



Manuals.plus /

› ALITOVE /

› ALITOVE 12V WS2811 Pixel String Light (Model 2811BK-500R-FST) Instruction Manual

ALITOVE 2811BK-500R-FST

ALITOVE 12V WS2811 Pixel String Light Instruction Manual

Model: 2811BK-500R-FST

1. INTRODUCTION

This manual provides comprehensive instructions for the safe and effective use of your ALITOVE 12V WS2811 Pixel String Light. Please read this manual thoroughly before installation and operation to ensure optimal performance and longevity of the product.

2. PACKAGE CONTENTS

Verify that all items listed below are included in your package:

- 5x 32.8ft WS2811 LED Pixel Strings (100 LEDs per string, 500 LEDs total)
- 1x Female xConnect Pigtail
- 2x T-Shape xConnect Power Injection Connectors
- 1x Weatherproof Cap (for the female connector)

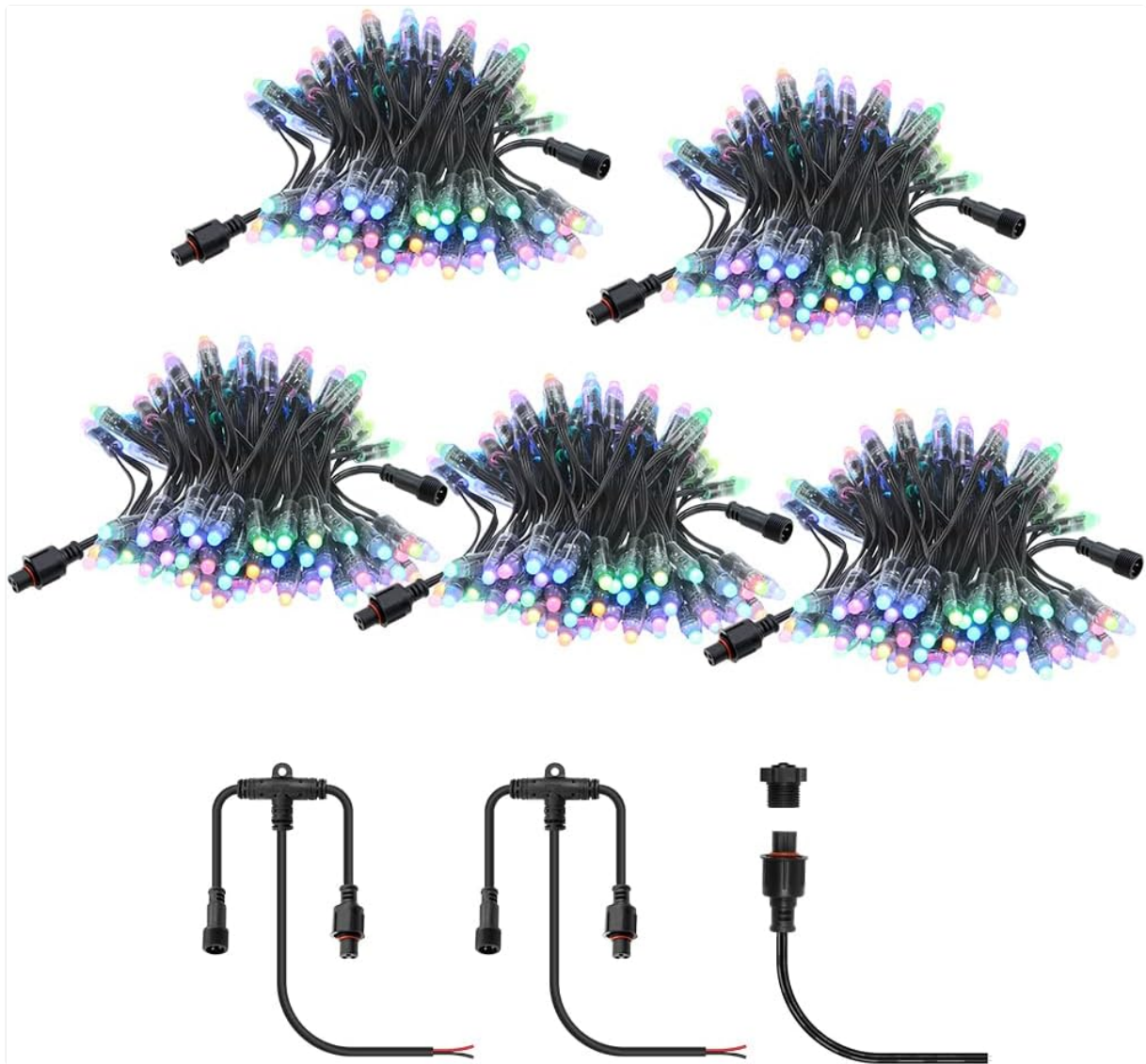


Figure 2.1: Overview of ALITOVE WS2811 Pixel String Lights and included connectors.

This image displays five coiled bundles of ALITOVE WS2811 pixel string lights, each featuring individually addressable RGB LEDs. Below the light strings, various xConnect pigtail and T-shape connectors are shown, which are used for connecting multiple strings and injecting power.

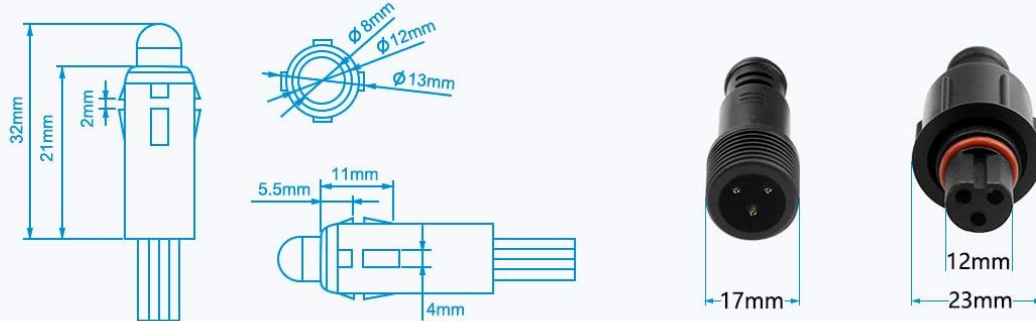
3. PRODUCT OVERVIEW

The ALITOVE WS2811 Pixel String Lights are individually addressable 12V RGB LED pixels designed for dynamic lighting effects. Each string contains 100 F8 RGB LED chips with 4-inch spacing, allowing for 256-level brightness and 24-bit color display (16,777,216 colors). The lights feature an IP68 waterproof rating, making them suitable for various indoor and outdoor applications.

WS2811 Individually Addressable LED Pixel xConnect Type Version

164ft / 500LEDs / 12V / IP68 Waterproof / 4" Spacing

Pack of 5
32.8ft 100LEDs Pixels Lights



To let it work, you need 12V power supply and WS2811 controller, which is not included in the package.

Figure 3.1: Detailed view of a single pixel and connector dimensions.

This diagram provides a detailed illustration of an ALITOVE WS2811 pixel light. It highlights the input and output ports, the 10cm (4-inch) spacing between pixels, and precise dimensions for the 12mm diffused LED pixel and its compatible xConnect connectors. This information is crucial for understanding the physical layout and connection requirements of the light strings.

4. SETUP INSTRUCTIONS

4.1 Pre-installation Checks

- **Power Supply:** A 12V DC power supply is required (not included). Ensure the power supply has sufficient wattage for the total number of LEDs connected. Each string of 100 LEDs consumes approximately 12W.
- **Controller:** A compatible WS2811 SPI controller is required (not included). Examples include Raspberry Pi,

T1000S, K1000C, ALT-C01, SP105E, SP638E, SP107E, SP108E, SP602E, SP608E.

- **Connector Compatibility:** Please note that connector types were updated in June 2024. Strings manufactured before June 2024 use ALT-connectors, while those after use X-connectors. Ensure compatibility if connecting to existing setups.

4.2 Connecting the Lights

1. Connect the input port of the first LED string to your compatible WS2811 controller.
2. Connect the output port of one LED string to the input port of the next string using the xConnect pigtails to extend the length.
3. For longer runs or when experiencing voltage drop, use the provided T-shape xConnect power injection connectors. These allow you to inject additional 12V power directly into the middle of a string or between strings.
4. Ensure all connections are secure and the weatherproof caps are properly tightened for outdoor use.

Support Many Controllers

Programmable by with micro-controllers, such as Arduino, Raspberry Pi, etc. DIY your own color modes.

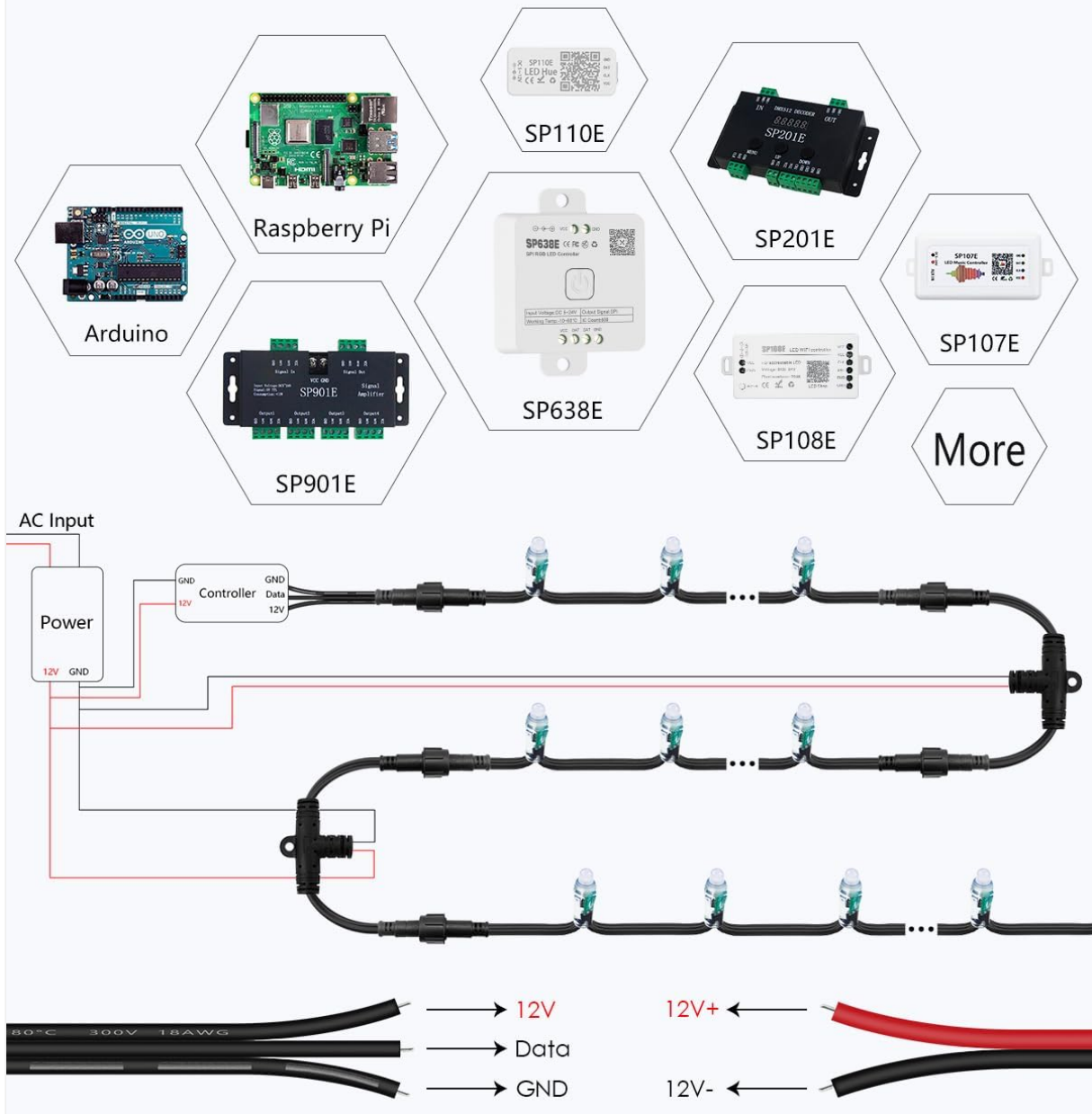


Figure 4.1: Wiring diagram for ALITOVE WS2811 Pixel Lights.

This wiring diagram illustrates the proper method for connecting ALITOVE WS2811 pixel string lights. It shows how to link multiple strings in series, connect them to a power supply and a controller, and strategically place T-shape power injection connectors to maintain consistent voltage across extended lengths.

Waterproof

All the components are sealed in a housing with silicone, making its waterproof grade reach IP68.



Durable

The power cord are made of 20AWG pure copper wire and cold-resistant, rubber. Sturdy and durable.

xConnect-connector

Based on customers' feedback, we upgrade the JST connectors to the popular waterproof xConnect Type connectors, which is designed for outdoor use and better compatibility.



Weatherproof Cap

According to the actual application scenario, we specially equipped this cap, protecting the female connector(output end) from dust and water when used outdoors.

Power Injection connector

Come with 2pcs 3-channel connector. You can add it between two strings to inject power in case of voltage drop.



Figure 4.2: Connector and durability features.

This image provides close-up details of the ALITOVE WS2811 pixel light's construction. It highlights the robust waterproof sealing, the durable 20AWG pure copper power cord, the secure xConnect type connectors, the function of the weatherproof cap for protecting female connectors, and the design of the T-shape power injection connector.

5. OPERATION

5.1 Basic Functionality

The ALITOVE WS2811 Pixel String Lights are **individually addressable**, meaning each LED's red, green, and blue components, along with its brightness, can be controlled independently. This allows for a wide range of dynamic and static color displays.

5.2 Controller Compatibility and Programming

These lights are compatible with various programmable SPI controllers. You can use micro-controllers like **Arduino** and **Raspberry Pi** to program custom color modes and animations. Other compatible controllers include T1000S, K1000C, ALT-C01, SP105E, SP638E Bluetooth controllers, SP107E music controller, SP108E WiFi controller, SP602E, and SP608E multi-channel Bluetooth controllers.



Figure 5.1: Programming with Arduino and Raspberry Pi.

This image demonstrates the programmability of ALITOVE WS2811 pixel lights by showing them connected to both an Arduino board and a Raspberry Pi. This setup allows users to create and implement custom lighting sequences and effects.



Figure 5.2: Examples of dynamic and static color effects.

This grid of images showcases a variety of dynamic and static color effects that can be achieved with ALITOVE WS2811 pixel lights when controlled by a compatible device. Examples include rainbow gradients, chasing patterns, and solid color displays, demonstrating the versatility of the lights.

6. MAINTENANCE AND DURABILITY

6.1 Waterproof and Weather Resistance

The ALITOVE WS2811 Pixel String Lights are designed for durability and outdoor use. All components are sealed in silicone, achieving an **IP68 waterproof rating**. The wires are made of cold-resistant, UV-resistant rubber, enabling the lights to withstand extreme weather conditions such as snowstorms and rainstorms.

Waterproof IP68

Withstand Extreme Bad Weather



Figure 6.1: IP68 Waterproof and weather resistance.

This image illustrates the robust weather resistance of the ALITOVE WS2811 pixel lights, showing them installed on a roofline during a rainstorm. Accompanying icons highlight their waterproof, rainstorm-proof, high-wind-proof, snowstorm-proof, and shatterproof features, emphasizing their suitability for long-term outdoor use. Below, various static color displays are shown.

6.2 Care Instructions

- Regularly inspect connections for tightness and ensure weatherproof caps are properly seated, especially in outdoor environments.
- Clean the LED pixels gently with a soft, damp cloth if dirt or debris accumulates. Avoid abrasive cleaners.
- Store the lights in a dry, cool place when not in use for extended periods.

7. TROUBLESHOOTING

7.1 Common Issues and Solutions

- **Lights Not Turning On:**
 - Verify the 12V DC power supply is connected and functioning correctly.
 - Check all connections between the power supply, controller, and LED strings.
 - Ensure the controller is powered on and sending the correct data signal.
- **Inconsistent Colors or Dimming:**
 - This often indicates **voltage drop** over long runs. Use the T-shape power injection connectors to add power at intermediate points along the string.
 - Ensure the power supply has adequate current capacity for the total number of LEDs.
- **Individual Pixels Not Functioning:**
 - While rare, individual LED pixels can fail. If a pixel fails, the remaining pixels in the string should still function.
 - Inspect the wiring around the non-functioning pixel for damage.
- **Connector Incompatibility:**
 - If connecting to older ALITOVE strings or other brands, ensure connector types match (ALT-connector vs. X-connector).
 - Additional 3-Pin X-connectors, power injectors, and extension cables compatible with ALITOVE string lights can be found on Amazon using ASINs: B0D6VWTJHN, B0D6VVTSRT, B09CDQWTFG.

8. SPECIFICATIONS

Brand	ALITOVE
Model Number	2811BK-500R-FST
LED Type	WS2811 F8 RGB LED Chips
Voltage	DC 12V
Wattage	60 Watts (for 500 LEDs)
Number of LEDs	500 (5 strings of 100 LEDs each)
LED Spacing	4 inches (10cm)
Total Length	164 ft (5 x 32.8 ft strings)
Water Resistance Level	IP68
Material	Silicone (housing), Cold-resistant UV-resistant Rubber (wires)
Indoor/Outdoor Usage	Outdoor
Control Method	Remote (with compatible controller)
Special Features	Color Changing, Dimmable, Waterproof, Individually Addressable

9. WARRANTY AND SUPPORT

For specific warranty information, please refer to the product packaging or contact your retailer directly. ALITOVE is committed to customer satisfaction and provides technical support for its products.

For further assistance or inquiries, please visit the official ALITOVE store on Amazon: [ALITOVE Store](#).

10. APPLICATIONS

The ALITOVE WS2811 Pixel String Lights are versatile and suitable for a wide range of decorative and functional lighting projects, including:

- Outdoor billboards and LED screens
- Building outline decoration and city skyline enhancement
- Permanent Christmas lights and holiday displays
- Hotel, KTV, and bar lighting
- Home lighting decoration projects

Add color to your life



Figure 10.1: Diverse applications of ALITOVE WS2811 Pixel Lights.

This collage of images demonstrates the diverse applications of ALITOVE WS2811 pixel lights. It features examples such as illuminated outdoor billboards, vibrant LED screens, festive Christmas trees, and creatively decorated houses, highlighting the product's adaptability for various commercial and residential lighting needs.