



Manual

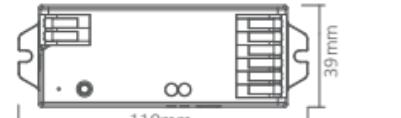
ESP32 WLED Digital LED Controller
Model No.: ESP02/ESP04

Features

- 4-channel individual control
- Compatible with various IC
- 100 kinds of dynamic mode with music synchronization
- Built-in Microphone with special WLED APP control
- Over current (15A) protection
- Firmware updating simply via WLED APP (wireless solution) or UART terminal(wired solution)

Parameters

Model No.	ESP02	ESP04
Output Channel	2	4
Input Voltage	DC5V-24V	
Type-C Input Voltage	DC5V	
Output Current	Max 15A	
Pixel	1024/ Channel	
Control Protocol	WiFi	
Working Temp.	-20~45°C	



Connection Diagram

V+ → LED strip VCC
GND → LED strip GND
IO4 / IO16 / IO12 / IO2 → LED strip DATA
IO13 → Extended GPIO output (defined by user)

ESP02

Input: DC5V-24V

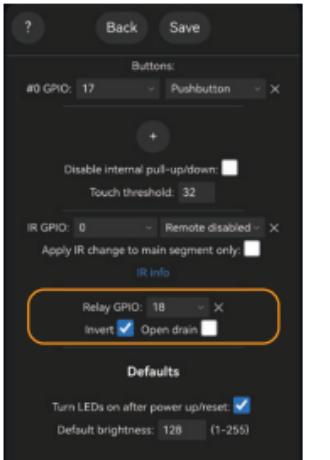
V-

V+

Relay Configuration

The relay function had configured by factory default

Open the WLED control page → Config → LED Preferences → set Relay GPIO = 18, enable Invert, and tap Save.



Note:

When the lighting fixtures is turned off via the app, remote control, or push switch, the power supply of output terminals will be cut off to save energy.

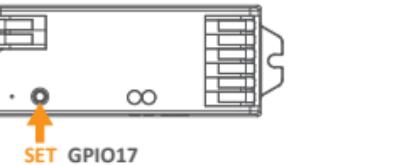
Please note that this function is not used for auxiliary (supplementary) power supply.

Button Function Description

Short press: Power ON / OFF

Press and hold for 1 second: Switch color

Press and hold for 10 seconds: Reset the WLED controller and activate the WLED-AP hotspot



IO13: For DIY/Custom Use

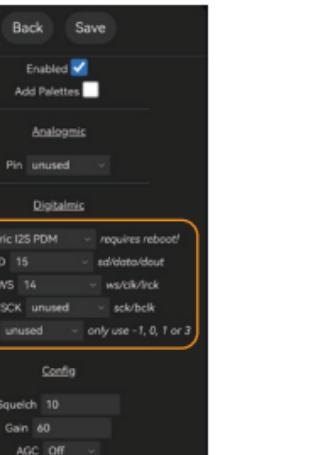
Open the WLED control page → Config → LED Preferences → Hardware Setup to set up.



Mic Configuration

The mic function had configured by factory default

Open the WLED control page → Config → Usermods → AudioReactive, enable it, configure Digital Mic, tap Save, then power off the controller.



Configuration Information:

Type: Generic I2S PDM

Pin I2S SD: 15

Pin I2S WS: 14

Note:

The Mic configuration is activated after rebooting controller.

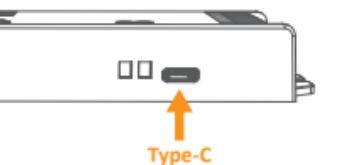
Type-C Download Port

1. Connect device via Type-C cable.

2. Open <https://imltled.com/wled/wled.html>

3. Find the firmware.

4. Click "Connect"



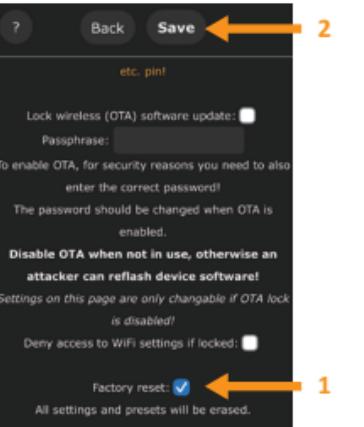
Attention

1. Please update firmware with caution. You must choose correct file, otherwise it will result in abnormal function even damaging devices.

2. The controller uses IMLTLED customized firmware, and has default configurations for microphone, relay and other functions plug and play. Please be sure to configure each function again correctly if changing the firmware.

Restore Factory Settings (App)

Open the WLED control page → Config → Security & Updates → Factory Reset, check the box, then tap Save.



Restore Factory Settings (Button)

Press and hold the "SET" button for 10 seconds to perform a reset.



Troubleshooting and Solution

Indicator light does not turn on

Ensure the input power connection is correct.

APP shows "Offline"

1. Ensure your phone and controller in the same Wi-Fi network.
2. Check the controller whether is out of Wi-Fi range, which may cause an unstable connection.
3. Power off the controller, turn it on and retry it.

Attention

1. Please cut off power before wiring device.
2. Please check the voltage of power adapter before connecting.
3. Don't disassemble it if you are not expert.
4. Don't use it in metallic or magnetic area.



For more information
scan QR code

4. Inject power at appropriate positions, along the LED strip if needed.
5. Check if the WLED app has set a brightness limit (RGB limit) and adjust accordingly.

