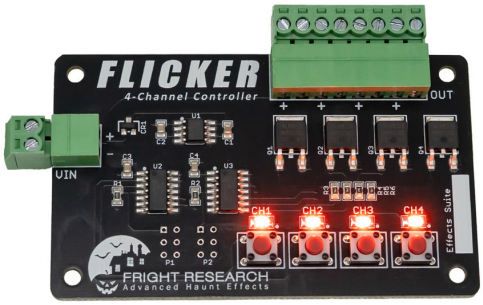
FRIGHT RESEARCH
Advanced Haunt Effects

Pro Flicker 4-Channel LED Controller
Candle and Flame Suite



Overview

The Pro Flicker 4-Channel LED controller, new for 2023, is our most advanced pattern effects generator for LEDs and now includes artificial intelligence (AI) based prediction algorithms for the most realistic candle and flame effects. Software based low pass filtering is also employed to provide smooth and organic modulation without the sharp transitions and flickering common with inexpensive and inferior flicker controllers.

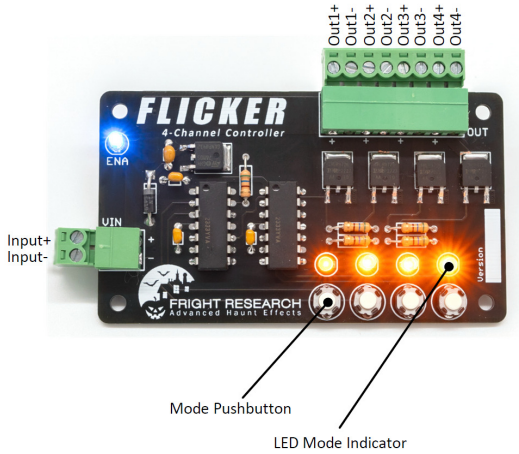
Four pushbuttons allow the user to cycle independently the modes on all four output channels allow the user to cycle through a wide array of output candle and flame patterns with varying intensities, modulation, and flickering. Internal memory allows the device to resume the previously selected output modse in the event power is loss to the device. This is also useful for permanent installations where a single operating mode is required continuously even when power is cycled.

The Pro Flicker 4-Channel LED controller can be used with LEDs, low voltage incandescent, and halogen bulbs.

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
- Four (4) mode pushbuttons
- Four (4) onboard LEDs mirror the output modes
- Memory saves mode during power loss
- Operating Voltage: 7VDC to 26VDC
- Max. Total Load Current: 8A
- Max. Load Per Channel: 3A
- Reverse Voltage Protection
- Flange mount for easy installation
- Removable terminal blocks

Connection Diagram



Operation

Using the Pro Flicker 4-Channel LED controller is extremely simple. Simply connect the light sources to the output terminals as shown in the above diagram and use the pushbuttons to cycle through the various modes on all four channels. 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 the LED driver is disabled.

If the event you do not have an external light connected, there is an onboard LED for each channel which will illuminate and reflect the specific mode that is chosen.

Onboard LED Status

There are four (4) onboard amber LEDs that mirror the output modulation for each channel. This is useful for setting the mode without having an output connected, or if the output light is located in an area that is separate from where the controller is located.

OFF Mode Considerations for Battery Powered Controllers

When the unit is in OFF mode, the output driver is 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.

Discrete LEDs and Current Limiting Resistors

The output driver of the Pro Flicker controller is not current regulated, 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.

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 output driver stage of the Pro Flicker LED controller uses a high power, ultra-efficient N-channel switching MOSFET utilizing advanced Pulse Width Modulation (PWM) technology.

The maximum output current per channel of the Pro Flicker 4-Channel LED controller is 3A. **Total output current of the four (4) channels combined should not exceed 8A!**

Note: Please use the appropriate input power supply that is capable of delivering the current necessary for all four (4) channels.

Candle / Flame Suite Modes

The following list are all the available modes included with the Pro Flicker 4-Channel LED controller for the Candle and Flame Suite for each of the four (4) 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

Note: As we are continually striving to improve our products, the included modes listed above may be changed and updated at any time without notice and/or inclusion in this datasheet.

Other Program Suites

The Pro Flicker 4-Channel controller is also available with other programmed effect suites including electrical glitch and a deluxe suite. Please visit our website for additional information.

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 internal regulation circuitry.

Additional Products from Eastern Voltage Research

High Brightness Candle Flame LED

These high brightness Candle Flame LEDs were custom designed to provide the most realistic candle and flame color available. They were specifically designed for use with the Pro Line Flicker controllers. The LEDs were designed with a color temperature of 1900K to match that of a true candle flame.

- Color: Yellow-Orange (1900K)
- Brightness: 300 Lumens @ 12VDC
- Input Voltage: 7-12VDC
- Input Current: 175mA @ 12VDC
- Socket type: Compatible with 194 / 168 bulbs
- Wire can also be soldered directly to the bulb

Visit the website below for purchasing these candle flame LEDs as well as additional information.

www.EasternVoltageResearch.com