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HGLRC HGLRC LED MINI Controller

HGLRC LED MINI Controller User Manual

Model: HGLRC LED MINI Controller

1. Introduction

The HGLRC LED MINI Controller is an advanced and compact LED control module designed for FPV racing drones and quadcopters. This upgraded version of the popular HGLRC W2812 LED Controller offers simplified operation and enhanced functionality, allowing for easy customization of LED lighting without complex computer adjustments. Its small size makes installation convenient in various drone builds.

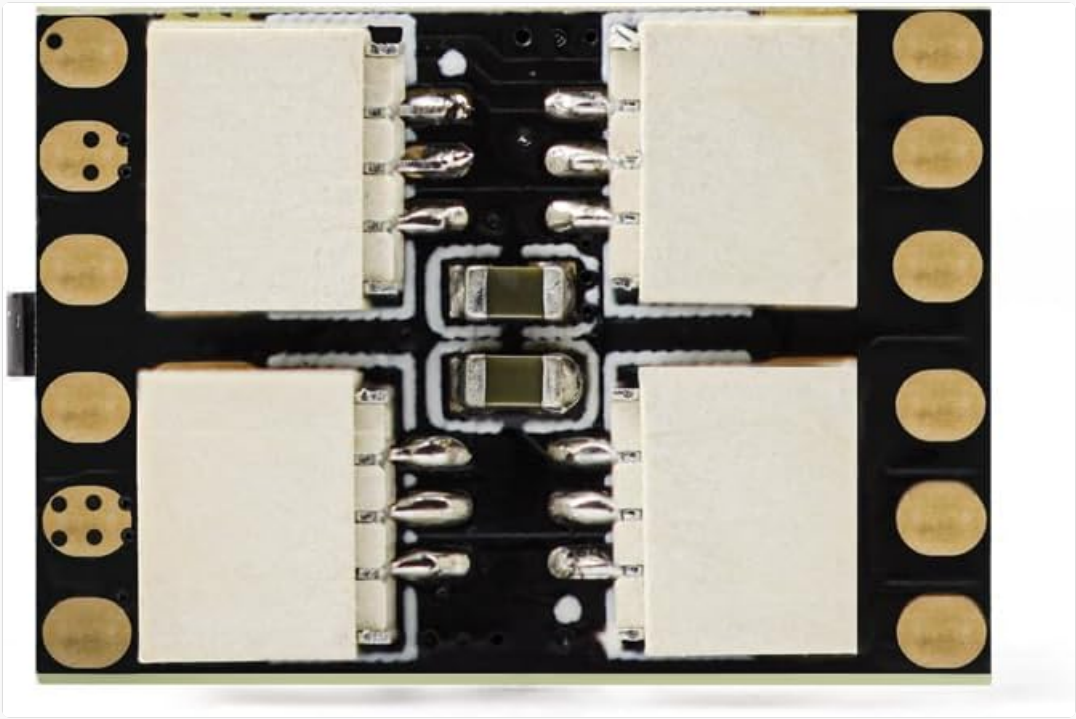


Figure 1.1: Top view of the HGLRC LED MINI Controller.

2. Features

- **One-Click Mode Switching:** Easily switch between LED modes and colors with a single button press, eliminating the need for tedious computer parameter adjustments.
- **Reserved Pads for LED Connections:** Designed with dedicated pads to match and connect with various LED strips.
- **Dual Parameter Adjustment Modes:** Supports direct connection to 2-6S power supply or connection to a flight

controller for remote control parameter adjustment.

- **Electronic Switch Function:** Allows for setting up a remote control switch for LED control.
- **Compact Design:** Smaller size for more convenient installation in tight spaces.

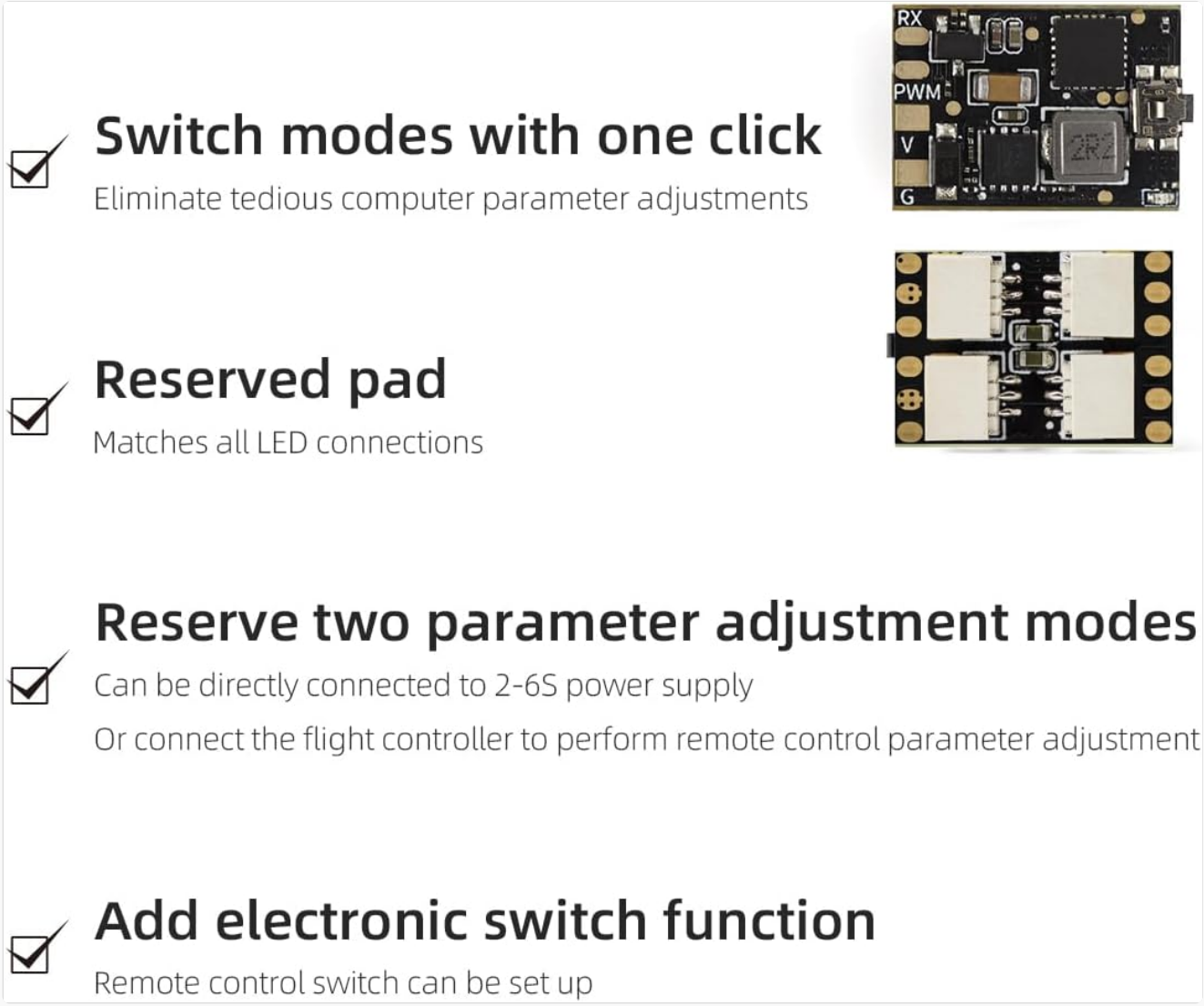


Figure 2.1: Visual representation of the HGLRC LED MINI Controller's key features.

3. Specifications

Parameter	Value
Input Voltage	2-6S (7.4-25V)
Dimensions (L x W x H)	17mm x 12.5mm x 6.5mm
Weight	1.47g (single unit)
Control Type	Onboard Button / Remote Control (via Flight Controller)
Connectivity Technology	Wired (USB for Flight Controller connection)

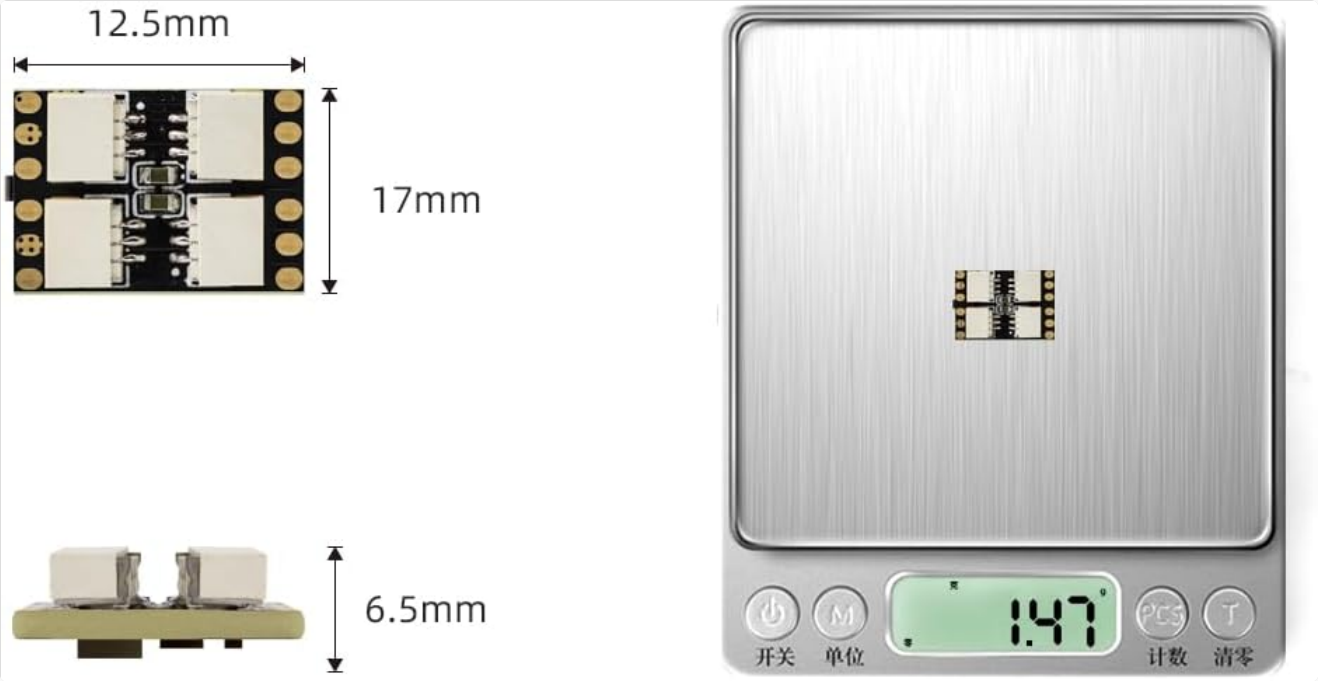


Figure 3.1: Physical dimensions and weight of the HGLRC LED MINI Controller.

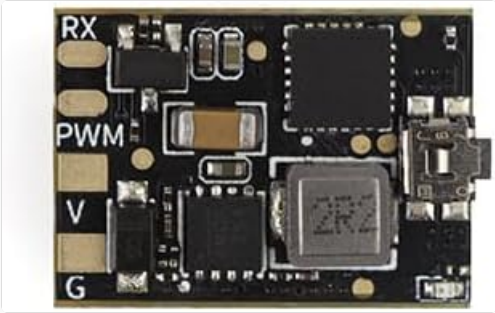


Figure 3.2: The compact size of the HGLRC LED MINI Controller demonstrated by being held in a hand.

4. Package Contents

The HGLRC LED MINI Controller package typically includes the following items:

- 1x HGLRC LED MINI Controller
- 4x 30AWG 100mm connecting cables (red, black, yellow, and green)

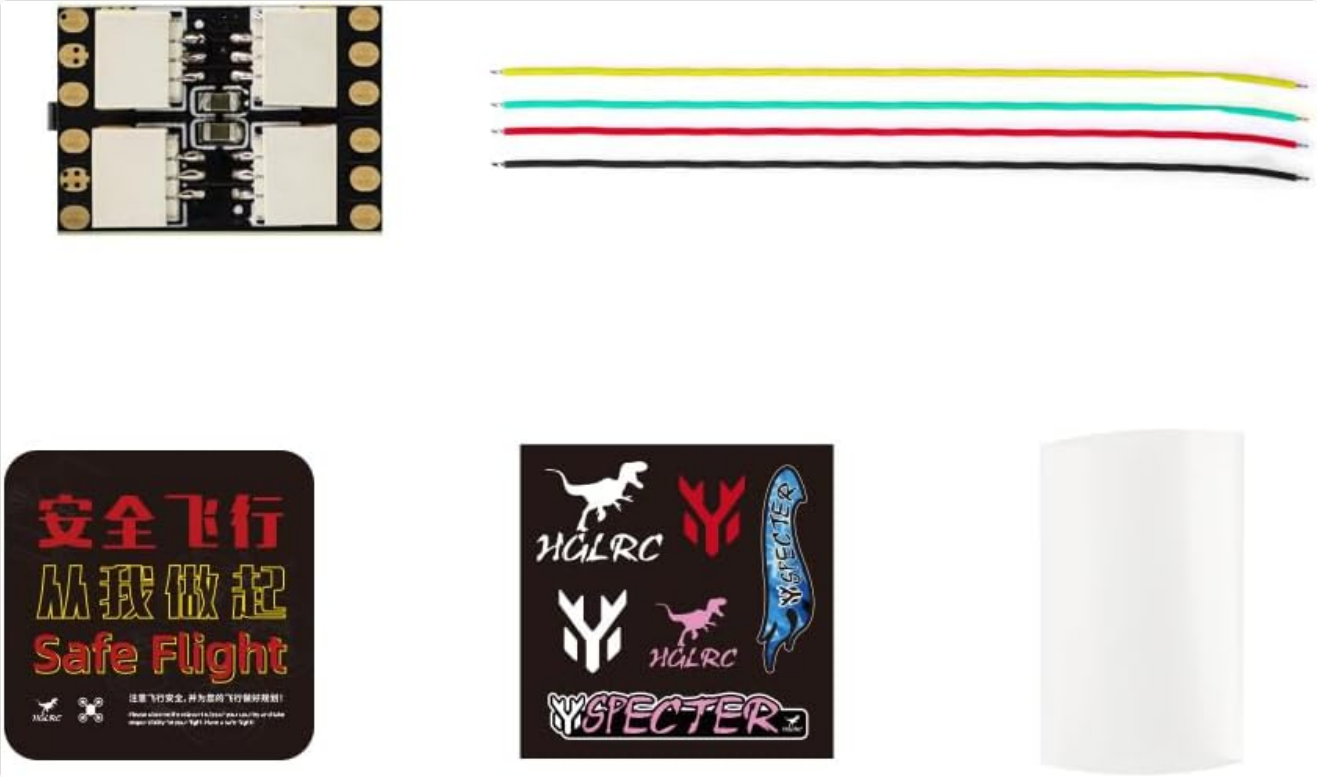


Figure 4.1: Contents of the HGLRC LED MINI Controller package, showing the controller and connecting wires.

5. Setup and Installation

The HGLRC LED MINI Controller is designed for integration into FPV drone systems. Proper installation involves soldering and connecting to either a direct power source or a flight controller.

5.1 Wiring Connections

The controller features reserved pads for connecting LED strips and power. You will need to solder the provided connecting cables to these pads and to your LED strips or flight controller.

- **Power Connection:** The controller can be powered directly from a 2-6S (7.4-25V) battery. Ensure correct polarity when connecting.
- **LED Strip Connection:** Connect your compatible LED strips to the designated pads on the controller. The controller is designed to match various LED connections.
- **Flight Controller Connection (Optional):** For remote control parameter adjustment and electronic switch functionality, connect the controller to your flight controller's available TX pad and LED pinout. Refer to your flight controller's manual for specific pinout details.



Figure 5.1: Close-up view of the HGLRC LED MINI Controller showing connection pads (RX, PWM, V, G).

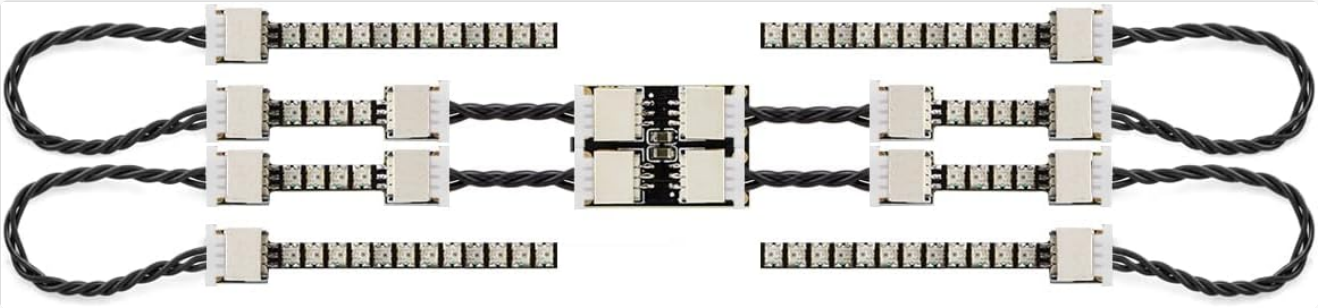


Figure 5.2: Example diagram illustrating how multiple LED strips can be connected to the HGLRC LED MINI Controller.

5.2 Mounting

Due to its small size, the controller can be mounted in various locations on your drone frame. Ensure it is secured to prevent movement during flight and is not exposed to excessive vibrations or direct impact.

6. Operating Instructions

The HGLRC LED MINI Controller offers both manual and remote control options for managing your LED lighting.

6.1 Manual Operation (Onboard Button)

The controller features a small button for direct control of LED functions:

- **Short Press:** A quick press of the button will cycle through available LED colors (blue, red, green, yellow).
- **Long Press (3 seconds):** Press and hold the button for approximately 3 seconds to enter the flashing mode switch. The LED status indicator will remain on to confirm entry into this mode.
- **Flashing Modes:** Once in flashing mode, short presses will cycle through different flashing patterns: slow

flashing, steady light, cycle, and fast flashing.

6.2 Remote Control Operation (via Flight Controller)

If connected to a flight controller, the HGLRC LED MINI Controller supports remote control parameter adjustment and electronic switch functions. Specific setup within your flight controller software (e.g., Betaflight) may be required to enable these features. Consult your flight controller's documentation for details on configuring LED control via a dedicated pinout.

7. Maintenance

To ensure the longevity and optimal performance of your HGLRC LED MINI Controller, follow these general maintenance guidelines:

- **Keep Dry:** Protect the controller from moisture and humidity, which can damage electronic components.
- **Cleanliness:** Periodically inspect the controller for dust or debris. Use a soft, dry brush or compressed air to gently clean it. Avoid using liquid cleaners.
- **Temperature:** Operate and store the controller within recommended temperature ranges. Avoid extreme heat or cold.
- **Connection Integrity:** Regularly check all soldered connections for signs of wear or corrosion. Re-solder if necessary to maintain reliable contact.

8. Troubleshooting

If you encounter issues with your HGLRC LED MINI Controller, consider the following troubleshooting steps:

8.1 LEDs Not Lighting Up

- **Check Power:** Verify that the controller is receiving adequate power (2-6S, 7.4-25V) and that all power connections are secure and correctly polarized.
- **LED Strip Connection:** Ensure the LED strips are correctly connected to the controller's pads and are not damaged.
- **Controller Functionality:** If connected to a flight controller, try disconnecting it and testing the LED controller with direct power and manual button presses to isolate the issue.

8.2 Incorrect LED Behavior / No Remote Control

- **Flight Controller Configuration:** If using a flight controller for remote adjustment, ensure that the LED strip functionality is properly configured in your flight controller software (e.g., Betaflight). Some users have reported challenges with Betaflight integration; ensure LED strip control is enabled or disabled as needed to allow the controller's onboard button to function.
- **Signal Connection:** Verify the signal wire connection between the LED controller and the flight controller's designated LED pinout.
- **Firmware:** Ensure your flight controller's firmware is up to date and compatible with external LED control.

9. Warranty and Support

For information regarding product warranty, returns, or technical support, please refer to the official HGLRC website or contact the seller from whom you purchased the product. Keep your proof of purchase for any warranty claims.

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