SP803E Wi-Fi Music LED Controller Instructions

WLED-ESP32

1. Brief:

SP803E Wi-Fi Music LED Controller is a high-performance LED controller based on the ESP32 module and deeply integrated with the open-source WLED project, to deliver an exceptional lighting control experience. It supports multiple data output and features a high-power, strong-drive circuit, making it suitable for a wide range of lighting ambiance applications.

2. Features:

- Built upon a high-performance ESP32 module to ensure stable and efficient system operation.
- Supports wide voltage input from 5V DC to 24V DC, compatible with various power supply environments.
- Provides both SPI and PWM output to match with different types of LED strips.
- High-power drive output, utilizes high-power MOSFETs for the PWM circuit and external current amplification chips on the SPI ports to ensure enhanced driving performance.
- Equipped with an on-board serial auto-download circuit for quick and convenient software flashing.
- Features a high-sensitivity on-board analog MIC circuit for precise synchronization of lighting with music.
- Designed with protection against reverse power connection, backfeeding, and data port protection, ensuring comprehensive safety and reliability of the controller.

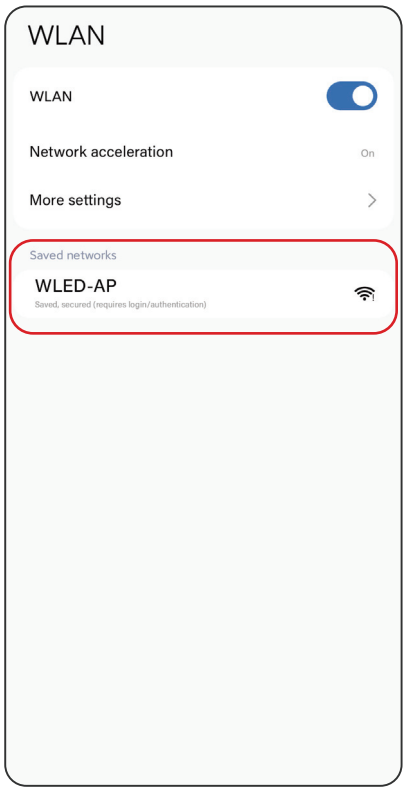
3. Operating Instructions:

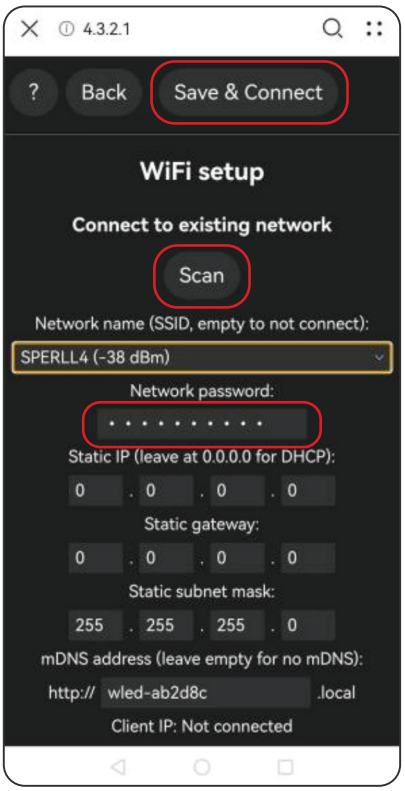
1. Download and Install the App:

- **iOS:** Search and download the WLED or WLED Native App from the App store.
- **Android:** Download the APK from the website. https://github.com/Aircoookie/WLED-App/releases

2. Wi-Fi Configuration:

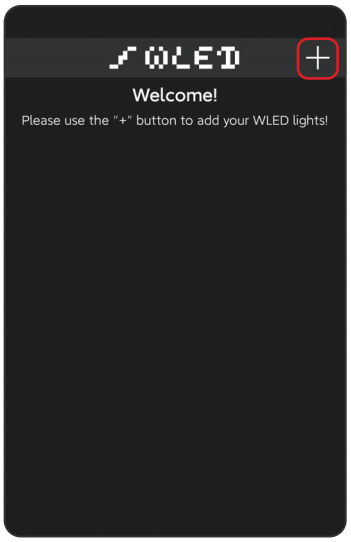
- Go to your phone's Wi-Fi settings, connect to **"WLED-AP"**, and enter the password: **wled1234**.
- After a successful connection, the device will automatically redirect you to the WLED control page: **4.3.2.1**.
- Tap "Wi-Fi SETTINGS" → "Scan" → "Select a 2.4G Wi-Fi network" → "Enter password" → "Save & Connect".

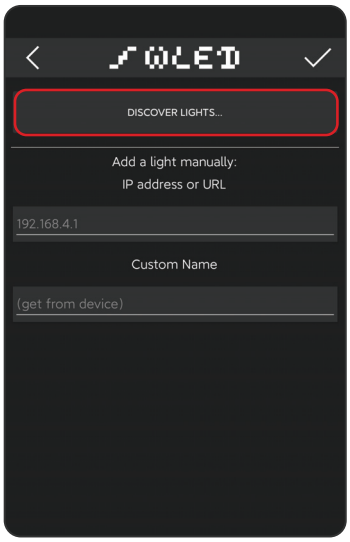


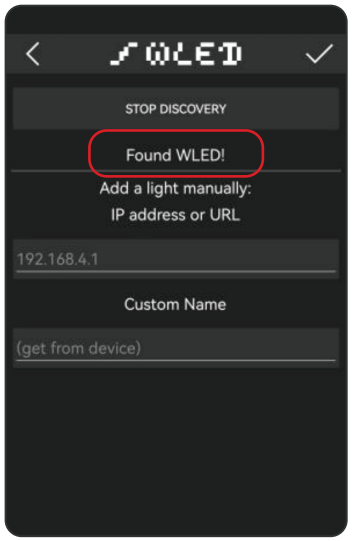


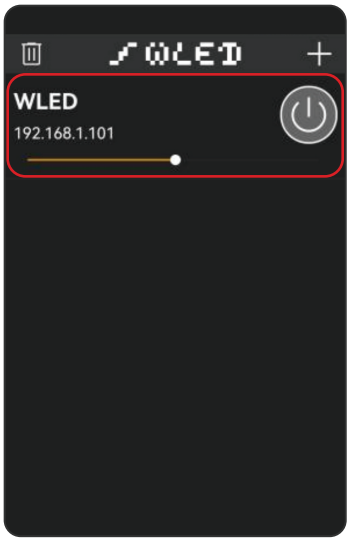
3. Add Device:

Open the App, tap the **“ + ”** icon in the upper-right corner → select “DISCOVER LIGHTS” → choose “Found WLED” → return to the list and tap the added WLED device to enter the control interface.









4. Light Type Configuration:

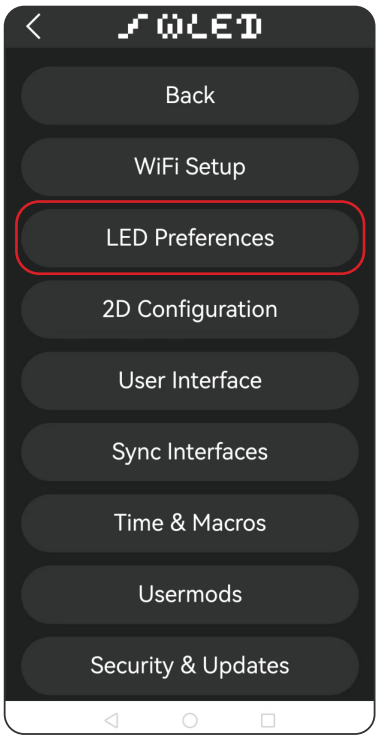
- SPI Light: (IO16)

  Click “Config” → “LED Preferences” → “Hardware Setup” → “IC Type” → “GPIO: 16” → configure other LED strip parameters as needed → “Save”.

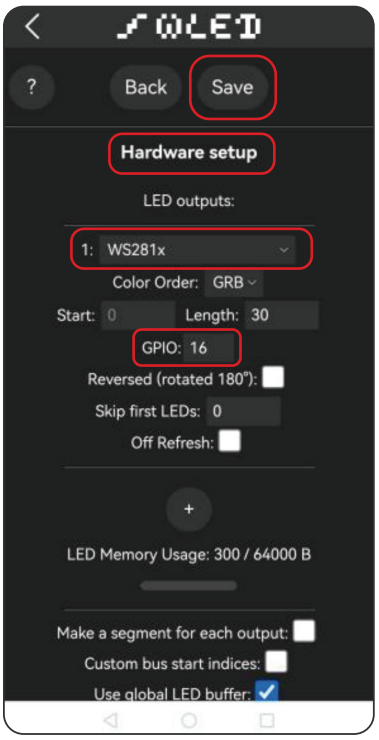
- **PWM Light: (IO25, 26, 27)**

  Click “Config” → “LED Preferences” → “Hardware setup” → “PWM RGB” → “GPIOs: 25 26 27” → “Save”.

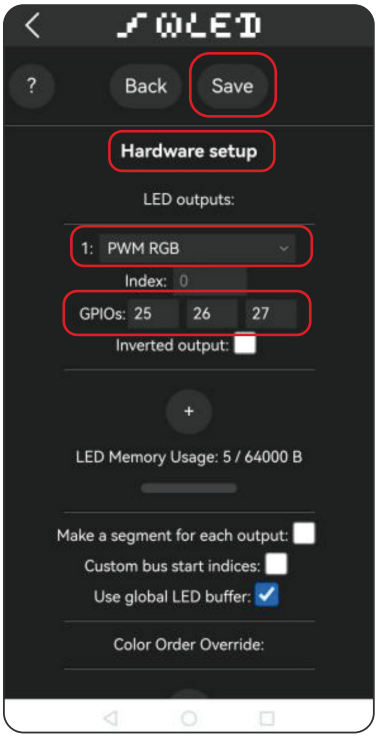
LED Preferences Interface:



SPI Light Configuration:



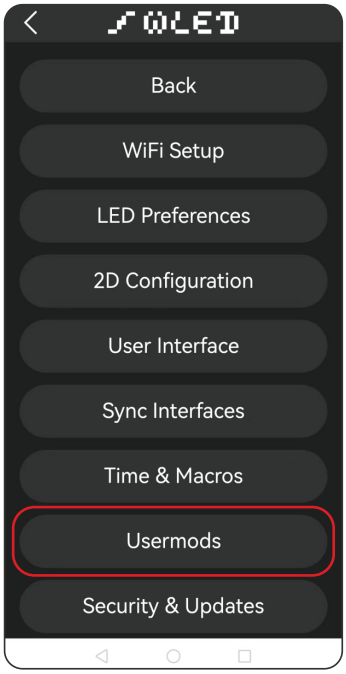
PWM Light Configuration:

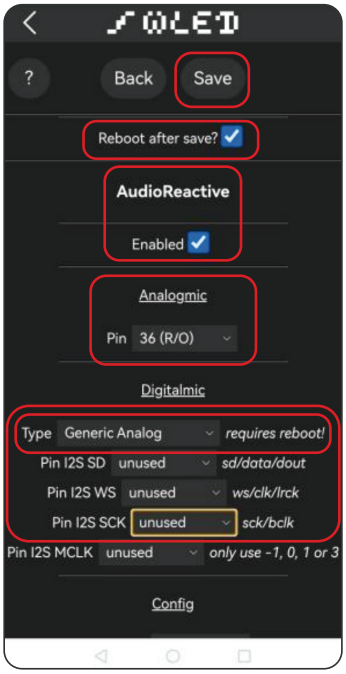


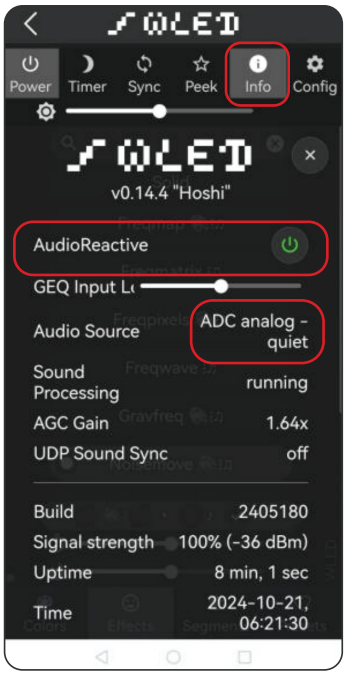
5. Analogmic Configuration:

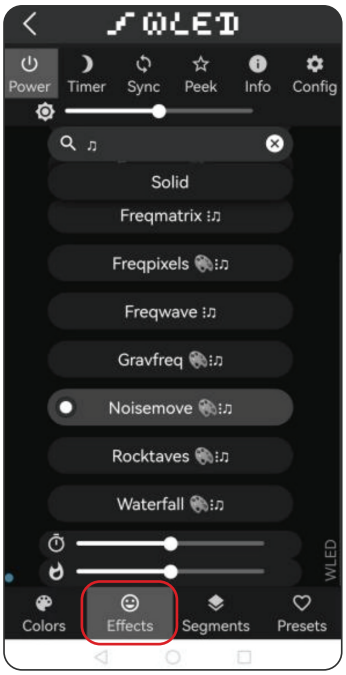
Click “Config” → “Usermods” → Disable all GPIOs under Digitalmic and set Type to “Generic Analog” → Set Analogmic GPIO to 36 (R/O) → Check AudioReactive “Enabled” → Check “Reboot after save” → Click “Save” → Wait for the controller to reboot and the App to reconnect automatically → Power cycle the controller (power off and on with a 10-second interval).

Note:
You can confirm successful configuration on the Info page. Once Analogmic is correctly set, music effects in the Effects menu will react to sound through the onboard Analogmic.









4.Peripheral Description:

❶ Key

Short Press: Turn the light ON/OFF;

Long Press (1s): Switch light color;

Long Press (10s): Reset controller.

❷ Indicator Light

The green indicator remains steadily lit after powering on.

❸ MIC

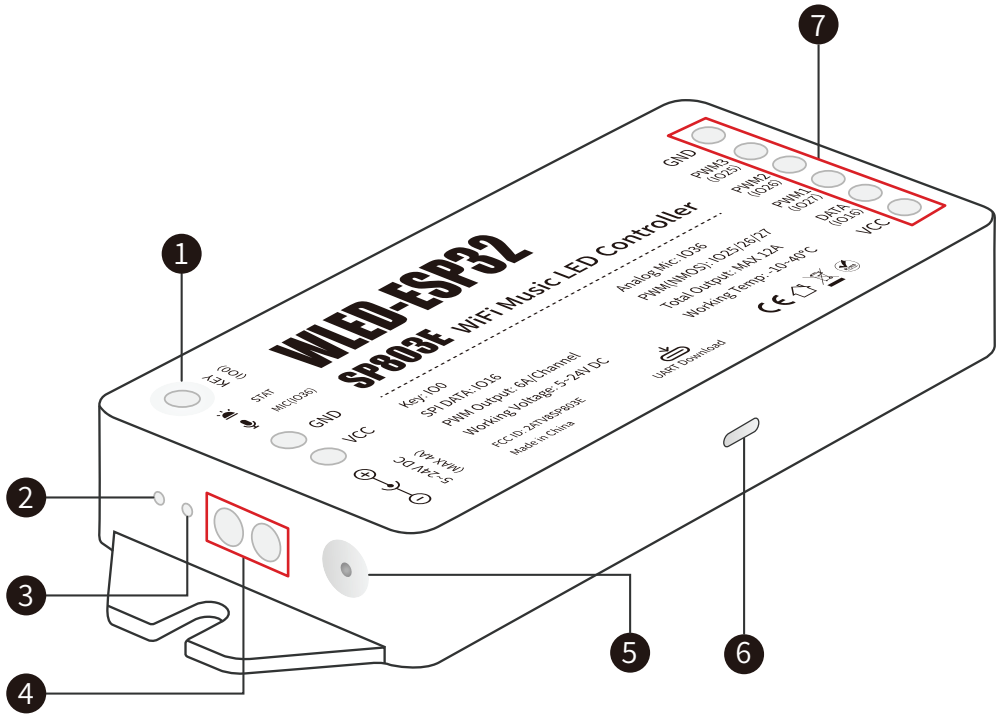
❹ Power Input

❺ 5.5/2.1mm DC Power Input

❻ Serial download interface

On-board serial auto-download circuit interface allows you download the software to the ESP32 module via the Type-C port(avoid using power-only Type-C cables).

❼ LED Signal Output



(Schematic Diagram)

5.Technical Parameters / GPIO Configuration:

- **Technical Parameters:**

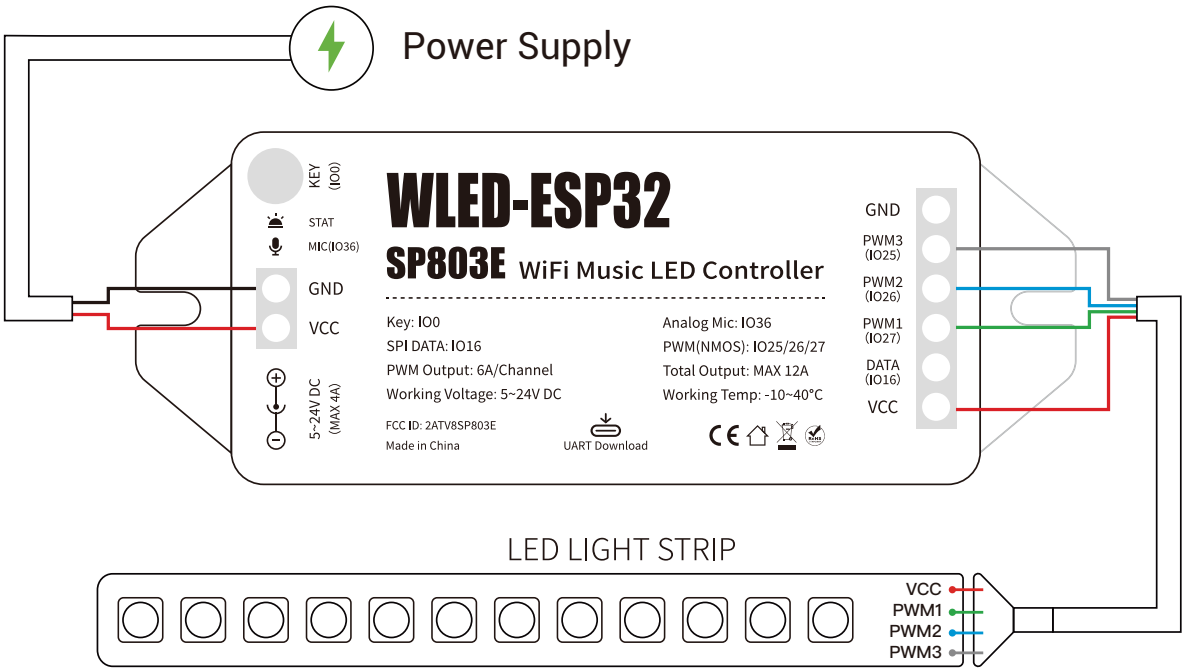
Working Voltage: 5V ~ 24V DC	Working Current: 30mA ~ 150mA
Working Temp: -10°C ~ 40°C	LED Type: SPI / PWM
PWM Single Channel Maximun Output Current: 6A	
PWM Total Maximun Output Current: 12A	
Dimension: 118mm * 45mm * 15mm	

- **GPIO Configuration:**

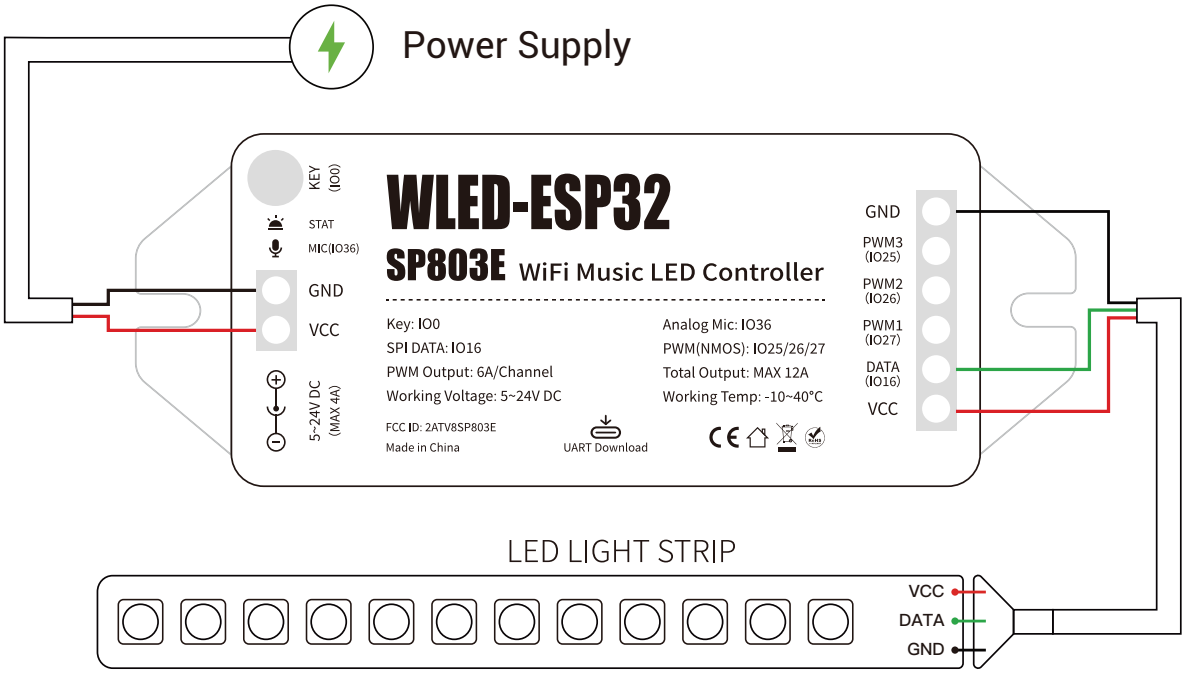
SPI: IO16	PWM: IO25, 26, 27
MIC: IO36 (R/O)	Key: IO0

6.Wiring:

- PWM Light: (IO25, 26, 27)



- SPI Light: (IO16)



FCC Statement:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

WEEE:

Correctly dispose of this product. This marking indicates that this product should not be disposed with other household wastes throughout the EU/UK. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle responsibly to promote the sustainable reuse of material resources. To safely recycle your device, please use return and collection systems or contact the retailer where the device was originally purchased.