iProtool ESP-01S RGB LED Controller Module

iProtool ESP8266 ESP-01/ESP-01S RGB LED Controller Module User Manual

1. Product Overview

The iProtool ESP8266 ESP-01/ESP-01S RGB LED Controller Module is designed to facilitate easy control of WS2812 addressable LED light bars and rings. This module allows users to create custom lighting control systems, supporting programming through the Arduino IDE.

Key Features:

- **Master Compatibility:** Designed for use with ESP-01 or ESP-01S WiFi modules (ESP-01/ESP-01S module not included).
- **Control Pin:** Utilizes GPIO2 for LED control.
- **Interface:** Features a 3Pin PH2.0 connector for easy connection to WS2812 LEDs.
- **Operating Voltage:** Supports DC 3.7V-5V power supply.
- **Battery Support:** Compatible with 3.7V lithium batteries.

2. Package Contents

Please verify that all items are present in your package:

- 1 x ESP-01S RGB LED Module (*Note: ESP-01S WiFi module and RGB LED are NOT included*)
- 1 x 3PIN PH2.0 Connector with wires

3. Specifications

Feature	Description
Master Module Compatibility	ESP-01 / ESP-01S (not included)
Control Pin	GPIO2

Feature	Description
LED Interface	3Pin PH2.0 connector
Operating Voltage	DC 3.7V-5V
Battery Support	3.7V lithium battery

Important Note on Power Supply: The positive supply voltage (VCC) on the module board is directly connected to the VCC pin on the WS2812 3PIN connector. Therefore, if your WS2812 light bar or ring requires 5V power, ensure you use a DC 3.7V-5V power supply for the module.

4. Setup and Installation

Follow these steps to set up your ESP-01S RGB LED Controller Module:

1. **Power Supply Connection:** Connect a DC 3.7V-5V power supply to the VCC and GND pins (2.54mm pin header) on the module. Ensure correct polarity.
2. **Program Download:** Download your desired program (e.g., using Arduino IDE) to your ESP-01S WiFi module.
3. **Insert ESP-01/ESP-01S:** Carefully insert the programmed ESP-01 or ESP-01S WiFi module into the 2x4 Pin header on the controller board. Ensure the module is oriented correctly, following any directional arrows or markings on the board.
4. **Connect WS2812 LED:** Connect your WS2812 light bar or ring to the 3Pin PH2.0 connector on the module. The pins are typically labeled VCC, GND, and SIG (Signal).

5. Operation

Once the module is set up and powered, its operation is determined by the program loaded onto the ESP-01/ESP-01S WiFi module. Typically, you will use the Arduino IDE with appropriate libraries (e.g., FastLED, Adafruit NeoPixel) to write code that controls the WS2812 LEDs connected to the module's GPIO2 pin. Refer to the documentation of your chosen programming environment and libraries for detailed instructions on creating and uploading LED control sequences.

6. Maintenance

To ensure the longevity and proper functioning of your ESP-01S RGB LED Controller Module:

- Keep the module clean and free from dust and moisture.
- Avoid exposing the module to extreme temperatures or direct sunlight.
- Handle the module with care to prevent damage to components or connectors.
- Ensure power connections are secure and within the specified voltage range (DC 3.7V-5V).

7. Troubleshooting

If you encounter issues with your module, consider the following troubleshooting steps:

- **No Power/LEDs Not Lighting Up:**

- Check power supply connections and ensure the voltage is within 3.7V-5V.
- Verify power supply polarity.
- Ensure the ESP-01/ESP-01S module is correctly inserted and powered.

- **Incorrect LED Behavior:**
  - Confirm that the correct program is uploaded to your ESP-01/ESP-01S module.
  - Check the wiring between the controller module and the WS2812 LEDs (VCC, GND, SIG).
  - Verify that the WS2812 library in your code is correctly configured for the number of LEDs and the control pin (GPIO2).
- **Module Not Responding:**
  - Try resetting the ESP-01/ESP-01S module.
  - Re-upload the firmware to the ESP-01/ESP-01S.

For further assistance, consult online forums and communities dedicated to ESP8266 and WS2812 projects, or contact iProtool support.

8. Product Images

Figure 1: Top view of the ESP-01S RGB LED Controller Module with connected 3-pin wires.

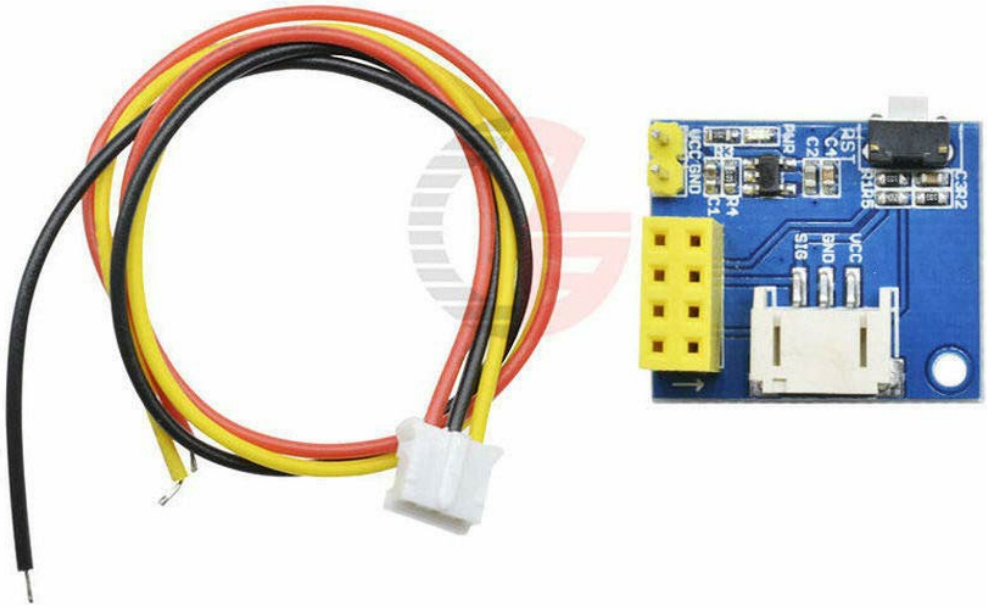

Figure 2: ESP-01S RGB LED Controller Module and its accompanying 3-pin connector cable, separated.

Figure 3: Angled view of the ESP-01S RGB LED Controller Module and its 3-pin connector cable.

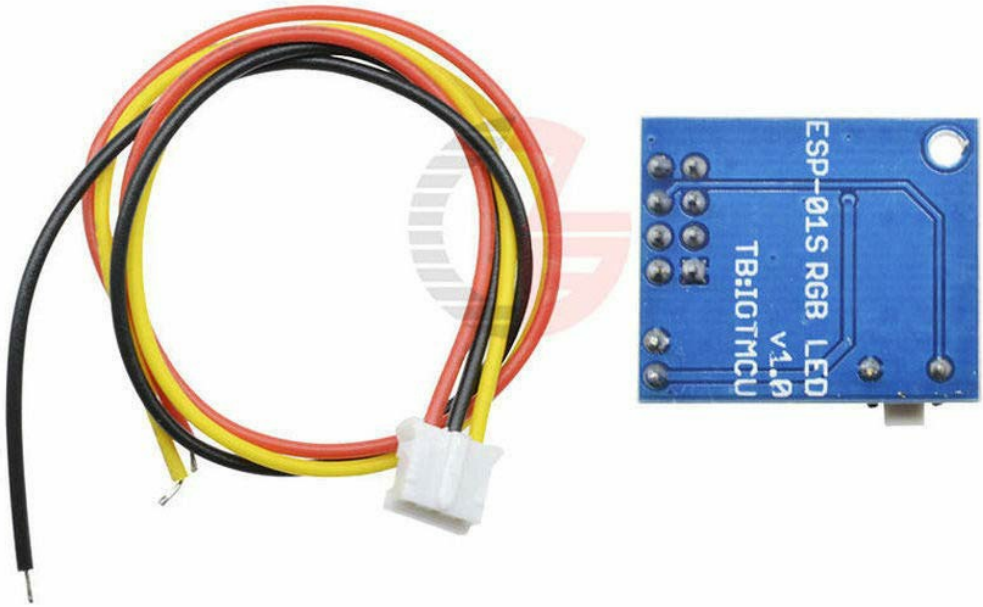

Figure 4: Back view of the ESP-01S RGB LED Controller Module, showing version number V1.0.

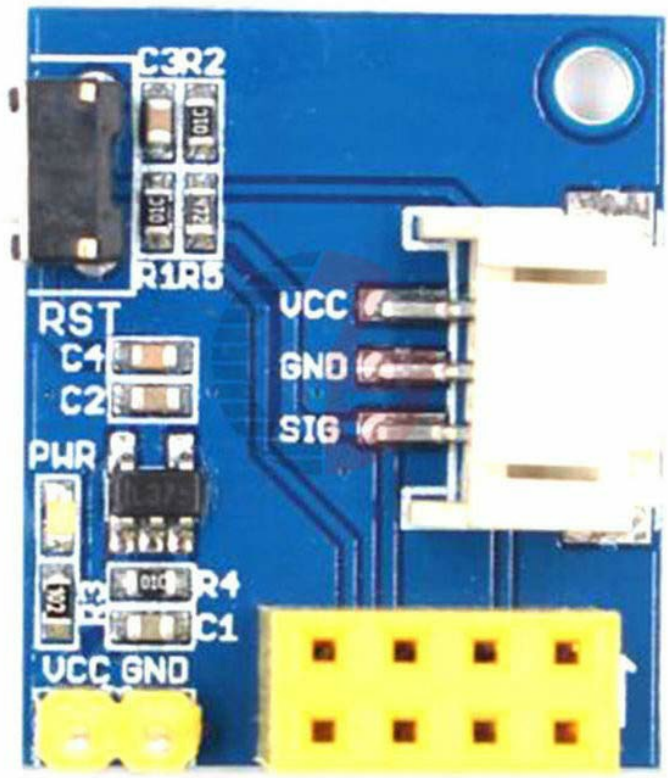

Figure 5: Close-up view of the ESP-01S RGB LED Controller Module's components and pin headers.

9. Product Videos

Your browser does not support the video tag.

Video 1: Demonstration of a WS2812 LED ring displaying various color patterns and effects. This video illustrates the type of LED functionality that can be controlled by the ESP-01S RGB LED Controller Module.

10. Warranty and Support

This iProtool product is covered by a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the product packaging or contact your retailer.
For technical support, troubleshooting assistance, or inquiries regarding your ESP-01S RGB LED Controller Module, please visit the iProtool official website or contact their customer service department.