NFC Programming Guide

PC, stand-alone, smartphone, and batch programming

Make smart lighting simple and reliable.

Document	Value
Document revision	3.1
PC interface reference	Programming Utility V7.1.6
Android app covered	uPowerTek Airset 3.2.2.32200
Document issue date	19 November 2026
Language	English

Scope: Available parameters depend on the detected driver model and firmware. The software displays only the functions supported by the connected driver.

This revision updates the Android smartphone workflow. PC and stand-alone instructions are retained from V2. Android-specific changes do not imply equivalent changes to the iPhone app.

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1. Introduction

This guide explains how to read, configure, program, and verify compatible uPowerTek LED drivers using near-field communication (NFC). It covers PC-connected NFC programmers, the stand-alone functions of UPRG-NFC-V2, smartphone programming, and production-oriented batch workflows.

1.1 Programming Modes

Mode	Typical hardware	Best suited for
PC NFC	UPRG-NFC-V1/V2 or supported FEIG programmer	Full parameter access, configuration files, engineering, and production.
Stand-alone NFC	UPRG-NFC-V2 plus 5 V USB power	Read model/current, set current, or write a synchronized offline profile without a PC.
Smartphone NFC	NFC-capable Android phone or iPhone	Fast read/write of functions exposed by the current app and detected driver.
Batch	Supported FEIG or uPowerTek production setup	Repeated programming of multiple drivers with one prepared configuration.

1.2 Supported Programmers

Programmer	PC connection	Special capability
uPowerTek UPRG-NFC-V1	USB	PC programming.
uPowerTek UPRG-NFC-V2	USB / 5 V power	PC programming, display and buttons, stand-alone read/current/profile programming.
FEIG ID CPR30 / CPR30+	USB	PC programming; CPR30+ support includes higher-power NFC operation in current uPowerTek software.
FEIG ID ISC.PRH101	USB	Portable PC-connected NFC programming.

Compatibility: Always confirm the programmer, driver series, firmware, software version, and available tabs before releasing a profile to production.

2. Safety and Preparation

Electrical safety: Disconnect the LED driver's AC input before NFC programming. Follow the product label and luminaire safety procedure, and allow stored energy to discharge before handling the driver.

- Keep the programmer and USB connection dry and free from conductive debris.
- Do not place metal objects between the programmer antenna and the driver's NFC window.
- Keep the programmer still during read and write operations.
- Before changing output current, confirm the LED load, operating voltage, maximum current, and maximum output power.
- For production use, control the approved profile file and verify the first unit and a defined sample of the batch by reading it back.

2.1 Pre-programming Checklist

Check	Acceptance
Driver	Correct model; undamaged; AC input disconnected.
LED load	Voltage/current/power compatible with the intended programmed current.
Programmer	Correct model selected and connected; required driver installed.
Software	Latest approved Programming Utility downloaded from the official website.
Configuration	Approved values or controlled XML/profile file available.
Verification	Read-back or production sampling method defined.

3. Install and Connect the Software

3.1 Download

Download the latest approved Programming Utility and mobile apps from the official uPowerTek Programming Downloads page.

- Download the software package and extract it to a controlled local folder.
- For UPRG-NFC-V2, install the USB/COM-port driver included in the package before connecting the programmer.
- For FEIG programmers, install the driver specified by FEIG for the exact programmer model.
- Connect the programmer with a USB data cable. A charge-only cable will not establish communication.

3.2 Open the Utility

- Start the Programming Utility executable.
- Select the icon that matches the connected NFC programmer.
- For UPRG-NFC-V2, select the correct COM port and click Scan for COM Port.
- Confirm that the status bar reports that the NFC programmer is ready. The UPRG-NFC-V2 display should show Connected with Airset.



Figure: Programmer selection screen in the current Programming Utility.

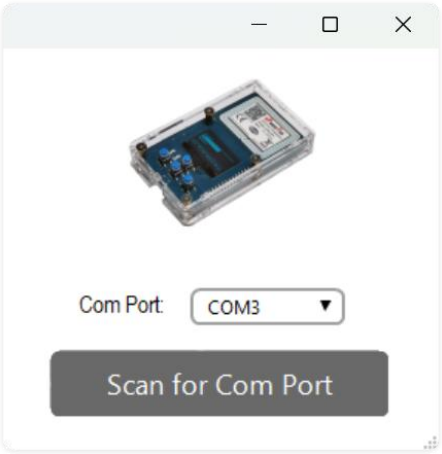


Figure: UPRG-NFC-V2 COM-port selection.



Figure: UPRG-NFC-V2 connected status.

If connection fails: Install the correct driver, try a known USB data cable and another USB port, scan the available COM ports again, and make sure no other application has opened the same port.

4. PC NFC Programming

4.1 Position the NFC Antenna

Place the active edge or antenna face of the programmer directly over the driver's NFC window. Keep the programmer parallel to the antenna symbol and reduce the air gap as much as practical.



Figure: Correct antenna placement on

Signal quality: Large housings, heat sinks, metal covers, and incorrect orientation can reduce the NFC field. Move slowly to locate the strongest position, then hold the programmer still.

4.2 Read the Driver

- Click Read. The status bar changes to searching for an LED driver.
- Move the programmer to the NFC window and hold it still.
- Wait for the model, firmware, channel count, current range, voltage range, power range, and supported tabs to appear.
- After a successful read, click Stop.
- Confirm that the detected model matches the product label before changing any value.

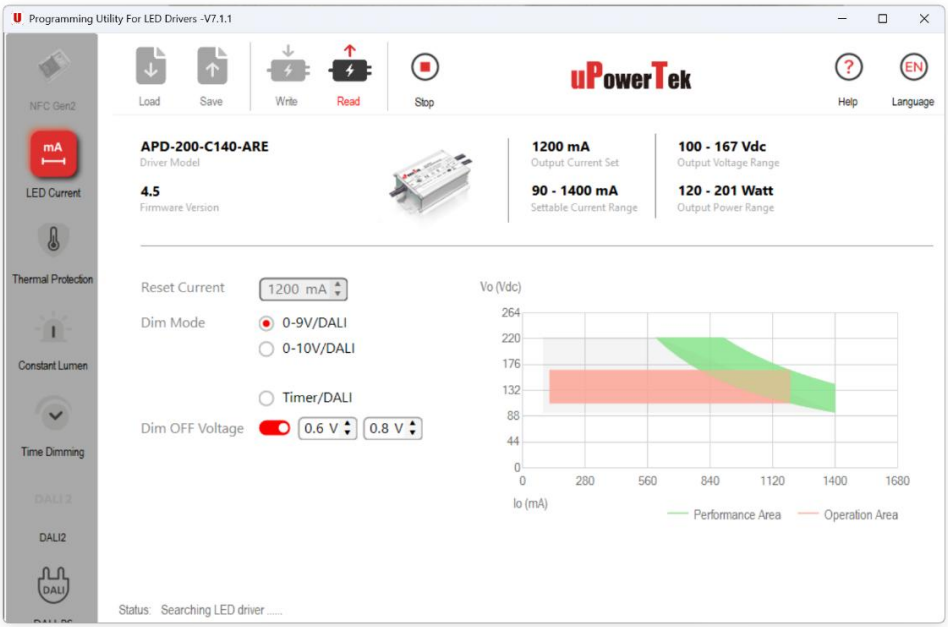


Figure: Driver information and supported settings after a successful read.

4.3 Change and Write Parameters

- Change the required parameters. For output current, keep the selected value inside the displayed current and operating ranges.
- Click Write.
- Place the programmer over the NFC window in the same position used for reading.
- Wait for the green success indication; do not move the programmer while data is being written.
- Click Stop after the required driver or batch has been programmed.
- Click Read again and compare the stored values with the approved settings.

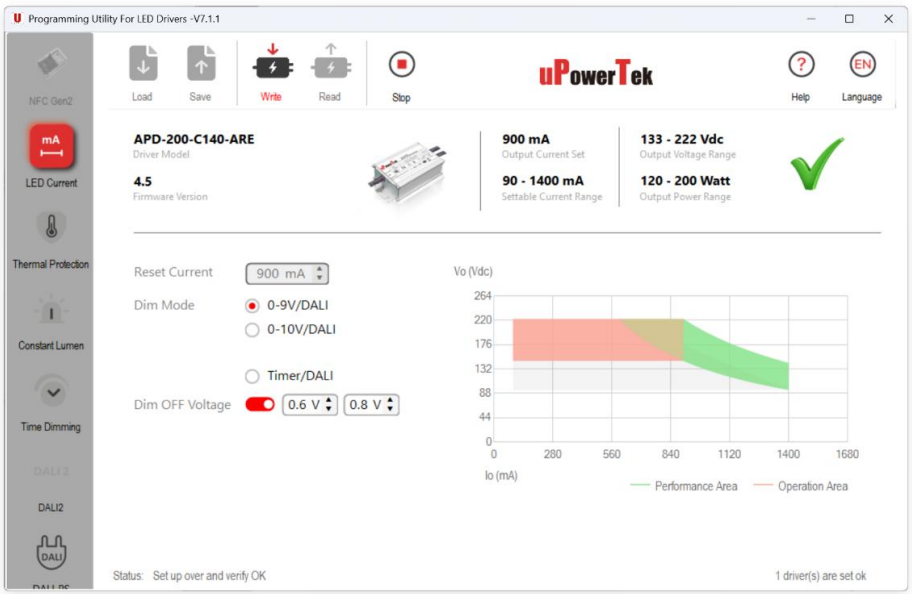


Figure: Green success indication after NFC programming.

4.4 Batch Programming

- Prepare and approve the settings before starting the batch.
- After clicking Write, present each driver to the programmer and wait for the success indication before moving to the next unit.
- Do not present two NFC targets inside the active programming field.
- Click Stop when the batch is complete.

5. UPRG-NFC-V2 Stand-alone Mode

UPRG-NFC-V2 can operate without a PC after it is powered from a 5 V USB power adapter or power bank. Use the buttons to navigate the display.



Figure: Powering UPRG-NFC-V2 from a 5 V USB source.

5.1 Read Parameters

- Power on the programmer.
- Select Read Parameters with the Up/Down buttons and press OK.
- Align the programmer antenna with the driver's NFC window.
- Wait for the indicator to flash and for the display to show the driver model and programmed current.
- Press Back to return to the main menu.



Figure: Stand-alone Read Parameters selection.

5.2 Reset Output Current

- Select Reset Output Current and press OK.
- Set the required current with the Up/Down buttons. The legacy interface changes in 50 mA steps; confirm the displayed range for the detected driver.
- Press OK, align the antenna with the driver's NFC window, and wait for Reset OK.
- Press Back and read the driver again to verify the stored current.



Figure: Reset Output Current menu on UPRG-NFC-V2.

5.3 Synchronize and Use an Offline Profile

- Connect UPRG-NFC-V2 to the PC and prepare the approved settings in Programming Utility.
- Select Sync File, enter a controlled profile name, and click Start Profile Sync.
- Wait for the programmer display to confirm successful synchronization, then disconnect it from the PC.
- Power the programmer from a 5 V source, select Offline Program, and choose the synchronized profile.
- Press OK, position the programmer on the driver's NFC window, and wait for Offline Programming OK.
- Read back a programmed unit before releasing the offline process for a batch.

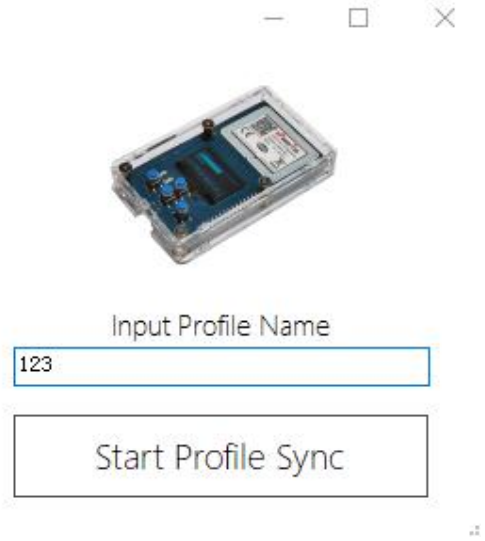


Figure: Naming and synchronizing an offline profile.



Figure: Stand-alone offline programming success.

6. Smartphone NFC Programming

uPowerTek Airset provides an NFC workflow for supported drivers. Android version 3.2.2.32200 retains the unified workflow that combines the previous single-channel and multi-channel apps in one installation. Available functions still depend on the operating system, app version, driver model and firmware.

6.1 Install and Prepare the Phone

- Download the unified Android app from the official uPowerTek download page. Separate Single Channel and Multiple Channel APKs are no longer required. For iPhone, search for uPowerTek Airset in the Apple App Store.
- Confirm that the phone supports NFC. On Android, enable NFC in the phone settings. Open the app and allow the required permissions.
- Identify the physical NFC antenna location for the phone model; it is not always centered. Increase the phone volume so the NFC detection tone is easy to hear.
- Disconnect the driver AC input before programming and follow the safety instructions in Section 2.

Official programming downloads | Android APK: version 3.2.2.32200

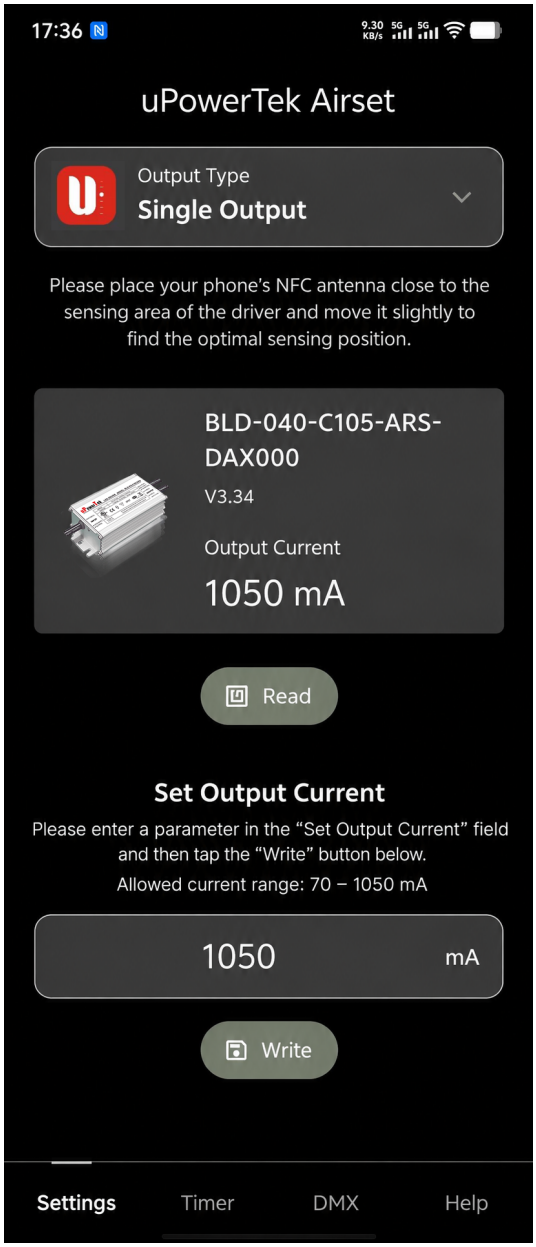
6.2 Select the Android Output Mode

- Before NFC parameter setup, open the Output Type selector at the top of the app.
- Choose Single Output for a single-channel driver or Multi-Channel Output for a multi-channel driver. Use the appropriate model selection, where available, for the driver to be programmed.
- Read the driver and confirm that the displayed model matches the product label before editing parameters. Mode selection does not replace this model check.
- When moving to another driver type, select the corresponding mode and perform a fresh read.

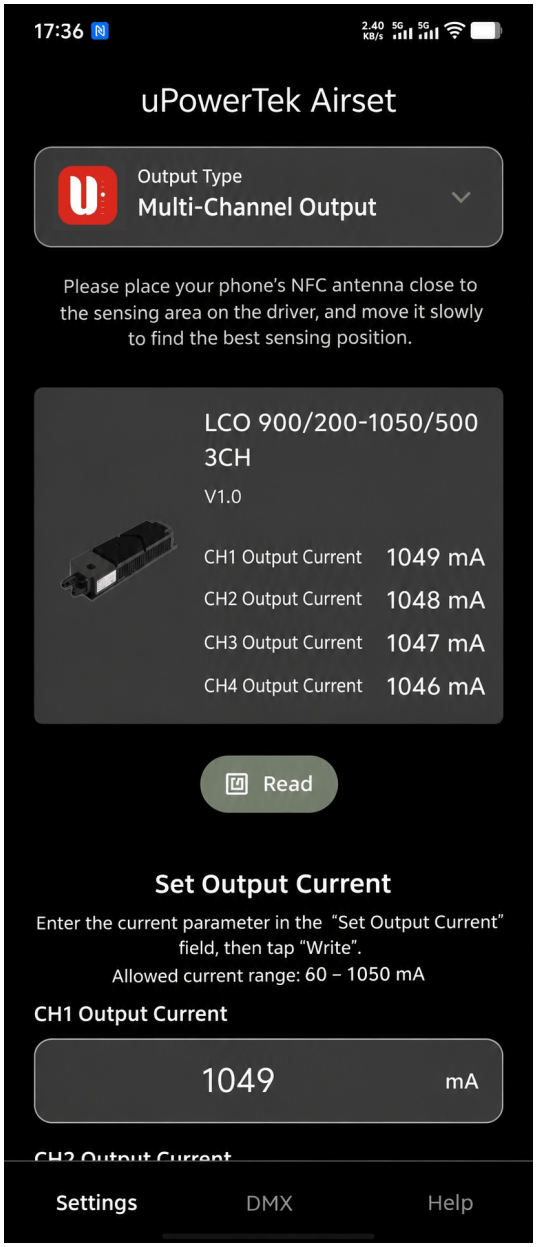
Android Interface Examples

One Android app, with single-output and multiple-output modes. Select the correct mode before reading or writing the driver.

Single Output



Multi-Channel Output



Figures: Android app interface. The Output Type selector changes the output mode; the driver information panel shows the model and firmware version after a read.

Examples only: the model names, channel labels, current values and allowed current ranges shown here are not specifications for other drivers. Use the values and limits for the actual target driver. The multiple-output screenshot is not a TYK-specific example.

6.3 Read and Write

- Select the correct Android output mode and target model, where applicable, then tap Read.
- Bring the phone's NFC antenna within approximately 2 mm of the driver's NFC window. Move slowly and hold each candidate position still for one to two seconds until the driver is read.
- Confirm the detected model, firmware version, channel count and supported ranges before changing a value.
- Enter the required supported value, such as output current, and tap Write. Hold the phone still until the app confirms success.
- Read the driver again and compare the stored values with the approved settings.

6.4 Multi-channel and DMX (Android)

Version 3.2.2.32200 retains TYK output-current and DMX-address editing introduced in version 3.2.1.32101 in Multi-Channel Output mode.

- Select Multi-Channel Output, read the TYK driver and confirm its model. Set the required channel output currents within the limits displayed for that driver, write them and read back to verify.
- For a supported DMX driver, open the DMX tab. Read the existing address, enter the approved start address, write it and read it back.
- Keep all addresses allocated to the driver within the DMX universe (1-512) and avoid conflicts with other devices.

6.5 Read the Driver Firmware Version

- Perform a successful Read and check the firmware version displayed in the driver information panel below the model.
- Record the driver model and firmware version when requesting technical support. This is the driver firmware version, not the Android app version.

Function limits: The smartphone app may expose fewer parameters than the PC utility. Use PC programming for a required function that is not shown. Android changes described here do not establish new iPhone capabilities.

7. Programmable Parameters

The available tabs and ranges are read from the driver. Always read the driver first, confirm the detected model and firmware, then change only the parameters required for the job.

Programming rule (PC utility): After changing any parameter, click Write, wait for the success indication, click Stop, and perform a fresh Read to verify the stored value.

LED Current and Operating Window

Reset Current sets the programmed output current. The chart separates the driver's full operating area from the preferred performance area for the selected current.

- Confirm that the LED module voltage and current remain inside the driver's permitted operating area.
- Do not assume that a lower current permits any LED string voltage. Check the driver's maximum output power and voltage limits.
- When programming the maximum current, verify the LED load carefully; an incorrect load may trigger over-voltage protection.

The following pages retain the PC Programming Utility parameter reference from V2. Smartphone parameter availability is described separately in Section 6.

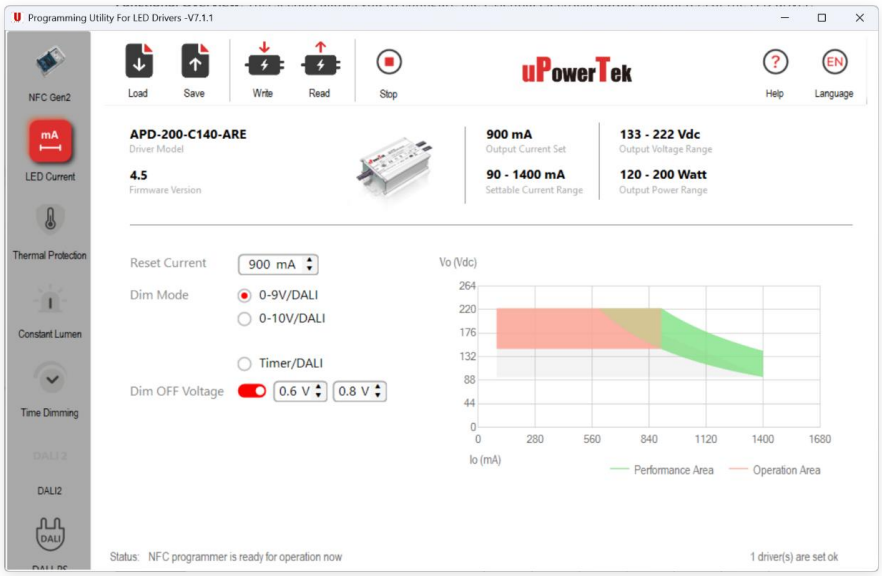


Figure: LED current setting and operating-window display in Programming Utility V7.1.1.

External Thermal Protection

This function uses an external NTC thermistor connected to supported drivers. As NTC resistance falls with rising temperature, the driver can reduce current and, where supported, switch the output off at the final threshold.

- Enable the function only on drivers and luminaires designed for external lamp thermal protection.
- Set the three resistance thresholds shown by the interface: start derating, minimum-current point, and shut-off point.
- Set Derated Value (%) to the intended minimum output level during thermal derating.
- Verify the NTC type, resistance-versus-temperature curve, installation location, and required protection temperatures with the luminaire design.

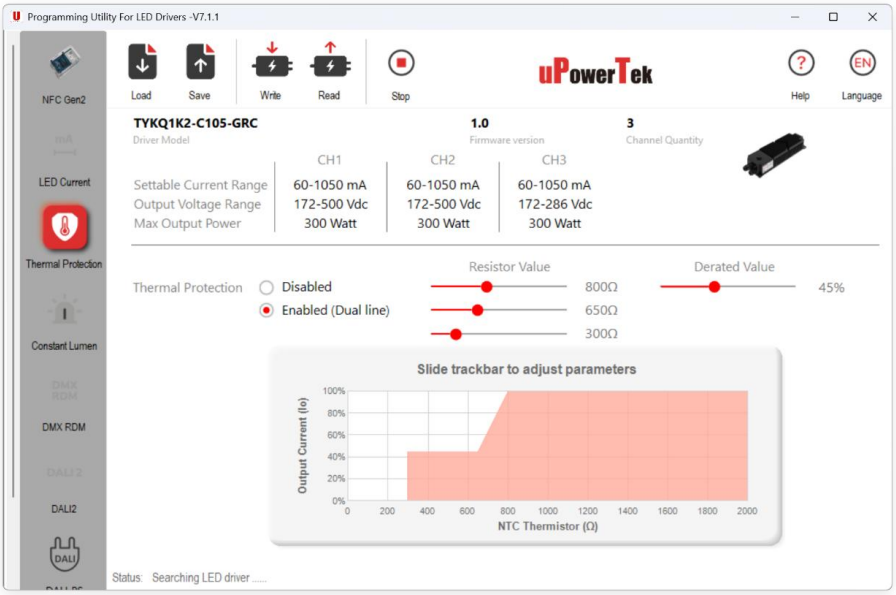


Figure: External thermal protection with three resistance thresholds and a derated-current value.

Constant Lumen Output (CLO)

CLO compensates for LED lumen depreciation by applying a programmed current percentage over accumulated operating hours.

- Enable Constant Lumen Output before editing the profile.
- Current % is the output current as a percentage of the programmed current.
- kHours means thousand operating hours; for example, 4 means 4,000 hours.
- Use a non-decreasing profile unless the luminaire design specifically requires otherwise, and keep every point inside the driver's electrical limits.
- Reset Timer returns the accumulated CLO time to zero. Use it only when the service procedure requires a new operating-life reference.

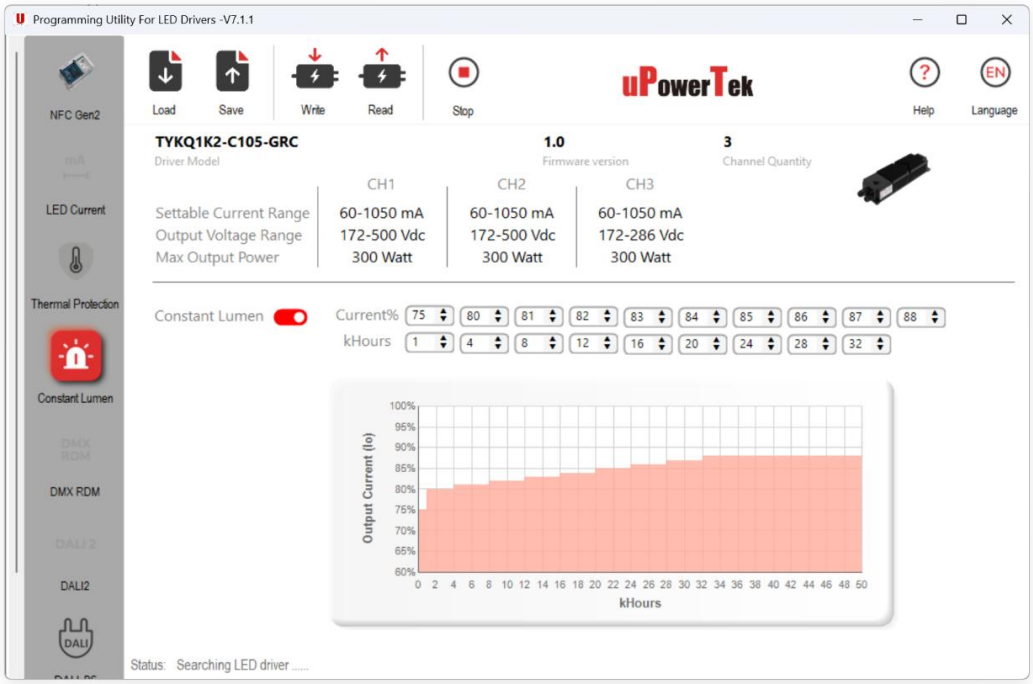


Figure: Constant Lumen Output profile for a multi-channel driver.

Timer Dimming

Timer Dimming runs an autonomous multi-step dimming profile without an external control signal.

Mode	Use
Traditional	Runs the same fixed sequence each operating cycle.
Adapt-MidNight	Adjusts the profile around the calculated midpoint of the night.
Adapt-Percentage	Scales the profile stages according to the learned total night duration.

- Set each stage level (%) and duration (H), then set Fade Time and the required operating-time or midnight reference.
- Adaptive modes learn from prior operating cycles; cycles shorter than six hours are not used by the legacy algorithm. Confirm the exact learning window for the target firmware before release to production.
- The mains supply must switch off between operating cycles so the driver can identify a new night and apply the intended profile consistently.

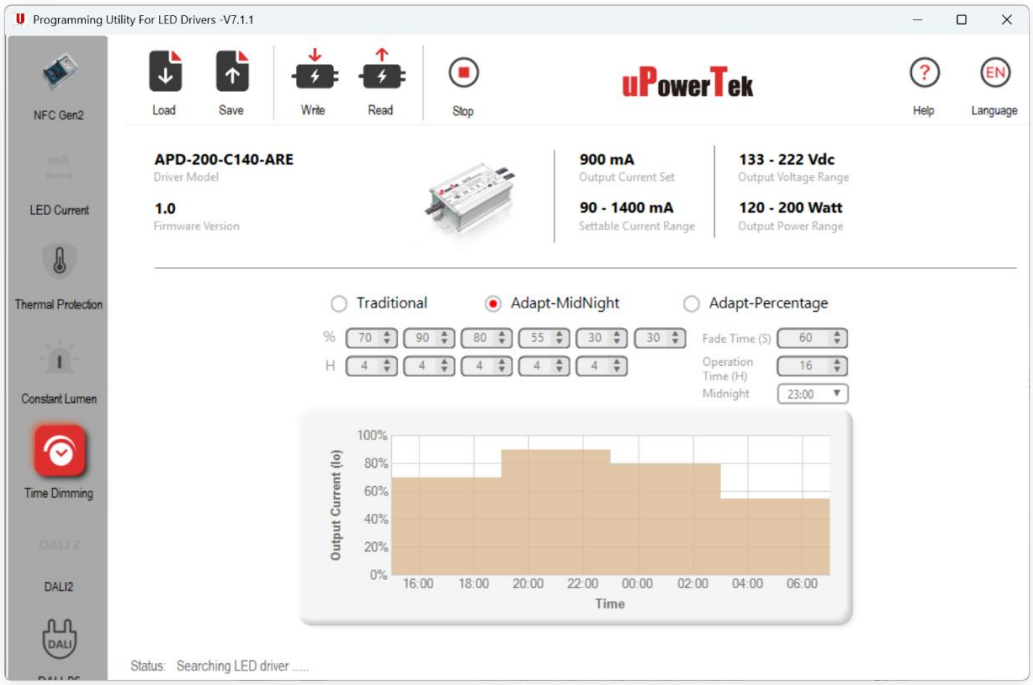


Figure: Timer Dimming modes and multi-step profile.

DALI-2 Default Parameters

Commissioning protection: The DALI-2 tab is protected to avoid overwriting field-commissioned settings. Leave Update all settings unchecked unless the DALI defaults are intentionally being changed.

- Select Logarithmic or Linear dimming behavior as required by the application.
- Program only the checked items, such as Short Address, Fade Time, Fade Rate, Minimum Level, Maximum Level, Power On Level, and System Failure Level.
- Each output channel can be configured separately when the detected driver supports multiple channels.
- Reset Default restores values in the software interface; write and read back the driver before treating the reset as complete.
- Coordinate short addresses with the DALI commissioning plan and avoid duplicate addresses on the same bus.

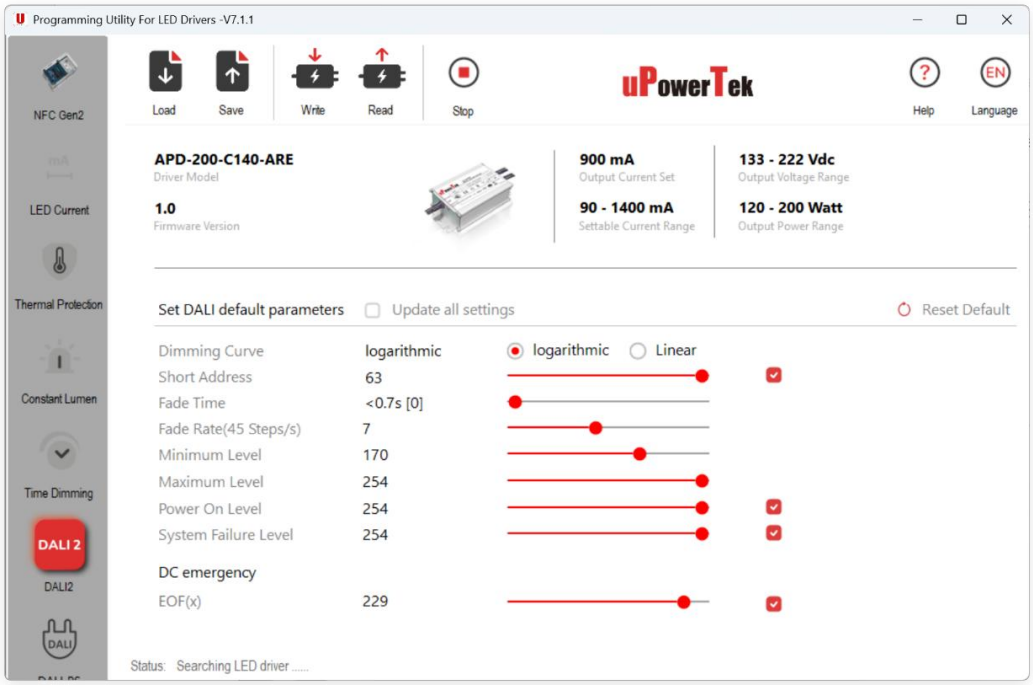


Figure: DALI-2 default parameters with individual update selections.

OEM Data

OEM Data stores luminaire identification and rated information for asset management and DALI/D4i applications.

- Select only the fields that are intended to be updated.
- Identification fields may include OEM GTIN, luminaire colour, and luminaire identification strings.
- Manufacturing data may include year and week; technical data may include input power, AC voltage range, light output, CRI, and colour temperature.
- Use controlled units and naming conventions, and verify field length and format limits in the current software before bulk programming.

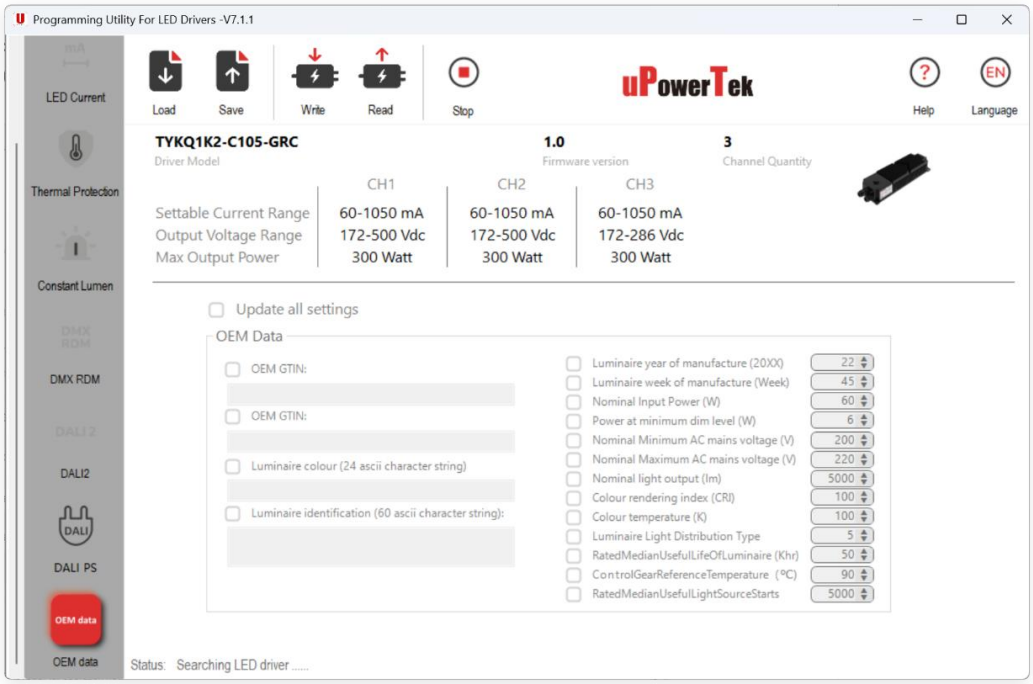


Figure: OEM Data entry fields for a supported multi-channel driver.

DALI Bus Power Supply

This option controls the driver's internal DALI bus power supply where supported.

- Enable it only when the system design requires this driver to supply the DALI bus.
- Disable it when an external or another approved bus power supply already provides the required bus power.
- Confirm total bus current, polarity, and the DALI/D4i system design before enabling multiple bus power sources.

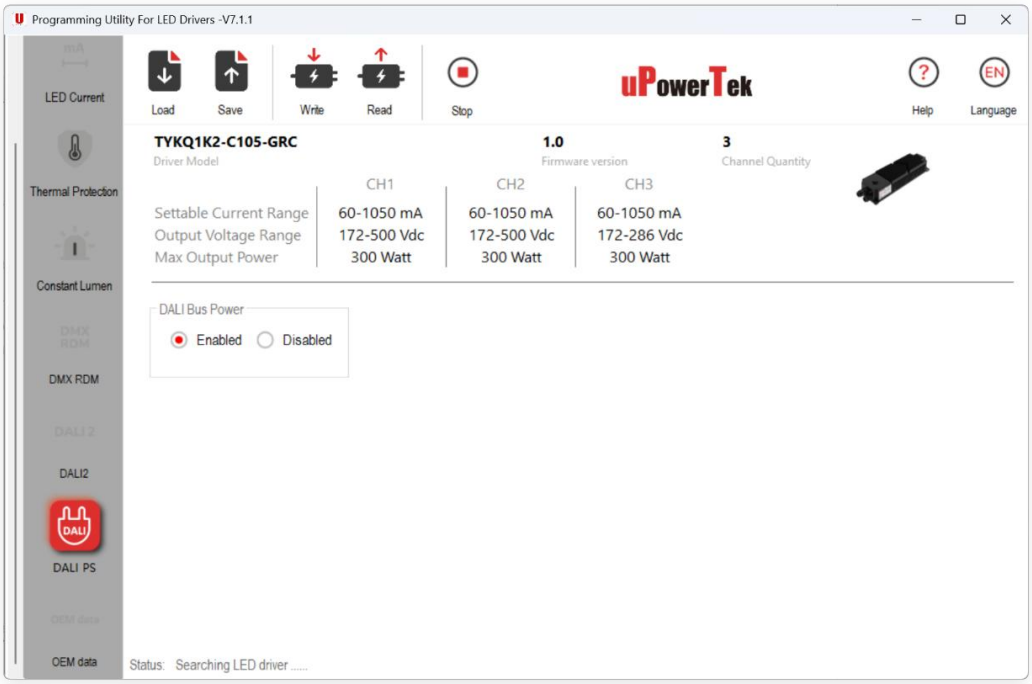


Figure: DALI bus power-supply setting.

DMX Settings

- Set the DMX start address within 1-512. For multi-channel drivers, verify that the final assigned channel does not exceed address 512.
- DMX Sync Mode assigns the same address to all output channels when enabled; when disabled, channels use individual or sequential addresses shown by the software.
- DMX Fail Mode defines the output level and timeout after loss of the DMX signal.
- Select Linear or Logarithmic dimming according to the control design, and set the minimum dim level as required.
- Output Relay Open Delay defines how long the driver waits after a dim-off command before opening the output relay. Use the range displayed by the current software.

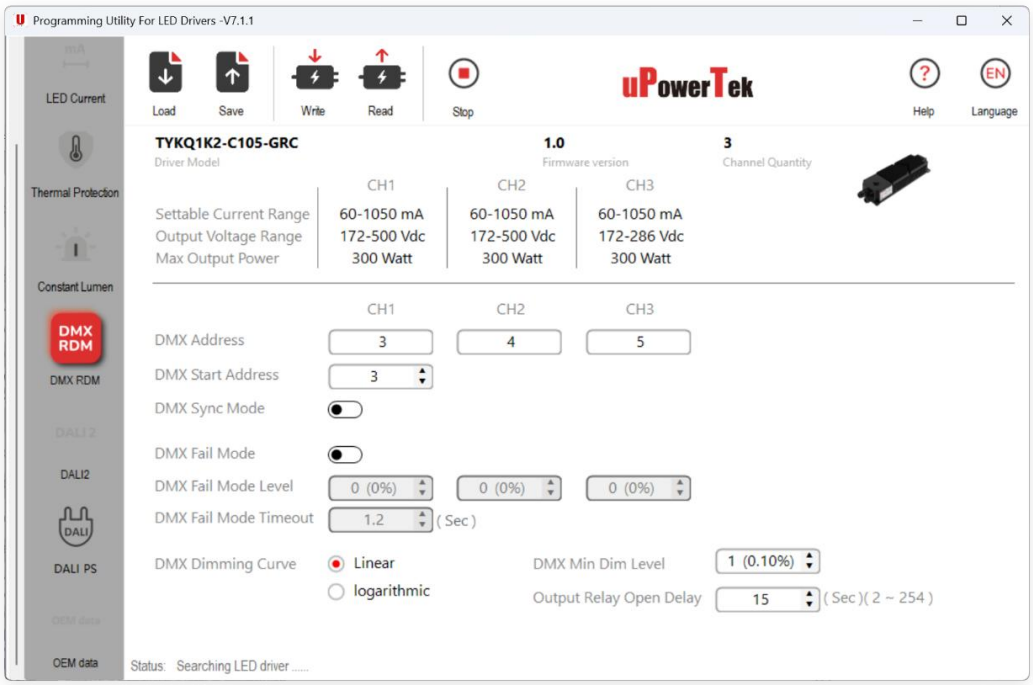


Figure: DMX addressing, fail behavior, curve, minimum level, and relay delay.

8. Load, Save, and Profile Control

Configuration files use XML format and support repeatable setup, backup, and production control.

Function	What it does	What it does not do
Save	Saves the settings currently shown in the software to an XML file.	It does not verify that every value has been written to a driver.
Load	Loads settings from an XML file into the software interface.	It does not program the driver until Write is completed successfully.
Sync File	Transfers an approved profile from the PC to UPRG-NFC-V2 for offline use.	It does not program a driver during synchronization.

- Include driver family, key option, revision, and date in the profile filename.
- Do not load a profile created for another driver model without checking every displayed range and channel.
- After Load or Sync File, review the settings, write a test unit, and read it back before production release.
- Archive approved profiles as controlled records and restrict obsolete files from the production station.

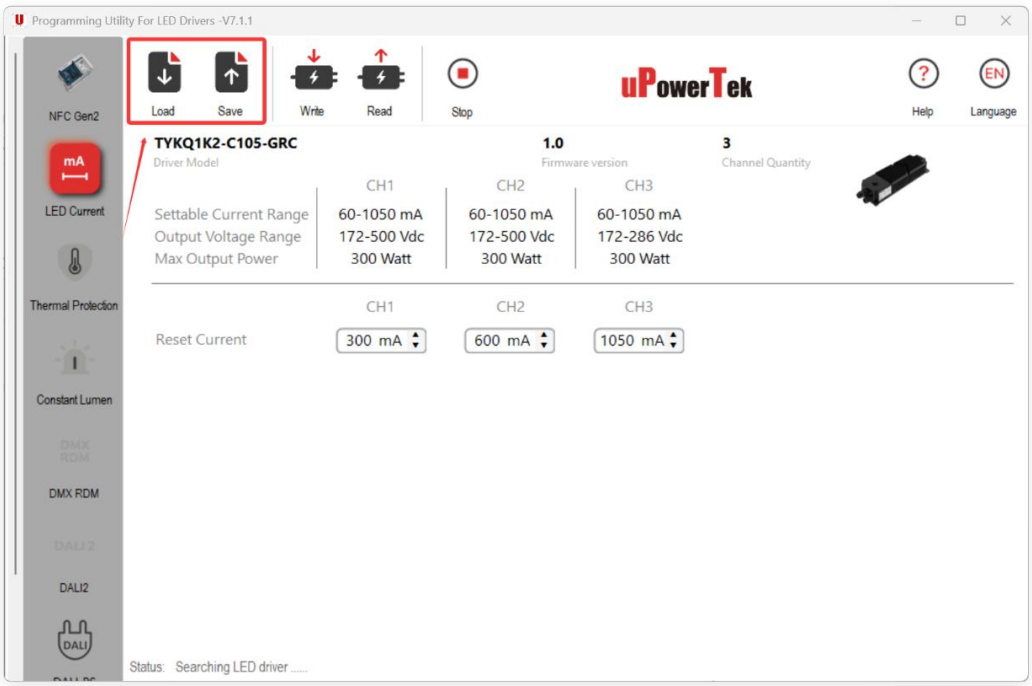


Figure: Load and Save controls in Programming Utility V7.1.1.

9. Troubleshooting

Status or symptom	Likely cause	Corrective action
No programmer detected	USB cable, port, driver, or selected programmer is incorrect.	Use a USB data cable; reconnect; try another USB port; install the correct driver; select the matching programmer.
Connecting NFC Programmer, please wait	COM port is wrong, busy, or the driver is missing.	Scan ports again; close other serial applications; reinstall the UPRG-NFC-V2 driver; reconnect.
UPRG-NFC-V2 does not show Connected with Airset	Wrong COM port or USB driver problem.	Select another COM port and scan; verify Device Manager and the installed driver.
Searching LED driver	Weak coupling, wrong NFC position, metal obstruction, or driver is powered.	Disconnect AC; align the antenna parallel and close to the NFC window; remove obstructions; hold still.
Read succeeds but Write fails	Programmer moved, profile is invalid, or a value is outside the supported range.	Read again; check model/ranges; correct invalid values; reposition and retry.
Wrong model or unexpected tabs	Wrong target, multiple targets in the field, or incompatible profile/software.	Stop; isolate one driver; confirm label and software version; do not write until the detected model is correct.
Mobile phone does not detect NFC	Phone antenna location or NFC setting is incorrect.	Enable NFC; remove a metal case; identify the antenna location; move slowly within 2 mm and hold each position.
Offline profile not found	Profile sync did not complete or a different profile was selected.	Reconnect to PC; repeat Sync File; confirm the profile name and success message.

10. Support and Maintenance

- Record the Programming Utility version, programmer model, driver model, firmware version, and exact status message when requesting support.
- Attach the approved XML profile and clear photographs of the product label and antenna/wiring setup where appropriate.
- Periodically verify USB cables, programmer condition, antenna surface, and approved profile files in production stations.

Programming software and user guides: [uPowerTek Programming Downloads]

Technical and sales support: sales@upowertek.com

Revision History

Revision / issue date	Changes
3.1 / 19 November 2026	Updated the Android app reference and APK link to 3.2.2.32200. Added the technical-adjustment record. App functions, operating procedures and interface illustrations are unchanged.
3.0 / 16 November 2026	Updated Section 6 for the unified Android app 3.2.1.32101; replaced legacy mobile screenshots; added mode selection, TYK current/DMX instructions and firmware-version reading. Updated document control, contents and pagination.
2.0 / July 2026	Expanded scope, corrected terminology, added safety, compatibility, troubleshooting and complete operating modes.

Android App Update Record

uPowerTek Airset - 3.2.2.32200

Technical adjustments in preparation for Google Play Store submission. No changes to app functionality or operating procedures. This record does not indicate Google Play availability.

uPowerTek Airset - 3.2.1.32101

The unified Android app integrates the functions of the former Single Channel and Multiple Channel versions.

- Added an output-mode selection window: Single Output / Multi-Channel Output.
- Multi-Channel Output mode: added support for changing TYK model output currents and DMX addresses.
- Added support for reading the driver firmware version.

Distribution: one Android APK is now provided on the official download page. The separate legacy single-channel and multi-channel download entries have been replaced.

Document issue dates refer to guide revisions, not app release dates.

Document control: Use the latest copy of the uPowerTek NFC Programming Guide. Screens and available functions may change with software or firmware updates. Confirm compatibility for the actual driver before programming.