

# **RDM\_DM512\_Tool\_For\_EUCO-series**

## **User Manual V0.3**

Suitable for EUCO-2K1200GDx, EUCO-1K4200GDx, EUCO-600200GDx.

Revision history

Revision	Changes	Author	Date
V0.0	Initial release	David.Zhou	2023/02/24
V0.1	1. Add add-on functions 2. Add firmware update 3. Modify some expression	David.Zhou	2023/03/02
V0.2	1. Add NTC type selected function: 33K&10K 2. Add new compatible driver: EUCO-1K4200GDx 3. Add automatic recognize driver type functions	David.Zhou	2024/01/29
V0.3	1. Add broadcast mode for GUI 2. Add channel disable/enable functions	David.Zhou	2024/03/08

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**3. Add-on functions..... 16**

**4. Firmware update..... 20**

# 1. Connection

## 1.1 Preparing

Before the operation, some essential components should be ready.

- a) AC source: AC supply of the driver. For EUCO-series, the driver should be powered with suitable AC input for all operations. Please refer to the corresponding datasheet to check the suitable AC input range.
- b) LED driver: EUCO-2K1200GDx, EUCO-1K4200GDx, and EUCO-600200GDx
- c) Programming tool: The following setting only could be done with programming tool SDPTDV05UAB and SDPTDV05UAC from Delta.
- d) PC: The setting GUI could run in this PC.
- e) LED module: All settings don't need to connect with LED module.

With all of these components, please refer to the following figure to connect all of them correctly.

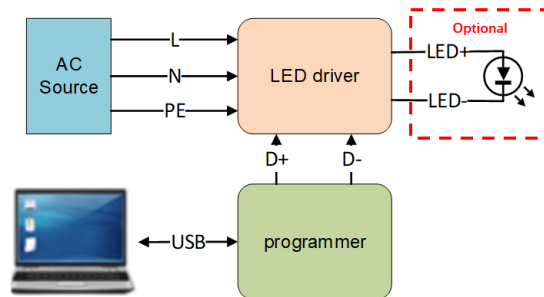


Fig 1 Connection of setting system

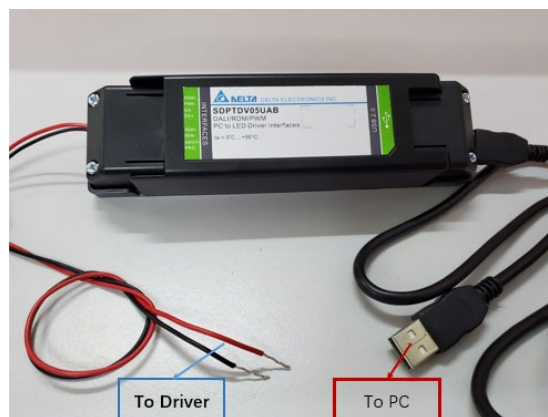


Fig 2 Programming tool for setting

**Note1:** 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.

**Note2:** For some functions, such as firmware updating, many drivers may connect with one programming tool. It is allowed. However, the number of connected drivers should be less than 32pcs. And when connected with many drivers, all query functions will not work normally.

**Note3:** Please make sure that the USB port can provide at least 500mA output current for the programming tool.

## 1.2 Open setting GUI

After connection, please power on the driver firstly. Normally, with LED module connected, the LED module will turn on with default setting. Then, double click the GUI. It will start check the connected programming tool.

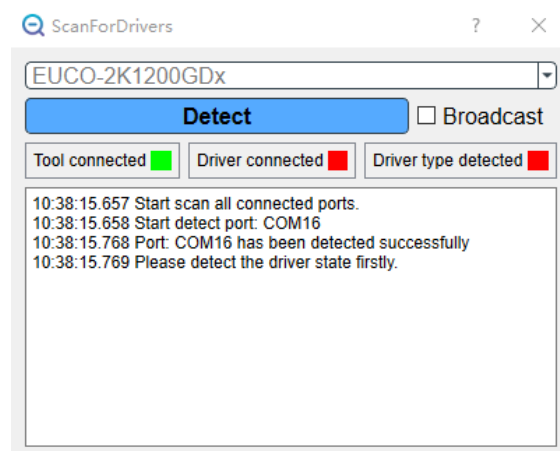


Fig 3 Check the programming tool

If there is no programming tool found, the status “Tool connected” will turn red.

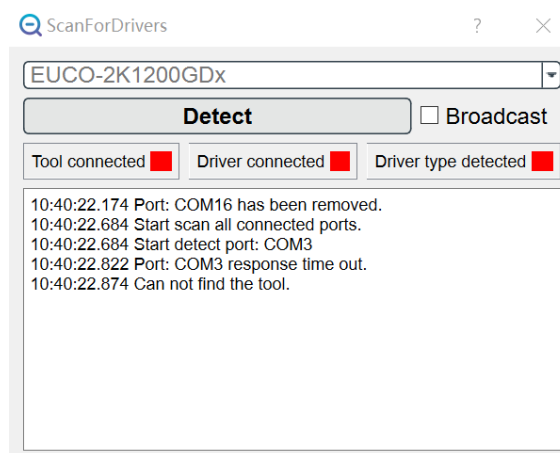


Fig 4 Scanning drivers failed

There are two ways to use the GUI: one by one or broadcast. If there are more than one driver (32pcs at most) connected with the programming tool, the “broadcast” should be selected. If the

GUI is in broadcast, the programming tool will not check the response of the driver. And all “Read” function will be disabled.

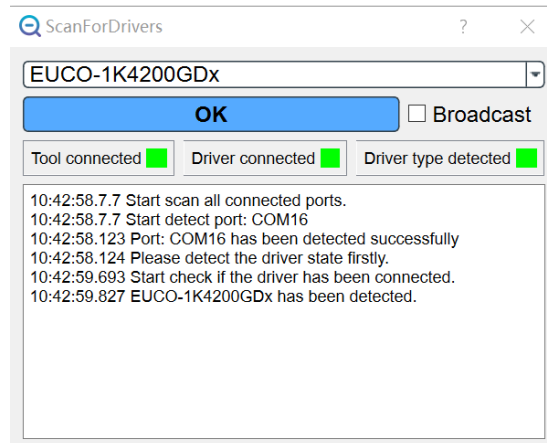


Fig 5 Detect driver type

There are all three states to illustrate the scanning process. Once the state is confirmed, it would turn green. And the messages in the log dialog will show more details about the scanning.

**State-Tool connected:** When the GUI detects the programming tool has been connected. It will turn green. When it shows red, the tool may not connect with the PC correctly. Or the tool may be occupied by other software.

**State-Driver connected:** The GUI will send commands to check if there is driver connected. If there are more than one drivers, the state may check failed. You can still choose the driver type manually, and use some limited functions.

**State-Driver type detected:** The GUI could recognize EUCO-2K1200GDx, EUCO-1K4200GDx and EUCO-600200GDx automatically, or check if the driver is in update mode. It shall be noted that when the driver is in update mode, the GUI is unable to recognize driver type.

When the driver completes the scanning process, click the button “OK”. The main GUI will pop out. For different drivers, the main GUI appearance has a little difference.

Save Load

### DMX512&RDM Program Tool

**Channel state**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode   
**Write** **Read**

**DMX512 default level**  
Channel   
Level   
**Write** **Read**

**Device address**  
Channel   
Address   
**Write** **Read**

**Current programming**  
Channel   
Current  mA  
**Write** **Read**

**OTP on LED fixture**  
NTC type   $\Omega$   
Trigger point   $^{\circ}\text{C}$   
**Write** **Read**

**Dimming**  
Level  **Dimming**

 Read information successfully. **Add-on functions** **Firmware update**

Fig 6 Main GUI for EUCO-2K1200GDx

Save Load

### DMX512&RDM Program Tool

**Operating mode**

**DMX512 default level**  
Level   
**Write** **Read**

**Device address**  
Address   
**Write** **Read**

**Current programming**  
Current  mA  
**Write** **Read**

**OTP on LED fixture**  
NTC type   $\Omega$   
Trigger point   $^{\circ}\text{C}$   
**Write** **Read**

**Dimming**  
Level  **Dimming**


 Read information successfully. **Add-on functions** **Firmware update**

Fig 7 Main GUI for EUCO-600200GDx

Fig 8 Main GUI for EUCO-1K4200GDx

**Note1: We recommend to use the latest GUI to do the settings. Please download the GUI from the PSU website.**

## 2. Main functions

### 2.1 Channel disable (Only suitable for EUCO-2K1200GDx and EUCO-1K4200GDx)

This function is only suitable for EUCO-2K1200Glx and EUCO-1K4200Glx. For these drivers, there are more than one output channel. The driver allows to disable some of the channels.

Fig 9 Channel disable functions

If the specific channel is selected, it means this channel has been enabled. Otherwise, this



channel will be disabled.

Click the checkbox of the specific channel. The operation will be double confirmed.

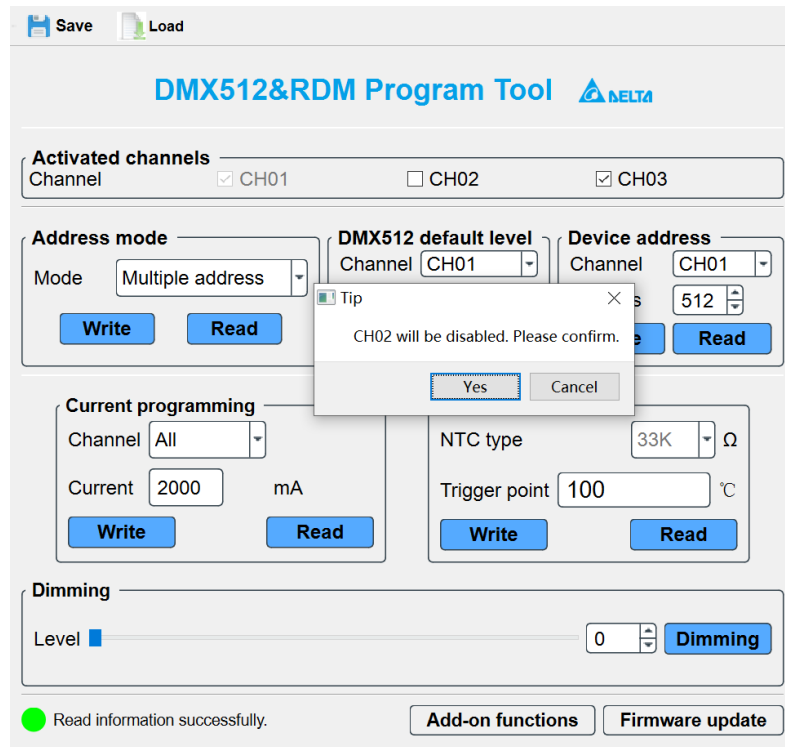


Fig 10 Disable channel 2

Click “Yes” button. Channel 2 will be disabled. Please check the bottom line to get the status of operation.

## 2.2 Address modes (Only suitable for EUCO-2K1200GDx and EUCO-1K4200GDx)

It's worth noting that this function is only suitable for EUCO-2K1200GDx and EUCO-1K4200GDx. The driver has two different address modes: Single address mode and multiple addresses mode. If the driver is in single address mode, all three channels are mapped to the same address and will be controlled synchronously. In multiple addressed mode, three output channels can be controlled independently. It will be recognized as three RDM/DMX512 drivers by RDM/DMX512 controller.

DMX512&RDM Program Tool

Activated channels: Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**

Mode: Multiple address

**Write** **Read**

**DMX512 default level**

Channel: CH01

Level: 250

**Write** **Read**

**Device address**

Channel: CH01

Address: 512

**Write** **Read**

**Current programming**

Channel: All

Current: 2000 mA

**Write** **Read**

**OTP on LED fixture**

NTC type: 33K  $\Omega$

Trigger point: 100  $^{\circ}\text{C}$

**Write** **Read**

**Dimming**

Level: 0 **Dimming**

Read information successfully. Add-on functions Firmware update

Fig 11 Address modes

The writing address mode and reading address mode functions would be executed if the relevant button is clicked. The writing or reading result would be shown in the bottom line.

DMX512&RDM Program Tool

Activated channels: Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**

Mode: Multiple address

**Write** **Read**

**DMX512 default level**

Channel: CH01

Level: 250

**Write** **Read**

**Device address**

Channel: CH01

Address: 512

**Write** **Read**

**Current programming**

Channel: All

Current: 2000 mA

**Write** **Read**

**OTP on LED fixture**

NTC type: 33K  $\Omega$

Trigger point: 100  $^{\circ}\text{C}$

**Write** **Read**

**Dimming**

Level: 0 **Dimming**

Write successfully. Add-on functions Firmware update

Fig 12 Write address mode

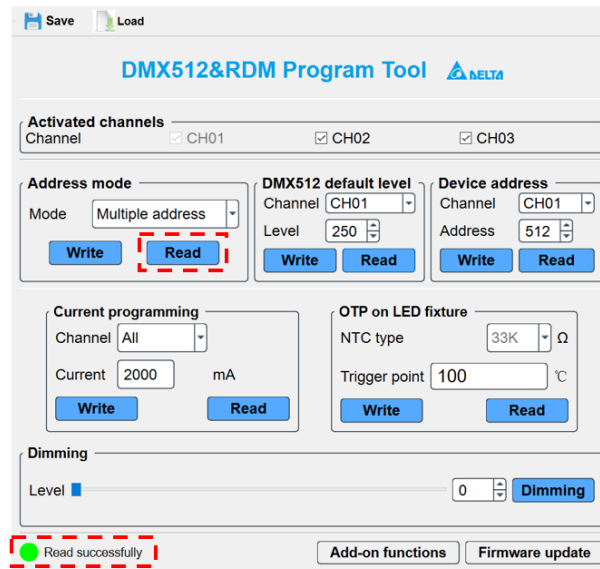


Fig 13 Read address mode

If the status in the bottom shows “Read failed”, please check the connection and make sure the driver is power-on.

## 2.3 DMX512 default level

This parameter, default level, corresponds to the RDM PID “DMX\_STARTUP\_MODE”, “Level” part. If the driver hasn’t connected with any RDM or DMX512 controller when the AC power on, the driver will dim to this default level. If the driver is in single address mode, all three channels share the same default level. Otherwise, in multiple address mode, every channel has their own default level. They could be set independently by selecting each channel. Click the following “Read” or “Write” button will execute the related operation.

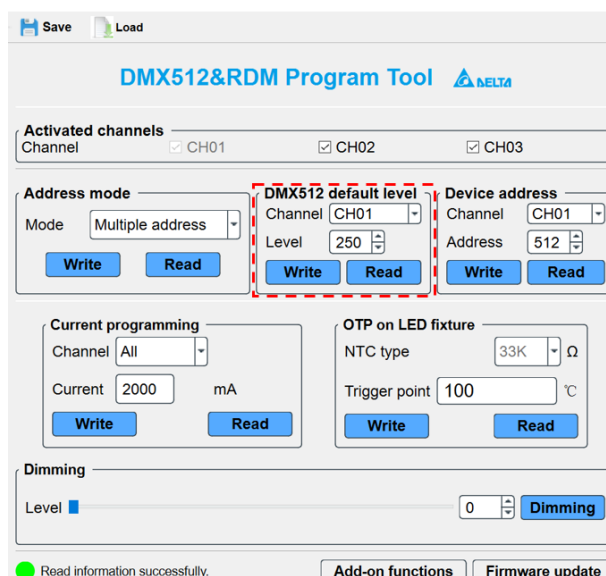


Fig 14 DMX512 default level

Save Load

### DMX512&RDM Program Tool

**Activated channels**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode

**DMX512 default level**  
Channel   
Level

**Device address**  
Channel   
Address

**Current programming**  
Channel   
Current  mA

**OTP on LED fixture**  
NTC type  Ω  
Trigger point  °C

**Dimming**  
Level

☒ Write successfully

Fig 15 Write DMX512 default level

Save Load

### DMX512&RDM Program Tool

**Activated channels**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode

**DMX512 default level**  
Channel   
Level

**Device address**  
Channel   
Address

**Current programming**  
Channel   
Current  mA

**OTP on LED fixture**  
NTC type  Ω  
Trigger point  °C

**Dimming**  
Level

☒ Read successfully

Fig 16 Read DMX512 default level

If bottom line shows the message “Write failed” or “Read failed” , please check the connection between programming tool and driver.

## 2.4 Device address

Every DMX512 driver has its own DMX512 address from 1-512. This address could be set

with the programming tool. After setting, the driver could be controlled with the level which is in the same index of DMX512 packet as this address.

In multiple address mode, every channel has its own DMX512 address. And the default address for all channels is 1. It should be set to different DMX512 addresses in multiple address mode.

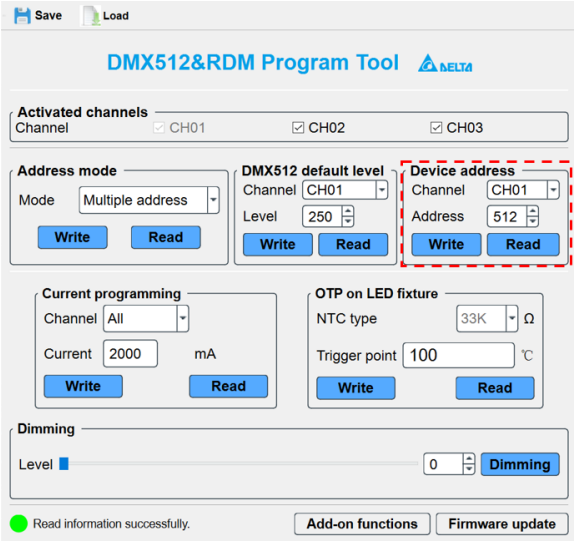


Fig 17 Device address

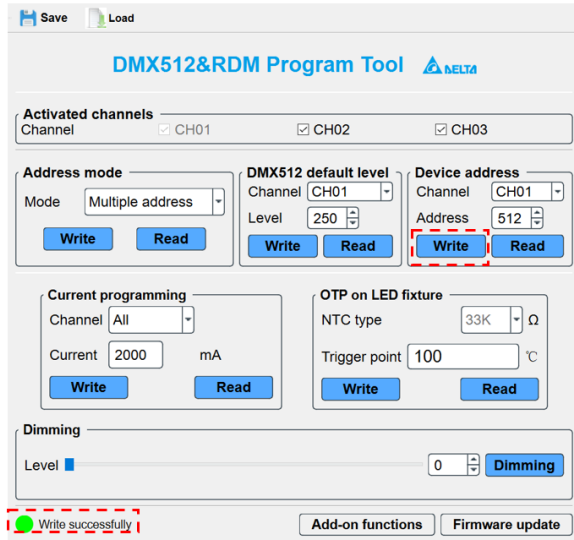


Fig 18 Write device address

The screenshot shows the 'DMX512&RDM Program Tool' interface. At the top, there are 'Save' and 'Load' buttons. Below them is the title bar with the Delta logo. The main area contains several sections: 'Activated channels' with checkboxes for CH01, CH02, and CH03; 'Address mode' with a 'Multiple address' dropdown and 'Write'/'Read' buttons; 'DMX512 default level' with a 'Channel' dropdown set to CH01, a 'Level' input set to 250, and 'Write'/'Read' buttons; 'Device address' with a 'Channel' dropdown set to CH01, an 'Address' input set to 512, and 'Write'/'Read' buttons (the 'Read' button is highlighted with a red dashed box); 'Current programming' with a 'Channel' dropdown set to 'All', a 'Current' input set to 2000 mA, and 'Write'/'Read' buttons; 'OTP on LED fixture' with an 'NTC type' dropdown set to 33K, a 'Trigger point' input set to 100 °C, and 'Write'/'Read' buttons; and a 'Dimming' section with a 'Level' slider and a 'Dimming' button. At the bottom, there is a status bar with a green light icon and the text 'Read successfully', and two buttons: 'Add-on functions' and 'Firmware update'.

Fig 19 Read device address

If bottom line shows the message “Write failed” or “Read failed” , please check the connection between programming tool and driver.

## 2.5 Current programming

First of all, please choose the output channel which need to be programmed for EUCO-2K1200GDx or EUCO-1K4200GDx. These channels could be programmed at the same time or independently. It is certain that the output current for three channels may be different. But all of them should be in the range of 700mA-2000mA. For EUCO-600200GDA, there is only one channel for programming.

Then key in the output current value. And click the “Write” button. The output current will be set successfully if the bottom line shows “Current program successfully”. Clicking the “Read” button could read out the current programmed current in the driver.

Save Load

## DMX512&RDM Program Tool

**Activated channels**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode

**DMX512 default level**  
Channel   
Level

**Device address**  
Channel   
Address

**Current programming**  
Channel   
Current  mA

**OTP on LED fixture**  
NTC type   $\Omega$   
Trigger point   $^{\circ}\text{C}$

**Dimming**  
Level

● Read information successfully.

Fig 20 Current programming

Save Load

## DMX512&RDM Program Tool

**Activated channels**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode

**DMX512 default level**  
Channel   
Level

**Device address**  
Channel   
Address

**Current programming**  
Channel   
Current  mA

**OTP on LED fixture**  
NTC type   $\Omega$   
Trigger point   $^{\circ}\text{C}$

**Dimming**  
Level

● Current program successfully!

Fig 21 Program output current

The screenshot shows the 'DMX512&RDM Program Tool' interface. At the top, there are 'Save' and 'Load' buttons. Below is the title bar with the tool name and the DELTA logo. The main area contains several sections: 'Activated channels' with checkboxes for CH01, CH02, and CH03; 'Address mode' with a 'Multiple address' dropdown and 'Write'/'Read' buttons; 'DMX512 default level' with a 'Channel' dropdown (CH01), a 'Level' input (250), and 'Write'/'Read' buttons; 'Device address' with a 'Channel' dropdown (CH01), an 'Address' input (512), and 'Write'/'Read' buttons; 'Current programming' with a 'Channel' dropdown (All), a 'Current' input (2000 mA), and 'Write'/'Read' buttons (the 'Read' button is highlighted with a red dashed box); 'OTP on LED fixture' with an 'NTC type' dropdown (33K  $\Omega$ ), a 'Trigger point' input (100  $^{\circ}\text{C}$ ), and 'Write'/'Read' buttons; and a 'Dimming' section with a 'Level' slider and a 'Dimming' button. At the bottom, a status bar shows a green circle and the text 'Read successfully' (highlighted with a red dashed box), along with 'Add-on functions' and 'Firmware update' buttons.

Fig 22 Read programmed current

If bottom line shows the message “Current program failed” or “Read failed”, please check the connection between programming tool and driver.

## 2.6 OTP on LED fixture

This function is over temperature protection for LED module. Just key in the protection trigger point and click the “Write” button. The function will be set successfully if the bottom line shows the message “Write OTP successfully”. The “Read” button could read out current trigger point for OTP. In addition, the range of the trigger point should be in the range of 70-120 $^{\circ}\text{C}$ .

For some drivers, it supports two types of NTC: 33K  $\Omega$  and 10K  $\Omega$ . Before changing the NTC type, please make sure that the driver supports this type of NTC. Please refer to the datasheet of the driver for more details.



Save Load

## DMX512&RDM Program Tool DELTA

**Activated channels**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode Multiple address

Write Read

**DMX512 default level**  
Channel CH01  
Level 250

Write Read

**Device address**  
Channel CH01  
Address 512

Write Read

**Current programming**  
Channel All  
Current 2000 mA

Write Read

**OTP on LED fixture**  
NTC type 33K  $\Omega$   
Trigger point 100  $^{\circ}\text{C}$

Write Read

**Dimming**  
Level  0 Dimming

● Read information successfully. Add-on functions Firmware update

Fig 23 OTP on LED fixture

Save Load

## DMX512&RDM Program Tool DELTA

**Activated channels**  
Channel ☒ CH01 ☒ CH02 ☒ CH03

**Address mode**  
Mode Multiple address

Write Read

**DMX512 default level**  
Channel CH01  
Level 250

Write Read

**Device address**  
Channel CH01  
Address 512

Write Read

**Current programming**  
Channel All  
Current 2000 mA

Write Read

**OTP on LED fixture**  
NTC type 33K  $\Omega$   
Trigger point 100  $^{\circ}\text{C}$

Write Read

**Dimming**  
Level  0 Dimming

● Write OTP successfully.

Add-on functions Firmware update

Fig 24 Write OTP

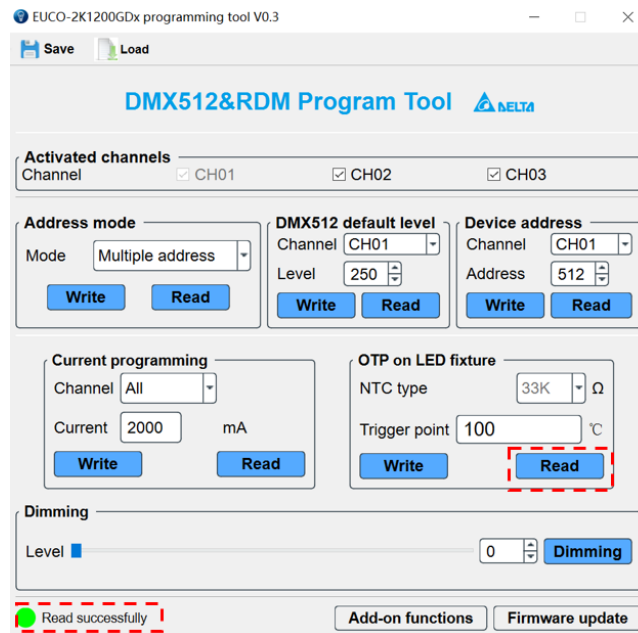


Fig 25 Read OTP

## 2.7 Dimming control by the tool

Click the “Dimming” button, the programming tool will send out dim command. This command is sent in broadcast way which means all drivers connected with the programming tool will receive the same dim command.

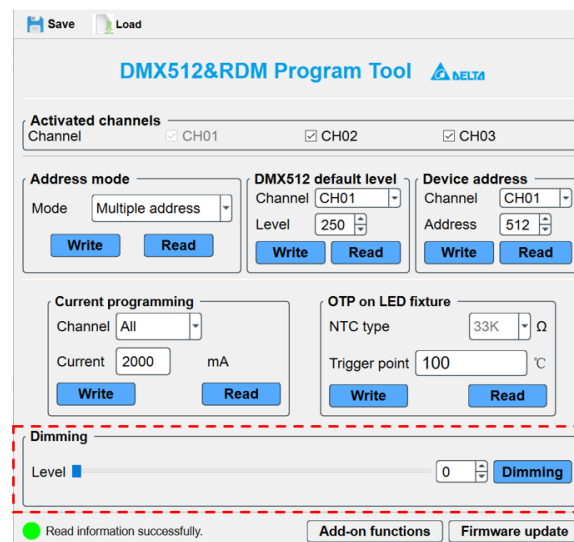


Fig 26 Dim function

## 2.8 Save & Load profile

The GUI provides “Save & Load profile ” function to save the configured parameters. Click the “Save” button, and choose the file directory you want to save the profile in.

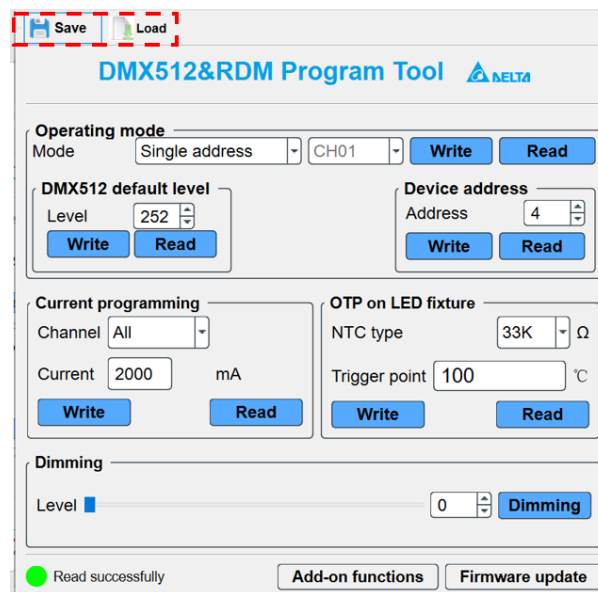


Fig 27 Save & Load profile

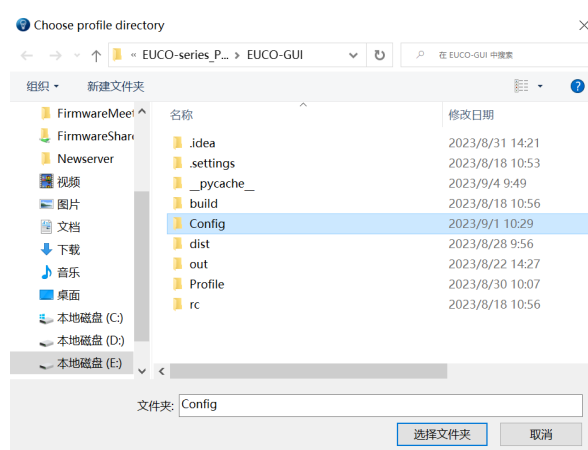


Fig 28 Saving profile

<input type="checkbox"/> 名称	修改日期	类型	大小
<input checked="" type="checkbox"/> configEUCO-1K4200GDx	2024/2/18 15:54	配置设置	1 KB

Fig 29 Saved profile

Then you could click the “load” button to read the saved profile.

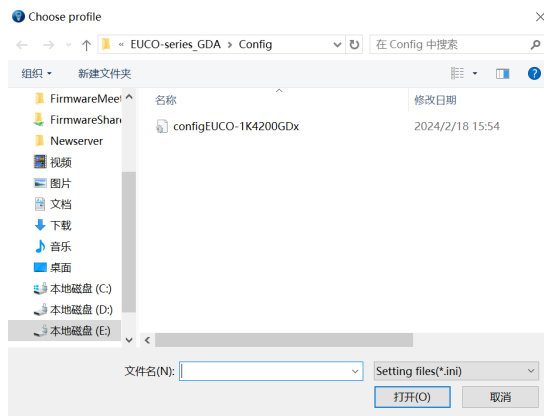


Fig 30 Loading profile

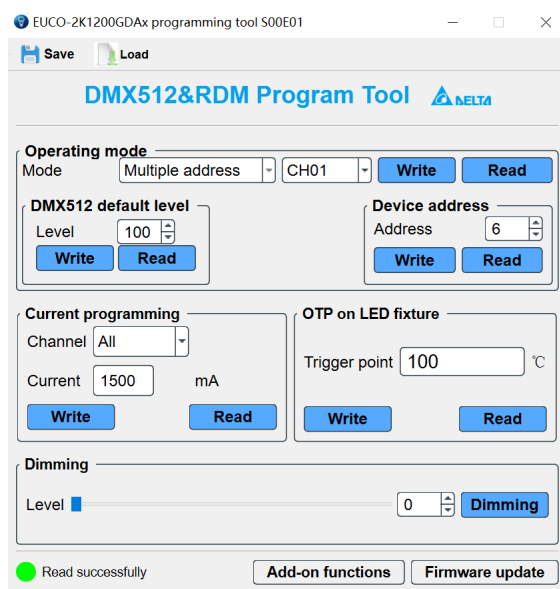


Fig 31 Load profile

### 3. Add-on functions

Except the command functions, the GUI also supports some add-on functions. When clicking the “Add-on functions” button, the add-on function GUI will appear.

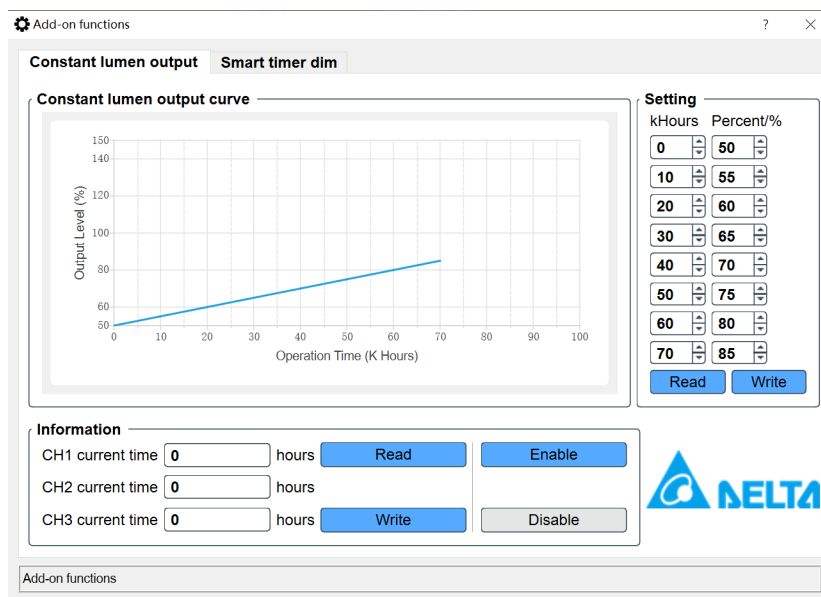


Fig 32 Add-on functions

The GUI splits the add-on functions into 2 different function groups: Constant lumen output, Smart timer dim.

### 3.1 Constant lumen output:

This function is designed to make sure consistent brightness over time. Generally speaking, the LED module will get a little darker even with the same output current as the working time increases. So, for some special situation, this function could make some compensation for the brightness.

If this function is activated, the output current may decrease a little firstly. Another important thing is that the first step for time should always keep 0.

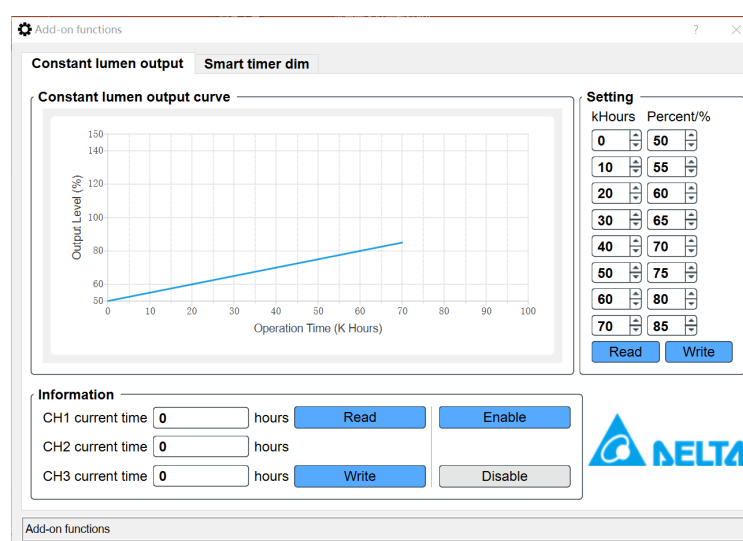


Fig 33 Constant lumen output

**Note1:** There is one thing should be noted that the “Enable” and “Disable” function would only apply for the suitable CLO function. It would not stop the current time counting. So it is recommended that clearing the current time firstly before using the CLO function.

### 3.2 Smart timer dim:

In this function, you could customize a dynamic dimming schedule in different modes

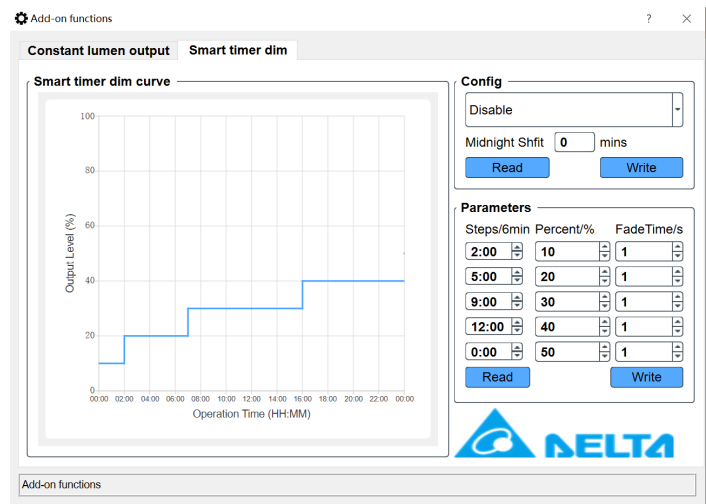


Fig 34 Smart timer dim

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.

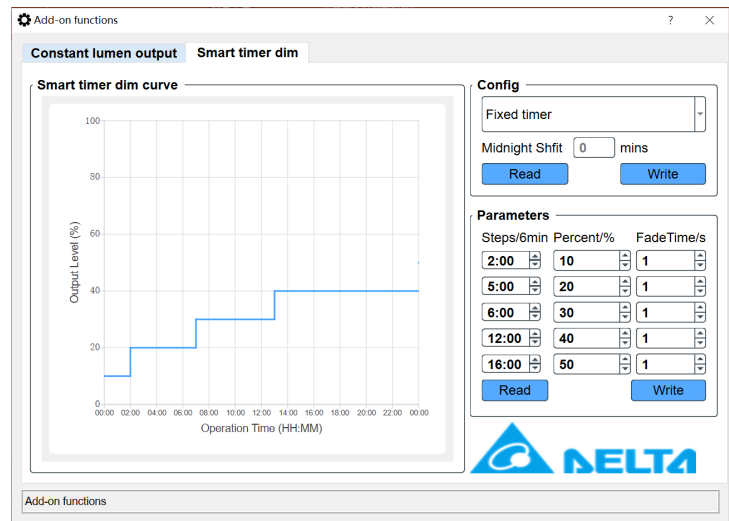


Fig 35 Fixed timer mode usage

**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.

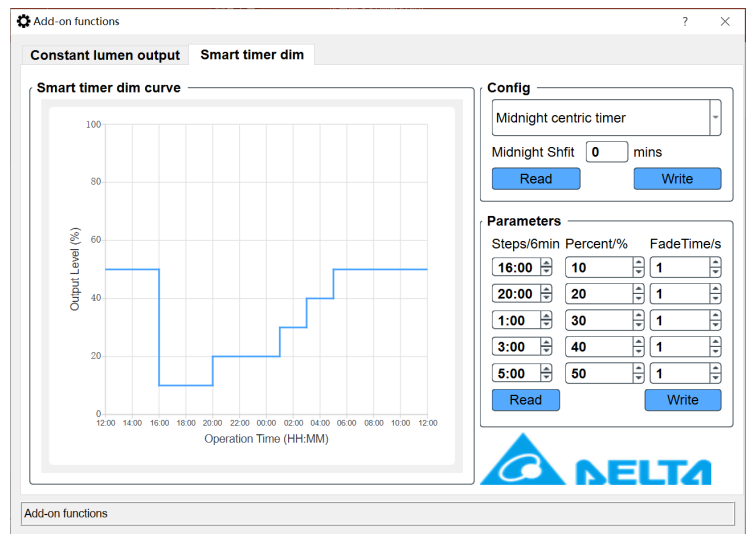


Fig 36 Midnight centric timer mode usage

**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.

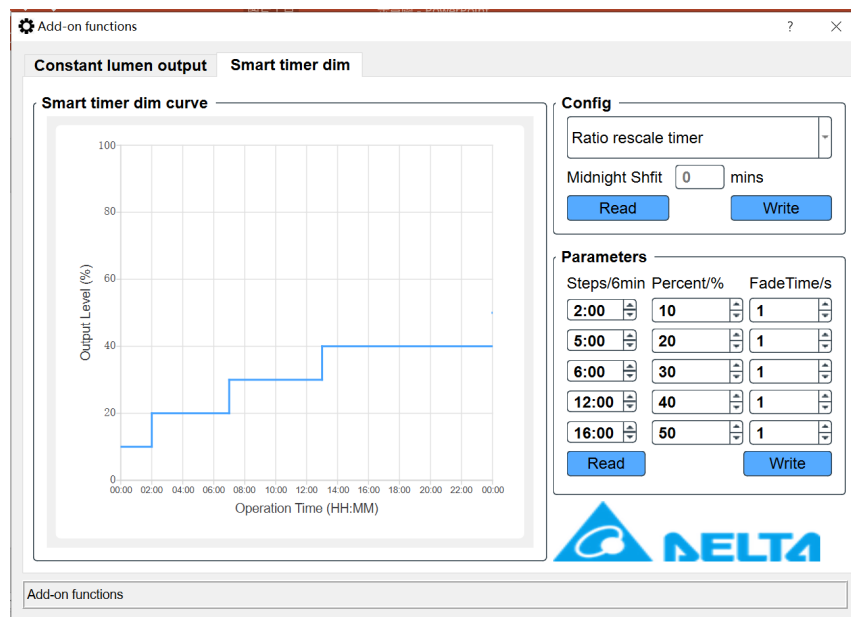


Fig 37 Ratio rescale timer mode usage

## 4. Firmware update

The GUI provides two different ways to enter update mode: AC power off mode or f normal app mode. These both ways only have difference in entering the update mode. It would be same for updating. Before updating, it would be better to check the communication.

### 4.1 Enter update mode

a) AC power-off mode: With this way, please make sure the driver has completely powered off. It is recommended to keep the driver AC off at least 30s. Then click the button “Enter update mode”.

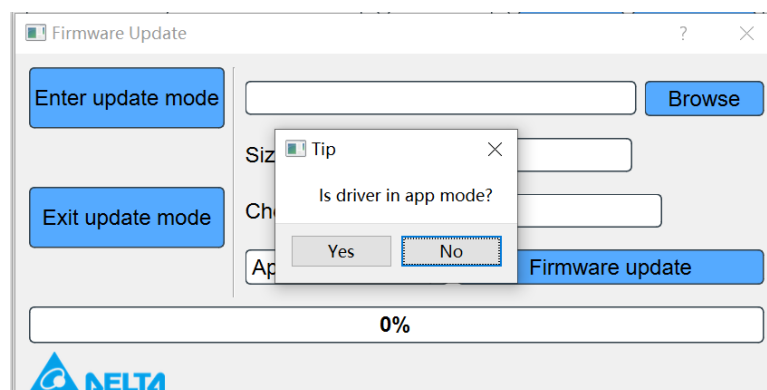


Fig 38 Choose enter update mode way

Click “No” to enter next step.



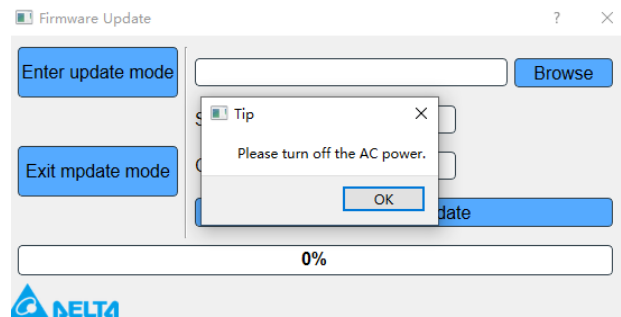


Fig 39 Turn off the AC power

Turn off the AC source following the tip. Please keep the AC off at least 30s.

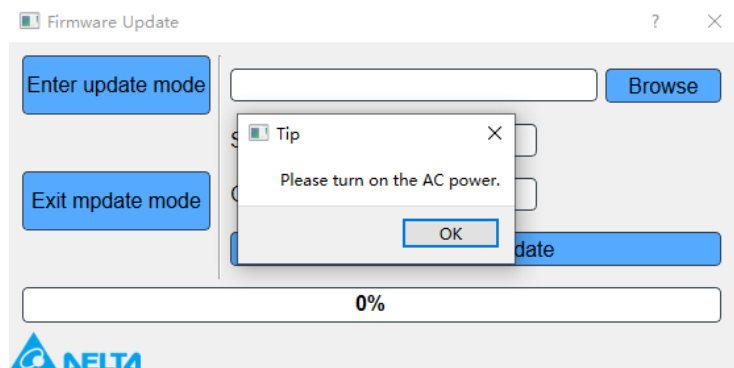


Fig 40 Turn on the AC power

Turn on the AC source in this step.

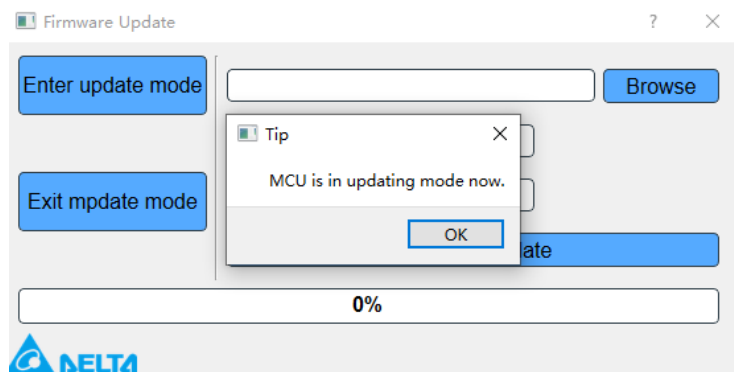


Fig 41 Enter update mode successfully

If everything goes well, the driver will enter update mode successfully.

b) Normal app mode: If it is not very convenient to change the AC state, it would be a better choice to enter the update mode in the normal app mode. Before entering this mode, please make sure the communication works normally. Click the “Enter update mode” button,

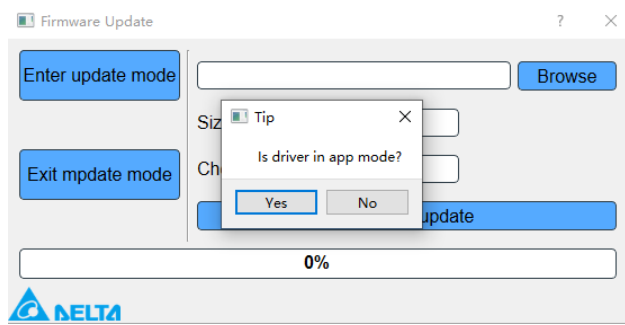


Fig 42 Choose enter update mode way

Click “Yes” when the above message pops out. After a few seconds, the driver will enter in update mode automatically.

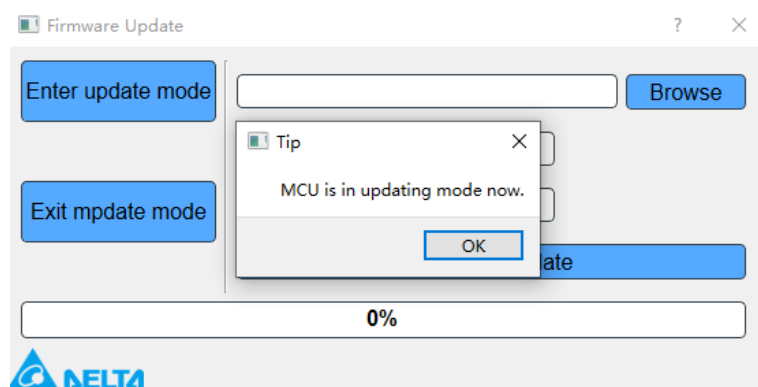


Fig 43 Enter in update mode successfully

## 4.2 Choose firmware file(\*.hex)

Click button “Browse” to select the appropriate firmware file for update. The GUI cannot automatically recognize the right file or not. So please choose the correct firmware file carefully.

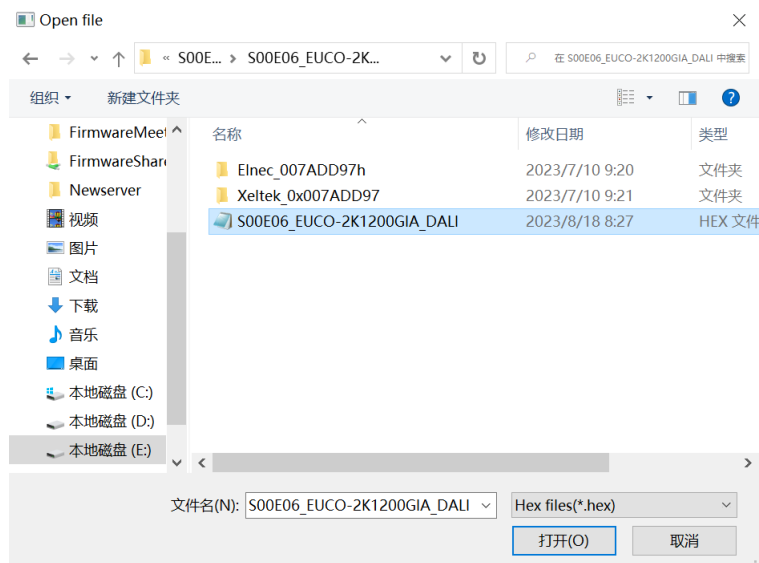


Fig 44 Choosing hex file

After finishing above step, the GUI will read the content and information from the hex file.

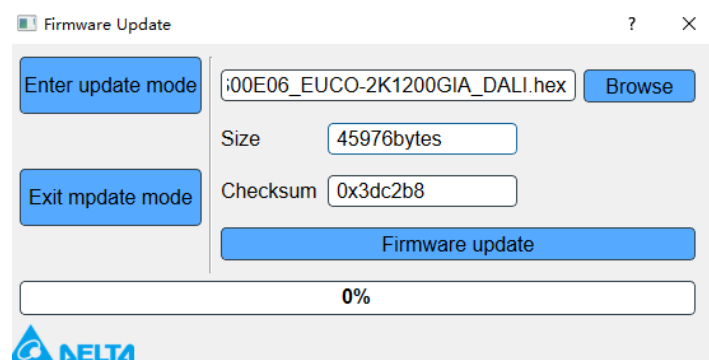


Fig 45 Hex file information

### 4.3 Firmware update

Click “Firmware update” button to start updating. This process usually takes 1~2 minutes.

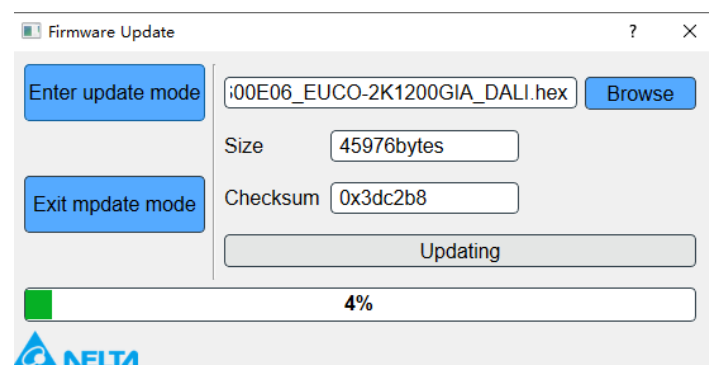


Fig 46 Updating

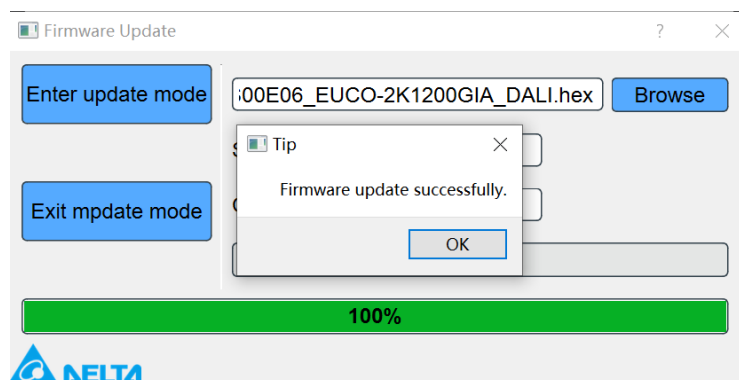


Fig 47 Firmware update successfully

### 4.4 Exit update mode

Click “Exit update mode” to exit update mode.

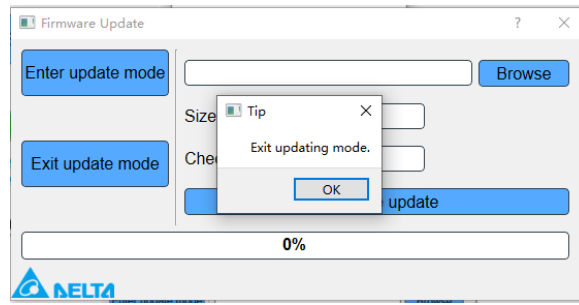


Fig 48 Exit update mode