

Upowertek Programmable LED Driver Introduction

Make Smart Lighting Simple and Reliable

Nov, 2022



Content

Programming Introduction.....	3-7
Computer NFC Programming.....	8-17
Stand-alone NFC Programming.....	18-22
Computer Cable Programming.....	23-32
Cellphone NFC Programming.....	33-37
Set DMX LED Driver Address.....	38-39

NFC Programming System

uPowerTek

NFC Programmer



NFC Programmable LED driver
30-400W



Cable Programming System

uPowerTek



Cable Programmer



**Cable Programmable LED driver
30-800W**



◆ **Programmability:**

Either the output current or the timing, CLO scheme can be set by PC software or NFC Smart Phone

◆ **Adjustable Current with Constant Power**

Allows user to decrease the output current setting without sacrificing the output power capability

◆ **Timing&CLO(constant lumen output) Scheme**

Allows user to set the timing/CLO profile of LED driver

NFC Programming Comparison With Competitors

uPowerTek

◆ **NFC Wireless Programming**

VS

Cable Programming

MOSO
INVENTRONICS

◆ **Simple and Reliable**

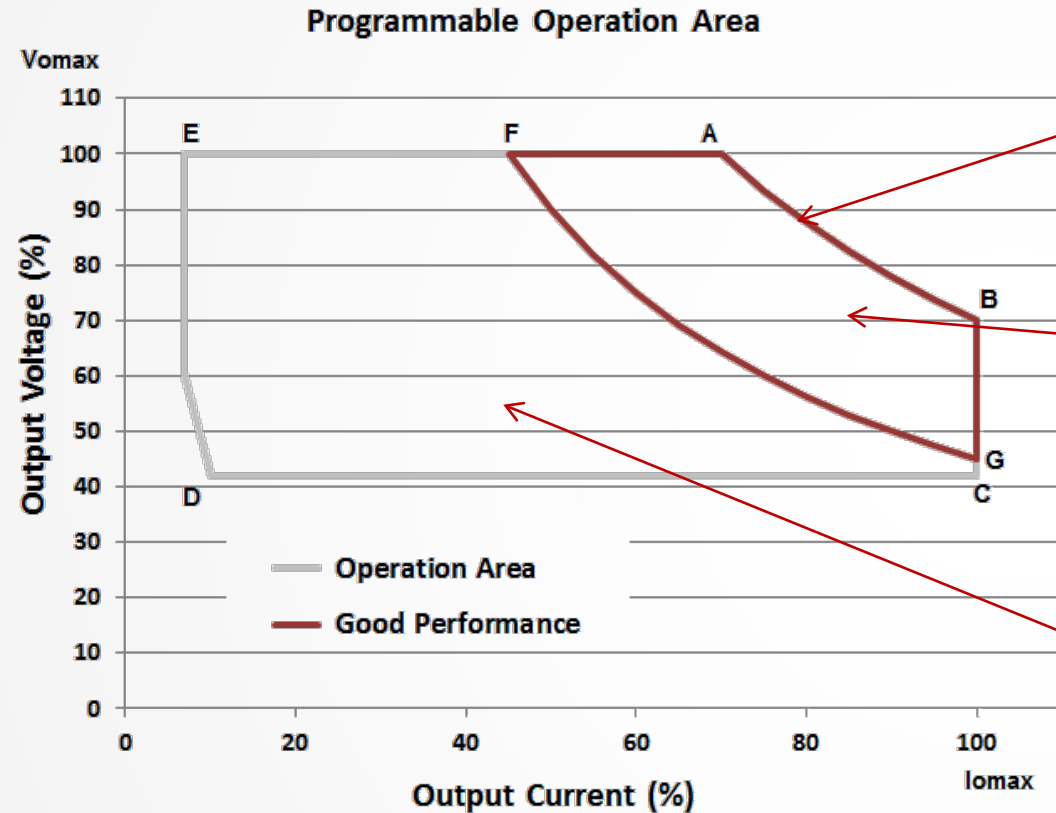
VS

Potentiometer Programming

MW
MEAN WELL



Constant Power Output



Constant Power Curve:

$$P_o = V_o \times I_o$$

Points of ABGF:

Good Performance Area:

PF > 0.9, THD < 20%

Efficiency in an optimized level

Points of ABCDEF –

Operational Area:

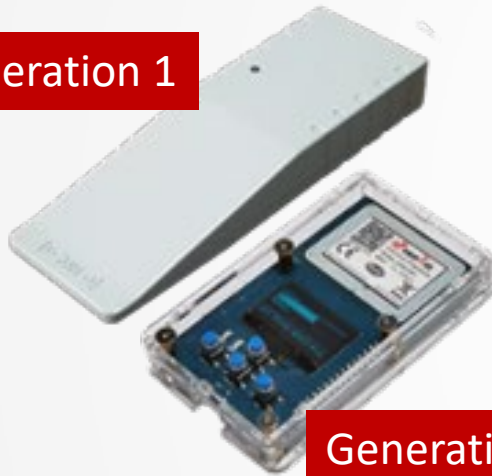
The driver is functional in this area including the dimming and output current set value.

*Point B has the lowest output voltage and highest output current, please choose correct LED load when programming the output current to Max. I_o . The Max. output voltage at point B is $P_o/I_{o\max}$. Wrong LED load may cause over voltage protection.

**Programming by
NFC Programmer**

1. Connect NFC Programmer to Computer

Generation 1



Generation 2

NFC Programmer



USB to Type B Cable



Computer/Windows 7/8/10

- ◆ Connect the NFC programmer with computer by USB cable
- ◆ There are two kinds of NFC programmers
- ◆ The second generation NFC programmer is with screen and buttons

New Generation NFC Programmer

uPowerTek

Generation 1st



- ✓ Only used by USB connected with computer

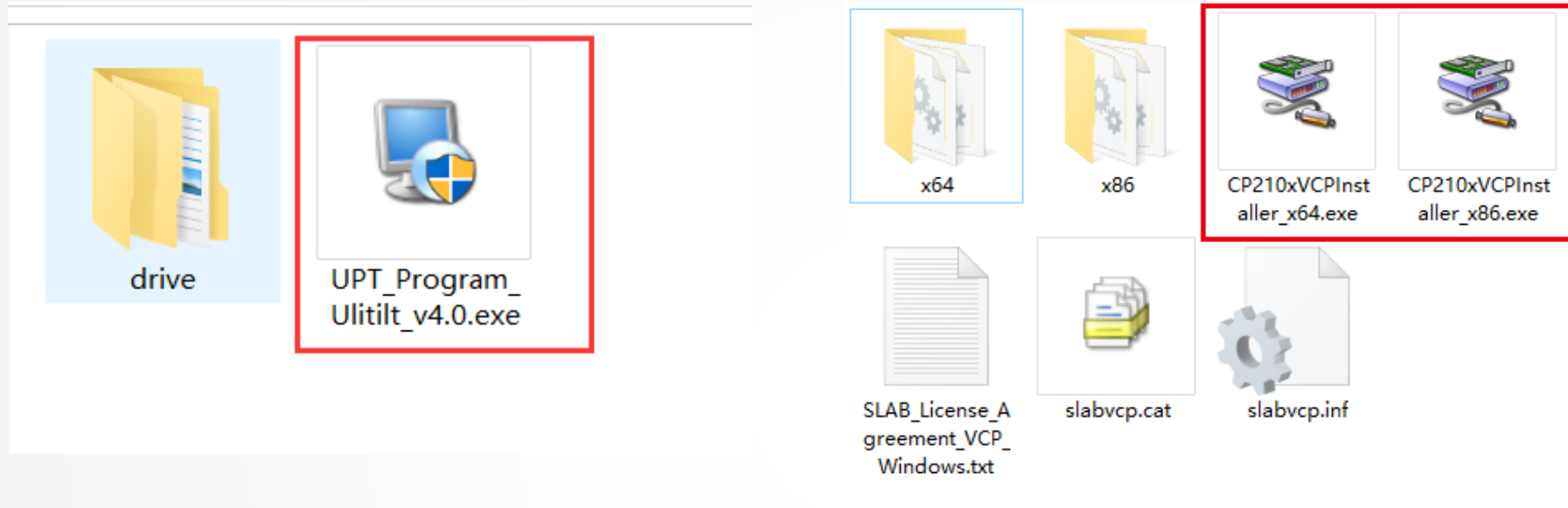
NFC Antenna:
Make sure the antenna is close to the LED driver NFC window as much as possible when programming

Generation 2nd



- ✓ Still can be used by USB connected with computer
- ✓ Stand-alone Mode: Offline usage without PC
- ✓ LED display
- ✓ Push button programming
- ✓ Stronger Signal

2. Install Software



- ◆ Download PC Software at <https://www.upowertek.com/download-2/>
- ◆ The programming software is “UPT Programming Utility _V4.0.exe”
- ◆ The drive file needs to be installed if you use the second generation NFC programmer, the installation file is in the “drive” folder

The software is compatible with Wondows 7/8/10 System

3. Open Software

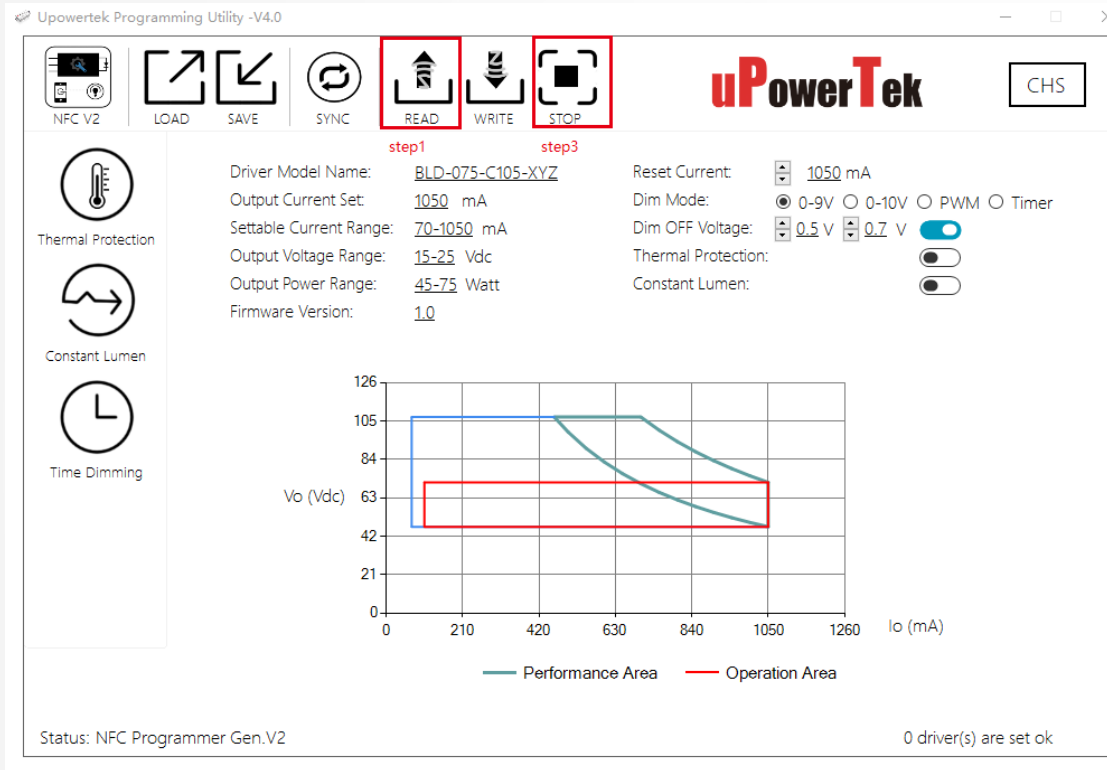
uPowerTek



- ◆ Open the software, and the screen pops up to select three options of the programmer
- ◆ Select the corresponding option according to the actual programmer used, we use the second-generation programmer to demonstrate the operation steps
- ◆ Click "NFC Programmer Gen.V2", the screen jumps to the interface for selecting ports
- ◆ According to your computer, select the corresponding port number "COMX"
- ◆ Click "Scan for Com Port"
- ◆ When the NFC programmer screen shows "connected with airset", it means the port is connected successfully

4. Read the Spec of the LED Driver

uPowerTek



LED Driver
NFC Window

Step 2

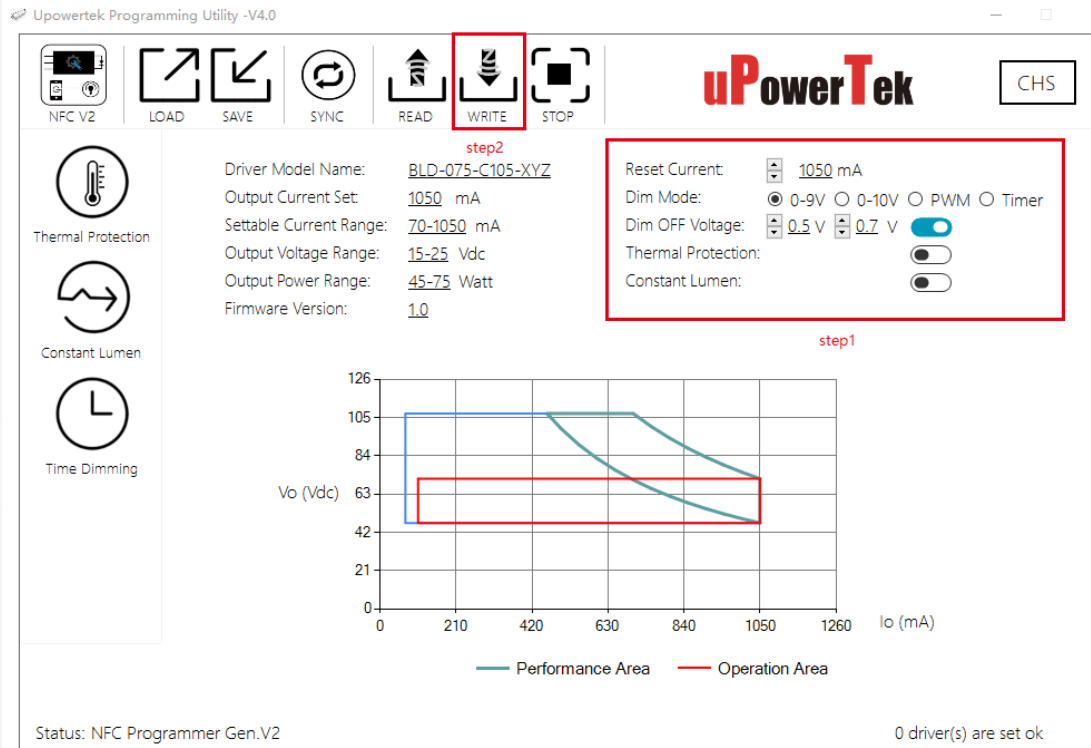


- ◆ Step 1 - Click Read button
- ◆ Step 2 - Get programmer close to programming window as the direction showing in the picture
- ◆ Step 3 - Click Stop button after reading Ok.

*The LED Driver should be power off while programming

5-A. Setting current and dimming mode

uPowerTek



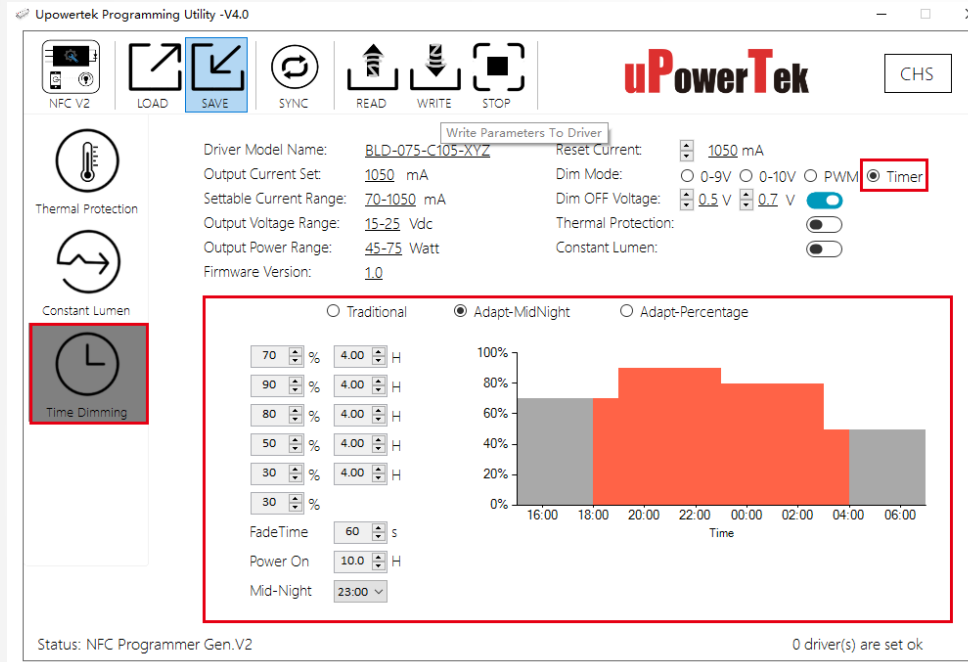
Dim off: setting the dim off voltage
0-9V: 100% output at 9V dimming voltage
0-10V: 100% output at 10V dimming voltage



- ◆ Step 1 - Reset Current and choose Dimming Mode,
- ◆ Step 2 - click “Write” button
- ◆ Step 3 - Get programmer close to programming window as the direction showing in the picture
There will be a ✓ to indicate that the programming is done and Ok.
- ◆ If there are many LED drivers to set, repeat Step 3.
- ◆ Step 4 - Click “Stop” after programming all the drivers.


5-B. Timer Dimming Setting

uPowerTek



LED Driver
NFC Window



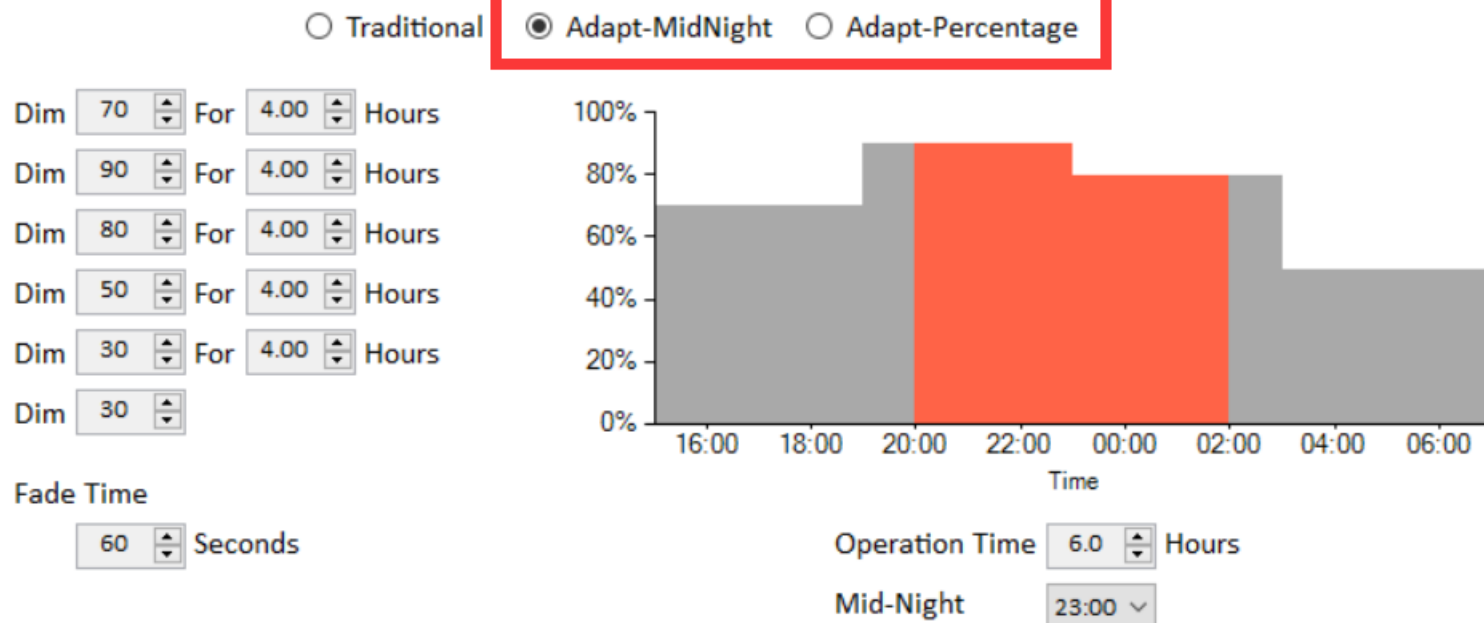
- ◆ Click Time Dimming button on the left menu, Reset Current and choose Timer dimming mode,
- ◆ Set the output current percentage and Time, then click “Write” button.
- ◆ Get programmer close to programming window as the direction showing in the picture
- ◆ There will be a  to indicate that the programming is done and Ok.

Tips: AC power must be cut off during days to apply the same dimming curve each night.

5-B Timer Dimming-Self Adapt

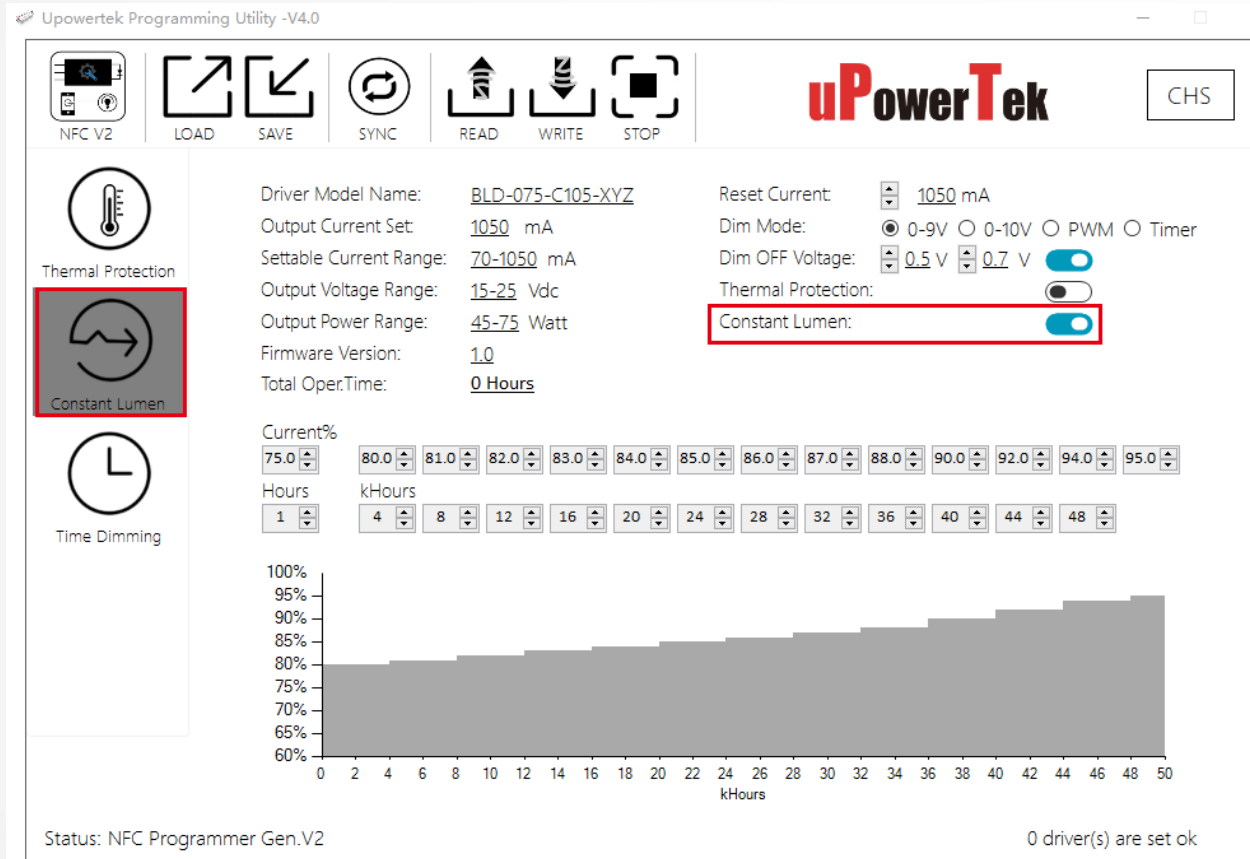
- ◆ Adapt-Midnight or Adapt-Percentage function is used to balance the dimming curve between different seasons.
- ◆ The LED driver auto adjusts the dimming curve based on the lights on time in the last day.

The data will not be calculated If the lights on time is less than 6 hours.



6. Optional: Enable CLO Mode

uPowerTek



- ◆ Click Constant Lumen Menu
- ◆ Enable Constant Lumen Output
- ◆ Set the Parameters, then Click WRITE Button.

Reset Timer: Reset CLO Time to 0 Hour

Current %: Output current percentage of the setting current

Hours: Working hours.

Take this setting for example, Output current is 75% for the first 1hour (for testing), it is 80% for the next 4K hours, then 81% for the 4K hours. Maximum 50K Hours.

7. Optional: External Thermal Protection

uPowerTek

Upowertek Programming Utility -V4.0

uPowerTek CHS

NFC V2 LOAD SAVE SYNC READ WRITE STOP

Thermal Protection

Driver Model Name: BLD-075-C105-XYZ
Output Current Set: 1050 mA
Settable Current Range: 70-1050 mA
Output Voltage Range: 15-25 Vdc
Output Power Range: 45-75 Watt
Firmware Version: 1.0

Reset Current: 1050 mA
Dim Mode: ☒ 0-9V ☐ 0-10V ☐ PWM ☐ Timer
Dim OFF Voltage: 0.5 V 0.7 V ☒
Thermal Protection: ☒
Constant Lumen: ☐

Constant Lumen

Time Dimming

Resistor Value: 8000 Ω
Derated Value: 100 %

Slide trackbar to adjust NTC Func. parameters

100%
80%
60%
40%
20%
0%

0 2000 4000 6000 8000 10000 12000 14000 16000
 Ω

Status: NFC Programmer Gen.V2 0 driver(s) are set ok

- ◆ **Click Thermal Protection Menu**
- ◆ **Enable Lamp External Thermal Protection**
- ◆ **Set the Parameters**
- ◆ **Click WRITE Button.**

This function is only available for LED drivers which has lamp OTP function

Stand-alone NFC Programming

8. Stand-alone Mode-Read Parameters

uPowerTek



- ◆ Use a power bank or a 5V power adapter to power the programmer
- ◆ After power on, the NFC programmer screen light is on, use the down button to select "Read Parameters", and press "OK" to confirm
- ◆ Align the edge of the NFC programmer with the LED driver NFC window, after the green light flashes for a few seconds, the screen displays the LED driver model number and current
- ◆ Press the "Back" button to return to the main interface

Tips: Stand-alone mode is only available on second generation NFC programmers

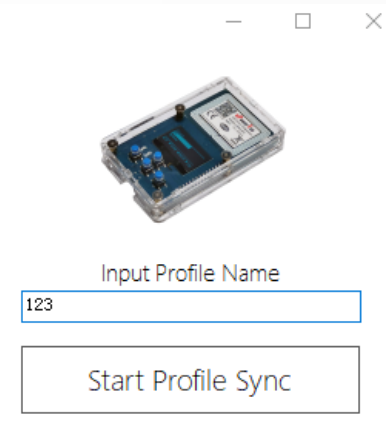
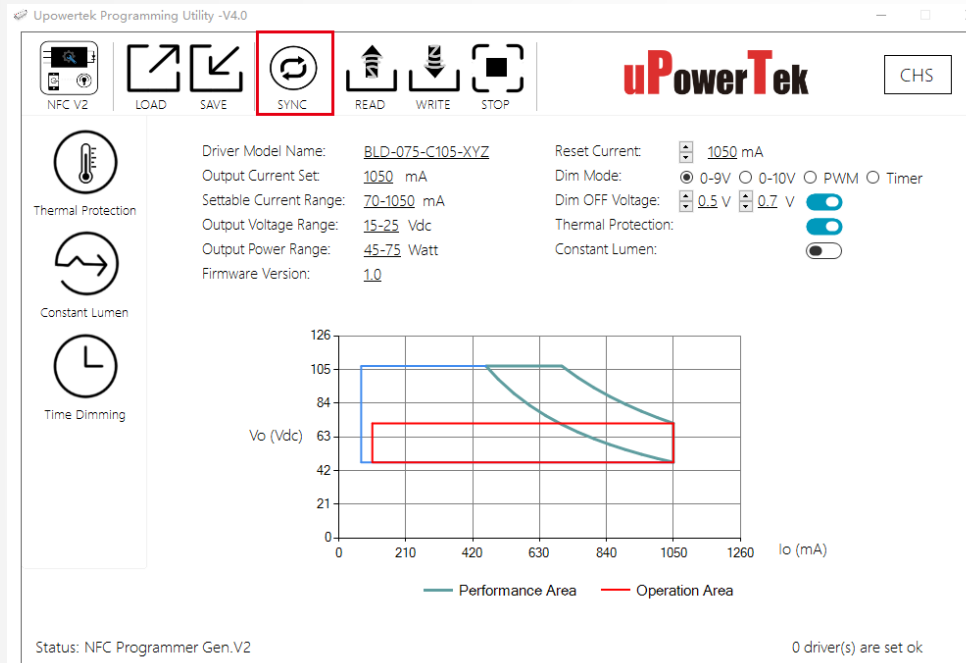
9. Stand-alone Mode -Reset Output Current



- ◆ Use the down button to select "Reset Output Current" and press "OK" to confirm
- ◆ Use the up and down buttons to set the current, 50mA each step. After setting the current, press the "Ok" button to confirm
- ◆ Align the edge of the NFC programmer with the LED driver NFC window, after the LED indicator flashes for a few seconds, the screen quickly displays "Reset ok"
- ◆ Click the "Back" button to return to the main interface

10-A.Stand-alone Mode -Offline Program

uPowerTek



In stand-alone mode, only the output current of the power supply can be set through the physical buttons. If you want to set other parameters, you need to set the parameters in computer and import them into the NFC programmer. The following are the operation steps:

- ◆ First follow the steps on pages 10 and 11 to connect and install the software, and then set parameters on the software
- ◆ After setting the parameters, select "Sync File", and the software will jump out of the input profile name interface.
- ◆ After the file name is set, click the "Start Profile Sync" button
- ◆ The NFC programmer screen displays a prompt of successful synchronization
- ◆ Next, you can unplug the NFC programmer interface from the computer

10-B.Stand-alone Mode -Offline Program

uPowerTek



- ◆ Use a power bank or a 5V power adapter to power the programmer
- ◆ After power on, the NFC programmer screen light is on, use the down button to select "offline program", and press "OK" to confirm
- ◆ The NFC programmer screen will display the profile you imported, press "OK" to confirm
- ◆ Align the edge of the NFC programmer with the LED driver NFC window. After the LED indicator flashes for a few seconds, the screen will show "offline programming OK"
- ◆ Offline setup successful

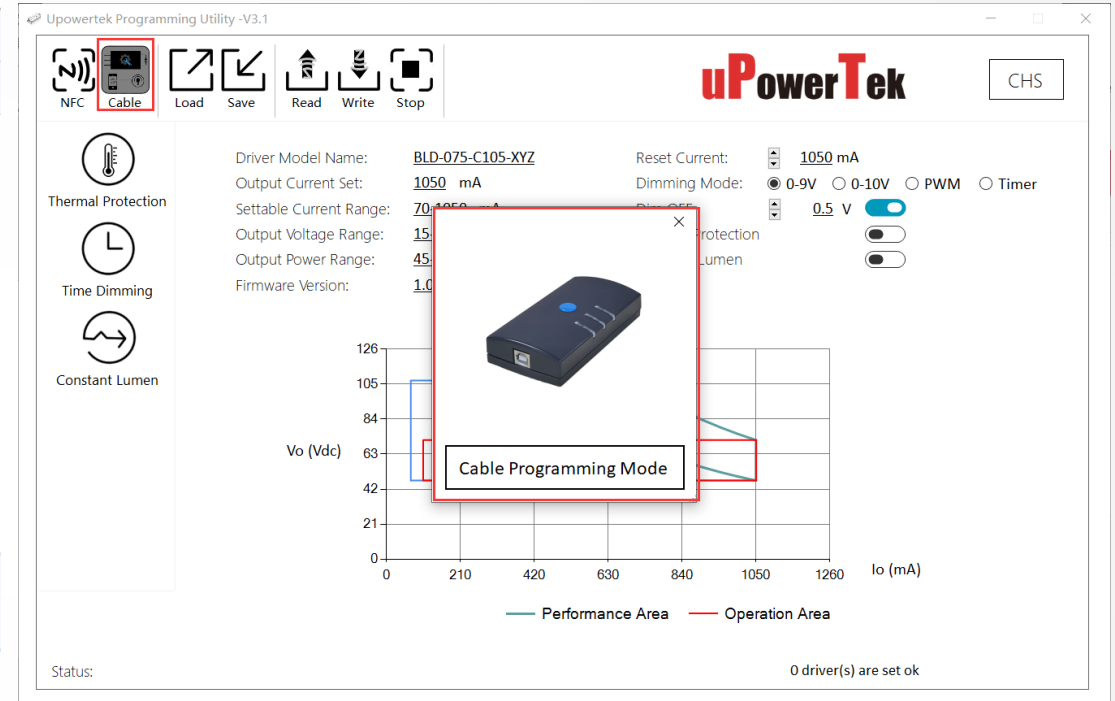
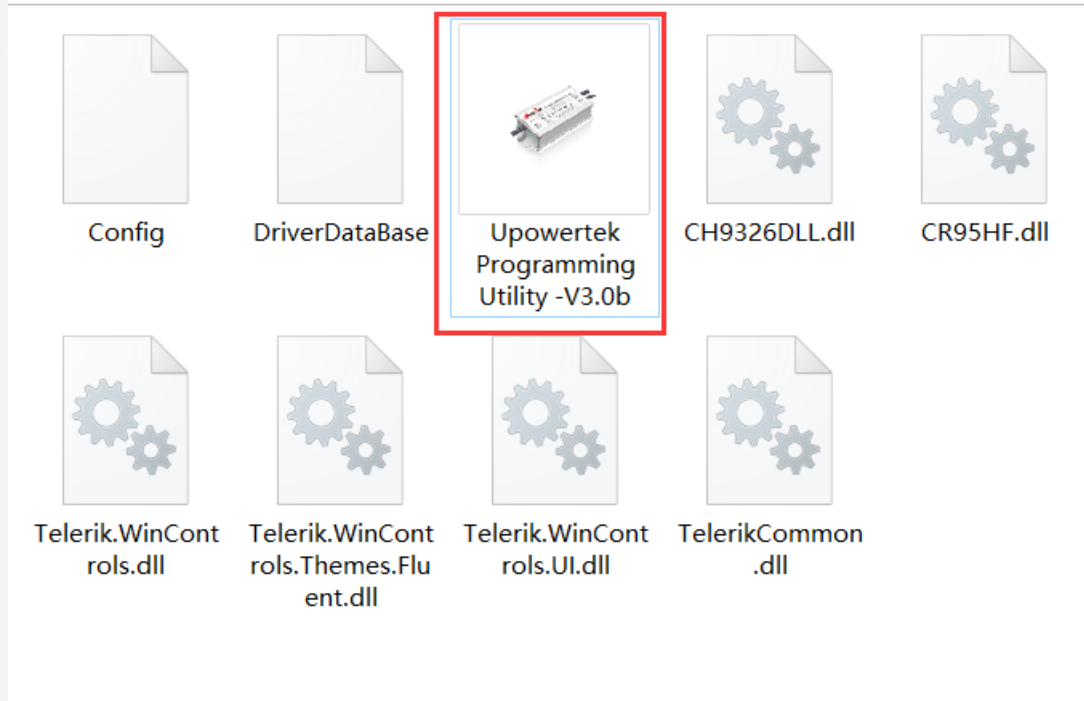
**Programming by
Cable Programmer**

1. Wiring



- ◆ Connect the programmer to computer by USB cable
- ◆ Connect the dimming wire +(Purple) and – (Gray) of the LED driver to the cable programmer (Red +, Black -)

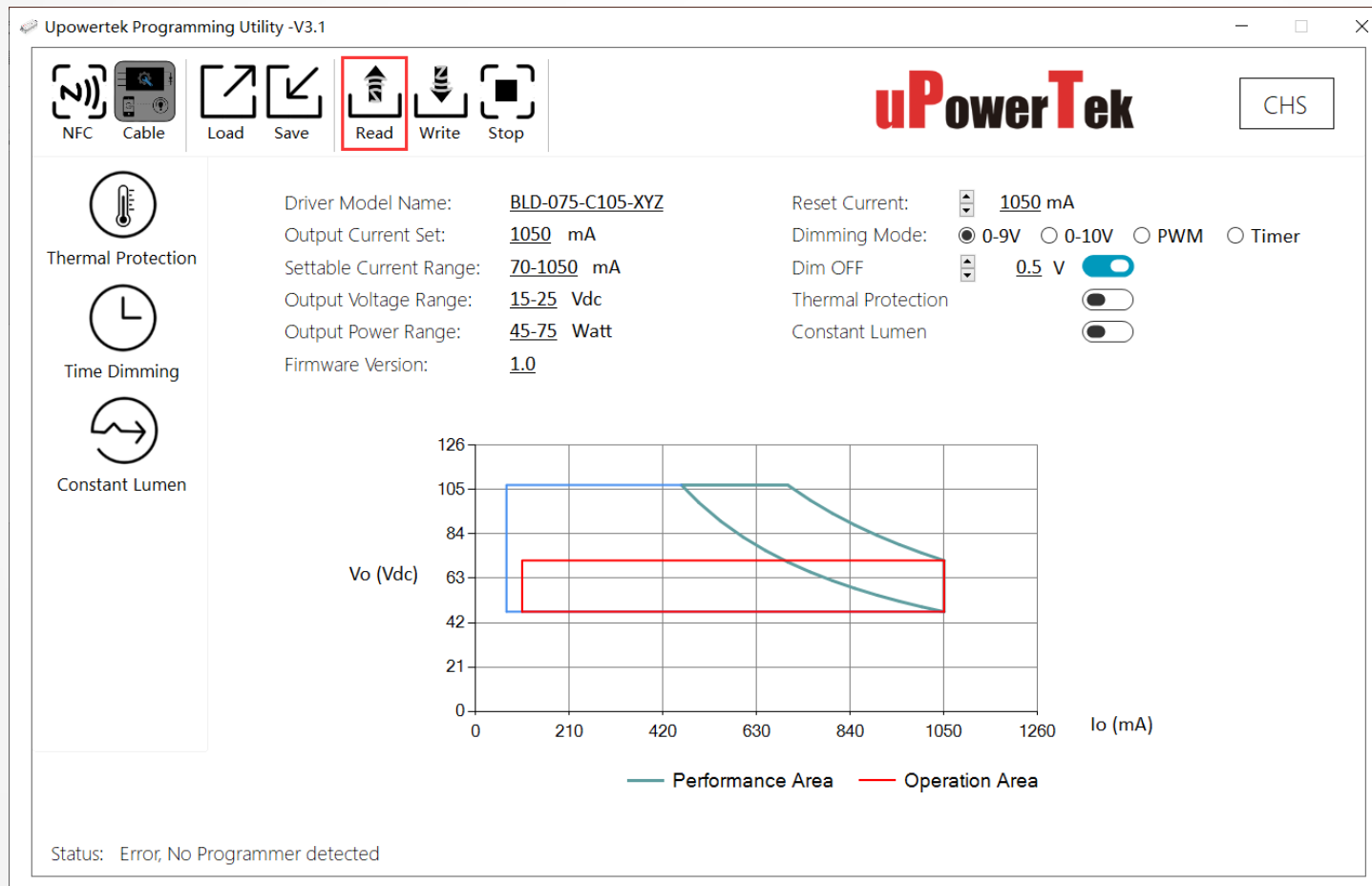
2. Open Software



- ◆ Download PC Software at <https://www.upowertek.com/download-2/>
- ◆ Click Upowertek Programming Utility –V3.1 in Windows 7/8/10 System
- ◆ The GUI start and notify you the programming mode (cable programming or NFC programming)
- ◆ Click “Cable” button if it’s not Cable programming mode.

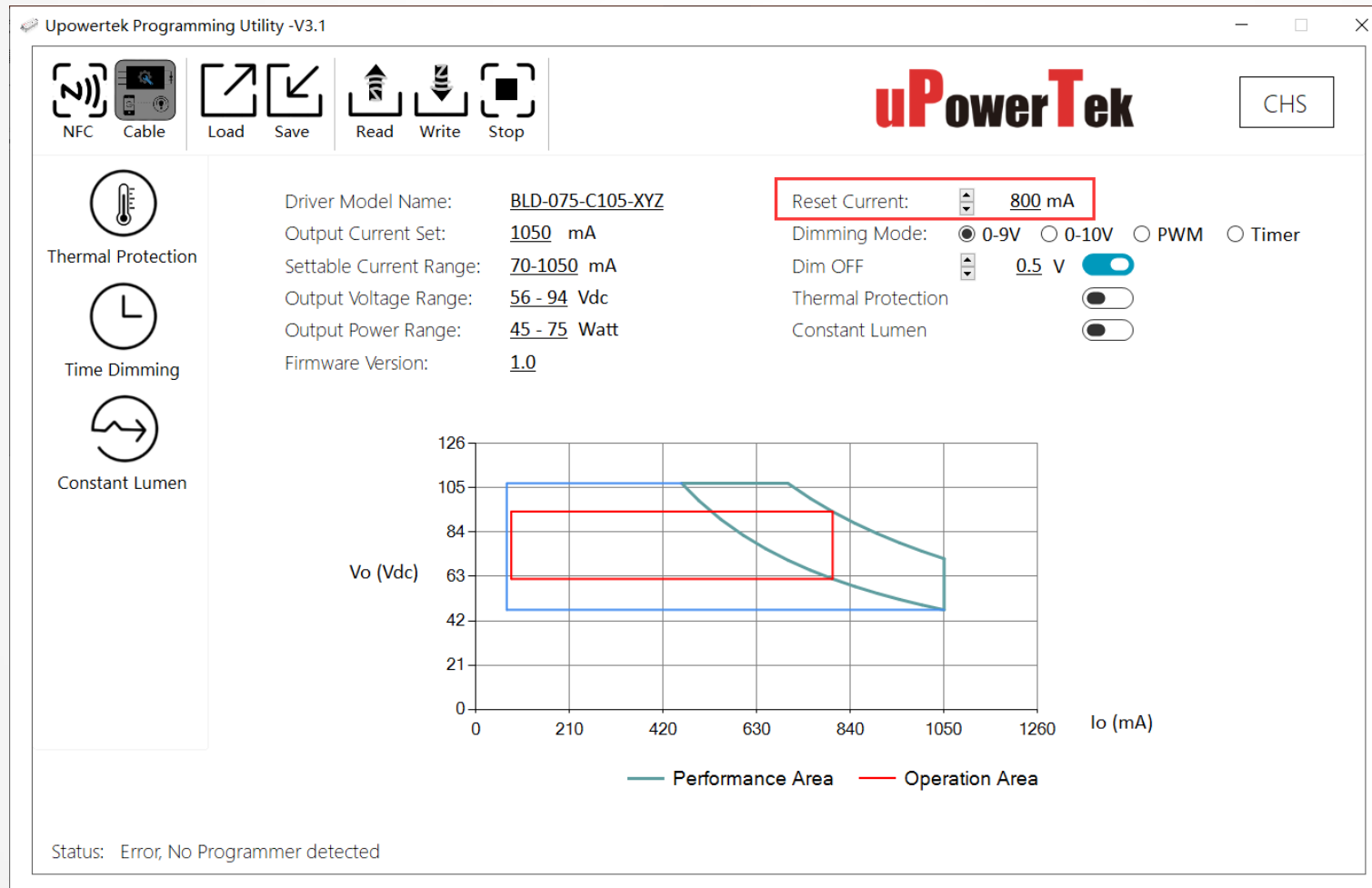
3. Read the Spec of the LED Driver

- ◆ Click “Read” button, there will be a green check mark after the operation.
- ◆ Then the software will show the correct model number and output current.
- ◆ Click Stop button after reading Ok.



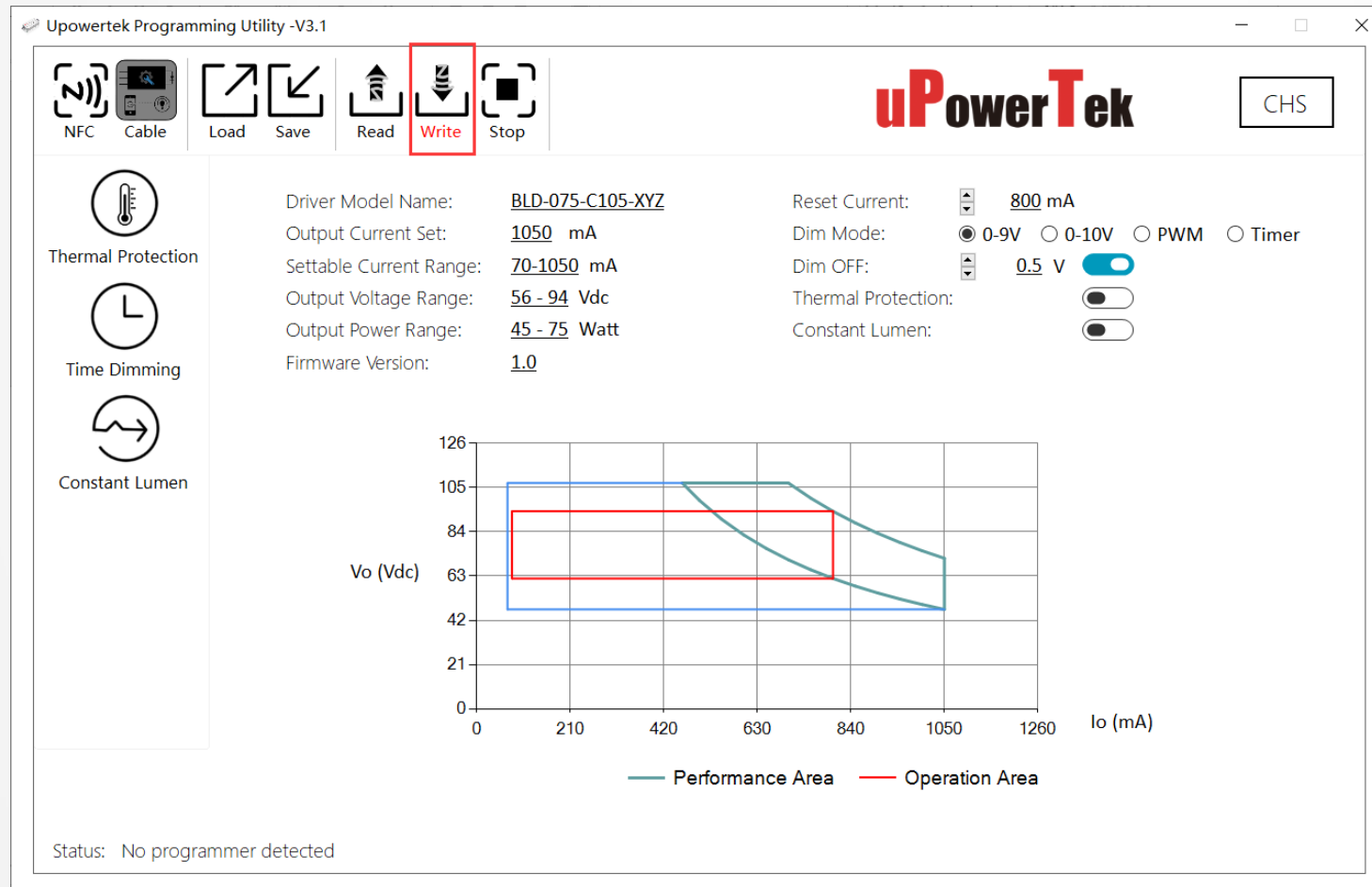
4. Set Output Current

- ◆ Set the output current in the “Reset Current” function area

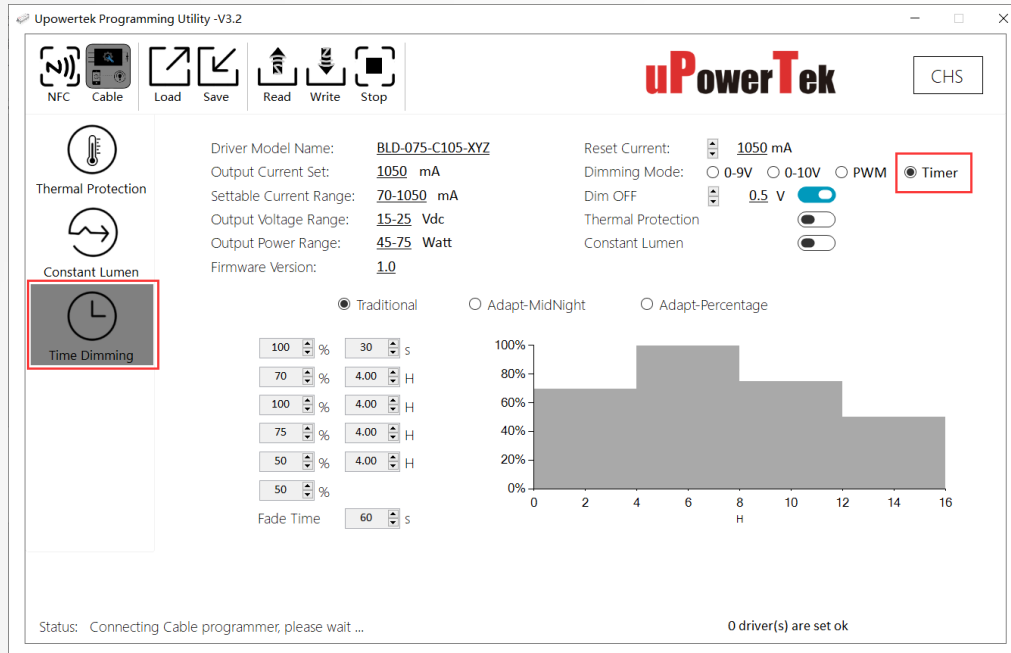



5. Write the Spec

- ◆ Click “Write” button and complete the programming.
- ◆ If there are lots of drivers need to be set, disconnect the wire and connect another LED driver, then click “Write” button



Optional Function: Timer Dimming Setting



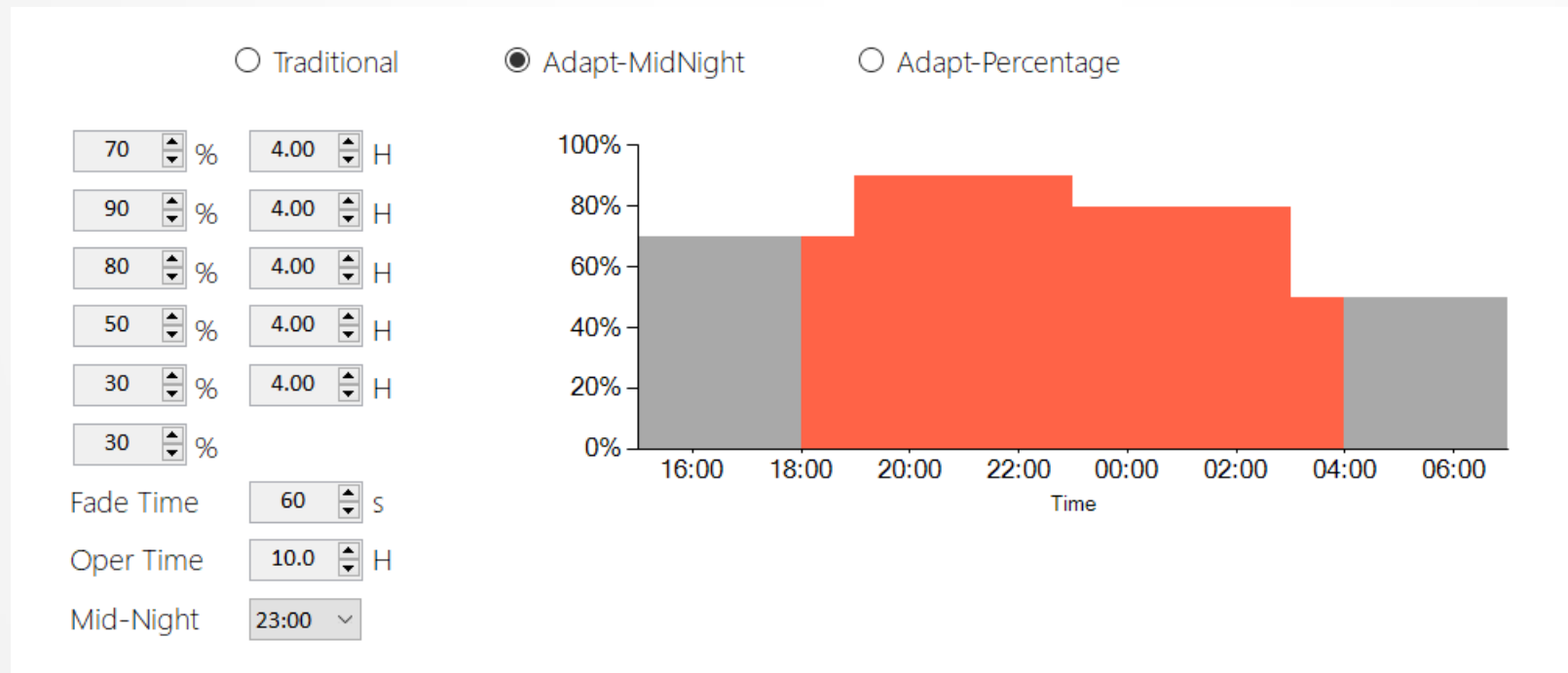
- ◆ Click Time Dimming button on the left menu, Reset Current and choose Timer dimming mode,
- ◆ Set the output current percentage and Time, then click “Write” button.
- ◆ There will be a  to indicate that the programming is done and Ok.

Tips: AC power must be cut off during days to apply the same dimming curve each night.

Optional Function: Timer Dimming-Self Adapt

- ◆ Adapt-Midnight or Adapt-Percentage function is used to balance the dimming curve between different seasons.
- ◆ The LED driver auto adjusts the dimming curve based on the lights on time in the last day.

The data will not be calculated If the lights on time is less than 6 hours.



5. Optional: Enable CLO Mode

uPowerTek

- ◆ Click Constant Lumen Menu
- ◆ Enable Constant Lumen Output
- ◆ Set the Parameters, then Click WRITE Button.

Reset Timer: Reset CLO Time to 0 Hour

Current %: Output current percentage of the setting current

Hours: Working hours.

Take this setting for example, Output current is 75% for the first 1hour (for testing), it is 80% for the next 4K hours, then 81% for the 4K hours.

Maximum 50K Hours.

Upowertek Programming Utility -V3.2

NFC Cable Load Save Read Write Stop

uPowerTek CHS

Thermal Protection

Constant Lumen

Time Dimming

Driver Model Name: BLD-075-C105-XYZ

Output Current Set: 1050 mA

Settable Current Range: 70-1050 mA

Output Voltage Range: 15-25 Vdc

Output Power Range: 45-75 Watt

Firmware Version: 1.0

Total Oper.Time: 0 Hours

Reset Current: 1050 mA

Dimming Mode: ☐ 0-9V ☐ 0-10V ☐ PWM ☒ Timer

Dim OFF: 0.5 V

Thermal Protection: ☐

Constant Lumen: ☒

Reset Timer: ☐

Current%

Hours

kHours

100% 95% 90% 85% 80% 75% 70% 65% 60%

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50

kHours

Status: Connecting Cable programmer, please wait ...

0 driver(s) are set ok

6. Optional: External Thermal Protection

uPowerTek

Upowertek Programming Utility -V3.2

NFC Cable Load Save Read Write Stop

Thermal Protection

Constant Lumen

Time Dimming

Driver Model Name: BLD-075-C105-XYZ

Output Current Set: 1050 mA

Settable Current Range: 70-1050 mA

Output Voltage Range: 15-25 Vdc

Output Power Range: 45-75 Watt

Firmware Version: 1.0

Reset Current: 1050 mA

Dimming Mode: ☒ 0-9V ☐ 0-10V ☐ PWM ☐ Timer

Dim OFF: 0.5 V ☒

Thermal Protection ☒

Constant Lumen ☐

Resistor Value: 2000 Ω 8000 Ω

Derated Value: 100 %

Slide trackbar to adjust NTC Func. parameters

100%
80%
60%
40%
20%
0%

0 2000 4000 6000 8000 10000 12000 14000 16000 Ω

Status: Connecting Cable programmer, please wait ...

0 driver(s) are set ok

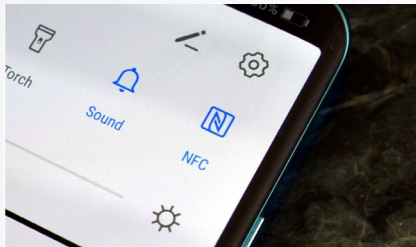
- ◆ **Click Thermal Protection Menu**
- ◆ **Enable Thermal Protection**
- ◆ **Set the Parameters**
- ◆ **Click WRITE Button.**

This function is only available for LED drivers which has lamp OTP function

Programming by NFC Smart Phone

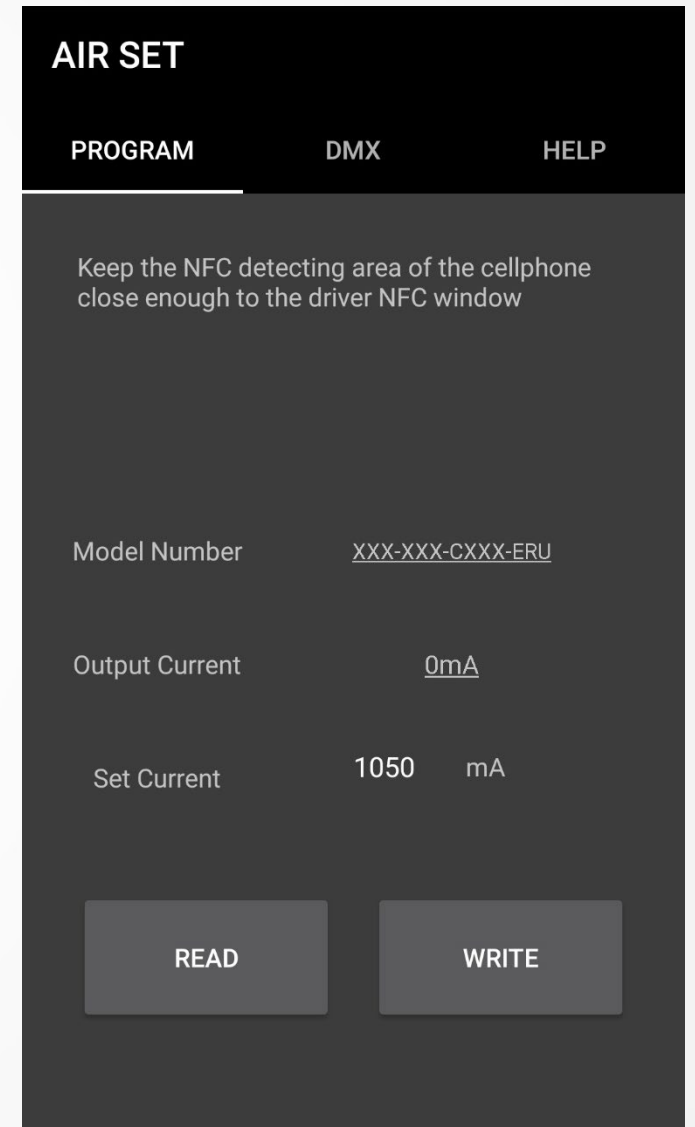
1. Install APP and Open

- ◆ Download Android APP at <https://www.upowertek.com/download-2/>
- ◆ Download iOS APP at Apple AppStore, Search “upowertek airset”
- ◆ The cellphone should have NFC function
- ◆ Turn on NFC switch of cellphone, then open the APP



Tips: Check on this site to find out if your cellphone has NFC function

https://en.wikipedia.org/wiki/List_of_NFC-enabled_mobile_devices



2. NFC Antenna Location

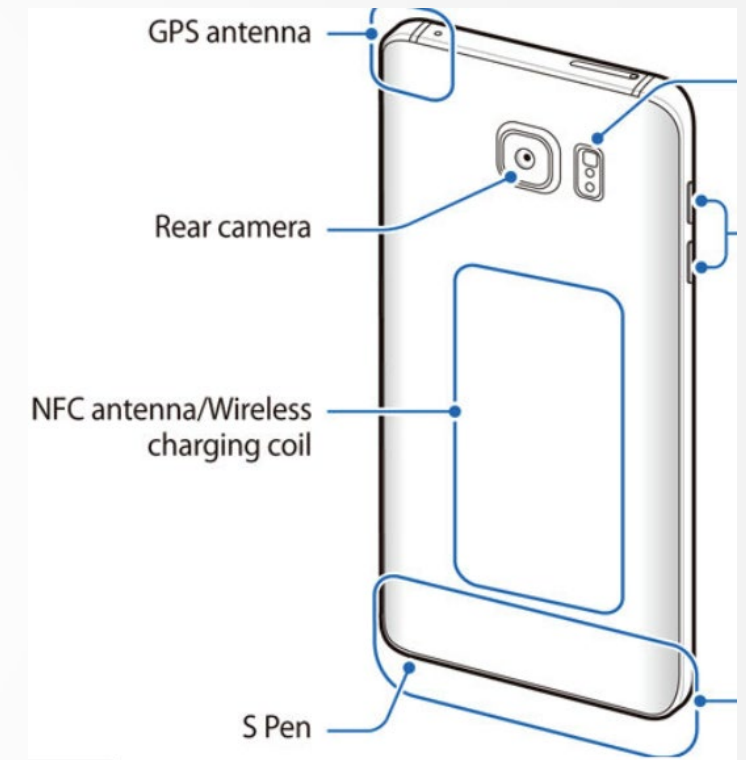
- ◆ Find out the NFC antenna location of your cellphone
- ◆ The antenna location is different by cellphone models
- ◆ Get this info from internet or cellphone user manual

Samsung https://www.samsung.com/hk_en/nfc-support/

Google <https://support.google.com/pixelphone/answer/7157629>

LG https://www.lg.com/hk_en/nfc

Huawei & Honor <https://consumer.huawei.com/en/support/huaweishare/specs/>



3-A. Read Spec

- ◆ Tap Read button
- ◆ Get the NFC antenna of cellphone close enough to the LED Driver NFC window (**less than 2mm**)
- ◆ Try several times to find the right position of cellphone NFC antenna

Tips:

Increase your cellphone's volume to maximum, you can hear a warning tone when the cellphone detects the LED driver

uPowerTek



3-A. Set Output Current



- ◆ Type the output current
- ◆ Tap Write button
- ◆ Get the NFC antenna of cellphone
close enough to the LED Driver NFC window (**less than 2mm**)
- ◆ There will be a notification of programming success

Tips: Only the output current can be set on APP, please use NFC programmer for other functions.

Set Address for DMX Drivers

3-B. Set DMX Address

The screenshot shows the 'AIR SET' application interface. At the top, there are three tabs: 'PROGRAM', 'DMX' (which is selected and underlined), and 'HELP'. Below the tabs, a message reads: 'Keep the NFC detecting area of the cellphone close enough to the driver NFC window'. The main area displays three fields: 'Model Number' with the value 'XXX-XXX-CXXX-ERU', 'DMX Address' with the value '1', and 'Set Address' with the value '1'. At the bottom, there are two buttons: 'READ' and 'WRITE'.

- ◆ Change to DMX tab.
- ◆ Read the Address from the LED driver
- ◆ Type the Address you want to set
- ◆ Tap Write button
- ◆ Get the NFC antenna of cellphone
close enough to the LED Driver NFC window (**less than 2mm**)
- ◆ There will be a notification of programming success

Thank you for your attention!

Contact: sales@upowertek.com