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> ALITOVE WS2811 Addressable LED Strip Light User Manual (Model: WS2811-150WH-IP65)

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ALITOVE WS2811 Addressable LED Strip Light User Manual

Brand: ALITOVE | Model: WS2811-150WH-IP65

1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of your ALITOVE WS2811 Addressable LED Strip Light. This product features individually controllable RGB LEDs, offering dynamic and static lighting effects for various applications. Please read this manual thoroughly before use to ensure proper functionality and safety.

2. PACKAGE CONTENTS

- 1x 16.4ft (5m) 150 LEDs WS2811 LED strip
- 1x Male 3PIN JST connector

3. FEATURES

- **WS2811 Addressable LED Strip:** 5 meters long with 150 pcs 5050 RGB LEDs and 50 pcs WS2811 ICs. Each group of 3 LEDs with 1 IC can be controlled individually, allowing for diverse static and dynamic color effects.
- **Controller Compatibility:** Compatible with programmable controllers such as Raspberry Pi, T1000S, K1000C. Supports app controllers (SP105E, SP108E, SP110E), music controllers (SP106E, SP107E), and smart WiFi controllers (SP501E, MHCTRWF5V). (Controller is not included).
- **User-friendly Design:** Equipped with 3-pin JST-SM connectors on both ends for easy connection. Separate power/ground wires are provided on both ends for power injection.
- **Waterproof IP65:** Covered by a silicone coating, providing IP65 waterproof protection for outdoor use.
- **Customizable Length:** Each group of LEDs can be cut and re-welded along the designated cutting lines to meet specific length requirements.
- **Enhanced Adhesive:** Features 3M VHB heavy-duty foam mounting tape for strong and durable adhesion.

4. SPECIFICATIONS

Specification	Detail
Brand	ALITOVE

Model Number	WS2811-150WH-IP65
Color	White FPCB IP65
Voltage	12 Volts
Wattage	36 watts
Light Source Type	LED
Number of Light Sources	150
Unit Count	16.4 Feet (5 meters)
Water Resistance Level	Waterproof IP65
Control Method	App (with compatible controller)
Connectivity Technology	Wi-Fi (with compatible controller)
Material Type	Plastic
Item Weight	0.22 Kilograms

5. SAFETY INFORMATION

- Ensure the power supply voltage matches the LED strip's requirements (12V DC). Incorrect voltage can damage the strip.
- Do not connect the LED strip directly to AC power. A suitable 12V DC power adapter is required.
- Always disconnect power before installing, cutting, or performing any maintenance on the LED strip.
- While the strip is IP65 waterproof, it is designed for outdoor use with protection against water jets, but it is **not** suitable for submersion in water.
- Avoid bending the strip sharply or applying excessive force, as this can damage the internal circuitry.
- Keep out of reach of children.

6. SETUP

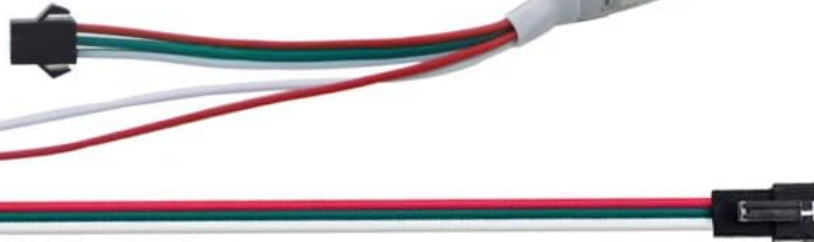
6.1 Components Overview

WS2811 LED Strip

16.4ft / 150 LEDs / White FPCB / IP65 Waterproof



Input port



12V+

Data

GND

→ Data Direction

Figure 1: WS2811 LED Strip showing input port, data, GND, and data direction.

The LED strip features a 3-pin JST-SM connector for data and power input. It also has separate power/ground wires for power injection, which is recommended for longer runs to prevent voltage drop.



Figure 2: Example of power injection points on the LED strip.

6.2 Installation Steps

1. **Plan Your Layout:** Determine the desired path and length for your LED strip.
2. **Cutting the Strip (Optional):** If a shorter length is needed, cut the strip only along the designated cutting lines (marked with a scissor icon or copper pads). Ensure power is disconnected before cutting.
3. **Prepare the Surface:** Clean and dry the mounting surface thoroughly. The surface should be smooth and non-porous for optimal adhesion.
4. **Mounting:** Peel off the backing from the 3M VHB heavy-duty foam mounting tape and firmly press the LED strip onto the prepared surface. Apply even pressure along the entire length.
5. **Connect to Controller:** Connect the 3-pin JST-SM connector of the LED strip to your compatible controller. Ensure correct polarity (V+, Data, GND).
6. **Connect Power Supply:** Connect a 12V DC power supply (not included) to your controller and/or directly to the LED strip via the power injection wires if necessary.



Figure 3: Close-up view of the LED strip's components, highlighting the 3M VHB heavy-duty foam tape for secure mounting.

7. OPERATING INSTRUCTIONS

The ALITOVE WS2811 LED Strip requires an external controller for operation. The type of controller determines the available

lighting effects and control methods (e.g., app, music sync, programmable sequences).

7.1 Compatible Controllers



Figure 4: Examples of compatible controllers including Arduino, Raspberry Pi, and various ALITOVE brand controllers (SP105E, SP108E, SP110E, SP106E, SP107E, SP501E, MHCTRW5V, T1000S, SP201E).

Refer to your chosen controller's manual for specific instructions on programming and operating the LED strip. Common control methods include:

- **App Control:** Many controllers offer smartphone app integration for easy color selection, effect modes, and brightness adjustment.
- **Music Sync:** Some controllers can synchronize lighting effects with music.
- **Programmable Sequences:** Advanced controllers allow for custom light patterns and animations.

7.2 Demonstration Video

Your browser does not support the video tag.

Video 1: This official ALITOVE video demonstrates various dynamic color effects and programmable capabilities of the WS2811 RGB Addressable LED Strip Light.

8. MAINTENANCE

8.1 Cleaning

To clean the LED strip, gently wipe it with a soft, dry cloth. For stubborn dirt, a slightly damp cloth can be used, ensuring no water enters the connectors or exposed cut sections. Always ensure the strip is powered off and disconnected before cleaning.

8.2 Waterproofing



Figure 5: The LED strip is rated IP65 waterproof, suitable for outdoor use but not for submersion.

The IP65 rating means the strip is protected against dust ingress and low-pressure water jets from any direction. It is suitable for outdoor applications where it may be exposed to rain or splashes. However, it is not designed for prolonged submersion in water. If you cut the strip, ensure to properly seal the exposed ends with silicone sealant or waterproof caps to maintain its IP65 rating.

9. TROUBLESHOOTING

- LEDs Not Lighting Up:

- Check power connections to ensure the 12V DC power supply is correctly connected and functioning.
 - Verify the data connection between the strip and the controller.
 - Ensure the controller is powered on and sending the correct signals.
- **Incorrect Colors or Flickering:**
 - Confirm that the controller's software or settings match the WS2811 protocol and the correct color order (e.g., RGB, GRB, BRG). Some WS2811 strips may use a BRG order instead of the standard RGB.
 - Check for voltage drop, especially on longer runs. If the colors at the end of the strip appear dim or incorrect, consider injecting power at multiple points along the strip.
 - Inspect for loose connections or damaged wires.
- **Individual LEDs or Segments Not Working:**
 - The WS2811 IC controls groups of 3 LEDs. If one LED in a group fails, the entire group may not function correctly.
 - Inspect the strip for physical damage or burnt components.
- **Adhesive Not Sticking:**
 - Ensure the mounting surface was clean, dry, and smooth before application.
 - Apply firm, even pressure along the entire length of the strip during installation.

10. WARRANTY AND SUPPORT

For warranty information or technical support, please contact ALITOVE customer service through the retailer where the product was purchased or visit the official ALITOVE website. Please have your product model number (WS2811-150WH-IP65) and purchase details ready when contacting support.