

Cable Programming Guide

Wired programming, and shared parameter reference



Make smart lighting simple and reliable.

Document	Value
Document revision	2.0
Validated software interface	Programming Utility V7.1.1
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Language	English

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

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1. Introduction

This guide explains how to connect, read, configure, program, and verify compatible uPowerTek cable-programmable LED drivers with the uPowerTek cable programmer and Programming Utility.

Item	Requirement
PC	Windows PC with the latest approved uPowerTek Programming Utility.
Programmer	uPowerTek cable programmer and a USB data cable.
Driver	A uPowerTek model marked as cable programmable, with accessible programming leads.
Configuration	Approved settings or a model-compatible XML file.

Scope: Some customized and multi-channel drivers use different programming-wire colours. The product label and model-specific drawing always take precedence over this guide.

2. Safety and Preparation

Electrical safety: Disconnect AC input before connecting or disconnecting programming leads. Never use the programmer connection as a substitute for the driver's protective earth, control wiring, or mains isolation.

- Confirm that the driver is cable programmable and identify the programming leads from the product label.
- Inspect the cable programmer, USB cable, terminal adapter, and driver leads for damage.
- Keep programming leads isolated from mains, LED output, dimming, and communication conductors.
- Observe programming polarity; do not guess from colour when the product label is available.
- Before changing current, confirm the LED load voltage/current/power and the driver's operating window.

Check	Acceptance
AC input	Disconnected and verified safe.
Programming leads	Correct pair identified; no exposed strands or short circuit.
Polarity	Programmer + connected to driver programming +; programmer - to programming -.
Driver model	Matches the intended profile and production work order.
Verification	Read-back method and sampling plan defined.

3. Hardware Connection and Wiring

3.1 Connect the Cable Programmer

- Connect the cable programmer to the PC with a USB data cable.
- With the driver AC input disconnected, identify the programming leads from the product label.
- Connect the driver's programming positive lead to the programmer positive terminal and the programming negative lead to the programmer negative terminal.
- Check that the terminals are secure and that no conductor strands can short to an adjacent terminal or housing.



Figure: Cable programmer connected to a PC.

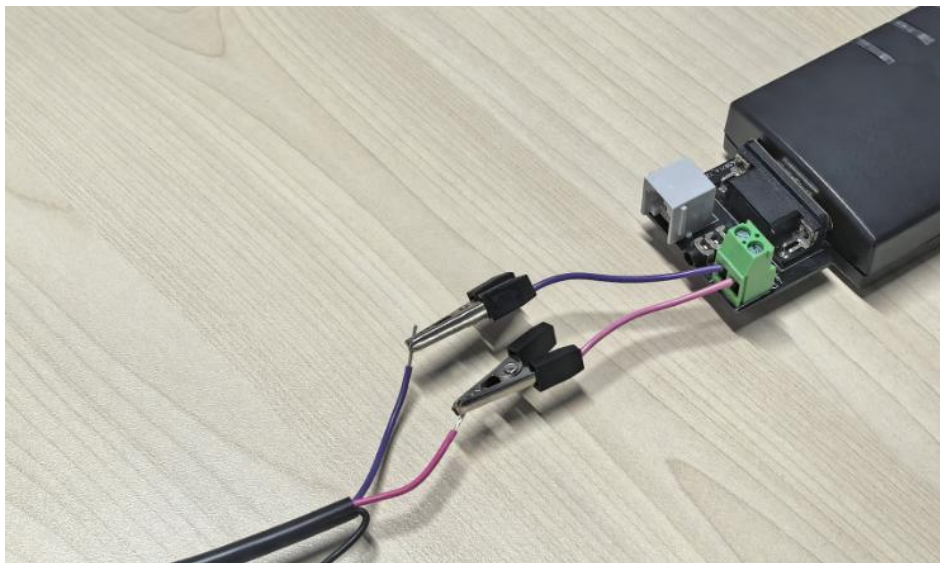


Figure: Example single-channel programming-lead connection.

3.2 Typical Wire Colours

Application	Driver programming +	Driver programming -	Programmer terminal
Typical single-channel	Purple	Pink	Purple + / Pink -
DMX multi-channel example	Blue/White	Black/White	Purple + / Pink -
DALI multi-channel example	Blue/White	Pink	Purple + / Pink -

Product label priority: Wire colours can vary by customized model and product series. If this table conflicts with the product label or approved drawing, follow the product-specific information.

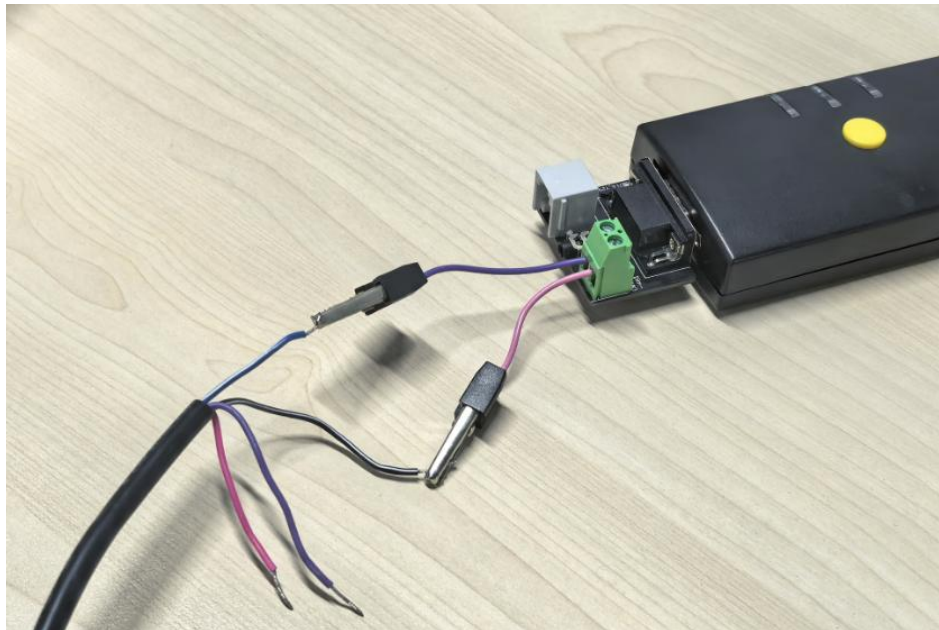


Figure: DMX multi-channel programming-wire example.

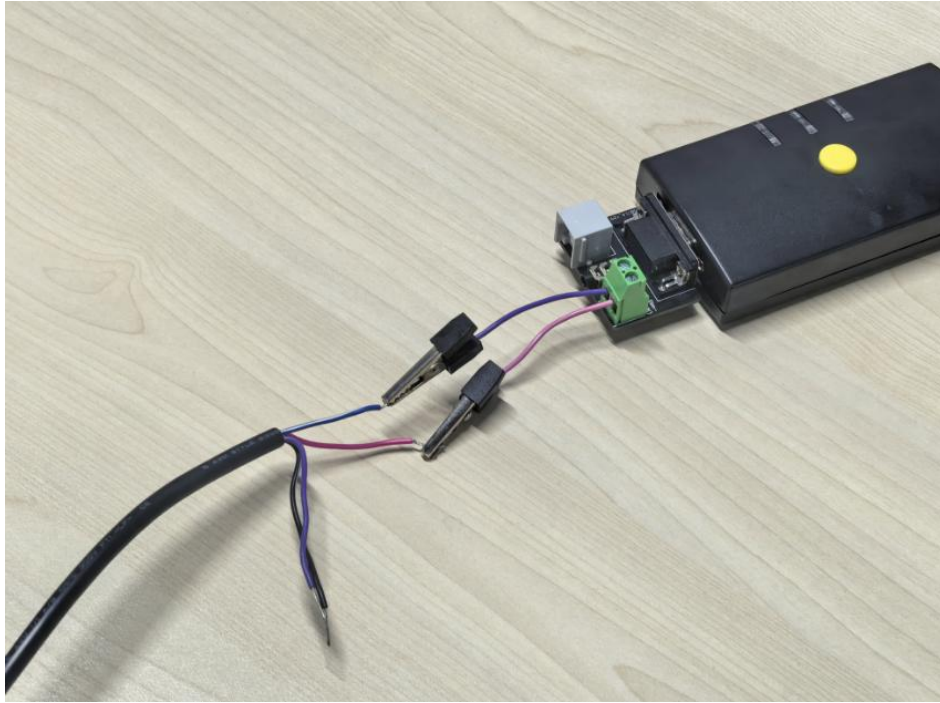


Figure: DALI multi-channel programming-wire example.

4. Install and Select the Cable Programmer

Download the latest approved Programming Utility from the official [uPowerTek Programming Downloads page](#).

- Download and extract the software package.
- Start the Programming Utility executable.
- At the programmer-selection screen, choose Cable Programmer.
- Confirm that the status bar recognizes the programmer before connecting to or reading the driver.

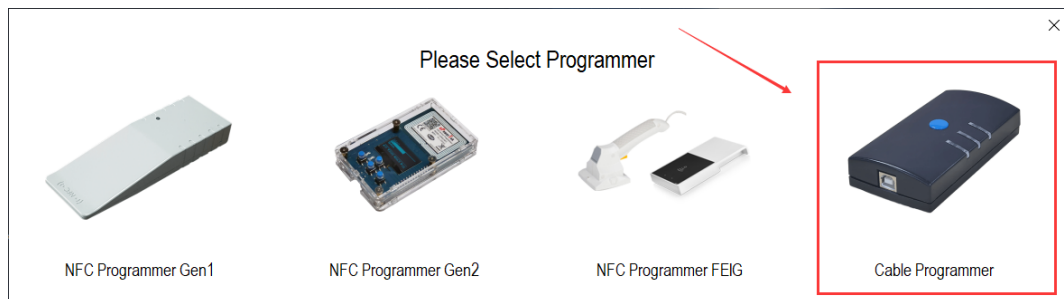


Figure: Selecting Cable Programmer in the software.

Programmer button: The physical button on the legacy cable programmer is not used by the Programming Utility workflow.

5. Read, Configure, Write, and Verify

5.1 Read the Driver

- Check the USB and programming-lead connections.
- Click Read.
- Wait for the green success indication and for the model, firmware, current, voltage, power, channel count, and supported tabs to appear.
- Compare the detected model with the product label before changing a value.

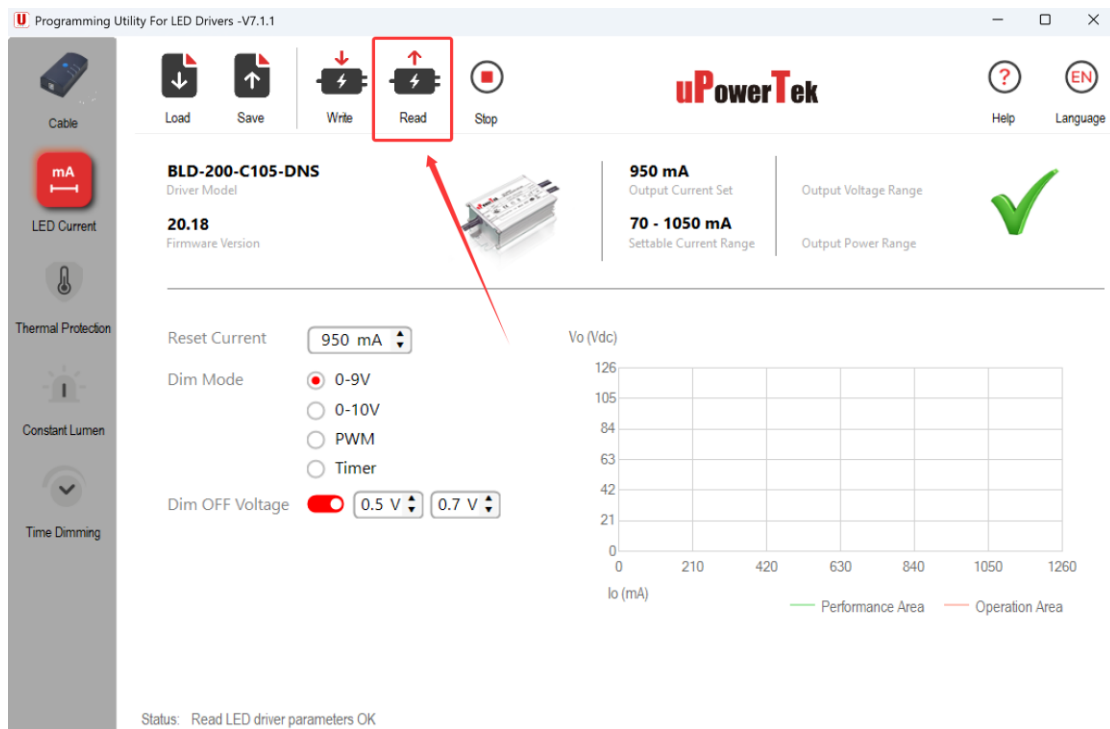


Figure: Reading a cable-programmable driver.

5.2 Set Output Current

- Enter the required Reset Current within the displayed settable range.
- Confirm that the LED load remains inside the operating window and maximum output-power limit.
- For multi-channel drivers, check every channel and do not assume all channels use the same current.

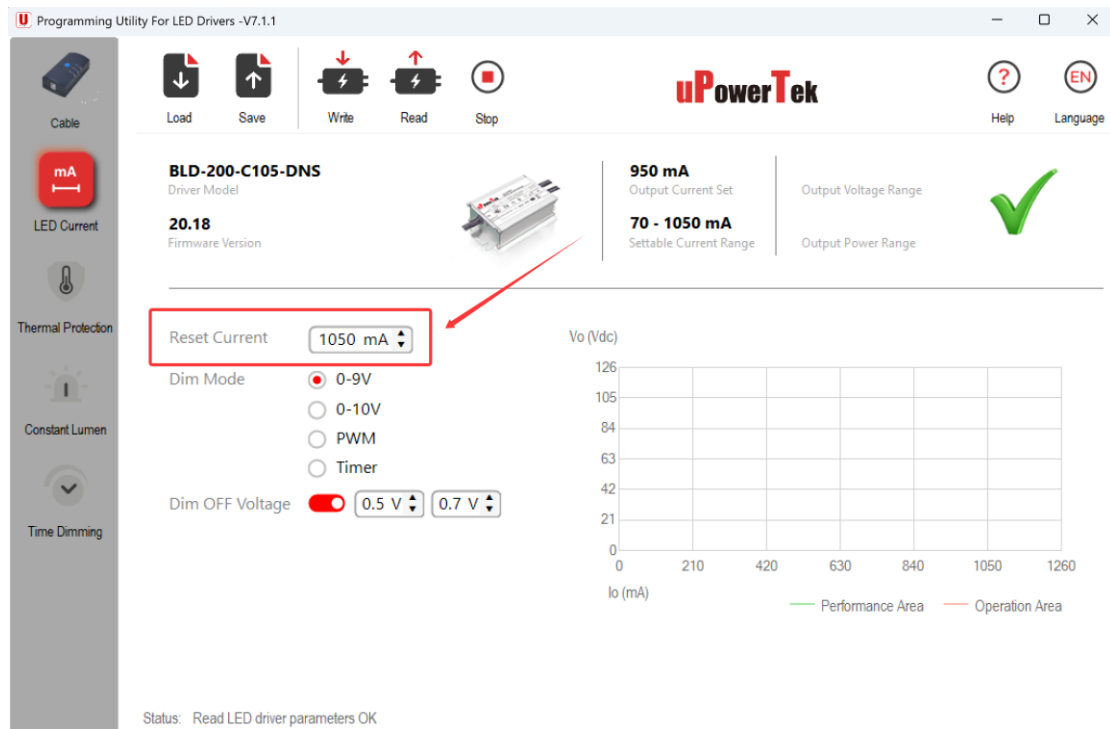


Figure: Setting output current in cable mode.

5.3 Write and Verify

- After reviewing the settings, click Write.
- Wait for the success indication; do not disconnect the programming leads during communication.
- Click Read and compare the stored settings with the approved work order or profile.

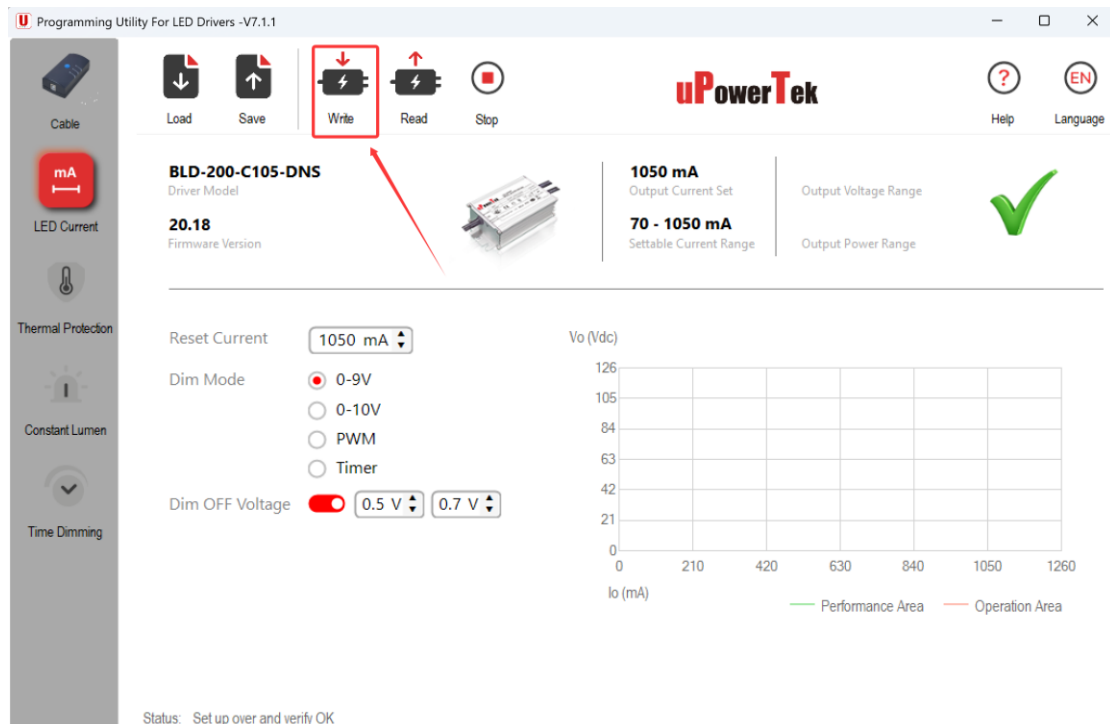


Figure: Writing settings through the cable programmer.

5.4 Batch Programming

- Approve the settings and verify the first driver by read-back.
- Disconnect the programming leads from the completed driver with AC still off.
- Connect the next driver, confirm polarity and model, and click Write.
- Repeat for the batch, stopping immediately if the detected model, status, or success indication is unexpected.
- Perform read-back sampling according to the production quality plan and after any interruption or setup change.

6. 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: 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.

- 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.

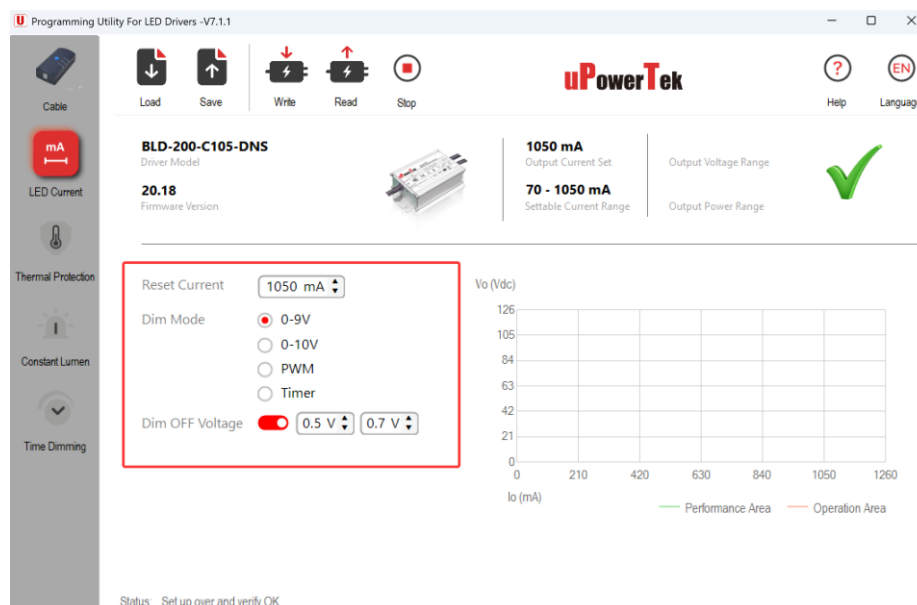


Figure: LED current setting and operating-window display in Programming Utility V7.1.1.

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 two 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.

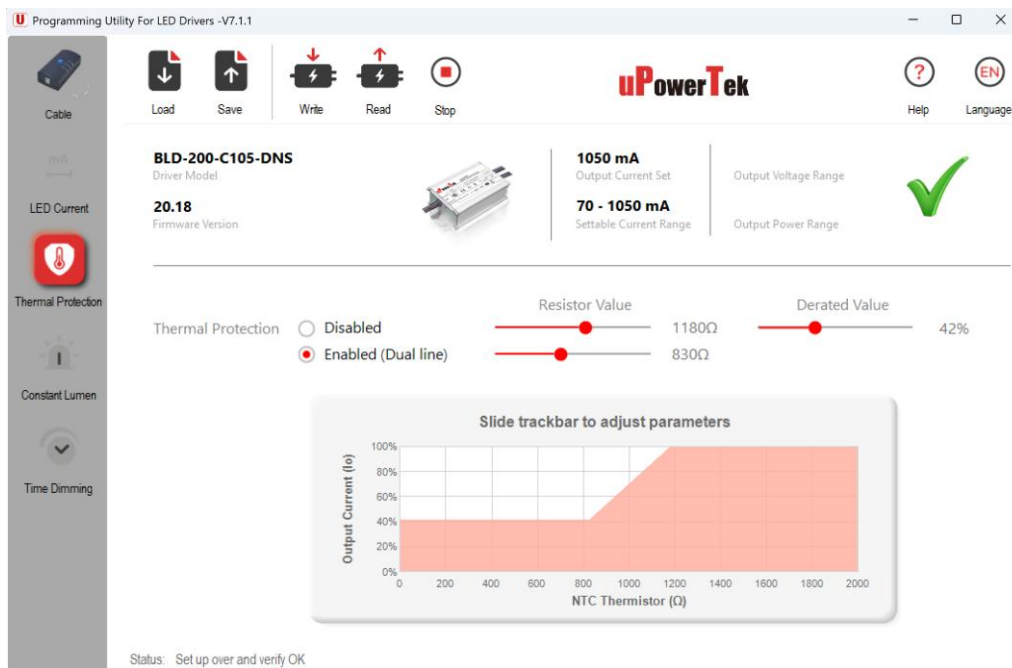


Figure: External thermal protection with three resistance thresholds and a derated-current value.

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.

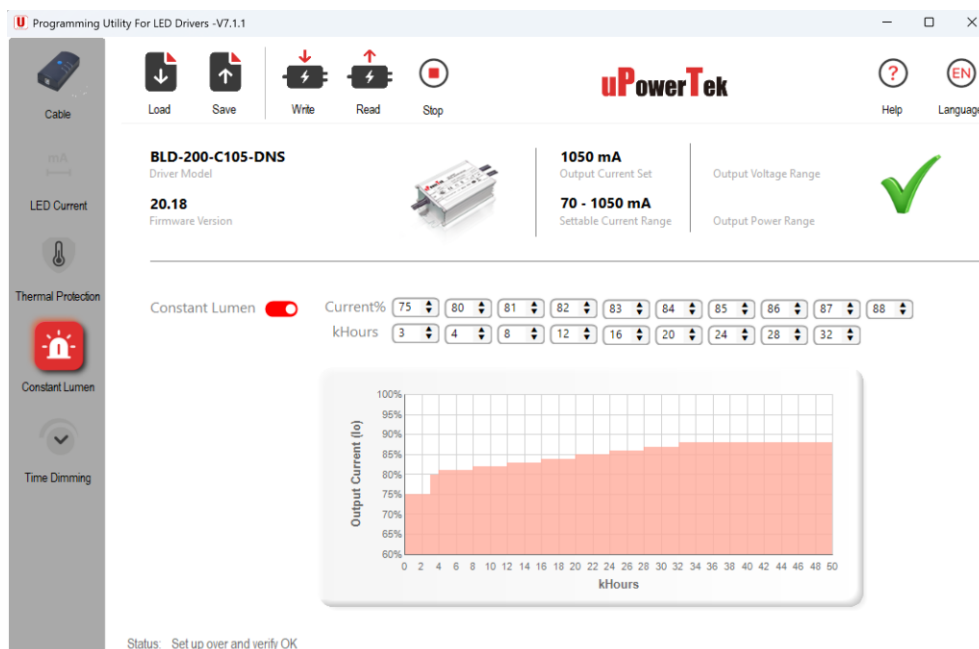


Figure: Constant Lumen Output profile for a multi-channel driver.

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.

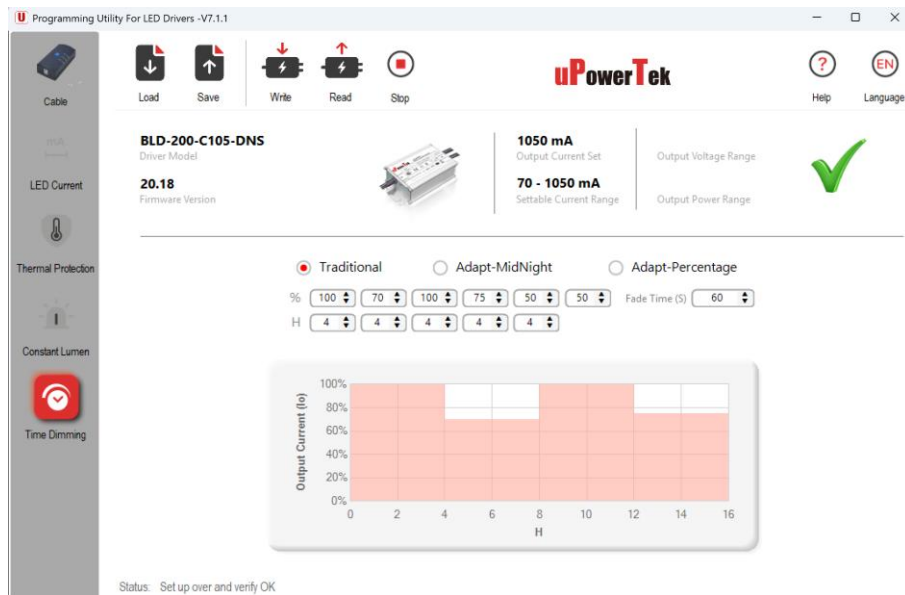


Figure: Timer Dimming modes and multi-step profile.

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.

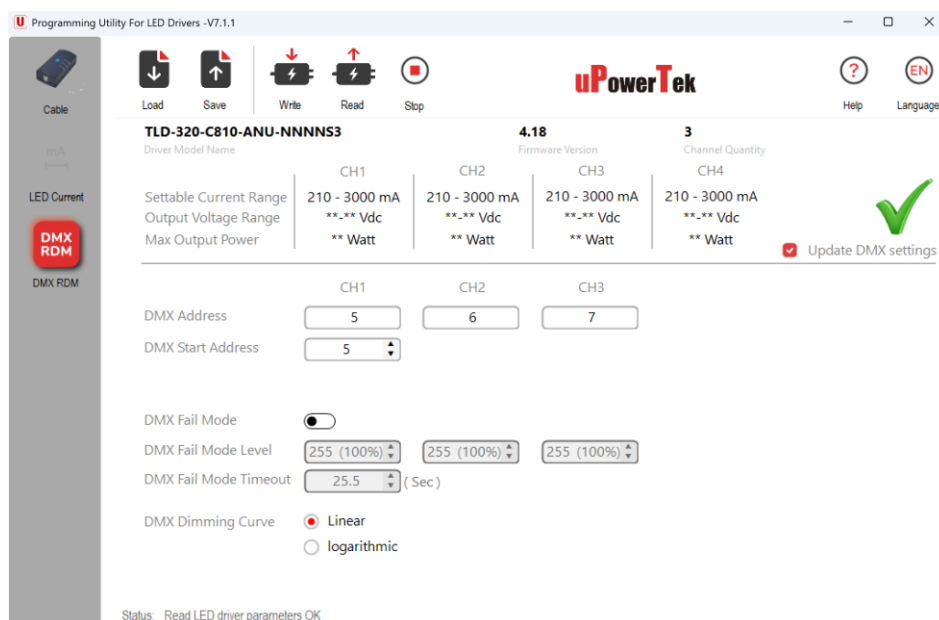


Figure: DMX addressing, fail behavior, curve, minimum level, and relay delay.

7. Load, Save, and Configuration Control

Function	Use
Save	Save the current software settings to an XML file for backup or controlled reuse.
Load	Load an XML file into the software interface; then review, Write, and Read back the driver.

- Use filenames that identify driver family, key option, revision, and approval date.
- Do not load a file for another model or channel count without reviewing every displayed range.
- A loaded file does not change the driver until Write succeeds.
- Archive obsolete profiles and prevent their use at production stations.

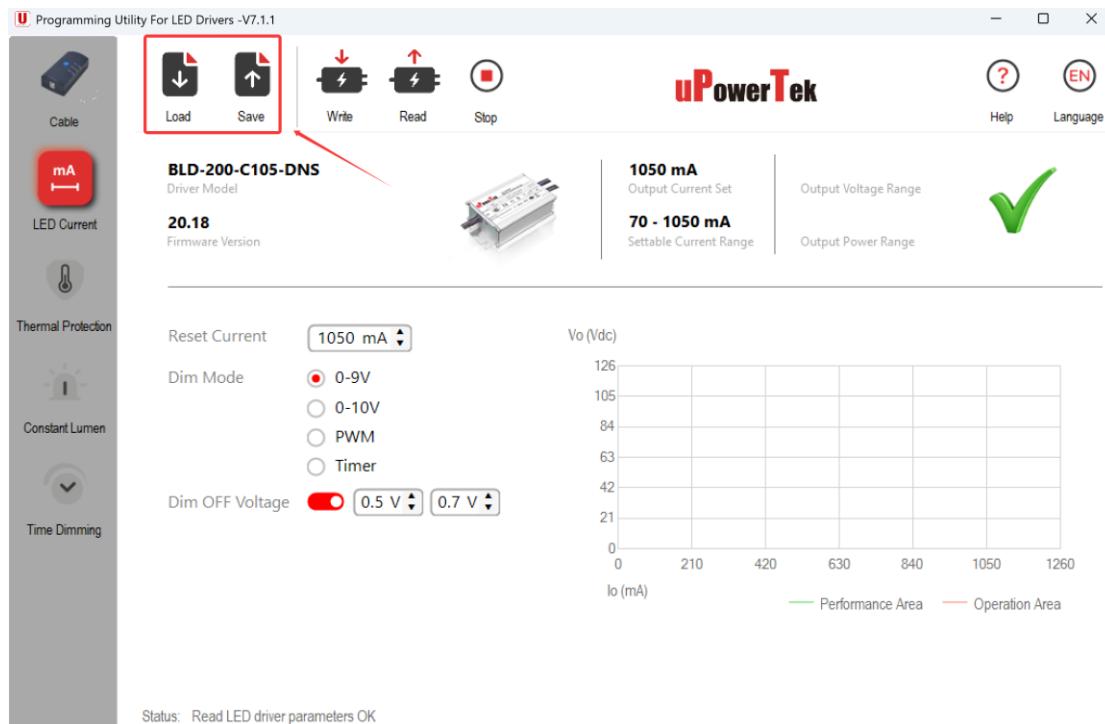


Figure: Load and Save controls in Programming Utility V7.1.1.

8. Troubleshooting

Status or symptom	Likely cause	Corrective action
No programmer detected	USB cable or port problem; wrong programmer selection.	Use a USB data cable; reconnect; try another port; select Cable Programmer.
Communication error	Programming leads are open, reversed, shorted, or connected to the wrong wires.	Disconnect AC; check the product label, polarity, terminal security, and continuity; reconnect.
Read returns no model	Wrong lead pair, poor contact, or unsupported driver.	Verify model compatibility and programming-wire identification; clean and secure the connection.
Write fails	Connection moved or a value is outside the supported range.	Read again; confirm model and ranges; correct invalid values; reconnect and retry.
Wrong channel count	Wrong model/profile or incorrect driver connection.	Stop; compare the label and detected data; do not write until the correct model is read.
Driver works differently after programming	Incorrect current, timer, DALI/DMX, or profile settings.	Disconnect AC; read the driver; compare every changed tab with the approved profile; correct and verify.

10. Support and Maintenance

- Record software version, programmer model, driver model, firmware, channel count, and exact status message for support.
- Provide photographs of the product label and programming-wire connection when reporting a communication issue.
- Inspect USB cables, terminal adapters, and production fixtures periodically, and replace worn contacts before intermittent faults occur.

Programming software and user guides: [uPowerTek Programming Downloads](#)

Technical and sales support: sales@upowertek.com

Revision Summary

Revision	Date	Summary
2.0	July 2026	Expanded scope, corrected terminology, added safety, compatibility, troubleshooting, and complete operating modes.

Document control: Use the latest copy of uPowerTek Cable Programming Guide. Screens and available functions may change with software or firmware updates.