DMX512&RDM programming

User Manual V1.0

Revision history

Revision	Changes	Author	Date
V0.0.0	Initial release	David.Zhou	2020/09/10
V0.1.0	Add function setting address	David.Zhou	2020/09/30
V0.2.0	Add function default level and Save& Load profile	David.Zhou	2020/12/03
V0.3.0	Add “Read” function	David.Zhou	2021/04/02
V0.4.0	Modify OTP setting range to 80-110.	David.Zhou	2021/06/03
V0.6	Add compatibility for EUCO-1K0140GDA	David.Zhou	2021/09/13
V0.7	Update set up for functions in use manual	David.Zhou	2022/02/19
V1.0	Add CLO and STD functions	David.Zhou	2023/02/20

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I. Connect the device

Before launching the DMX512&RDM programming software, make sure the programmer is connected to the USB port of your computer. Then, connect the programmer to the LED driver via the DMX512&RDM cable. After all of this, connect the driver to AC input, and power on the driver. The connection is described in the following figure.

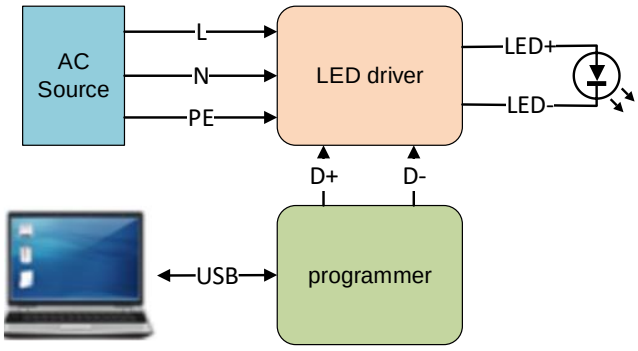


Figure 1. The connection of the DMX512&RDM programming tool

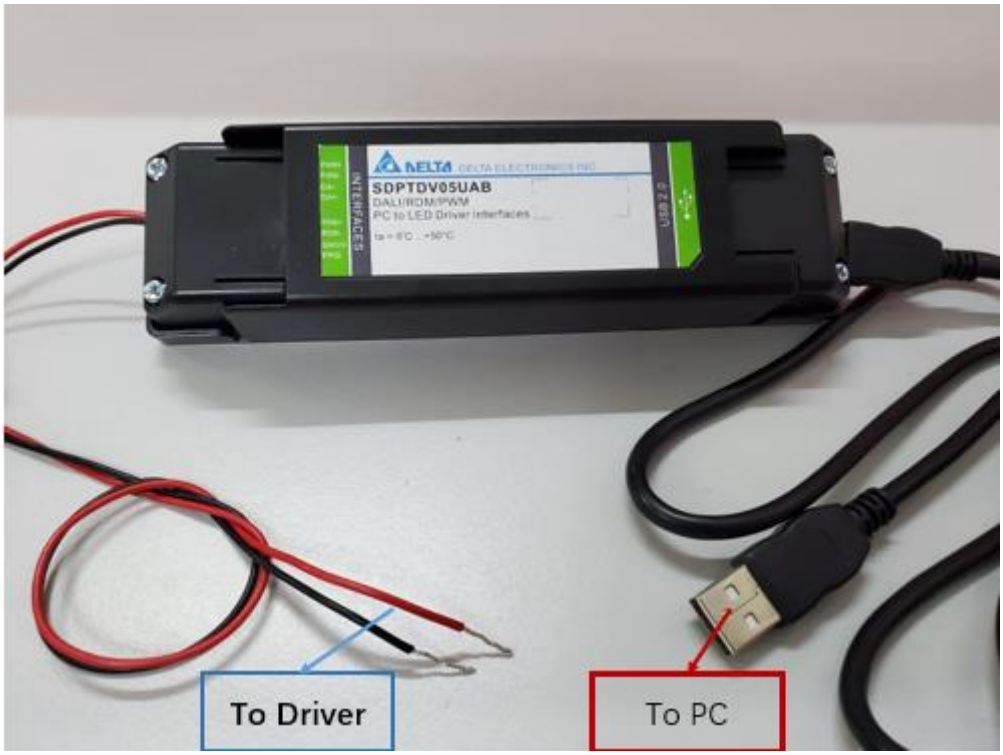


Figure 2. The picture of the DMX512&RDM programming tool

Note: Before running all the following functions, please make sure the driver is powered on. When the USB is connected to the computer, it may take a few minutes to install a driver automatically. Please wait patiently for the installation to finish.

II. Open DMX512&RDM programming software

Double click ***"RDM_Tool_For_EUCO-1Kx140GDA_S01E00.exe"*** to start the software.

Figure 3 Open DALI programming software

III. Program the output current

Before programming the output current, please make sure the driver has properly connected and worked fine. Then turn on the AC power.

Step 1: The GUI interface of DMX512&RDM programming tool is shown in the following figure. Firstly, after opening the software, make sure the status light becomes green which means that the DMX512&RDM programming to has connected successfully. Otherwise, follow step “I-Connect the device” to check the USB cable and DMX512&RDM bus.

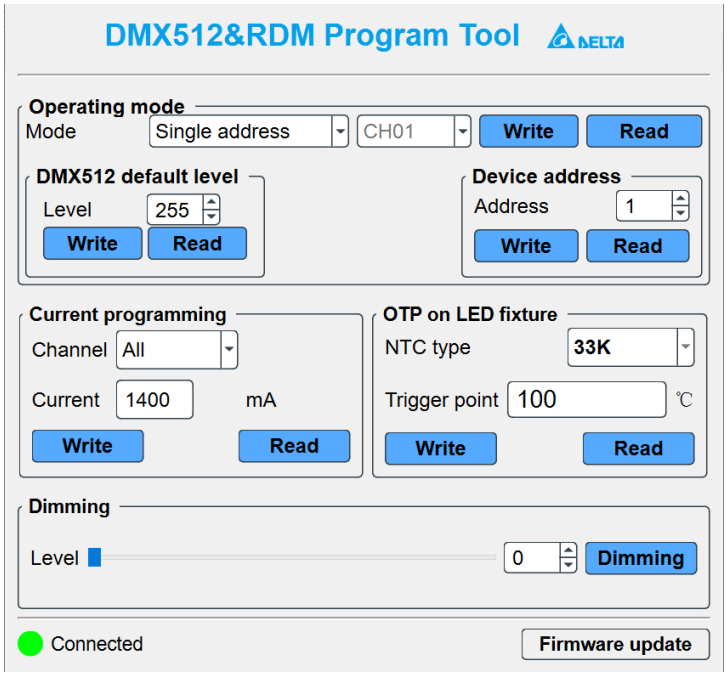


Figure 4 the software of DMX512/RDM programming tool

Step 2: There are four (three for EUCO-1K0 series) items of current channel you can choose as shown below:

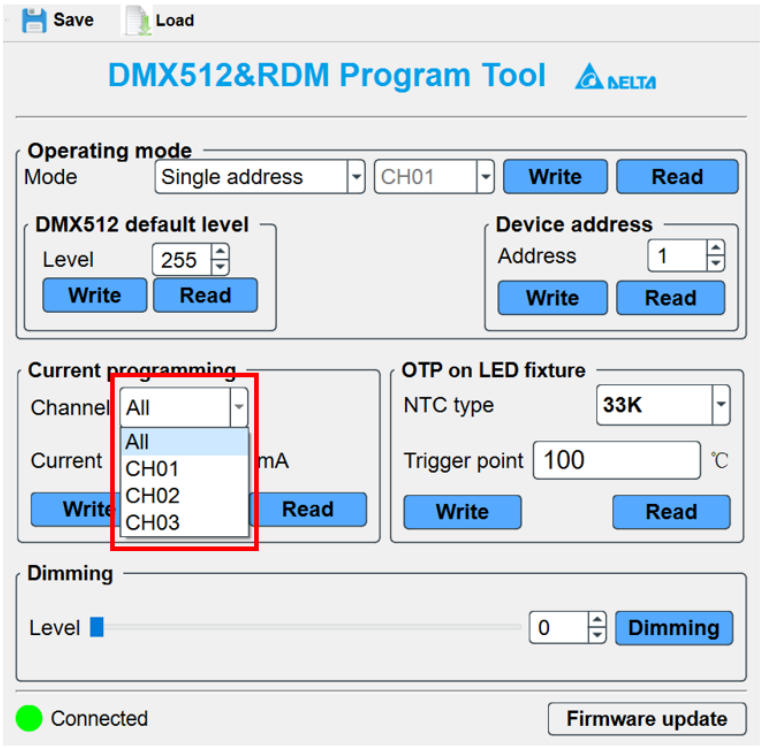


Figure 5. Choose current channel

If you select the item **"All"**, it means that you would program the current of all three channels at once. And the channel, "CH01", "CH02" and "CH03", would only program the corresponding channel 's current. However, for EUCO-1K0 series, there are only three items, such as "All","CH01", "CH02".

Step 3: After choosing the programming channel, the current value of that channel also need to be set. The default value for each channel is 1400mA as show in the figure. The current value range can be set from 500mA to 1400mA.

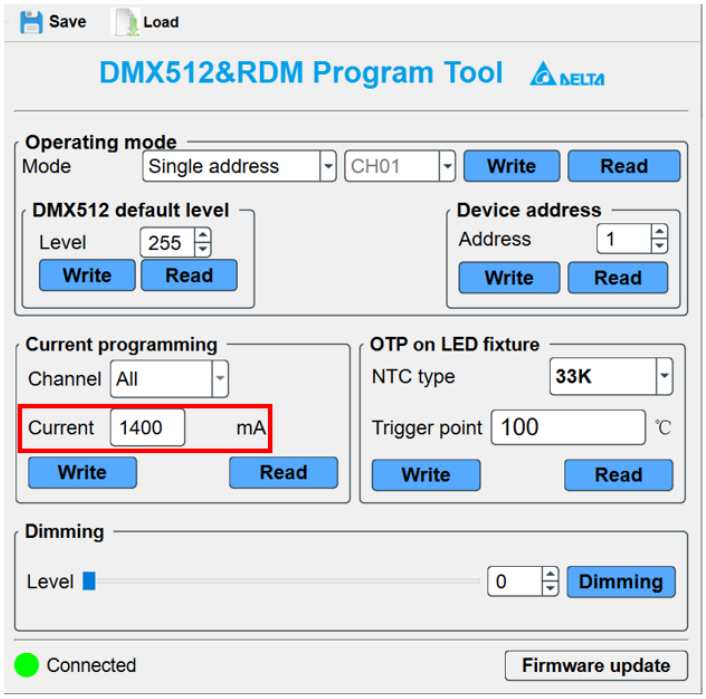


Figure 6. Set current value

Step 4: If the programming parameters have been set completely, click ***"Write"*** button. Then the driver would light-off and light-on automatically. And the status message at the bottom will show ***"Current programming successfully"***.

Note: The" Current programming successfully" only means that the commands have be sent out. To check the programming is successful or not, please click the "Read" button to verify the programed current value.

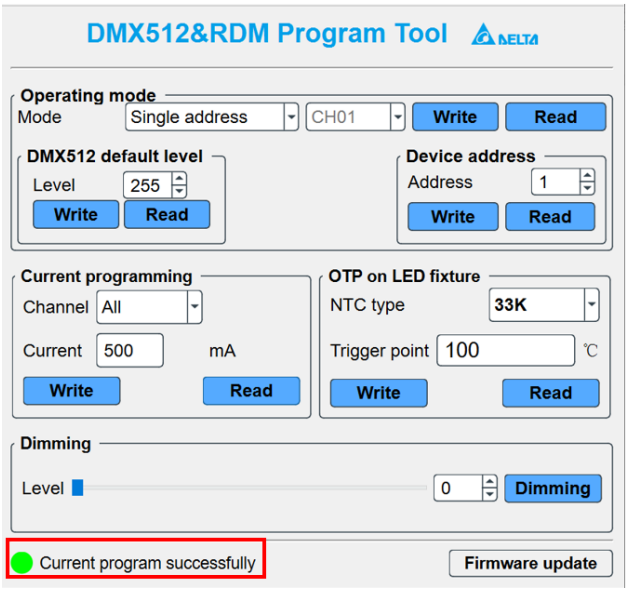


Figure 7. Current program successfully

Step 5: After current programming, click "**Read**" button to check if the programming level is right. There is one point which should be noted that the minimum scale of current programming is 1% of 1400mA. So it may not be set to the exact value as same as the current which was written.

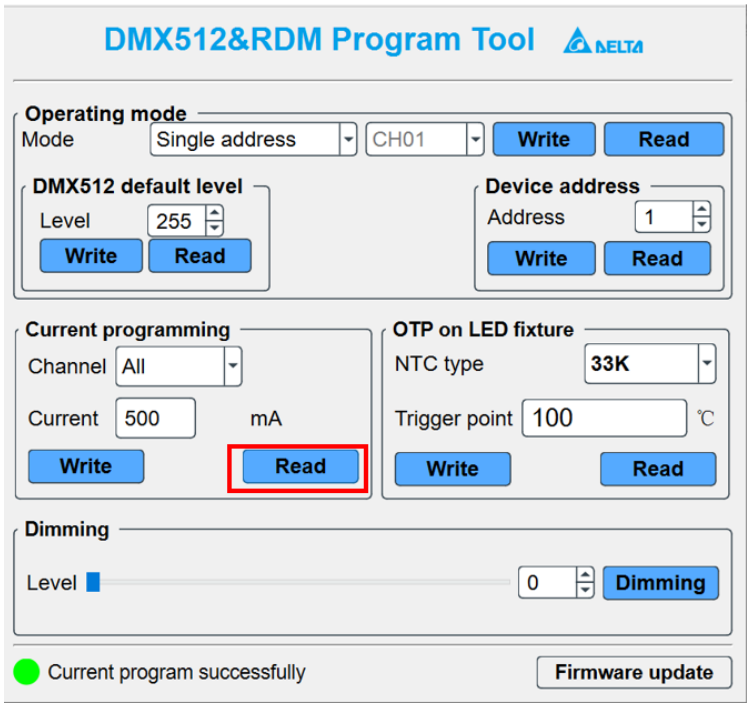


Figure 8. Read current programming

IV. Set LED OTP parameters

The driver has integrated the OTP protection function. But this function needs the LED fixture with a 33K or 100K NTC register to sensor the temperature. For the OTP protection, there are two parameters that you may want to set: NTC type and temperature trigger point.

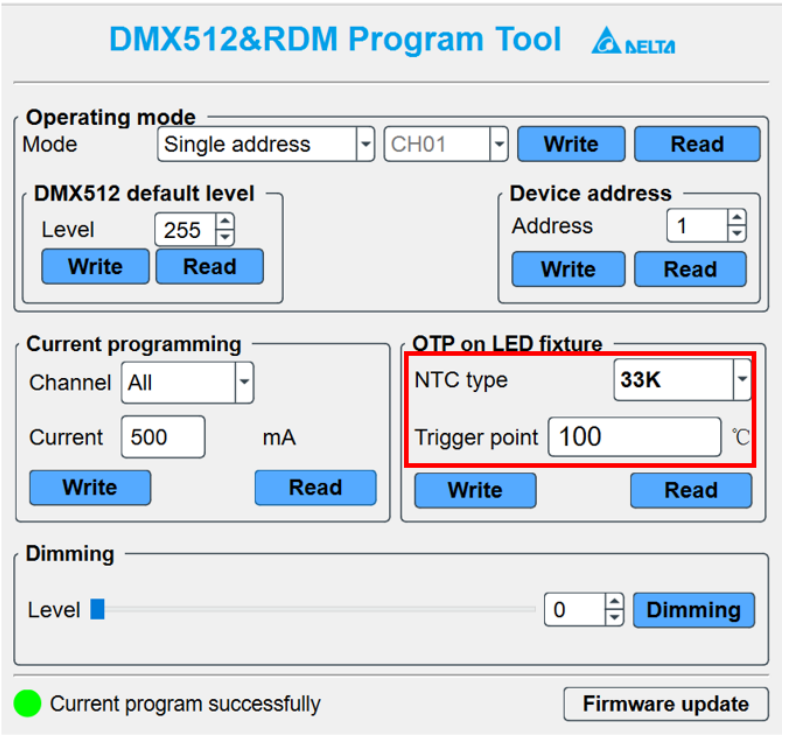


Figure 9. Set OTP parameters

When the temperature of NTC component has exceeded NTC trigger point, it would start OTP protection process. Please refer to the driver's datasheet for full details of OTP.

In order to make sure the OTP protection works normal, some constraints have been introduced.

1. The range of NTC trigger point is 80℃~120℃. The default value is 100℃.

Also, click the "**Read**" button could read the current OTP setting.

Note: The message after writing only means that the commands have be sent out. To check the programming is successful or not, please click the "Read" button to verify the written value.

V. Set address mode

The EUCO-1Kx140GDA RDM/DMX series have two different channel mode: Single address mode and Multiple address mode. The single address means that three current output channels share one DMX address. So the dimming actions of the three output channels are performed uniformly. And multiple address mode means that the three output channel could be set as different addresses. When in this mode, the three output channel could be controlled independently. The default address mode is single address mode.

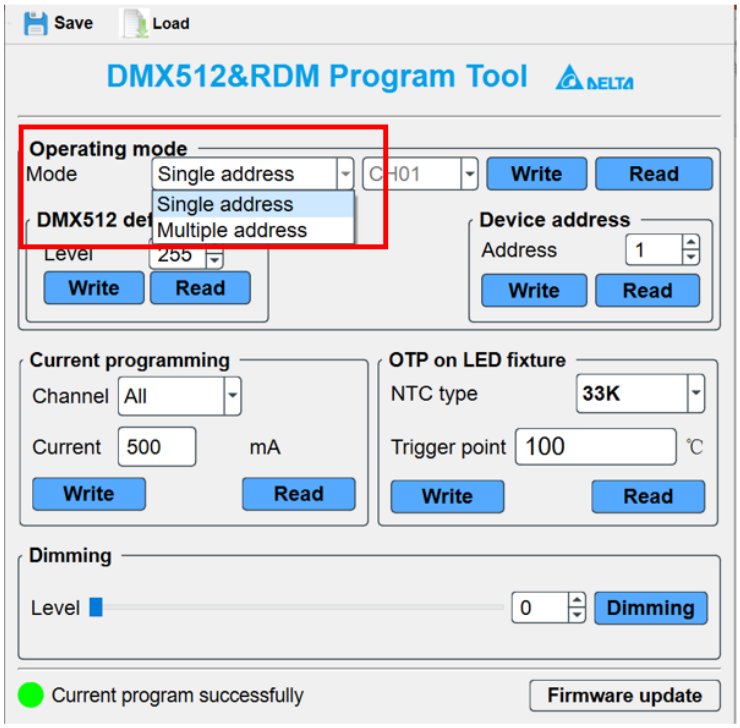


Figure 10. Address modes

After the address was written, the driver should power off and wait at least 30s, then power on again to make sure the new address mode works normal. Of course, click “**Read**” button could read current address mode.

VI. Set DMX512 address

It should be noted that before setting DMX512 address, the address mode should be set first. When the driver is set as single address mode, there is only one address needed to be set. Otherwise, three addressed needed be set.

In the DMX512 or RDM network， every driver has its unique address. This address of driver could be set with the programming tool. The range of address is 1~512.

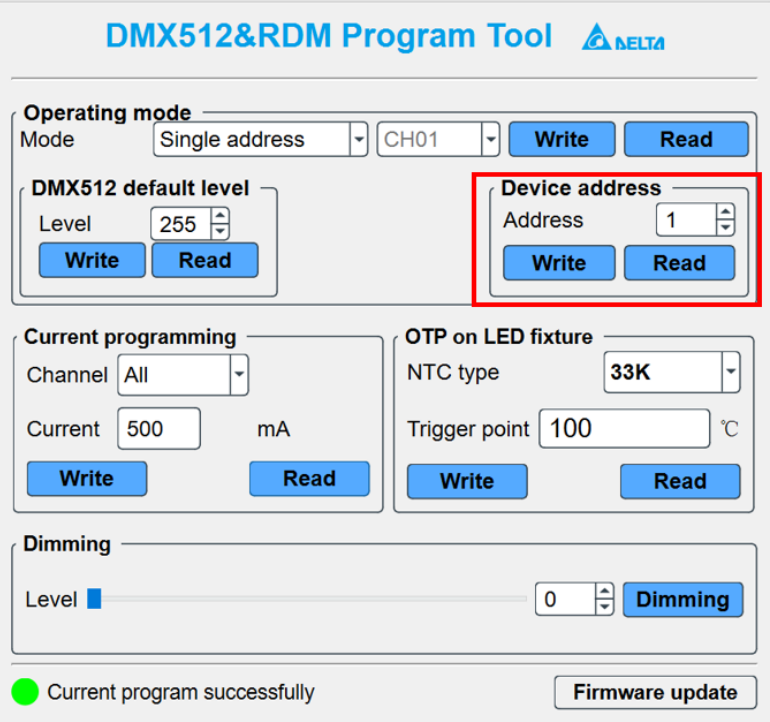


Figure 11. Set address

Click “**Read**” button would read current DMX512 address.

VII. Set default level

It should be noted that before setting DMX512 address, the address mode should be set first. If the multiple address mode is chosen, the default level of every channel should be set.

In the DMX512&RDM network, the dimming command of DMX512 should be sent at least once a second. If the driver could not receive dimming command in two seconds, it will return to the default level.

You could click “Write” button to set this default level. Or click “Read” button to check current default level.

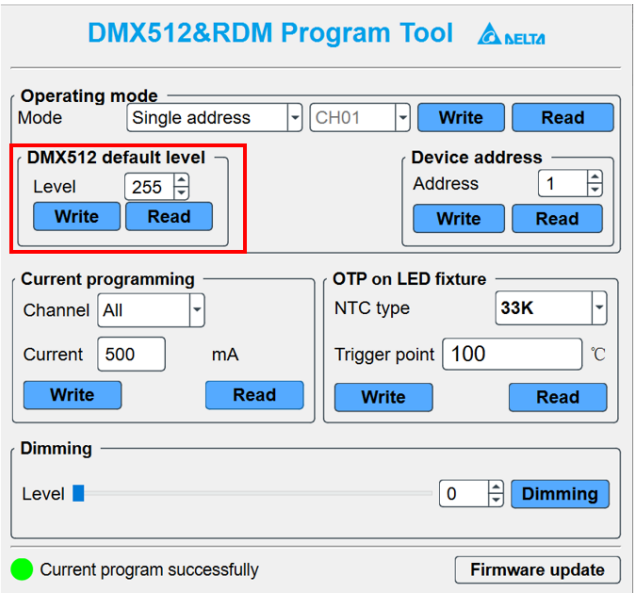


Figure 12. Set default level

VIII.Save& load profile

Step1: Please click the “Save” button in the tool bar. The GUI would save current configured parameters.

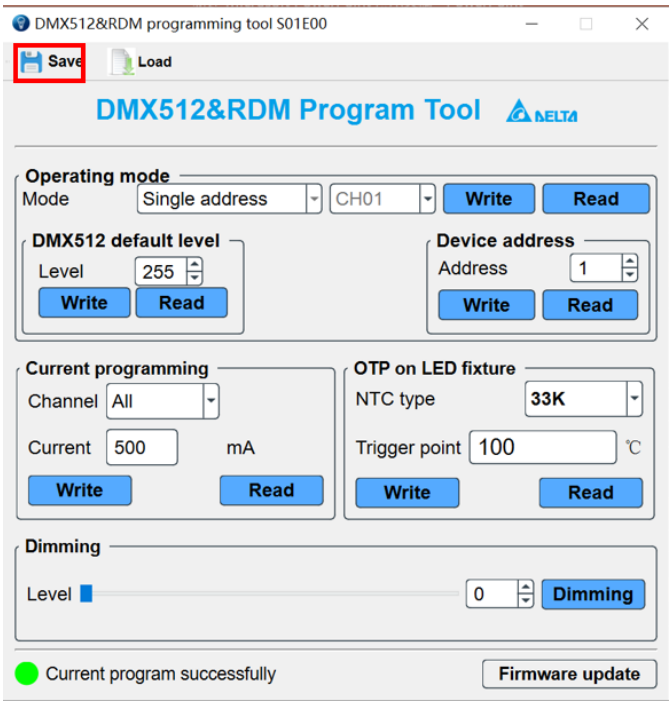


Figure 13. Save profile

The program will create a new folder in current path named “profile”. In this folder, the file with parameters is named “config.ini”.

Step2: Please click “Load” button to load the last saved profile.

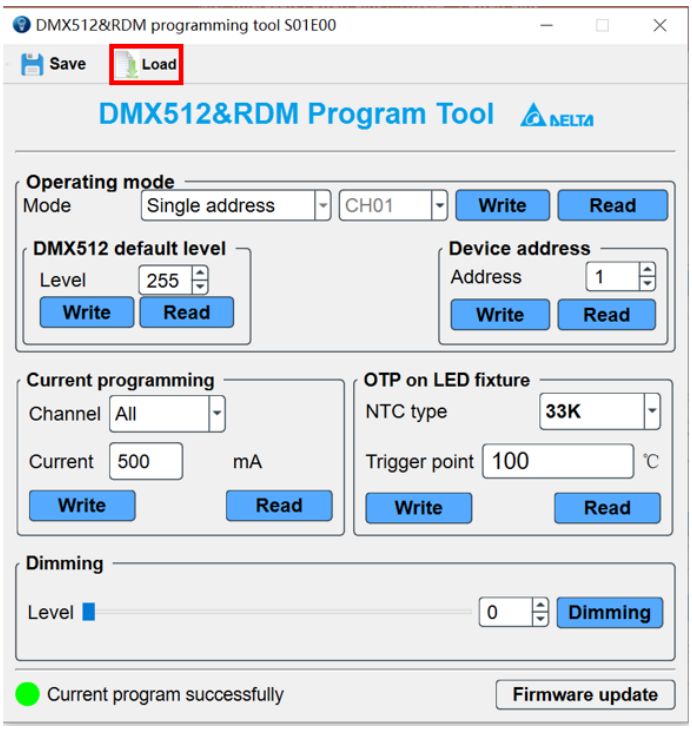


Figure 14. Save profile

And every time the GUI starts, it will load the profile automatically.

IX. Firmware update

In case that the software needs to be updated to the latest version, the “firmware update” function is available. Please make sure to only activate this function with formal notice from Delta.

Step1: Before updating the firmware, please make sure that the programming tool you are using is the latest version which the model number is SDPT05UAB. And, the AC power of the driver has been turned off for at least 30 seconds.

Step2: Click “***Firmware update***” button in the lower right corner. The firmware update interface would pop out.

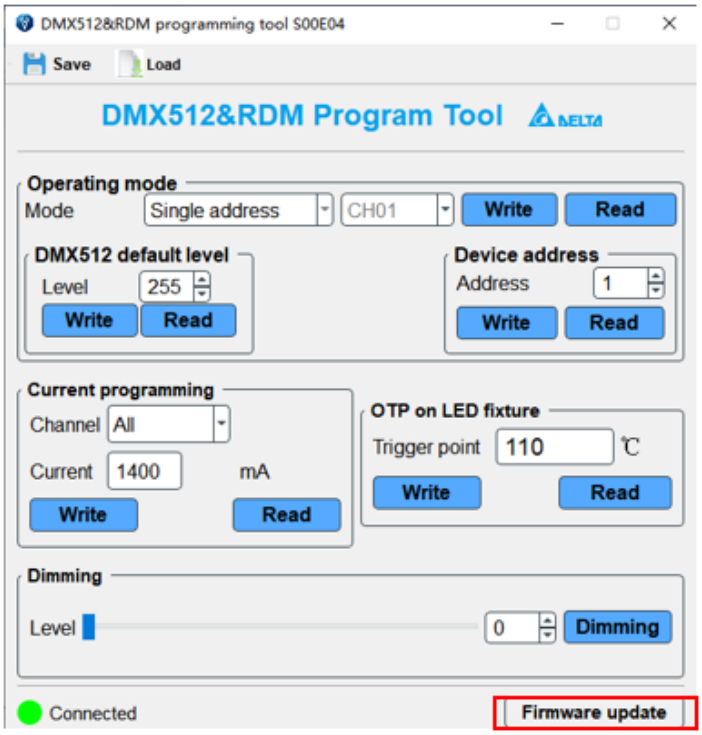


Figure 15. Click Firmware update button

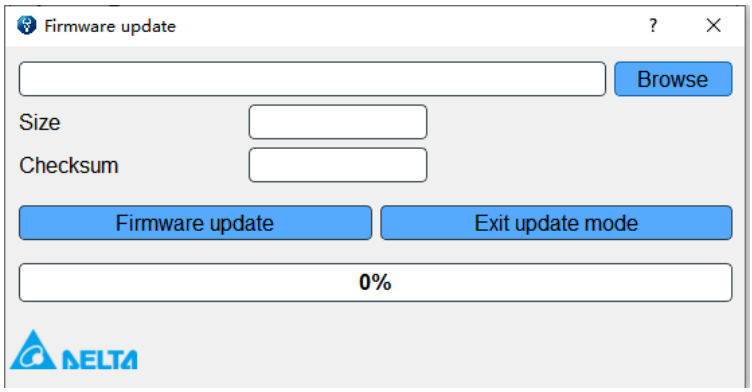


Figure 15. the interface of firmware update

Step3: Click ***"Browse"*** button and choose the hex file that you are ready for updating. Please check the size and checksum of hex file in case of updating wrong file.

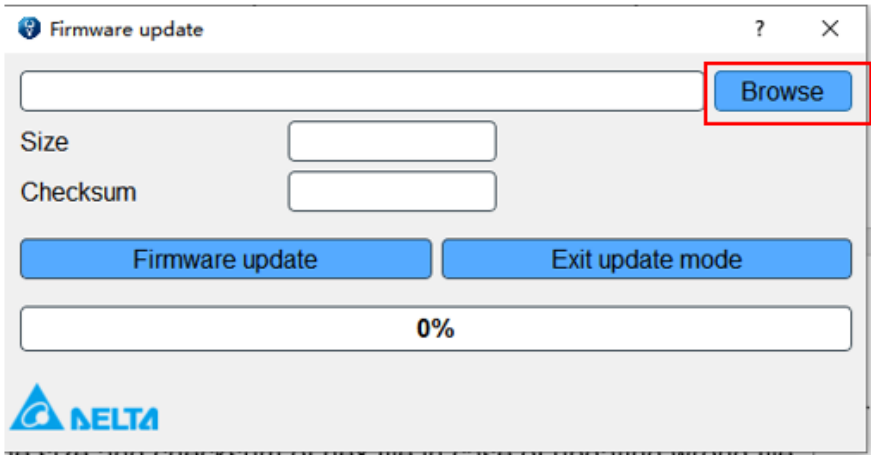


Figure 16. Choose hex file

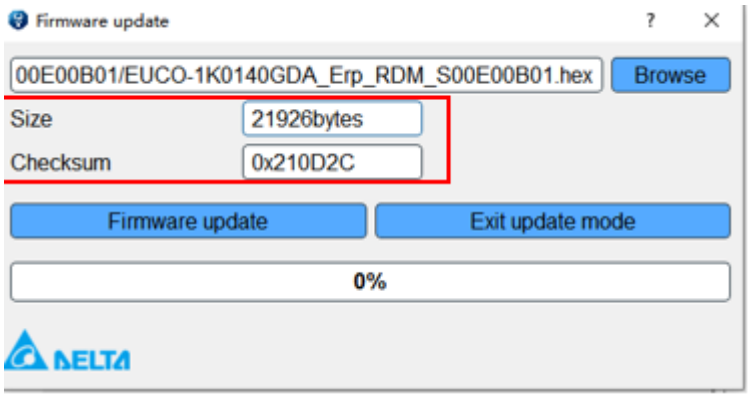


Figure 17. Checksum and file size

Step 4: Click "**Firmware update**" button before power AC on. When a message ***"Wait for AC power on …"*** pops up, turn on the AC power of driver. After the AC power is stable, click ***"OK"*** button.

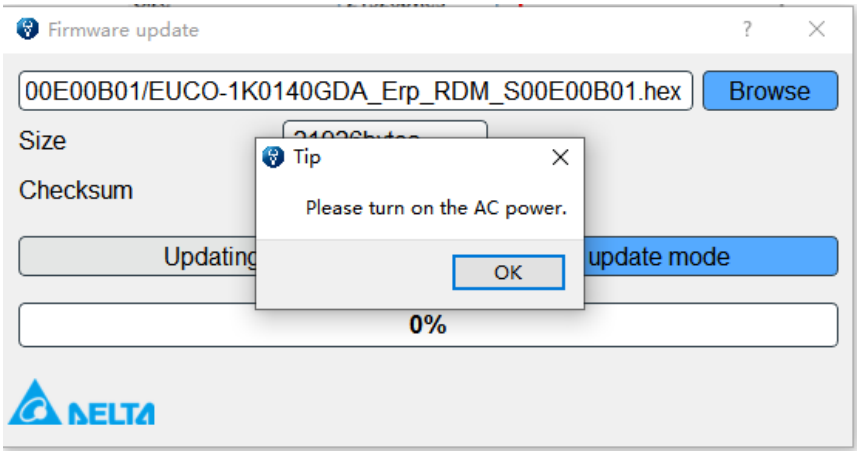


Figure 17. Wait the Power AC on

If the MCU has already been in update mode, a message "MCU is ready for updating"

would pop out.

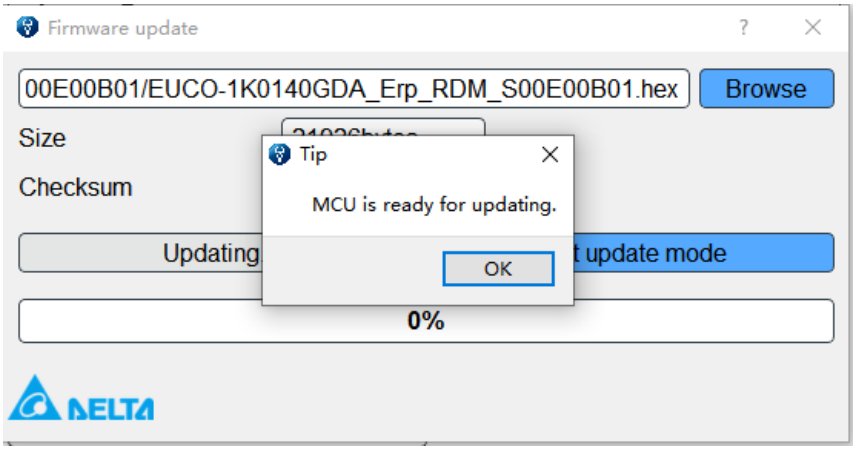


Figure 18. Message: MCU is ready for updating

Click “OK” button, the firmware update process would begin.

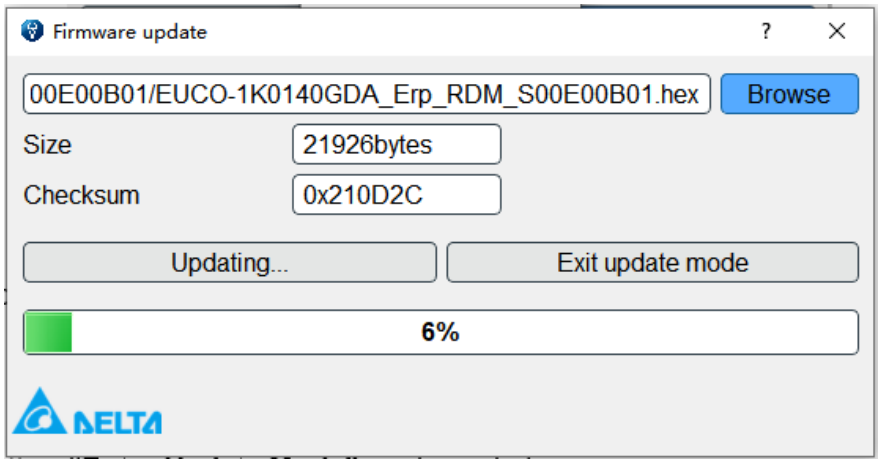


Figure 18. Update hex file

When the update is completed, ***“Update successfully”*** would pop out. The whole update process will take about one minute.

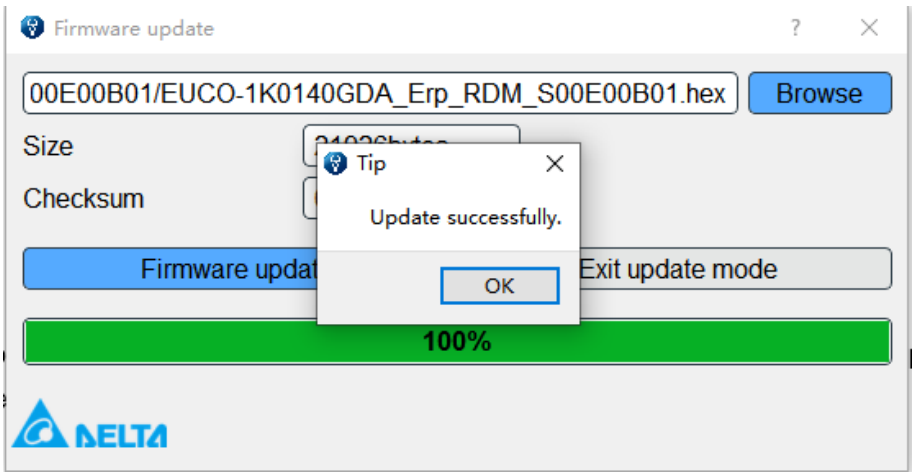


Figure 19. Update successfully

Step 5: Click button ***"Exit Update Mode"*** to exit update mode.

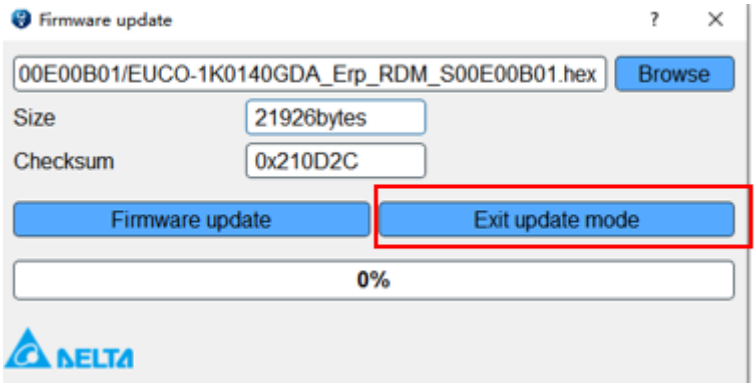


Figure 20. Exit update mode

X. Add-on functions

Note: Not all drivers supports this function. If you want use the add-on functions, please update the firmware to the latest version.

Step 1: Turn on the AC power, when the driver works normal, then open the GUI. If the driver supports the add-on functions, the GUI would be shown as below:

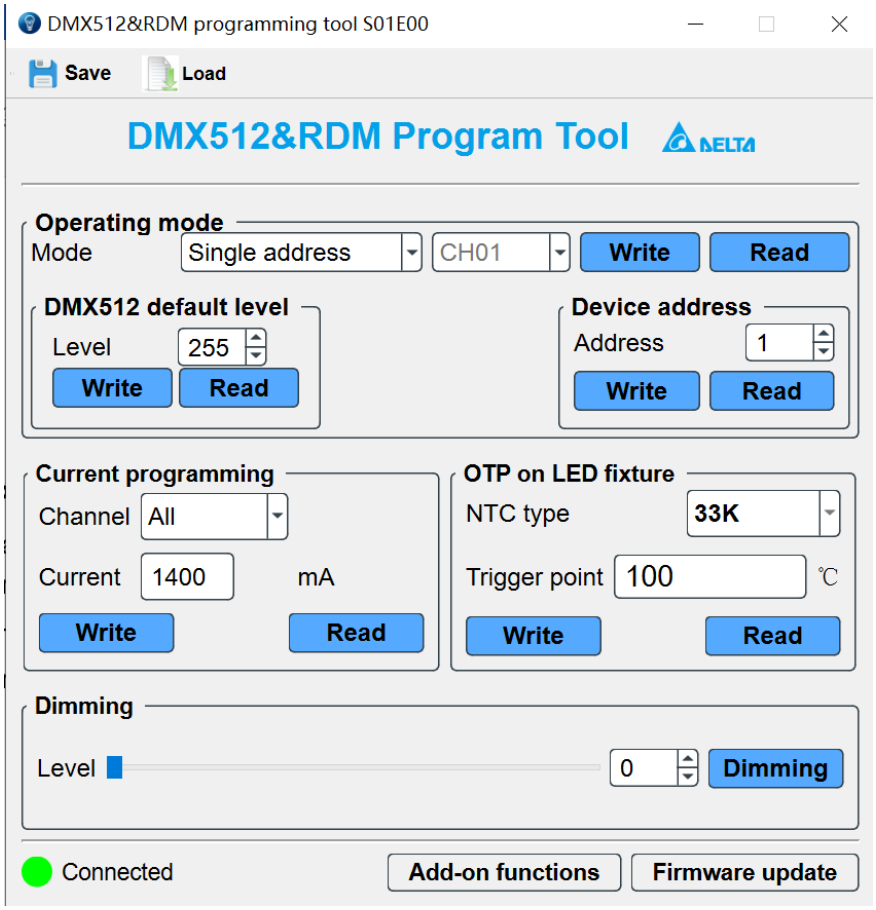


Figure 21. GUI with add-on functions

Step 2: Click the " Add-on Functions". There would pop out one new GUI.

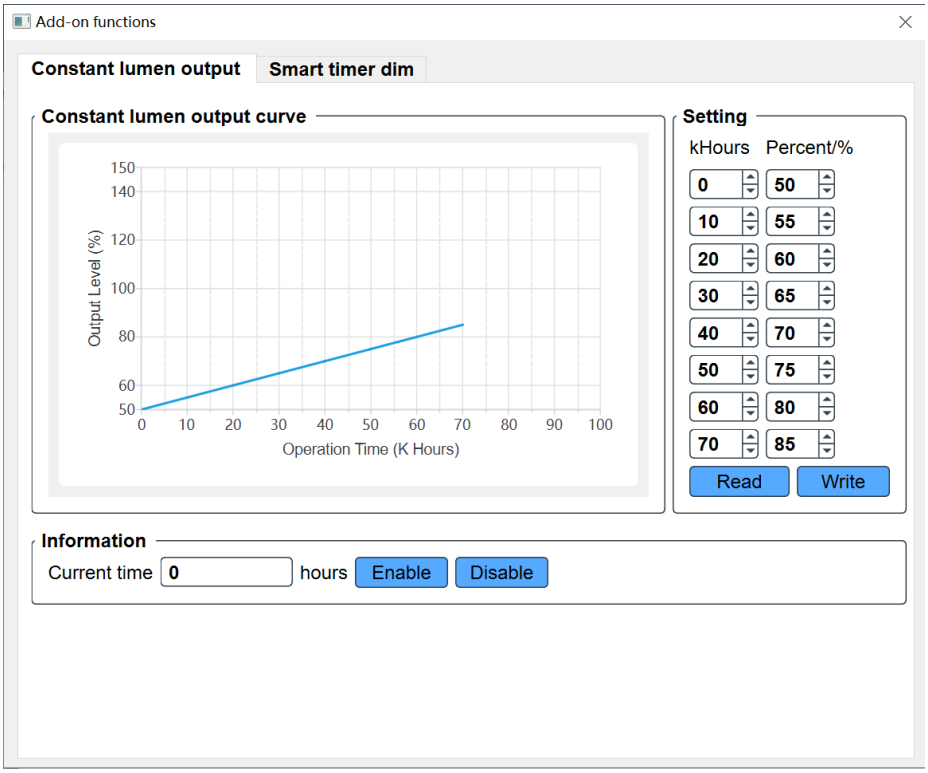


Figure 22. GUI for add-on functions

There are two items in add-on functions: Constant lumen output, smart timer dim.

Constant lumen output: Luminance of most LED drivers would be attenuated more or less, with the same output current. So the driver supports this illumination compensation function to make sure to get the constant lumen.

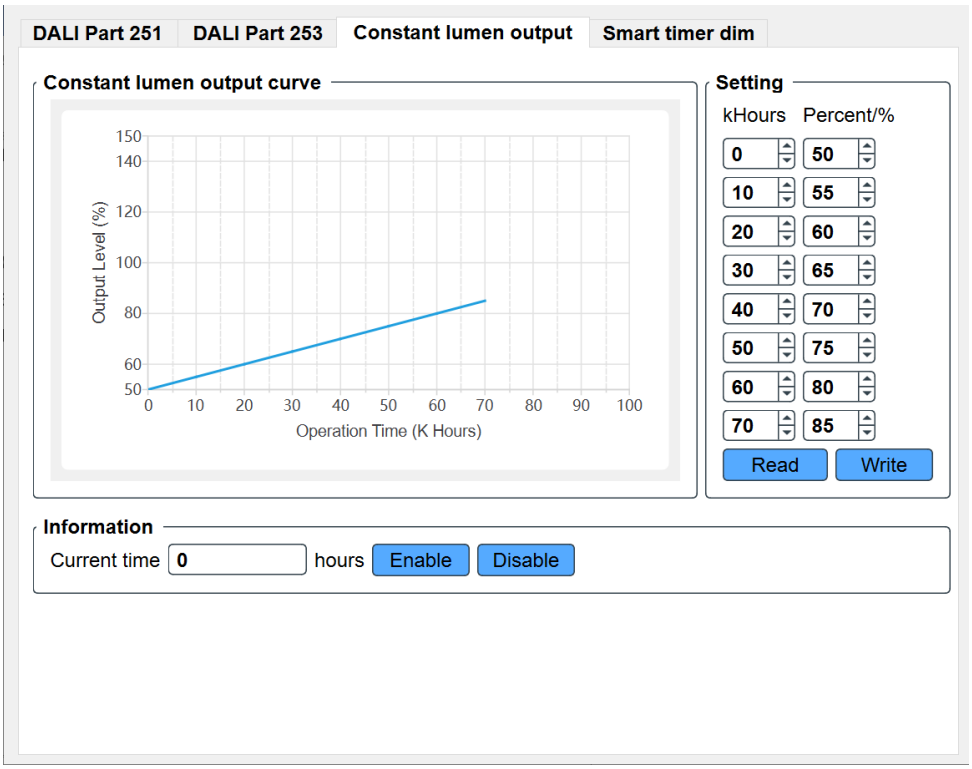


Figure 23. GUI for CLO

There are 8 time steps and percent steps for the setting. The unit for time step is kHours. Please refer the datasheet of LED to get the curve between time and illumination. And the first time always would be 0.

After key in all parameters, click on the *"Write"* button to start the writing process. Then the *"Read"* button could be clicked to check if the setting is correctly.

If the setting is successful, click *" Enable"* to start the CLO function. In avoid of flicker, the CLO ration only be updated when received the dimming command.

Smart timer dim: In this function, you could customize a dynamic dimming schedule in different modes

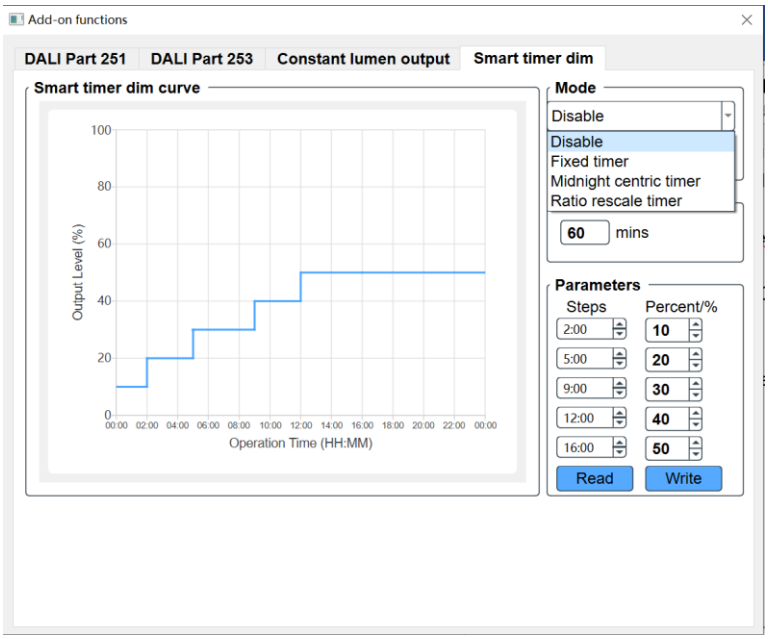


Figure 26. Different modes for STD

There are three modes to create an autonomous dimming schedule:

Fixed timer: It is a memoryless-based dimming mode that tracks the output level based on the programmed timing curve. The output level is organized by scheduled profile in the five steps.

Midnight centric timer: This mode is a memory-based that automatically measures over the past two days. The power on time of these two days is naturally corresponded to the night time. The midnight centric timer software calculates the length of power on time and centralized from the given virtual midnight point and changed the output level accordingly. More specifically, when the LED driver is power-on during the very first two days or the power-on time difference of past two days is more than 15minutes, the output current will fix to the maximum level since there is no valid data for reference. When the power-on time difference of past two days is less than 15minutes, the output level is controlled based on the correlation between the midnight point of programmed profile and yesterday power-on duration.

Ratio rescale timer: This mode is similar to midnight centric timer that records the power-on time based on the local night time. The ratio rescale timer software rescale programmed output power profile of each step by a calculated percentage of the recorded power-on time (when valid)

out of given 5 steps duration.

Note：When all steps are finished, the light level remain in last level (level in step 5) for all three modes.

Fixed timer mode usage: The figure below shows the example of fixed timer dimming profile. In this case, the driver will perform 75% output level for the first two hours since power-up. Then change to 55% output level for following four hours (as step 2), follow by 35% output level for another three hours (as step3), and so on.

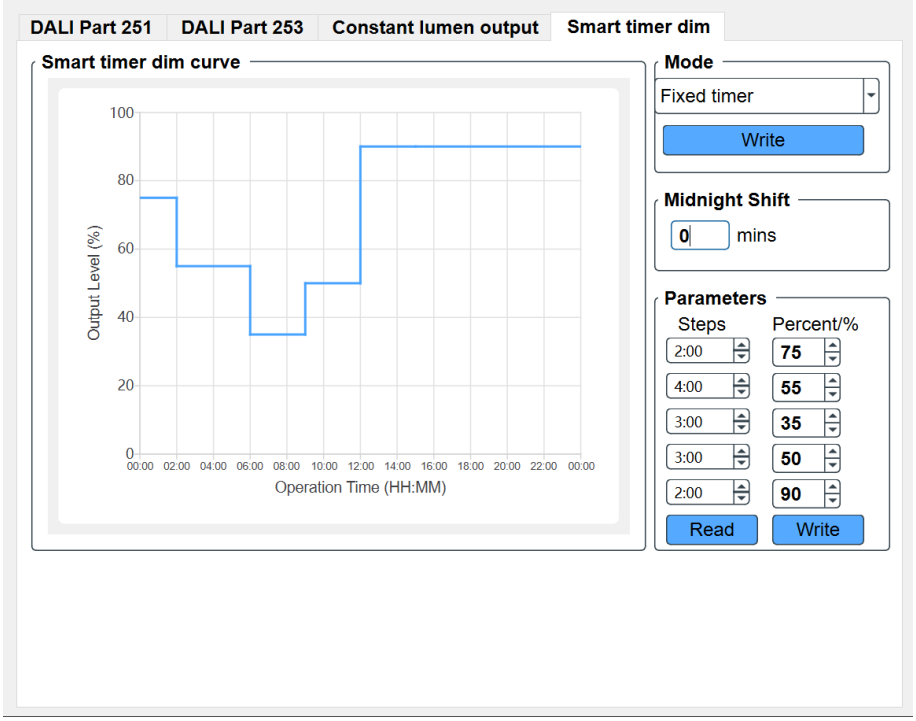


Figure 27. Fixed timer mode usage

Midnight centric timer mode usage: The figure below shows the midnight point is set to 23:00(dotted line) with typical five steps profile. If yesterday's time duration is six hours and valid, then the driver will perform the output level at 55% for one hour when power on, then follow by 35% for three hours, and so on.

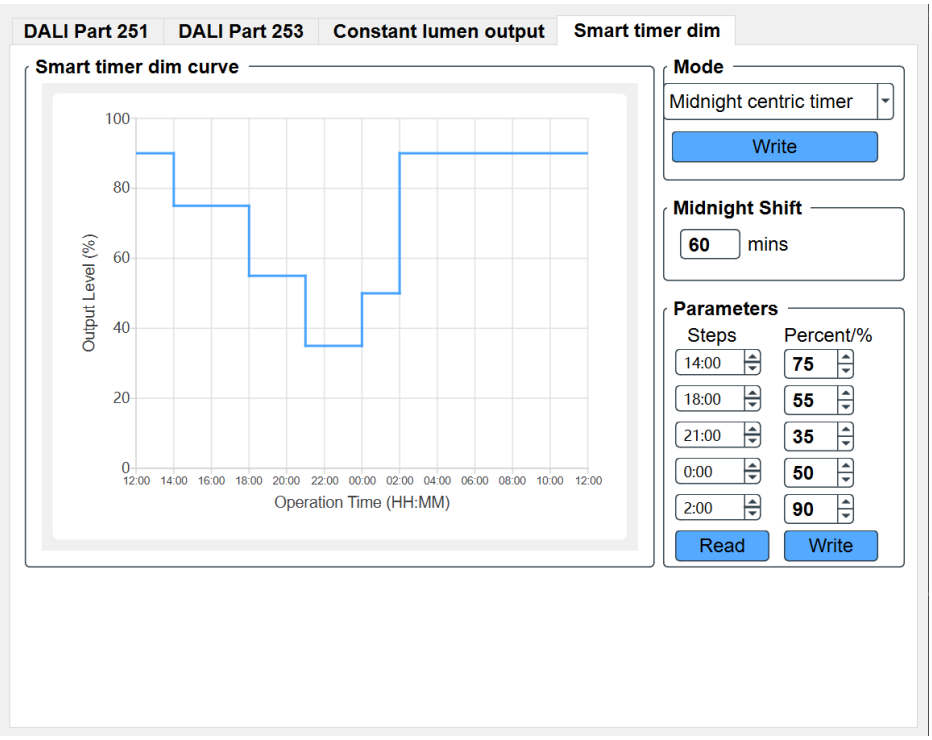
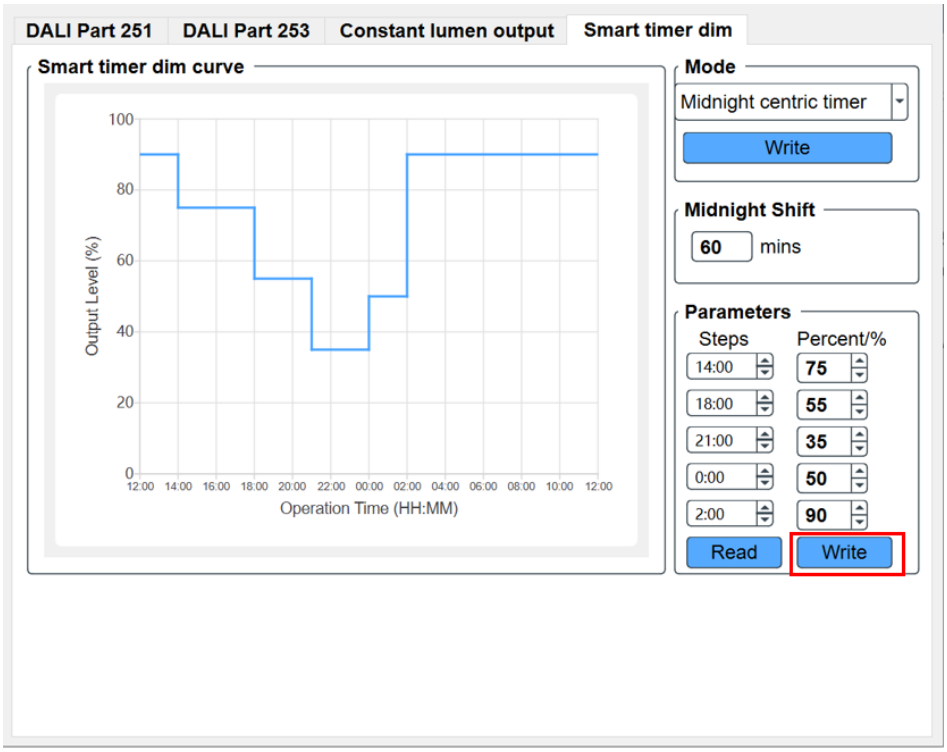


Figure 27. Midnight centric timer mode usage

Ratio rescale timer mode usage: The figure below shows the same example of dimming profile as in fixed timer. If yesterday's time duration is six hours and valid. In this case, the ratio is going to be rescaled is 50% of original setting profile (total of twelve hours) for each step. Therefore, the driver will perform the output level at 75% for one hour (50% of setting profile) when power on. Then performs 55% output level for two hours, and so on.

For this function, it would be better to write the setting parameters. Click the "Write" button to configure the midnight shift and all schedule. Then click the " Write" button in the STD mode to choose one mode or disable all of them.


DALI Part 251
DALI Part 253
Constant lumen output
Smart timer dim
Smart timer dim curve
100
80
60
40
20
0
Output Level (%)
12:00 14:00 16:00 18:00 20:00 22:00 00:00 02:00 04:00 06:00 08:00 10:00 12:00
Operation Time (HH:MM)
Mode
Midnight centric timer
Write
Midnight Shift
60
mins
Parameters
Steps
Percent/%
14:00
75
18:00
55
21:00
35
0:00
50
2:00
90
Read
Write