
TECHNICAL DOCUMENT

GLEDOPTO ESP32 WLED Digital Pixel LED Controller With Mic/UART WIFI GL-C-016WL-D

Product reference: GL-C-016WL-D

Brand: GLEDOPTO

Original Brand document

The original technical pages follow this distributor cover and are preserved without changes to Brand identity, specifications, diagrams, certifications or claims.

Source file: GL-C-016WL-D.pdf

GLEDOPTO®

ESP32 WLED Digital LED Controller

User Instruction

Item 7002
GL-C-016WL-D

ESP32 WLED Digital LED Controller with Mic

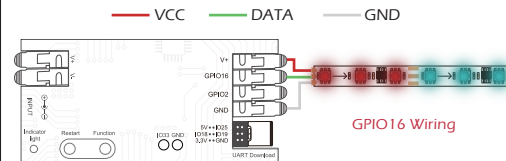
Model: GL-C-016WL-D
Output Current/Channel: 10A Max
Temperature: -20~45°C
Dimensions: 108x45x18mm

Input Voltage: DC 5-12-24V
Total Output Current: 15A Max
Controlling Protocol: WiFi

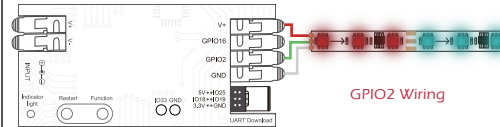


Wiring Terminal Instructions

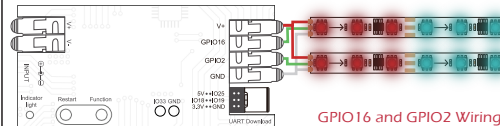
- GPIO16 is the default output and should be prioritized for use; the other set, GPIO2, serves as a standby output and can be used only after configuration in the app.
- Additionally IO18, IO19, IO25 and IO33 are extended GPIO signal ports that can be DIY-customized for various applications.



GPIO16 Wiring



GPIO2 Wiring



GPIO16 and GPIO2 Wiring

APP Download Method



- Android: Download from the website <https://github.com/Aircooke/WLED-App/releases>.



APP Configuration Steps

- Power on the WLEDcontroller.
- Open the phone settings and enter WiFi settings, find "WLED-AP" and connect to it with the password "wled1234".
- After successful connection, it will automatically jump to the WLEDpage (or enter the website 4.3.2.1 in the browser to enter the WLEDpage).
- Click "WIFI SETTINGS", set the WiFi account and password, and the click "Save & Connect" at the top of the screen to save.
- Keep the phone and WLEDcontroller connected to the same WIFI connection, enter the WLEDAPP (See figure 5-1), click the "+" in the upper right corner of the screen (See figure 5-2), and then click "DISCOVER LIGHTS..." (See figure 5-3). When the button below displays "Found WLED!", it means that the WLEDcontroller



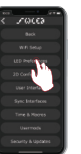
- has been found (See figure 5-4).
- Click the checkmark in the upper right corner to return to the main page. The found WLEDcontroller will be displayed in the list (See figure 6-1).



Figure 5-1 Figure 5-2 Figure 5-3 Figure 5-4 Figure 6-1

LED Strip Configuration

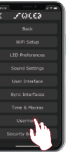
Go to the WLEDcontrol page and click on the "Config" button in the upper right corner. Then, select "LEDPreferences" and navigate to "Hardware setup" to configure the LEDstrip information.



Relay Configuration

- Relay Configuration Go to the WLEDcontrol page, click on the top right corner "Config", select "LEDPreferences", then find

- Relay Configuration Go to the WLEDcontrol page, click on the top right corner "Config", select "LEDPreferences".
- then find "Relay GPIO". Configure Relay GPIOs 12, uncheck Invert, and click Save to apply the settings.



Note: After Relay function configured, it will switch off the output power completely for saving energy. But please note, it cannot switch off the additional added power input of the strip lights connected.

Mic Configuration

- Go to the WLEDcontrol page, click on "Config" in the top right corner, select "Usermods", find "Digitalmic" after entering, configure according to the configuration information, click "Save" after configuration is complete, and then power off the controller.
- Go to the WLEDcontrol page, click on "Info" at the top, click on the button next to "AudioReactive" to use the Mic.

Configuration Information:

1. Microphone type: Generic 12S
2. 12S SDpin: 26
3. 12S WS pin: 5
4. 12S SCK pin: 21

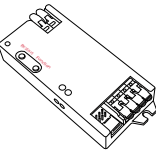


Note: After microphone function configured, it will be only activated after rebooting the controller again.

Description of Button Functions

Restart:

Pressing the button will power off the controller module, releasing it will power it back on. Useful when the controller needs to be restarted after configuring the microphone.



Function:

1. Short press: Power on/off.
2. Long press for 1 second: Switch colors.
3. Long press for 10 seconds: Reset the WLED controller and activate the WLED-AP hotspot.

Reset to Factory Settings

1. Button Reset
Long press the Function for 10 seconds.
2. APP Reset
Go to the WLEDcontrol page and click on the top right corner "Config". Click on "Security & Updates" at the bottom, and then scroll down to find "Factory reset" and check the box. Click "Save" to reset the controller.

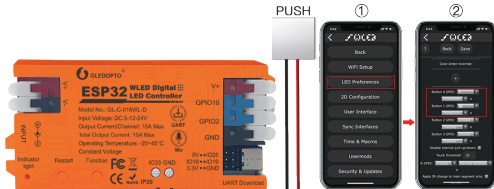


UART Download

- DIY multiple lighting effects
- Stable and fast data transfer
- UART firmware download by Type-C port



IO33 interface is for DIY use



- GPIO 33
- Button 0
 - Pushbutton
 - Short press: On/Off
 - Long press 1S: Adjust color
 - Long press 10S: Enter WiFi-AP mode, pop-up hotspot "WLED-AP"
 - Switch → On/Off
 - Button 1
 - Pushbutton
 - Short press: Adjust mode
 - Double-tap: Adjust color in mode
 - Long press: Adjust brightness
 - Switch → On/Off
- *Function button is GPIO0

- 5V •• IO25
IO18 •• IO19
3.3V •• GND
- Extended Ports
- for user's DIY Settings
 - for program debugging
 - for supplying power to other sensors (5V/3.3V, and 200mA)

Supported Chips

WS2811, WS2811F, WS2812B, WS2814A, WS2815, SK6812, SM16703, SM16703SP3, FL19038, FW1935, UCS2903B, etc.

Declaration of conformity

We, LED-Trading Tobias Ebert, hereby declare that the controller complies with the directives 2014/53/EU (RED), 2014/30/EU (EMC), 2014/35/EU (LVD) and 2011/65/EU (RoHS). The full text of the EU declaration of conformity can be made available on request.

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Troubleshooting and Solution

Number	Symptoms	Solution
1	Indicator light is not on	Check whether the input power connection is correct
2	APP shows "offline"	1. Check if the phone is on the same network as the controller. 2. Check if the controller is out of the range of the WIFI connection, causing unstable connection. 3. Turn off and on the controller to retry.
3	APP is connected, but the light strip is not controllable	1. Check if the power supply is working properly. 2. Check if the power supply voltage matches the light strip. 3. Check if the input power connection is correct. 4. Check if the light strip connection is correct. 5. Check if the GPIO settings in the APP are correct. 6. Check if the light strip IC model in the APP is set correctly.
4	The brightness of the light strip is low, and the front and back colors are significantly different	1. Check if the power supply is working properly. 2. Check if the power supply matches the light strip. 3. Check if all connections are good, and use conductive and short wires as much as possible for connection. 4. Add power supply at an appropriate position. 5. Check if the APP has set a limit on brightness or current.



Attention

- Before turning on the power, please ensure that all connections are correct and secure, and do not operate while the power is on.
- The product should be used under the rated voltage. Using it under excessive or insufficient voltage may cause damage.
- Do not disassemble the product, as it may cause fire and electric shock.
- Do not use the product in environments exposed to direct sunlight, moisture, high temperatures, etc.
- Do not use the product in metal shielded areas or around strong magnetic fields, as this may severely affect the wireless signal transmission of the product.

Disclaimers

- Our company will update the content of this manual based on the improvement of product functionality. The updates will be displayed in the latest version of this manual, without further notice.
- Due to our continuous adoption of new technologies, product specifications may change without further notice.
- This manual is provided for reference and guidance only and does not guarantee complete consistency with the actual product. The actual applications should be based on the actual product.
- The components and accessories described in this manual do not represent the standard configuration of the product. The specific configuration is subject to the packaging.
- All text, tables, and images in this manual are protected by relevant national laws and may not be used without our permission.
- This product may be compatible with third-party products (such as apps, hubs, etc.), but our company does not take responsibility for compatibility issues or partial loss of functionality caused by changes in third-party products.