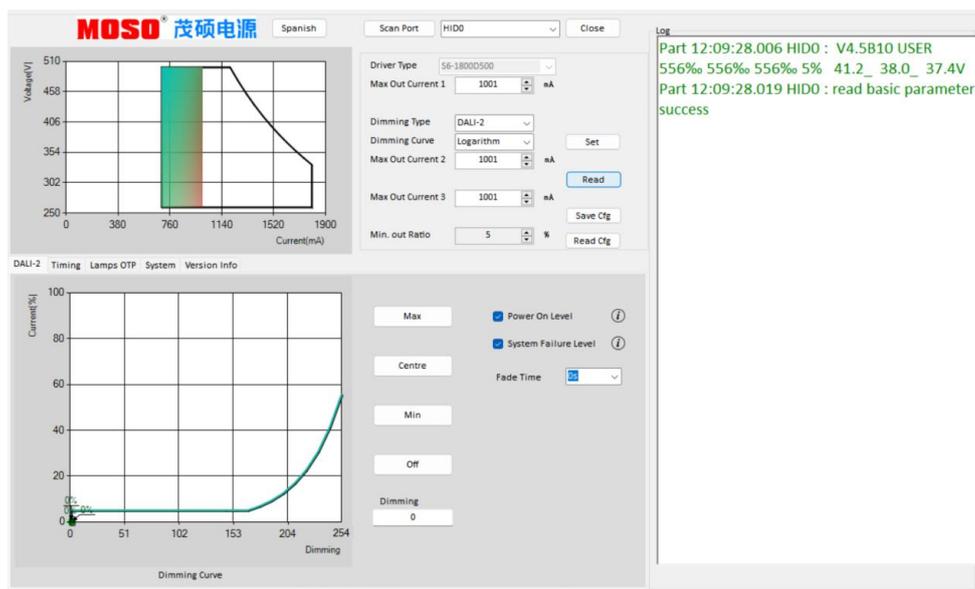


Image 58

1. After connecting the DMX programmer to computer, click on the software "Scan Port" button.

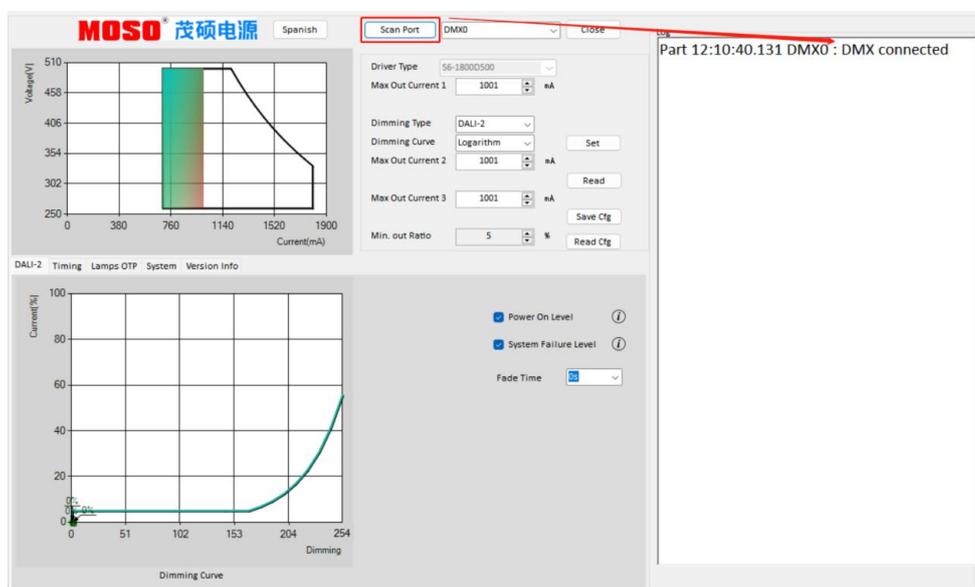


Image 59

2. Reading the corresponding model's DMX configuration file (Six cfg files for S6-1200W/1500W/1800W will be provided in advance by MOSO).

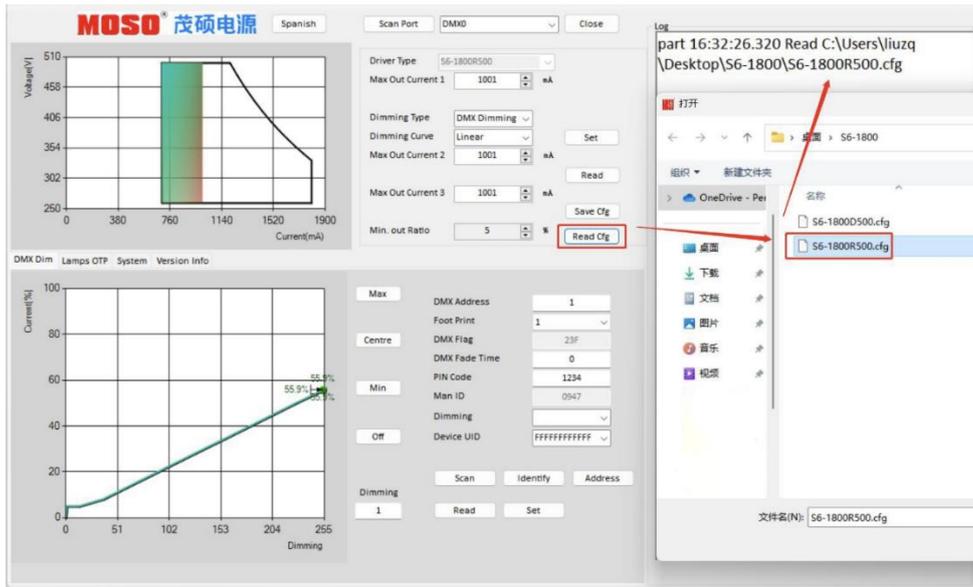


Image 60

3. Using the 'Set' button to import the cfg file read by the software into the driver's MCU.

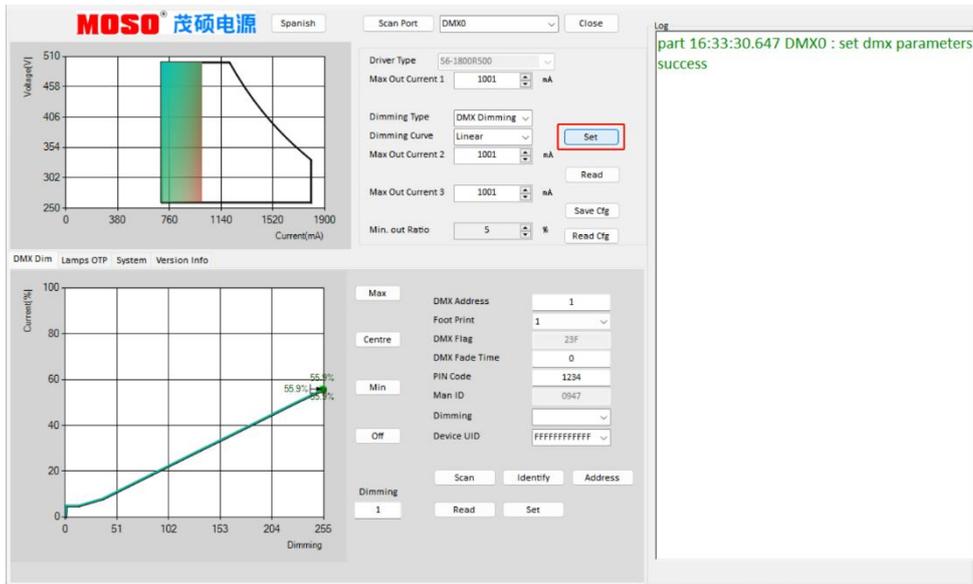


Image 61

- After setting and restarting the driver, the software interface displays the DMX dimming mode, indicating successful conversion.

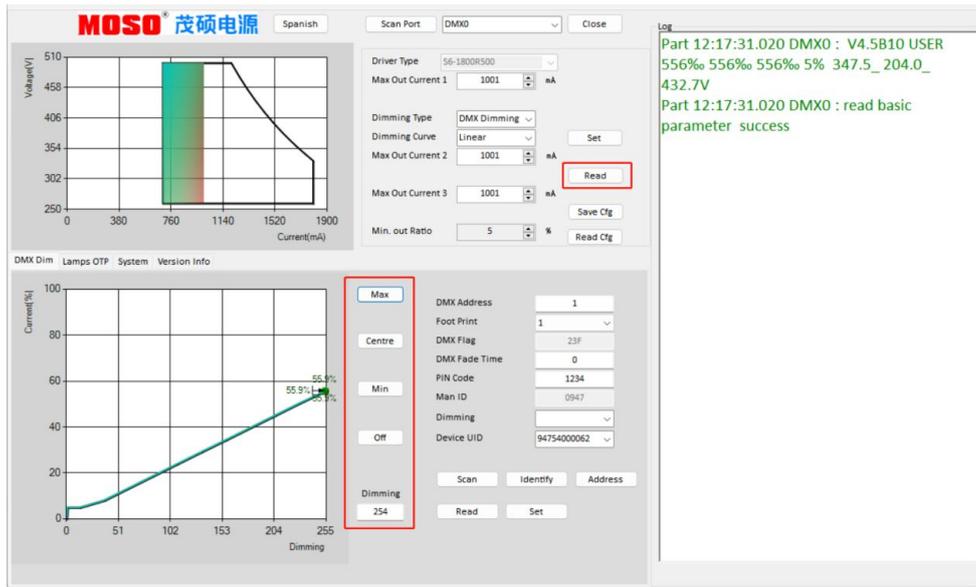


Image 62

Note: If the third step fails to set, select "FFFFFFFFFFFF" for the Device UID and reset the driver.

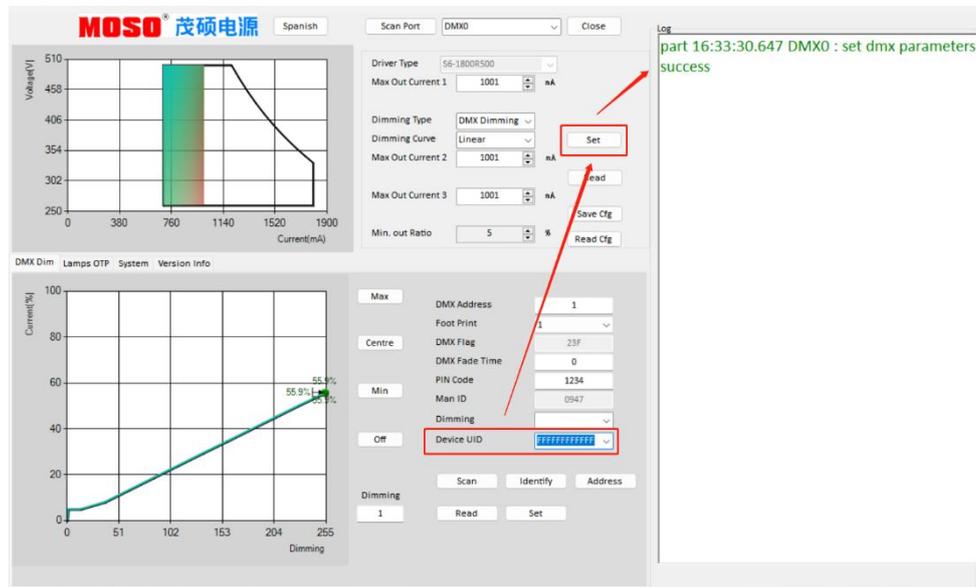


Image 63

## 7.2 Switching from DMX-RDM to DALI-2 Dimming:

Taking S6-1800R500 as an example, the driver's current dimming mode is DMX-RDM, as shown in the following image:

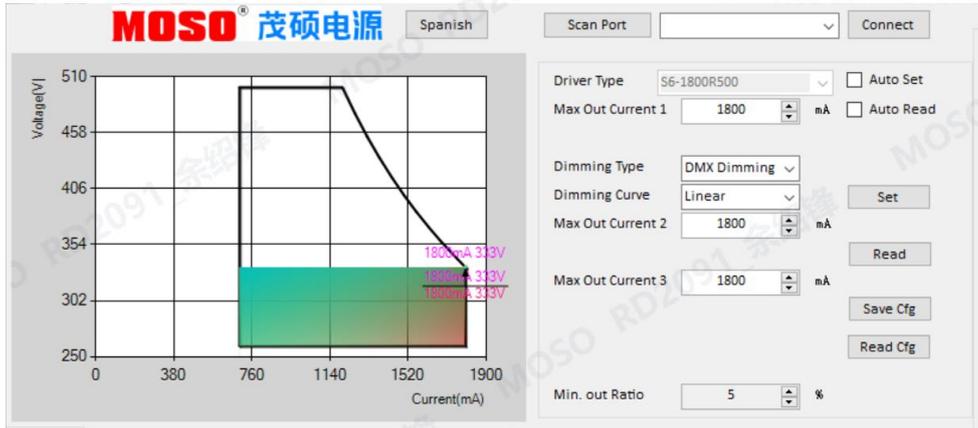


Image 64

1. After connecting the DALI programmer to computer, click on the software "Scan Port" button.

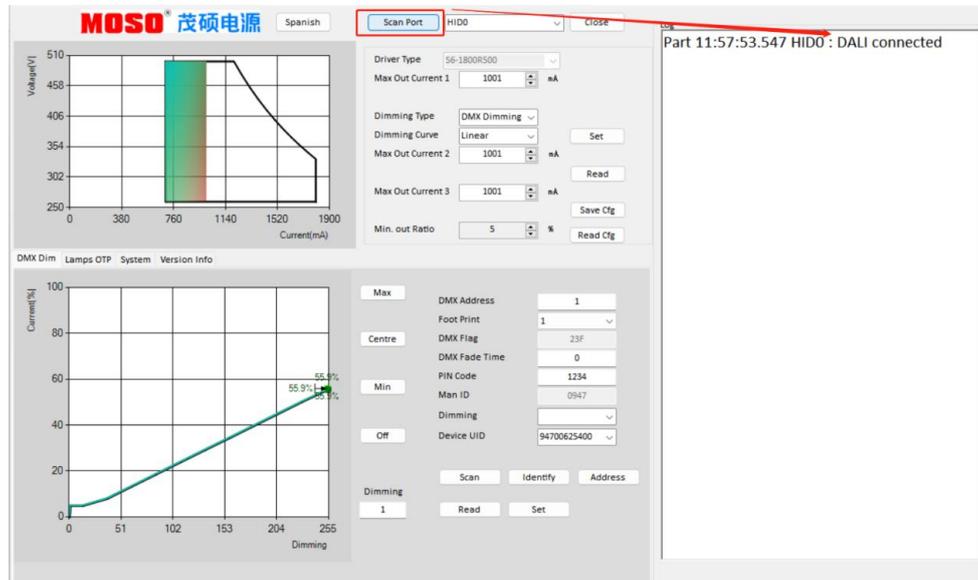


Image 65

2. Reading the corresponding model's DALI configuration file (Six cfg files for S6-1200W/1500W/1800W will be provided in advance by MOSO).

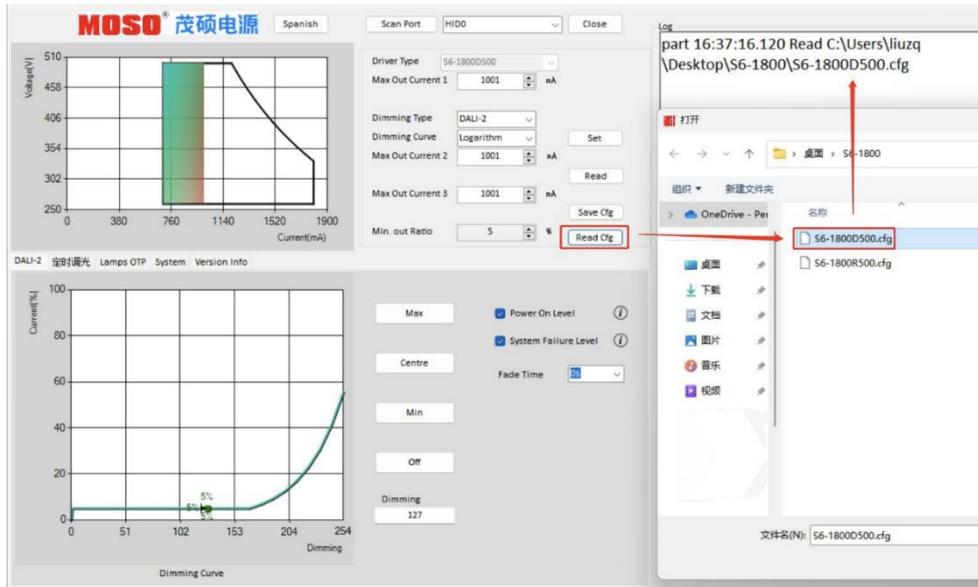


Image 66

3. Using the 'Set' button to import the cfg file read by the software into the driver's MCU.

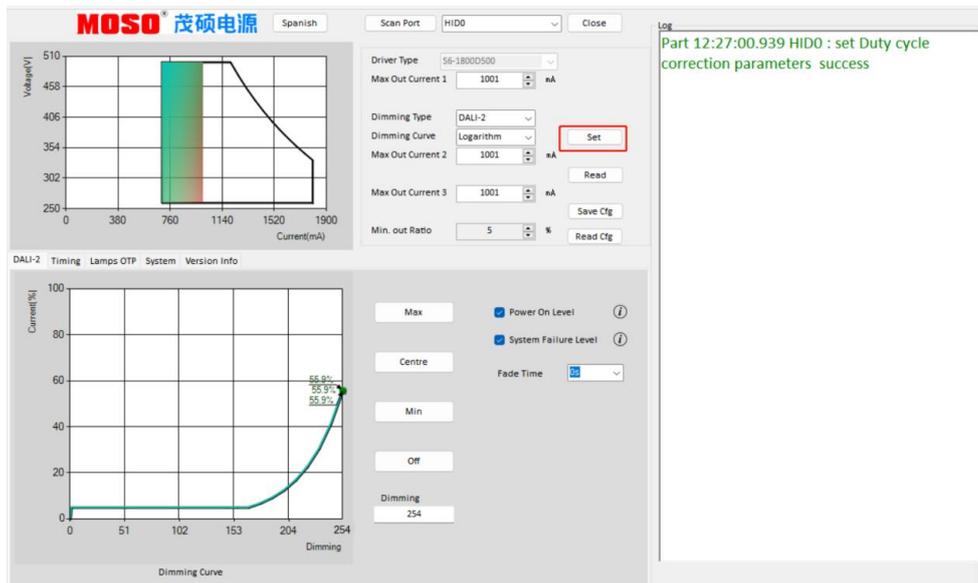


Image 67

- After setting and restarting the driver, the software interface displays the DALI-2 dimming mode, indicating successful conversion.

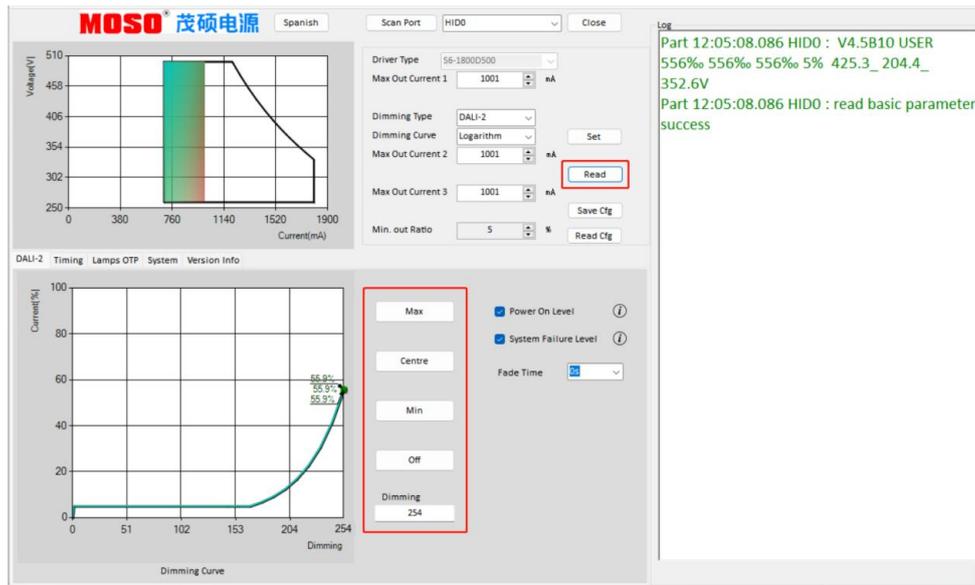


Image 68