PowerFactor DALI DT6/DT8 Single & Dual Channel Dimmable Driver

AL-98-14-24096-DT8-2C

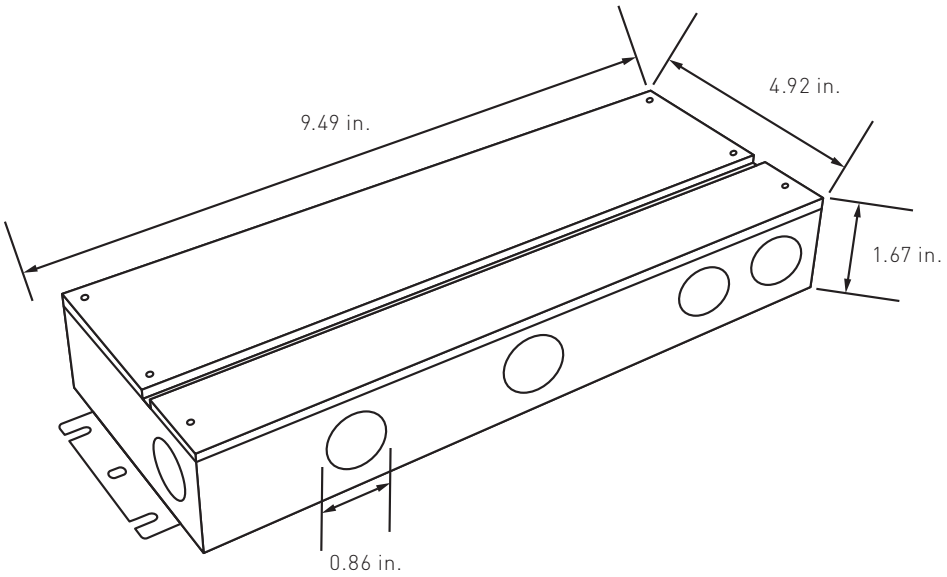
24V/96W DALI-2 driver supporting DT6 single-channel dimming and DT8 tunable white. D4i-capable with NFC programmability. Available in single and dual-channel configurations. PWM flicker-free dimming to 0.1%.

- DALI-2 certified — DT6 (single-channel dimming) and DT8 (tunable white) device types
- D4i power bus for energy monitoring and diagnostics
- Single and dual-channel (tunable white) configurations
- NFC programmable — configure on-site without additional tools
- PWM flicker-free dimming to 0.1% on a logarithmic curve
- Lutron Athena ready — node sold separately
- NEMA 4X
- UL Listed, FCC, RoHS, Class 2, Class P

QUICK SPECIFICATIONS

Input	100V~ 277V	100–277V AC
Features	98% POWER FACTOR; 100% Max. Load; 10% Min. Load; CLASS 2	>98%Power Factor 100% maximum load 10% minimum load Class 2
Environment	DRY LOCATION	Dry/damp/wet environment
Certifications	c UL us LISTED; FC; RoHS; NEMA 4X; CLASS P	UL Listed, FCC, RoHS, NEMA 4X, Class P
Warranty	WARRANTY 6 YEAR	6 year limited

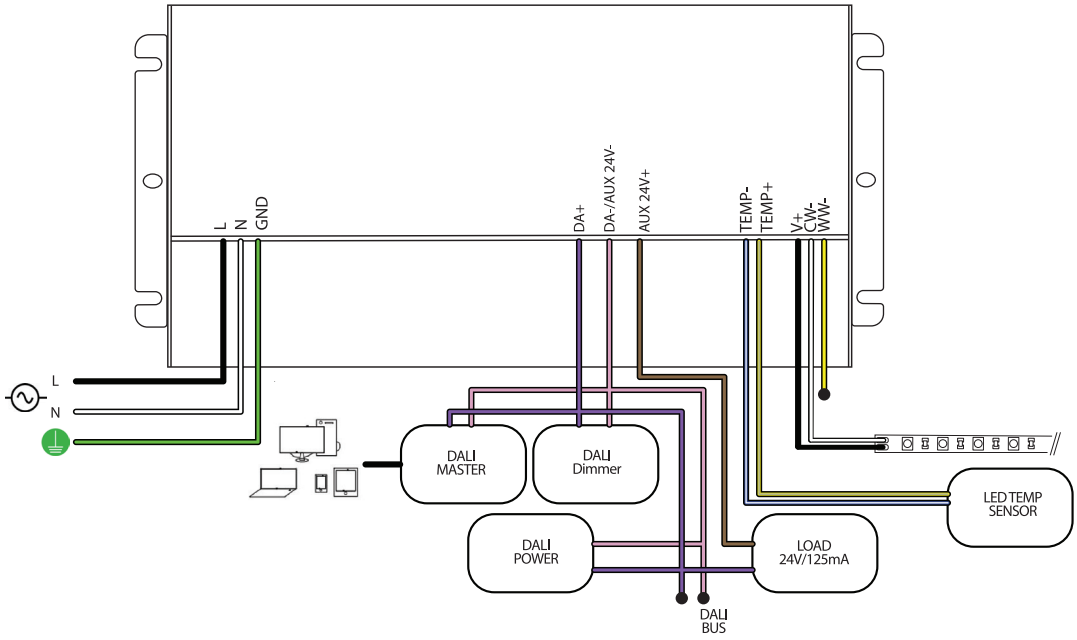
DIMENSIONS

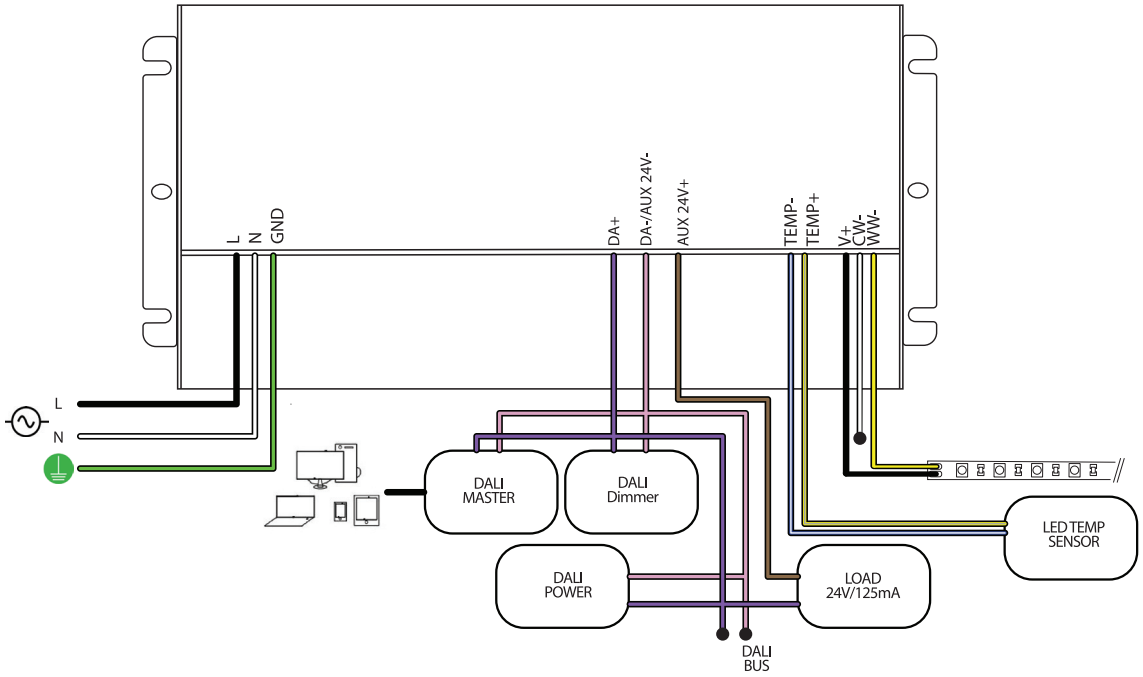


TECHNICAL INFORMATION

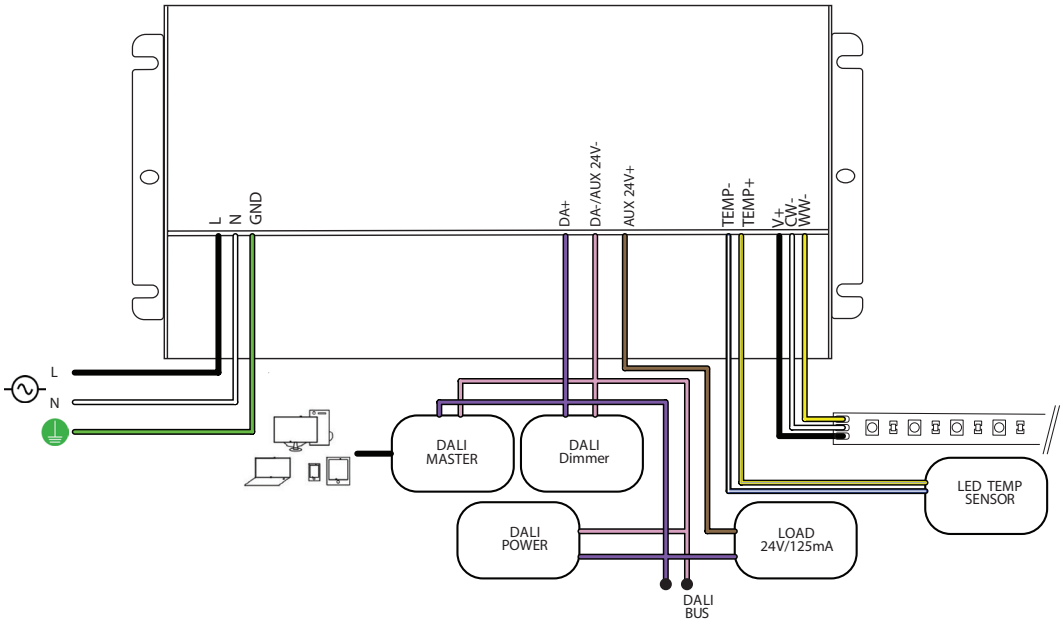
Item Number		AL-98-14-24096-DT8-2C
Output	DC Voltage	24V DC
	Rated Current	4A
	Rated Power	96W
	Minimum Load	10%
Input	Voltage Range	100-277VAC
	Efficiency	Refer to chart
	Frequency Range	50-60 Hz
	Power Factor (Typ.)@full load	≥0.98
Control Protocol	Control Protocol	DALI-2 DT6 & DT8
	Number of Channels	1 or 2
	Dimming Range	0.1% – 100%
	Dimming Curve	Logarithmic (default, NFC-adjustable to Linear)
	Dimming Output Type	PWM flicker-free
Protection	Short Circuit	Shut down o/p voltage, recovers automatically after fault condition is removed.
	Over Load	105%~115% Hiccup mode, recovers automatically after fault condition is removed.
Environment	Working Temp.	-40~+50 °C / -40 ~ +122°F
	Working Humidity	20 - 95%RH non-condensing
Safety & EMC	Safety Standards	UL8750 , CAN/CSA-C22.2 No.250.13 (US)
	EMC Emission	CFR47 FCC Part 15 Subpart B:2020; ANSI C63.4a-2017; ICES-005 Issue 5
Other	Warranty	6 Year Limited
	Size (overall)	9.49 x 4.92 x 1.67 in.

WIRING DIAGRAM: DT6 SINGLE COLOR





WIRING DIAGRAM: DT8 TUNABLE WHITE



NOTES

1. The Pulse-Width Modulation (PWM) of output voltage can be adjusted through the DMX512 system.
2. Min. loading is about 10%

INSTRUCTIONS

1. This driver should be installed by qualified and professional person.
2. Please make sure the driver is installed with adequate ventilation around it to allow for heat dissipation.
3. Ensure that wiring is correct before test in order to avoid light and power supply damage.
4. If the driver does not operate normally, do not attempt repairs. Contact your distributor or qualified service personnel.

TROUBLESHOOTING

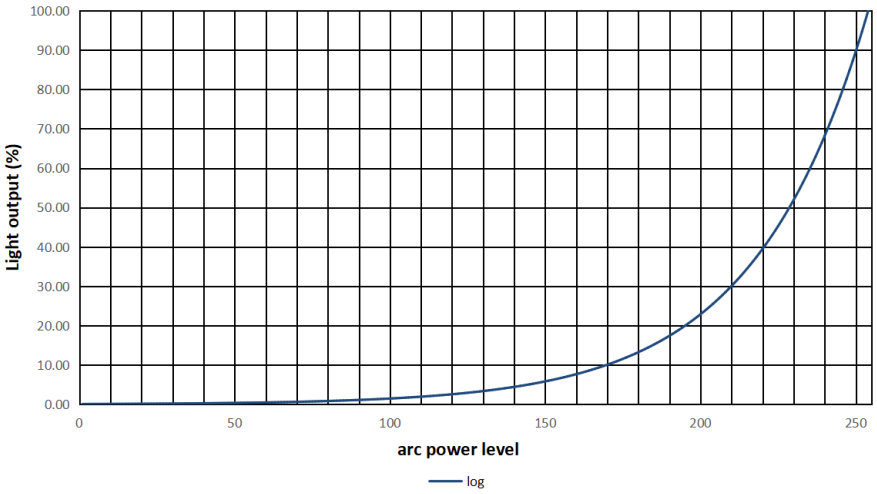
Q: Why are the lights connected to the driver blinking roughly once a second?
A: The driver may be overloaded. Check to make sure the maximum wattage is not being exceeded. There could also be a possibility of incompatible voltage. Confirm that the driver and tape light voltage match.

Q: How do I determine the compatibility?
A: Check the voltage, wattage, load capacity of both the tape light and driver.

Q: Is it possible to have multiple runs of tape light that are daisy-chained together connect to a driver with 1 lead wire?
A: Yes, but only if the total length of consecutive runs do not exceed the tape light's maximum run and also does not exceed the driver's maximum wattage.

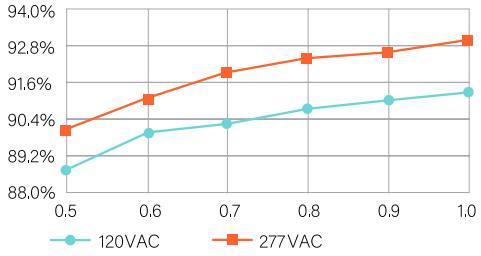
PERFORMANCE CURVES

DIMMING CURVE: LOGARITHMIC



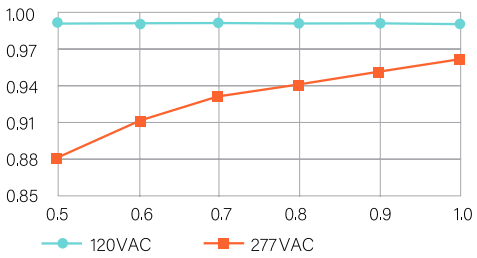
EFFICIENCY CURVE

96W



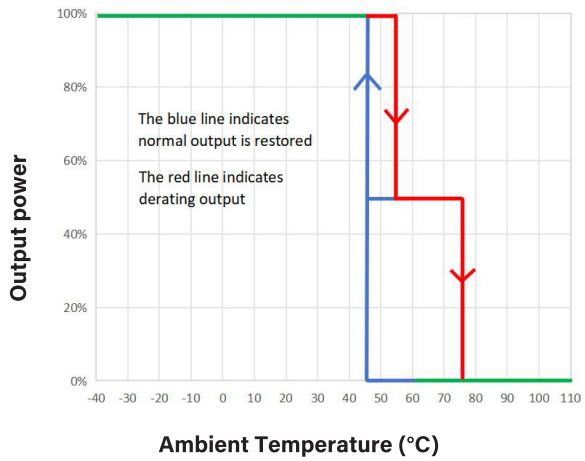
POWER FACTOR CURVE

96W



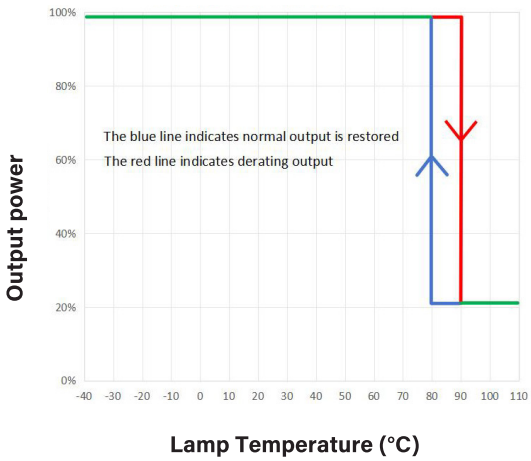
PERFORMANCE CURVES

DERATING CURVE
(OUTPUT POWER VS. AMBIENT TEMPERATURE)



- To extend the life of the driver, please refer to the Derating Curve and derate according to the temperature.
- The output current of the driver should be selected according to the rated current of the lamp and the ambient temperature.
- Normally, we recommend the power supply to reserve a certain amount of load to extend driver's life.

DERATING CURVE OF LAMP
(OUTPUT POWER VS. LAMP)

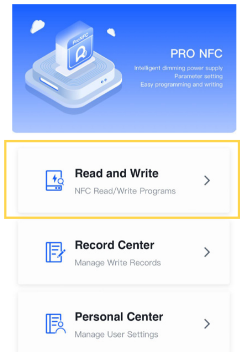


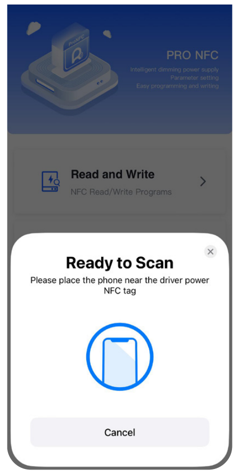
- This figure shows the protection curve when the recommended model of the lamp temperature sensor is NCP18XH103J03RB(muRata) and the external temperature protection parameters on the APP are factory default.
- If the model of thermistor is not NCP18XH103J03RB(muRata), please check the relevant parameters of lamp temperature protection on the APP.
- If the lamp temperature sensor is not connected, please keep the parameters of the lamp temperature protection section on the APP as default and cap the wires so they don't contact the housing.

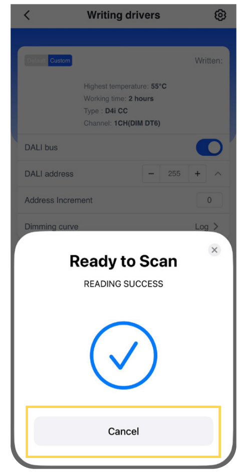
PRONFC FEATURE SET

iOS

Android







1. Scan the QR code to download the ProNFC app.

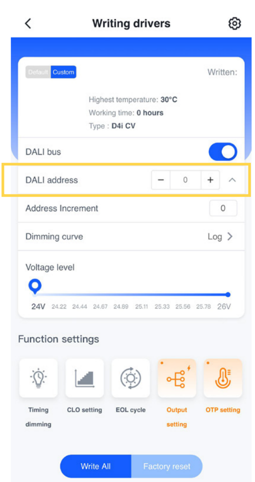
2. Open the ProNFC App. Select "Read and Write".

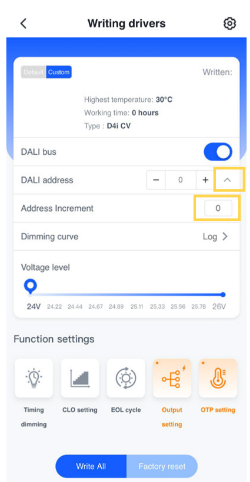
3. Place the phone near the driver power NFC tag.

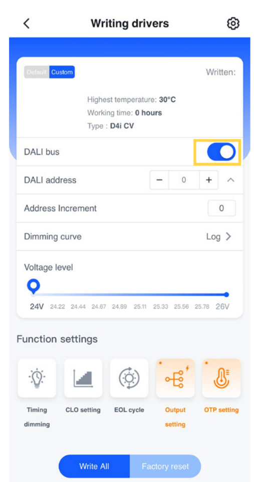
4. Wait for the successful reading. Press "Cancel".

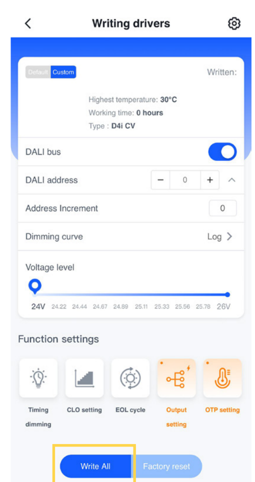
DALI Address & DALI Bus

Set the DALI address parameter of current power supply, address setting range: 0-63, or 255 (255 means delete address).









1. Select the + or - sign of DALI address to set the address, click the value box to input a value from 0-63, or 255 to clear the address.

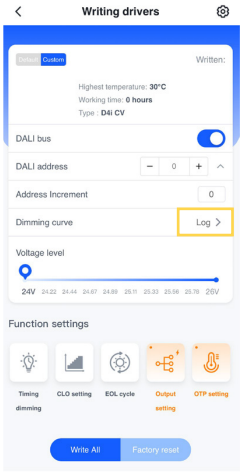
2. Select the arrow next to DALI address to collapse or expand the address auto-increment setting, input the value 0-10 to auto-increment the address, 0 is to close the auto-increment.

3. Select the DALI bus switch to enable or disable the DALI bus setting.

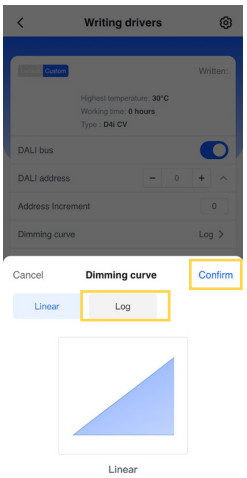
4. Select "Write All" to program and write the set parameters and take effect after the driver power supply is re-powered.

PRONFC FEATURE SET

Dimming Curve Adjustment



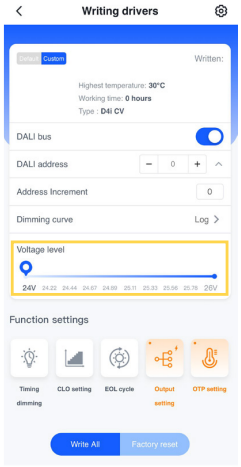
1. Select “Log” to edit the dimming curve parameters.



2. Select the dimming curve you want to set, then press “Confirm”.

Output Voltage Adjustment

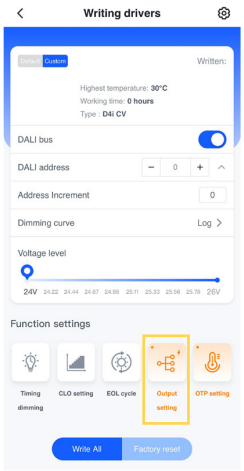
The Output Voltage can be read and written by a mobile with the ProNFC App by placing it close to the NFC signal area of the driver.

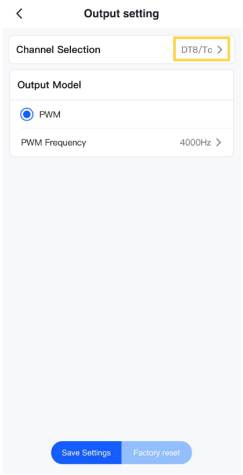


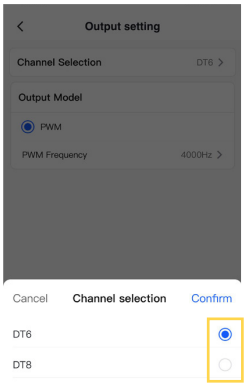
NFC Voltage Regulation Level	
Level 1	24.0V
Level 2	24.2V
Level 3	24.4V
Level 4	24.7V
Level 5	24.9V
Level 6	25.1V
Level 7	25.3V
Level 8	25.6V
Level 9	25.8V
Level 10	26.0V

Set Output Mode (DT6/DT8) by NFC

You can choose DALI DT6 for single color or DALI DT8 for Tunable White.

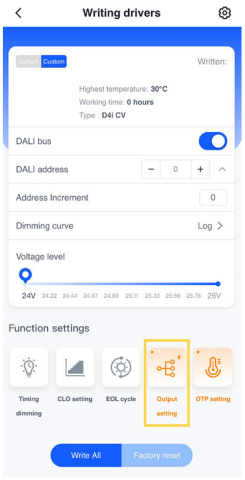




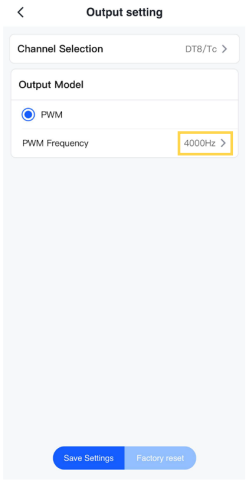


Output Setting/PWM Frequency

Select the desired PWM Frequency setting.



1. Select “Output Settings”.



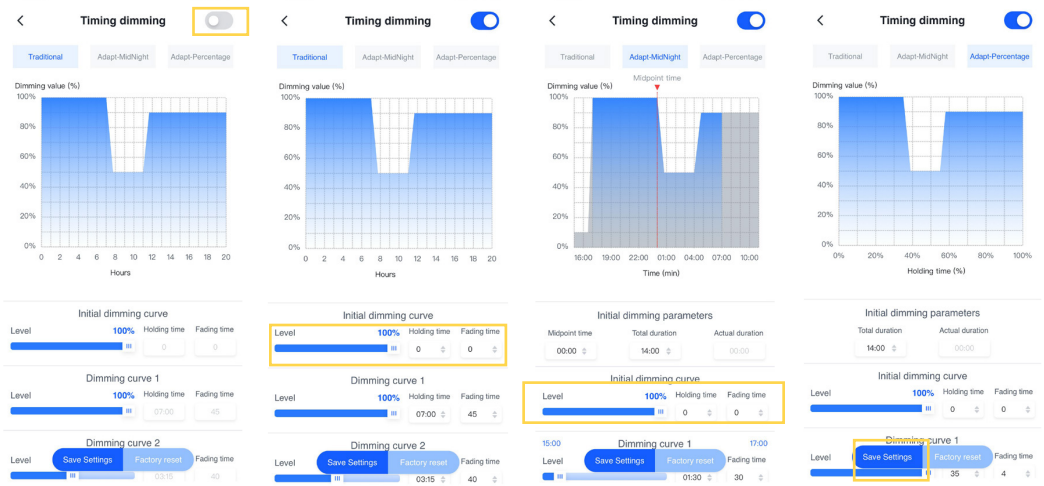
2. Open the PWM Frequency tab.

3. Select the PWM frequency and press “Confirm”.

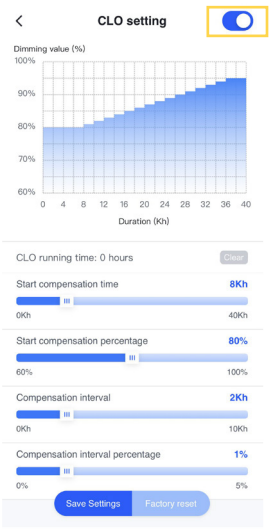
Time Dimming

Time dimming control includes 3 kinds of modes, set via NFC:

1. Traditional Timer: follows the programmed timing curve after power on with no changes.
2. Self Adapting – Midnight: set the midpoint time of the dimmer curve; it will automatically adjust the curve according to the total working time of the past few days. If difference <30 minutes, the midpoint is set at 0 point; the user can set the offset, can be positive and negative offset for 4 hours.
3. Self Adapting – Percentage: automatically adjust the working hours according to the last few days (increase or decrease according to the initialization time and effective working time).

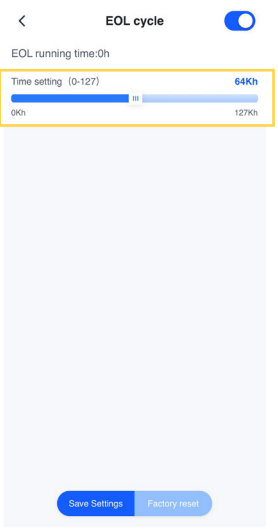


PRONFC FEATURE SET



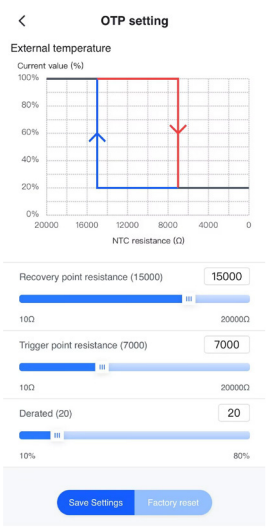
CLO Setting

This function is mainly used to maintain the constant brightness output of the LED. During the life cycle of LED, by gradually increasing the driving current, to compensate for the light decay caused by the long operation of LED, ensuring the constant optical flux output of LED.



EOL Cycle

Once this function is activated, the output current of the LED drive automatically decreases to 1% of the total current and lasts for 1 minute, reminding the user to replace the LED fixture and reaching the service life designed by the supplier.



Over-Temperature Protection

During use, if the power supply detects that the external temperature of the luminaire exceeds the preset threshold, it will automatically trigger the over-temperature protection and reduce the power supply current value to avoid the luminaire from overheating and causing damage.

Warning

- Installation must be performed by a qualified electrician or professional installer in accordance with applicable electrical codes.
- Ensure adequate ventilation around the driver to allow for proper heat dissipation.
- Verify all wiring connections before powering on to prevent damage to the LED load or power supply.
- Do not attempt to repair or modify the driver. Contact your distributor or qualified service personnel if the unit does not operate properly.

Understanding PWM (Pulse Width Modulation)

Pulse Width Modulation (PWM) is a method for reducing the average deliverable power of an electrical signal. PWM dimming works by rapidly switching the LED on and off at high speed. The PWM signal may either be ON or OFF at any one time, meaning that the LEDs will either get the full or no voltage. The brightness is controlled by adjusting the time the LED is on versus off in each cycle. Since this happens faster than the human eye can detect, the LED appears to dim smoothly without changing its voltage. Best for commercial applications, ensures high-efficiency, precise dimming and color consistency for advanced lighting systems.

Benefits:
- Maintains consistent LED color and efficiency across dimming levels
- Provides smooth and precise dimming

Considerations:
- Low-quality dimmers may introduce flicker if the frequency is too low

Dimming Compatibility:
- 0-10V Dimming: the 0-10V signal is converted into a corresponding PWM signal to control brightness
- Phase-Cut Dimming: can work with MLV and ELV dimmers by interpreting the phase-cut signal to adjust the PWM duty cycle

Class P Drivers

A Class P driver is a type of LED driver that follows UL (Underwriters Laboratories) standards for safety and performance. The main benefit is interchangeability — you can replace a Class P driver with another Class P driver (from any brand) with the same specifications without needing to retest the entire lighting system for compliance.

Key Points:
- Interchangeability – Makes it easier to replace drivers without re-certification.
- UL Safety Standard – Ensures the driver meets thermal and electrical safety requirements.
- Flexibility – Manufacturers can switch to different Class P drivers based on availability or performance needs.