

Upowertek NFC Programmable LED Driver Introduction

Make Smart Lighting Simple and Reliable

November, 2021



NFC Programming System

uPowerTek



◆ **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

Comparison With Competitors

◆ **Passive Programming**

VS

Infrared Programming



◆ **Wireless Programming**

VS

Cable Programming



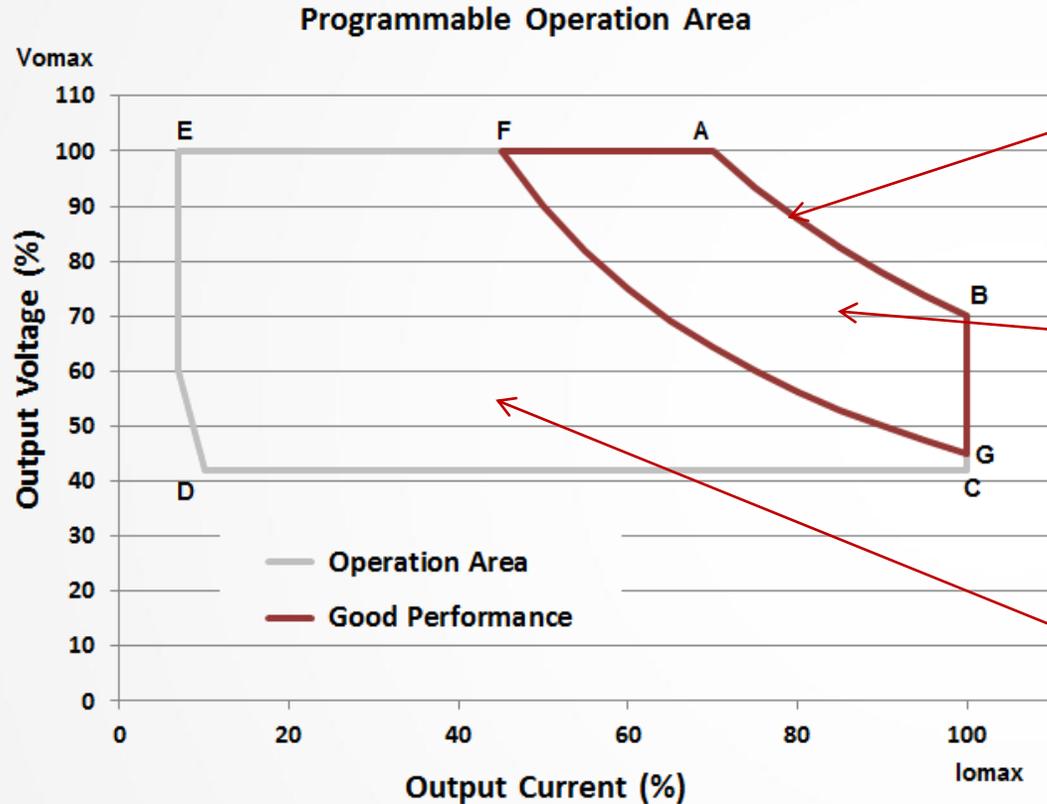
◆ **Simple and Reliable**

VS

Potentiometer Programming



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_{omax}. Wrong LED load may cause over voltage protection.

**Programming by
NFC Programmer**

1. Connect NFC Programmer to Computer

NFC Programmer

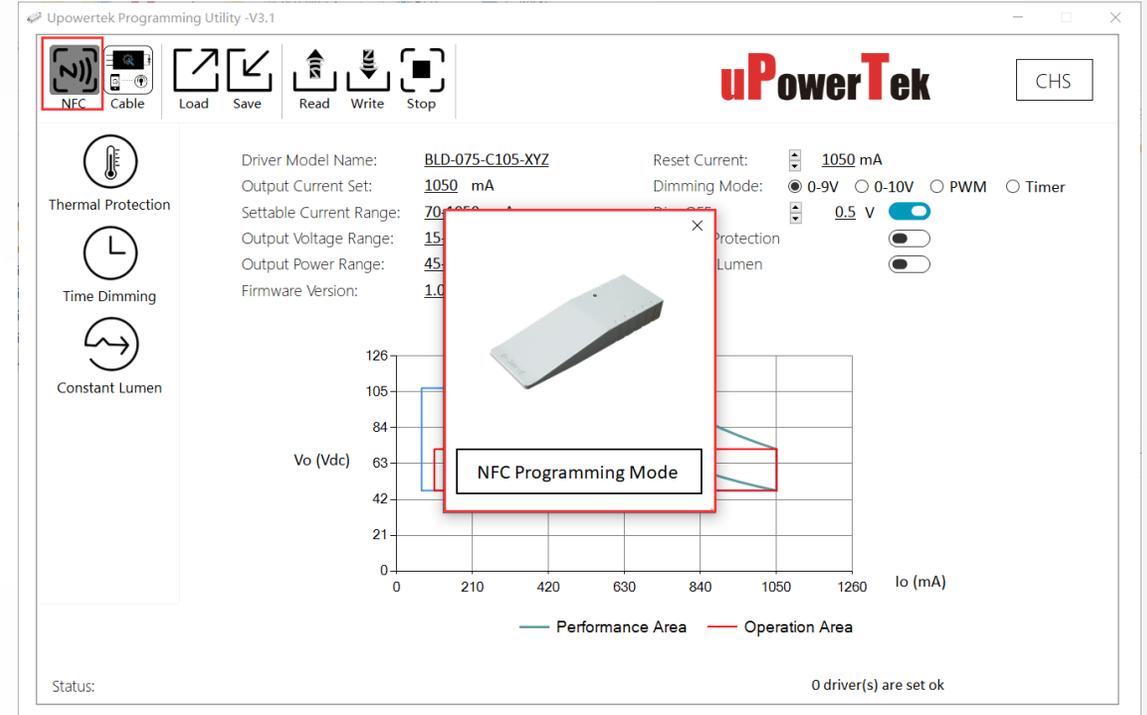
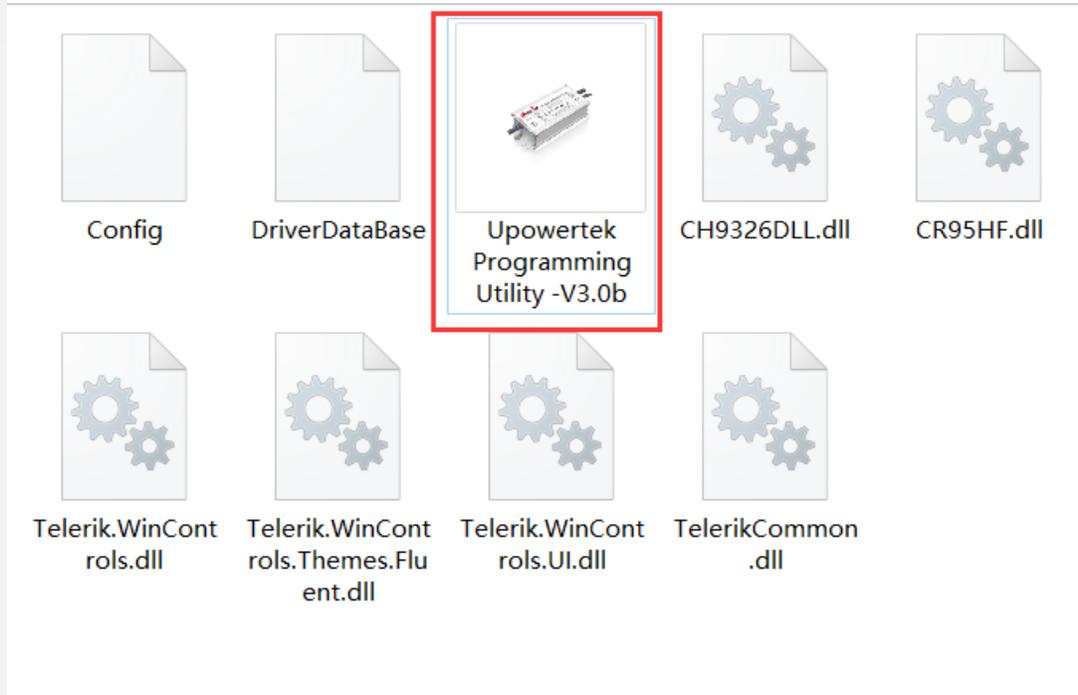


USB to Type B Cable



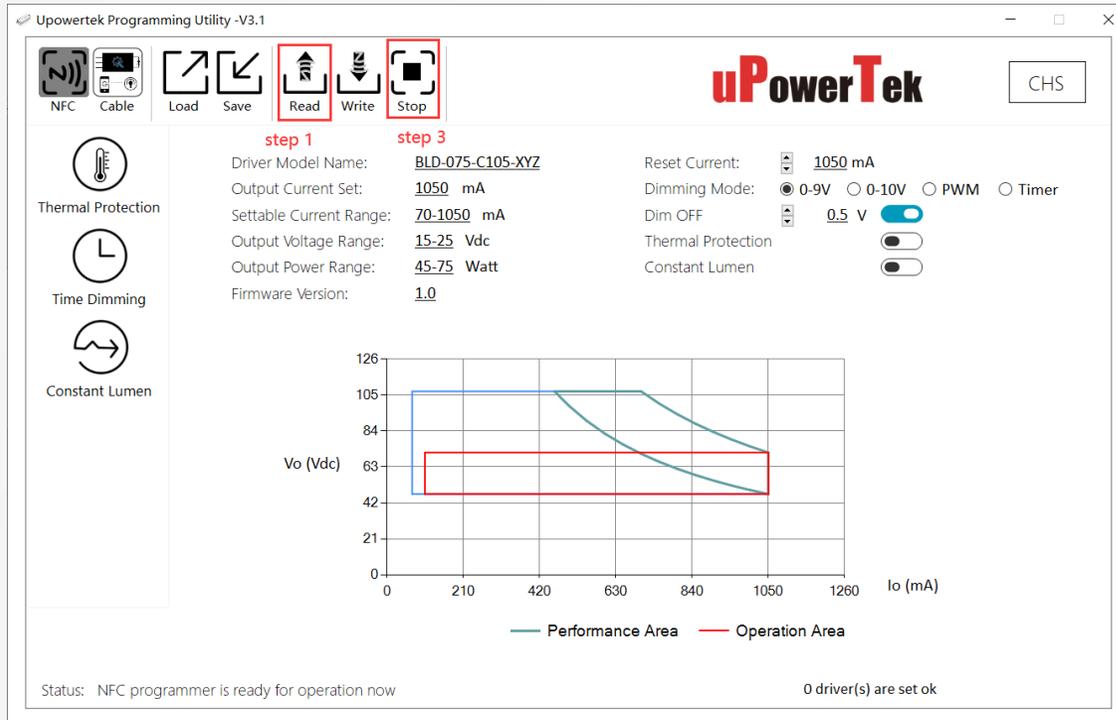
Computer/Windows 7/8/10

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 “NFC” button if it’s not NFC programming mode.

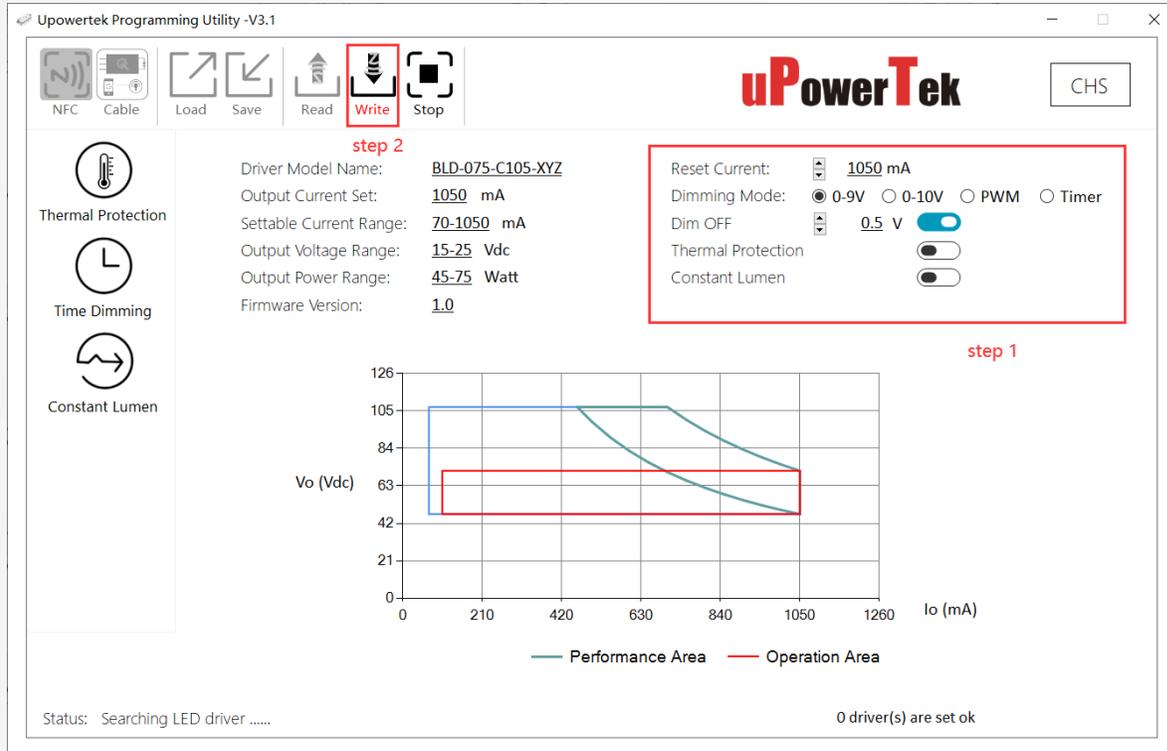
3. Read the Spec of the LED Driver



- ◆ 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

4-A. Setting current and dimming mode

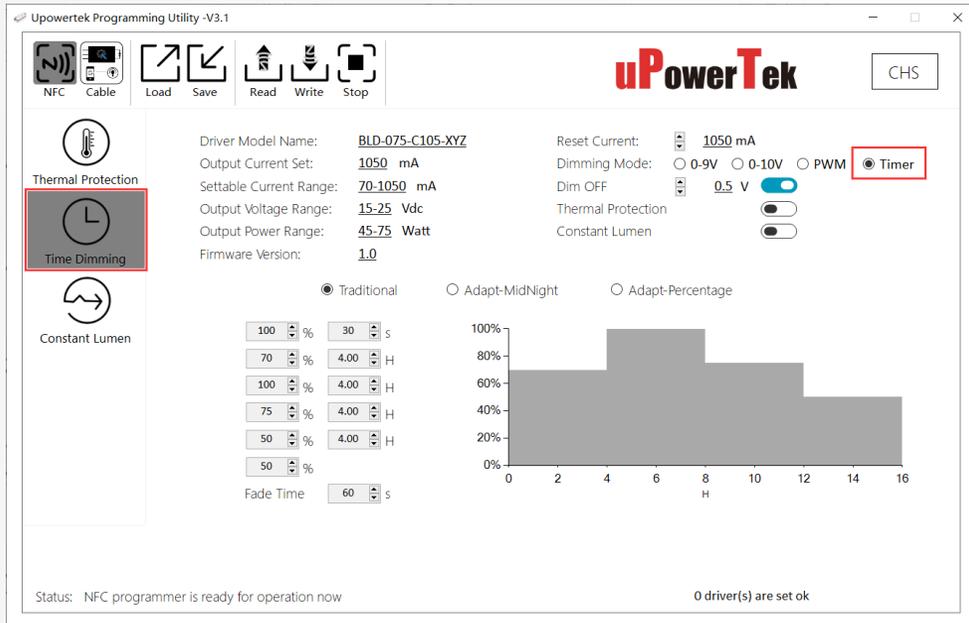


Dim off: setting the dim off voltage
0-9V: 100% output at 9V dimming voltage
0-10V: 100% output at 10V dimming voltage



- ◆ 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.

4-B. Timer Dimming Setting



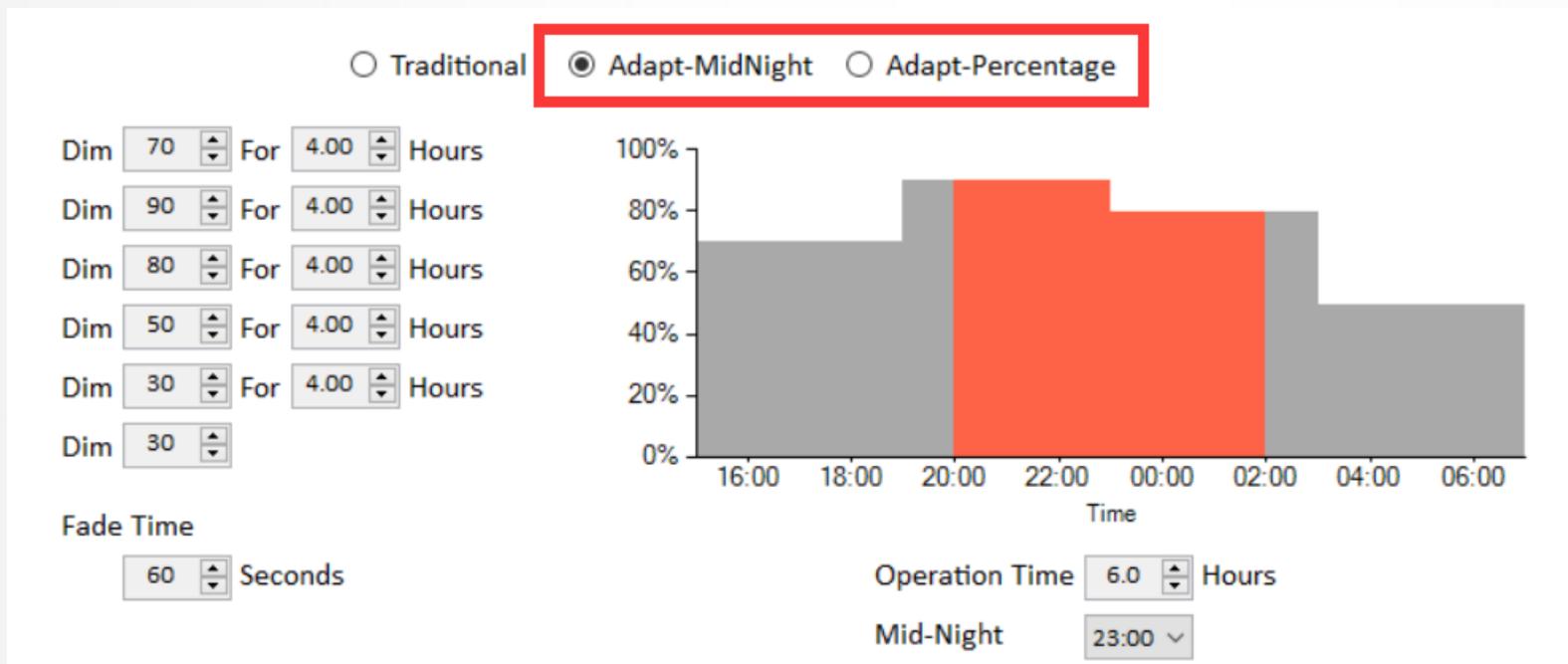
- ◆ Click Time Dimming button on the left menu, Reset Current and choose Timer dimming mode,
- ◆ Set the output current percentage and Time, then click “Write” button.
- ◆ Get programmer close to programming window as the direction showing in the picture
- ◆ There will be a to indicate that the programming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

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

4-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 past two days.

The data will not be calculated If the lights on time is less than 6 hours or the lights one time difference between two days is less than 15 minutes



5. Optional: Enable CLO Mode

Upowertek Programming Utility -V3.1

uPowerTek CHS

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%: 75.0, 80.0, 81.0, 82.0, 83.0, 84.0, 85.0, 86.0, 87.0, 88.0, 90.0, 92.0, 94.0, 95.0

Hours: 1, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

kHours: 1, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

Status: NFC programmer is ready for operation now

0 driver(s) are set ok

- ◆ 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.

6. Optional: External Thermal Protection

uPowerTek

The screenshot shows the 'uPowerTek Programming Utility -V3.1' window. The 'Thermal Protection' menu is highlighted in the left sidebar. The main area displays various configuration parameters:

- 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: (highlighted with a red box)
- Constant Lumen:

Below the parameters are two sliders for NTC function parameters:

- Resistor Value: Range from 6500 Ω to 8000 Ω . The slider is positioned at approximately 7000 Ω .
- Derated Value: Range from 0% to 100%. The slider is positioned at approximately 90%.

A graph below the sliders shows the output power percentage (0% to 100%) versus the resistor value (0 to 16000 Ω). The power is constant at 45% until 6500 Ω , then increases linearly to 100% at 8000 Ω , and remains at 100% up to 16000 Ω .

Status: NFC programmer is ready for operation now
0 driver(s) are set ok

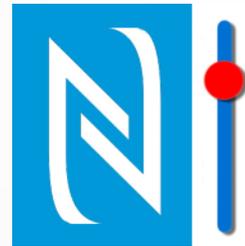
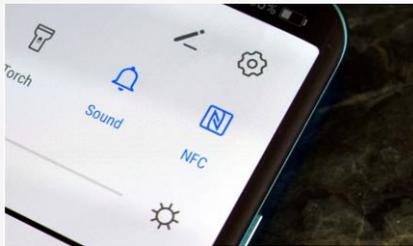
- ◆ **Click Thermal Protection Menu**
- ◆ **Enable Lamp External Thermal Protection**
- ◆ **Set the Parameters**
- ◆ **Click WRITE Button.**

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

Programming by NFC Smart Phone

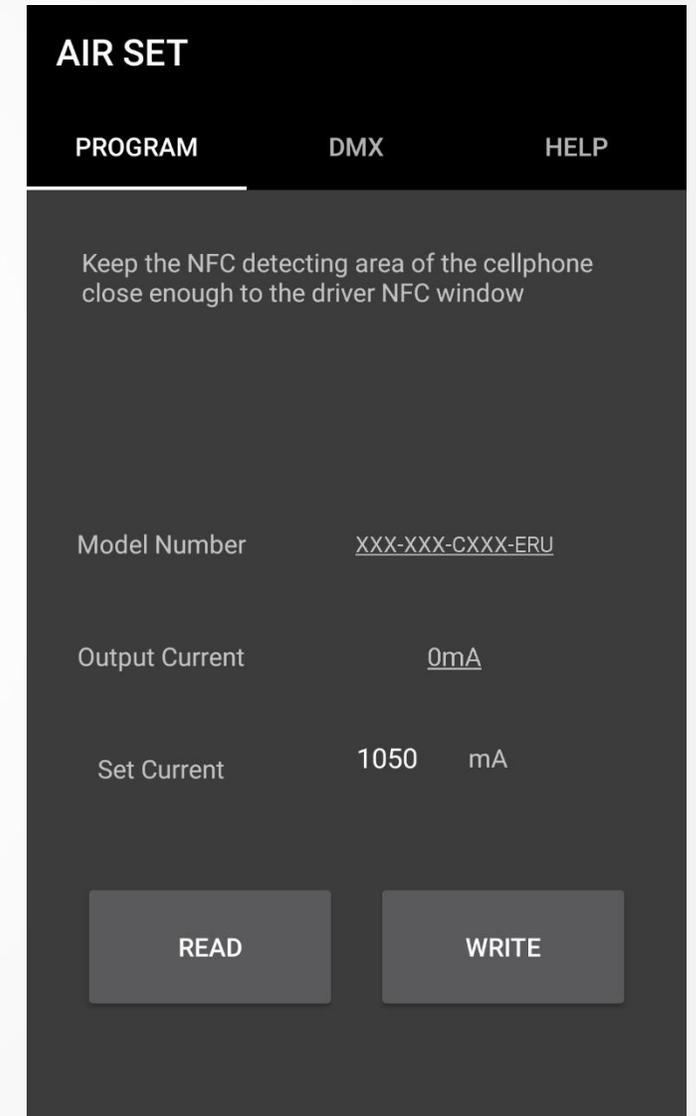
1. Install Android APP and Open

- ◆ Download Android APP at <https://www.upowertek.com/download-2/>
- ◆ Only available on Android cellphone(iPhone is not supported)
- ◆ 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

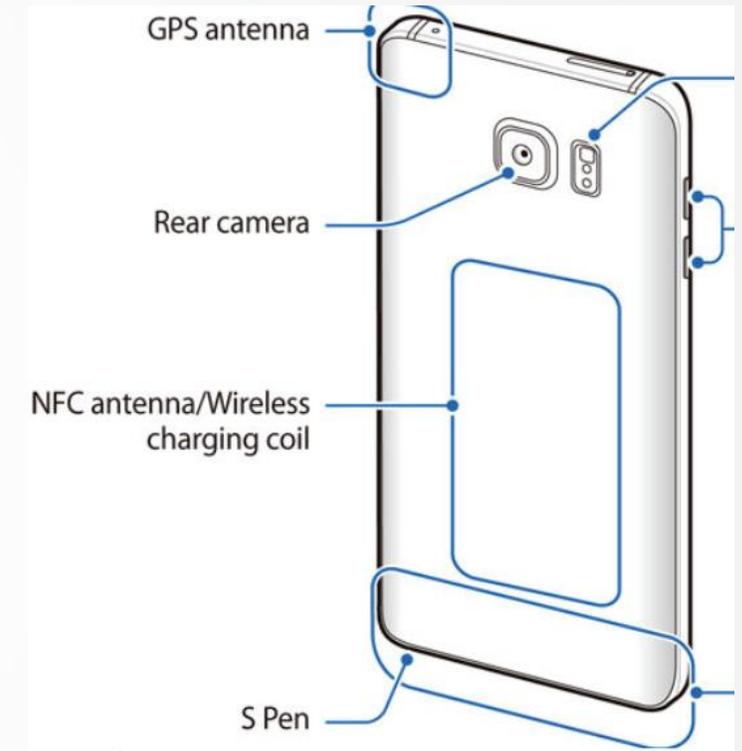
- ◆ Find out the NFC antenna location of your cellphone
- ◆ The antenna location is different by cellphone models
- ◆ Get this info from internet or cellphone user manual

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



3-A. Set Output Current

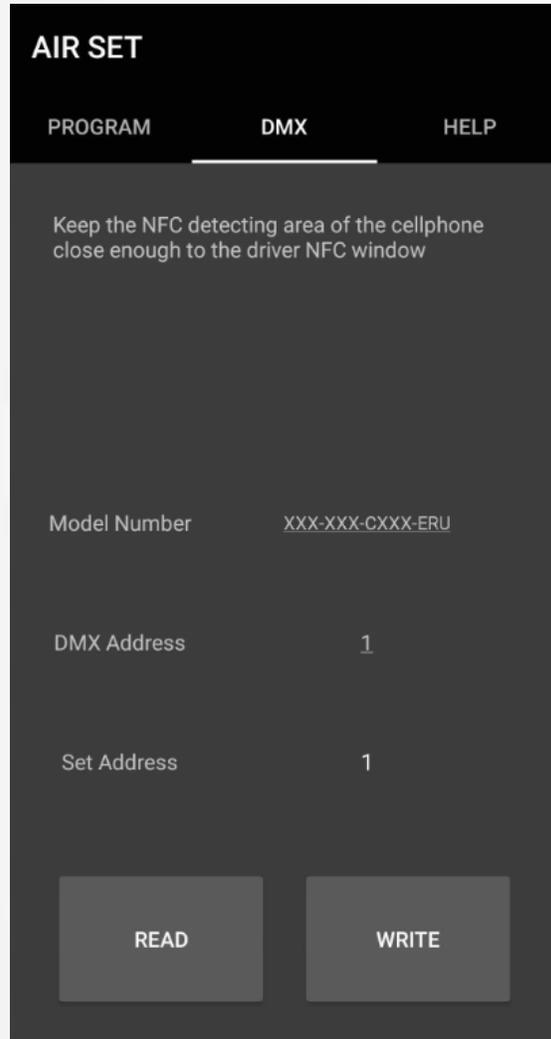


- ◆ Type the output current
- ◆ Tap Write button
- ◆ Get the NFC antenna of cellphone close enough to the LED Driver NFC window (**less than 2mm**)
- ◆ There will be a notification of programming success

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



- ◆ 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