FRIGHT RESEARCH
Advanced Haunt Effects

Pro Flicker 5CH LED Controller
Designed for Candelabras

Overview

The Pro Flicker 5-Channel LED controller, new for 2025, is specifically designed for controlling LEDs in candelabras or similar multi-channel applications. As with our other Pro Flicker LED controllers, it features artificial intelligence (AI) based prediction algorithms to generate the most realistic candle and flame effects available anywhere. Software based low pass filtering is also employed to provide smooth and organic modulation without sharp transitions which is common with inexpensive and inferior flicker controllers.

This LED controller features five (5) independent output channels which are each controlled by their own dedicated embedded processor. A pushbutton for each channel allows the user to cycle through the various candle and flame effect modes. Each mode has varying intensities, modulation, and flickering. Internal memory allows the device to resume the previously selected output mode in the event power is loss to the device. This is also useful for permanent installations where a single operating mode is required to continuously operate in even when power is cycled or lost.

The Pro Flicker 5-Channel LED controller can be used with LEDs, low voltage incandescent, and halogen bulbs up to 300mA per channel.

Features

- Artificial Intelligence (AI) forward prediction
- True non-repeating random algorithms
- Fifteen (15) modes of operation
- For use with LEDs (dimmable types)
- Incandescent and halogen lights
- Five (5) independent output channels
- Five (5) pushbuttons for mode selection
- Memory saves mode during power loss
- Operating Voltage: 7VDC to 16VDC
- Max. Load Current: 300mA per channel
- Reverse voltage protection
- Flange mount for easy installation
- Removable terminal block

Operation

Using the Pro Flicker 5-Channel LED controller is extremely simple. Simply connect light sources to the output terminals as shown in the connection diagram on the next page and use the pushbutton to cycle through the various modes for each output channel. Each press of the pushbutton will advance the operational mode by one. After all modes have been cycled through, the unit will enter OFF mode. In this mode, the output to that specific output channel is disabled.

OFF Mode Considerations for Battery Powered Controllers

When all five (5) channels are in OFF mode, the output drivesr are all disabled, however, the microprocessor inside is still in a quiescent state which is consuming a minute amount of power. If you are using a battery source, it is recommended to use an external switch to disconnect power from the controller when not in use as this can drain the battery.

Discrete LEDs and Current Limiting Resistors

The output driver of the Pro Flicker controller is not current limited, therefore if you plan on using discrete LEDs, you will need to use the proper current limiting resistors with the LEDs. Current limiting resistors should be utilized to ensure the maximum continuous current is not exceeded per the LED's datasheet. Exceeding 300mA per channel will damage the led controller and if using discrete LEDs without current limiting resistors, will damage the LEDs as well.

Please note, that LED bulbs and other commercially packaged LEDs that are labeled for 12V or 24V use, generally already have the proper current limiting resistors installed.

Output Current Capability

The maximum output current per channel of the Pro Flicker 5-Channel LED controller is 300mA. For LEDs without internal current limiting resistors, please refer to Note 1 at the end of this document.

Types of LEDs that cannot be used

There are some LEDs and spotlights that include their own regulation and/or filter circuitry inside them. These LEDs will not be able to work with these flicker controllers as the internal regulator circuitry will filter out the high frequency modulation of the flicker controller and prevent it from changing the brightness of the LED. Generally, if the LED or spotlight is relatively expensive, it most likely will have

Candle / Flame Suite Modes

The following list are all the available modes included with the Pro Flicker 5-Channel LED controller for the Candle and Flame Suite. These modes apply to each of the five (5) output channels.

Mode	Description	Brightness
OFF	Output OFF	
1	Steady Output	100%
2	Steady Output	75%
3	Steady Output	50%
4	Steady Output	25%
5	Steady Output	10%
6	Glowing Candle	Low
7	Bright Candle	Med
8	Blowing Flame	Med
9	Windy Flame with Flicker	Med
10	Torch with Soft Modulation	Med
11	Soft Glow	Med
12	Fast Flame – High Modulation	Med
13	Subtle Candle	Very Low
14	Intense Flame – Soft Modulation	High
15	Blowing Torch – Max Flicker	High

Hook-up Diagram

The following table shows a description of the 8-position terminal block connections for the LED controller. Refer to the connection diagram below for how to connect LEDs to the controller.

Pin	Description
VIN	Connect to positive DC source (7-16VDC)
GND	Connect to negative DC source
LED+	Connect to anode (positive) side of LEDs
CH1	Connect to cathode (negative side of LED1
CH2	Connect to cathode (negative side of LED2)
CH3	Connect to cathode (negative side of LED3)
CH4	Connect to cathode (negative side of LED4)
CH5	Connect to cathode (negative side of LED5)

Resistors (Note 1)

If the LEDs being used are discrete LEDs without internal current limiting resistors, you must add your own current limiting resistors (R1 – R5). These resistors must be sized to ensure the current is less than the maximum current as specified for each LED. For small T-1 or T-1 ¾ LEDs, the max. current is generally 15mA.

Failure to use current limiting resistors with discrete LEDs (T-1, T-1 ¾ etc..) will cause both the LEDs and output drivers of the LED controller to FAIL!