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BTF-LIGHTING FCOB-24V-864L-W-IP30-SPI

BTF-LIGHTING RGB WS2811 Smart IC FCOB COB LED Strip User Manual

Model: FCOB-24V-864L-W-IP30-SPI

1. Introduction

This manual provides essential information for the safe installation, operation, and maintenance of your BTF-LIGHTING RGB WS2811 Smart IC FCOB COB LED Strip. Please read this manual thoroughly before installation and retain it for future reference.



Figure 1: BTF-LIGHTING RGB WS2811 Smart IC FCOB COB LED Strip.

The BTF-LIGHTING FCOB LED strip features addressable WS2811 IC chips, allowing for dynamic multi-color chasing effects. With 864 LEDs per meter, it provides uniform and bright illumination. This product is designed for indoor use and requires a separate 24V DC power supply and a compatible controller for operation.



Figure 2: Comparison illustrating the uniform light distribution of FCOB WS2811 IC technology versus traditional WS2811 IC strips.

The FCOB (Flip-Chip On Board) technology ensures a continuous, dot-free light output, which is smoother and more uniform compared to traditional SMD LED strips. This design also offers a wider beam angle for broader illumination.



Figure 3: Beam angle comparison showing the 180-degree illumination of FCOB LED strips against the 120-degree of standard SMD strips.

2. Safety Information

Your safety is paramount. Please observe the following precautions:

- This LED strip is **UL Listed**, ensuring it meets recognized safety standards.
- Operate only with a **DC24V** power supply. Using an incorrect voltage will damage the strip and may pose a fire hazard.
- This product is rated **IP30**, meaning it is non-waterproof and intended for **indoor use only**. Do not expose to moisture or wet environments.
- Ensure the power supply is disconnected before installation, cutting, or making any connections.
- Do not bend the LED strip sharply or apply excessive force, as this may damage the internal circuitry.
- Ensure proper heat dissipation. Do not install the strip in enclosed spaces without adequate ventilation.
- Keep out of reach of children.



Figure 4: Overview of safety features including UL Listing and product longevity.

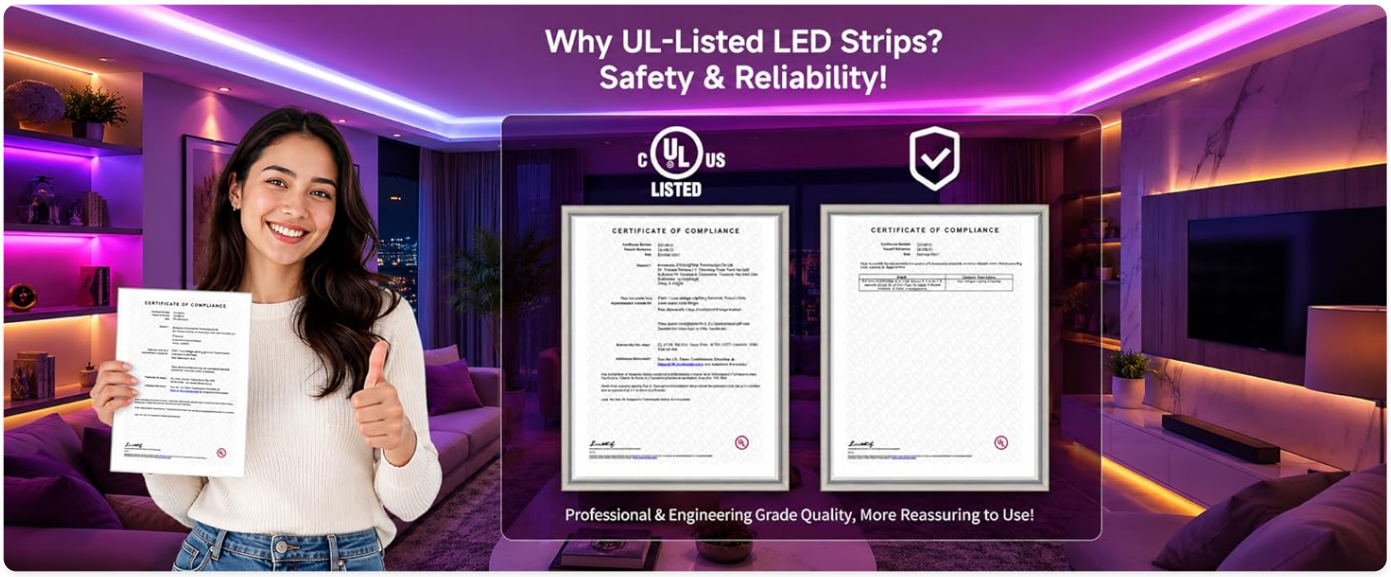


Figure 5: Details regarding the UL Listed safety certification, emphasizing professional grade quality.

3. Package Contents

The package includes:

- 1 x BTF-LIGHTING RGB WS2811 Smart IC FCOB COB LED Strip (24FT, DC24V, IP30, 864LEDs/m)

Note: A power supply and a compatible controller are NOT included and must be purchased separately.

4. Specifications

Feature	Specification
Model Number	FCOB-24V-864L-W-IP30-SPI
LED Type	FCOB RGB with WS2811 IC
Voltage	DC24V

LED Density	864 LEDs/meter
Length	24 feet (approx. 7.3 meters)
Width	12mm
Ingress Protection (IP) Rating	IP30 (Non-waterproof)
Cuttable Segments	Every 1.64 inches (41.6mm)
Special Features	Addressable WS2811 IC Chip, Chasing LED Strip, Dimmable, Flexible, Uniform Light
Certifications	UL Listed

5. Installation Guide

5.1 Pre-Installation Checklist

1. Ensure you have a compatible DC24V power supply (sufficient wattage for the strip length).
2. Obtain a compatible WS2811/SPI controller (e.g., Tuya DR03W, SP530E, SP630E, SP611E, SP602E, SP608E, WLED ESP32 SP803E, SP805E).
3. Gather necessary tools: scissors (if cutting), measuring tape, cleaning cloth.
4. Test the LED strip before permanent installation by connecting it to a power supply and controller to ensure it functions correctly.

5.2 Mounting the LED Strip

1. **Clean the Surface:** Ensure the installation surface is clean, dry, and free of dust or grease.
2. **Measure and Cut (if needed):** Measure the desired length. The strip can be cut at designated marks (every 1.64 inches / 41.6mm). Use sharp scissors for a clean cut.
3. **Apply:** Peel off the backing from the 3M self-adhesive tape on the back of the LED strip. Carefully press the strip onto the desired surface, ensuring firm and even contact.
4. **Secure (Optional):** For added security, especially on textured or vertical surfaces, use mounting clips (not included) to further secure the strip.

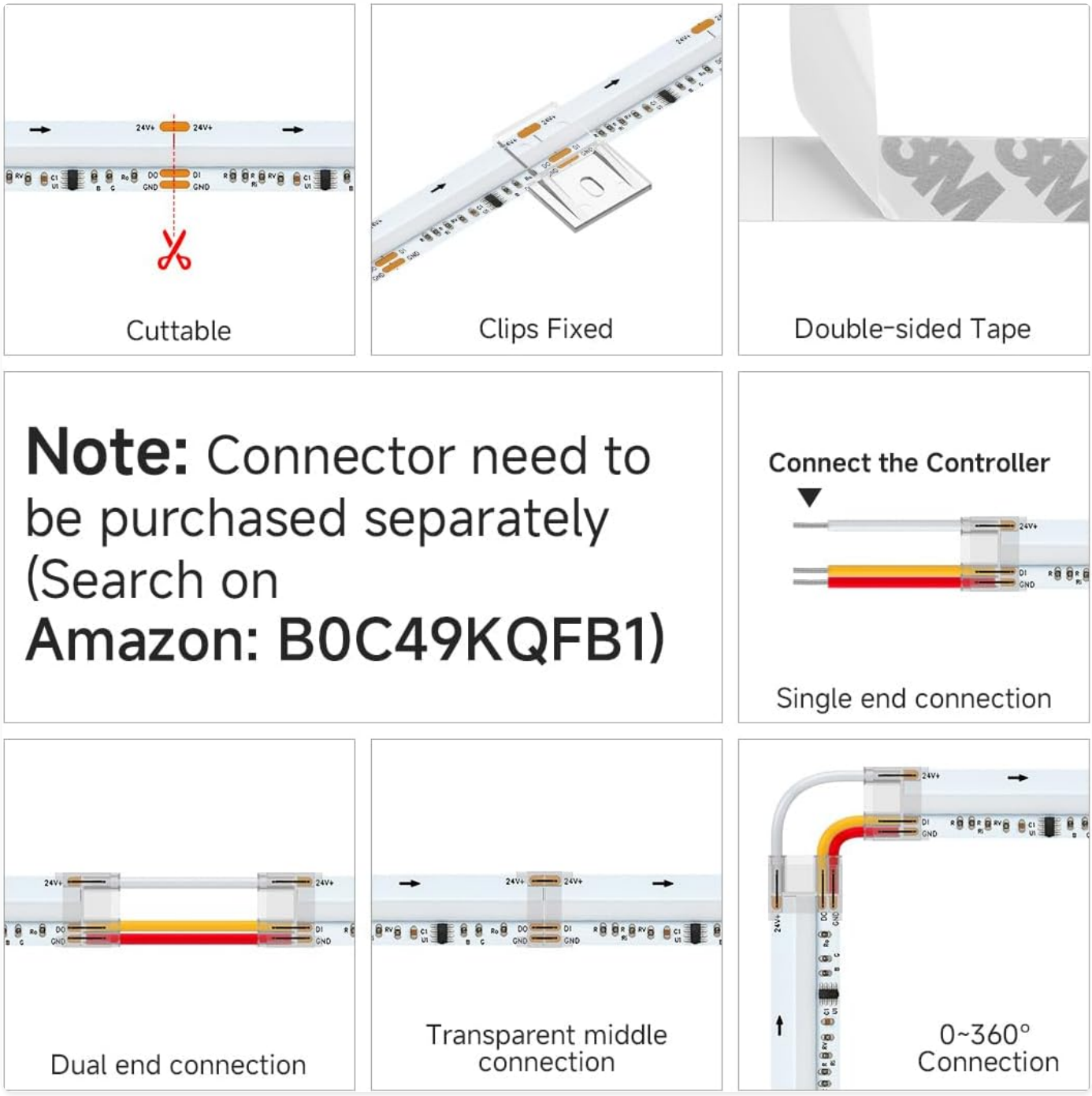


Figure 6: Visual guide for cutting, securing with clips, adhesive application, and different connection methods.



Figure 7: Step-by-step visual installation process.

5.3 Connecting the Controller and Power Supply

Follow the data direction arrows on the LED strip. The data input (DI) side connects to the controller.

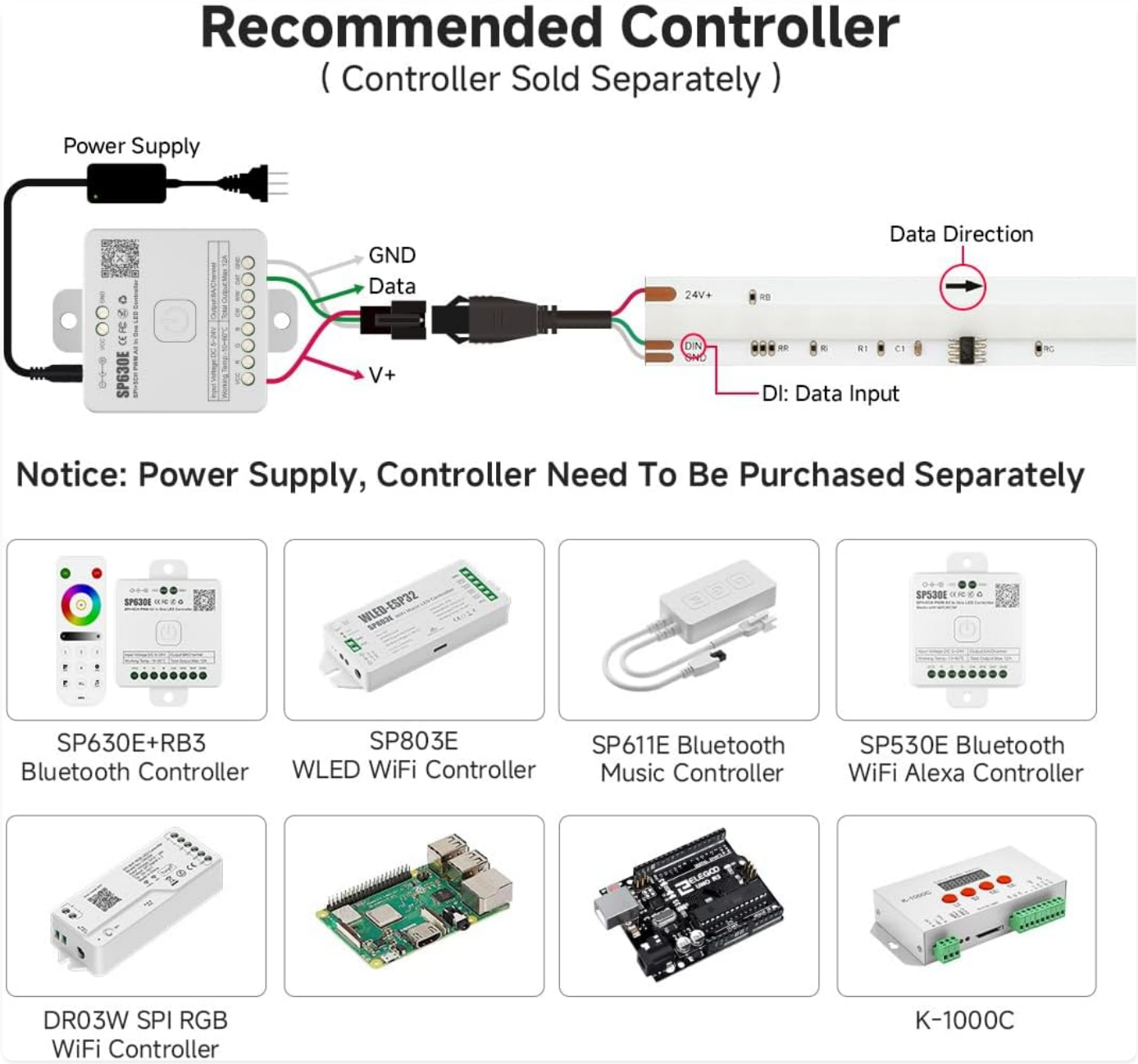


Figure 8: Basic wiring diagram showing connections between power supply, controller, and LED strip, along with examples of compatible controllers.

5.4 Wiring Diagrams

Ensure correct polarity (V+ to V+, GND to GND, Data to Data) and data direction.

Series Connection

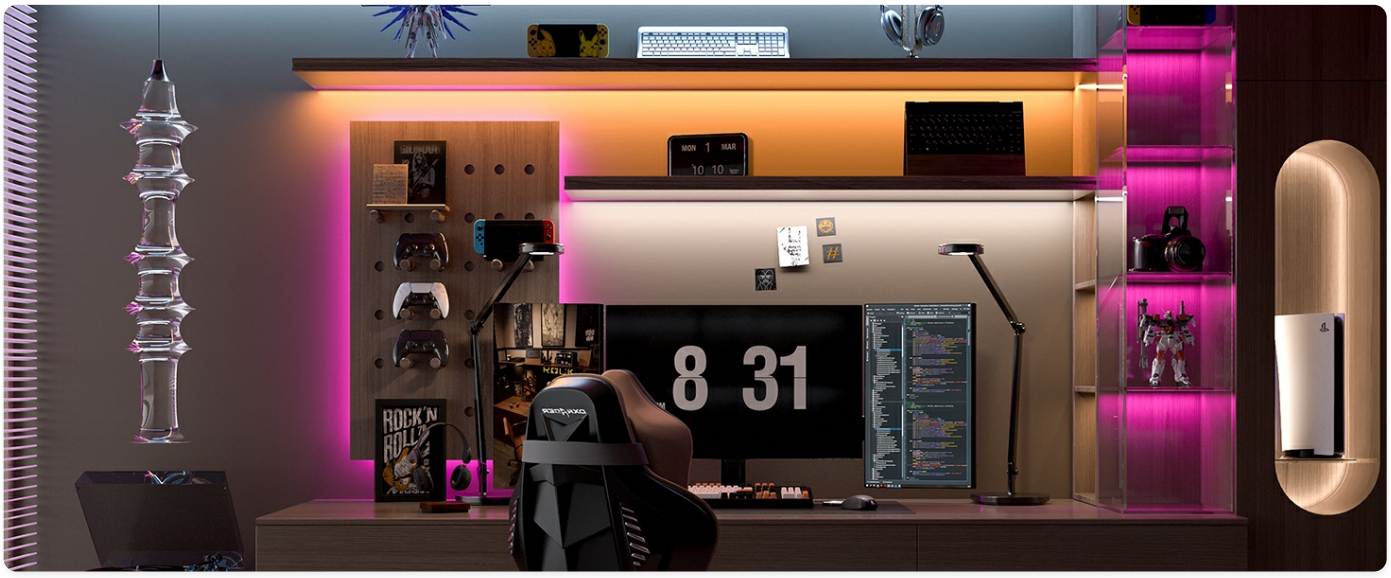


Figure 9: Diagram illustrating series connection of multiple LED strips to a single controller and power supply.

Parallel Connection



Figure 10: Diagram illustrating parallel connection of multiple LED strips, often requiring a signal amplifier for longer runs or more strips.

5.5 Connectors

Various connectors (single end, dual end, transparent middle, 0-360° corner) are available and sold separately to facilitate different installation needs. Ensure connectors are fully clamped and respect data direction.

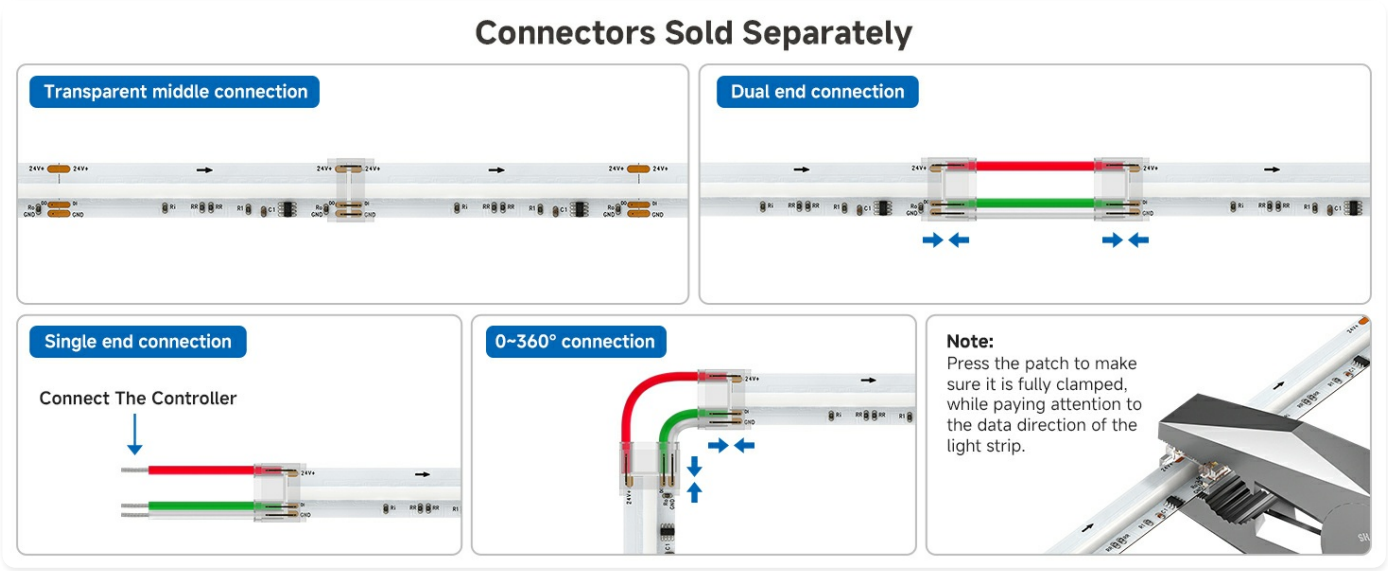


Figure 11: Examples of different connector types for LED strips.

6. Operation

6.1 Compatible Controllers

This LED strip is compatible with various WS2811/SPI controllers. Popular options include:

- Tuya DR03W Wi-Fi, Bluetooth, Alexa, Google Home & RF controllers
- BanlanX APP compatible controllers (e.g., SP530E, SP630E, SP611E, SP602E, SP608E)
- WLED ESP32 compatible controllers (e.g., SP803E, SP805E)
- Other DIY controllers (e.g., Arduino, Raspberry Pi)

Refer to your specific controller's manual for detailed operating instructions.

6.2 Dynamic Lighting Effects

The addressable WS2811 IC chips allow for a wide range of dynamic lighting effects, including:

- Color chasing sequences
- Multiple colors displayed simultaneously
- Color curtain, flowing water, raindrops, and jumping flashes
- Customizable patterns and colors via controller software/app

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Video 1: Overview of FCOB WS2811 IC RGB LED Strip Light features and dynamic effects, provided by BTF-Lighting.

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Video 2: Comparison demonstrating the uniformity and brightness of FCOB WS2811 IC RGB 864L LED strips versus 630L LED strips, provided by BTF-Lighting.

7. Maintenance

The BTF-LIGHTING LED strip requires minimal maintenance.

- **Cleaning:** Ensure the power is off. Gently wipe the strip with a soft, dry, or slightly damp cloth. Do not use harsh chemicals or abrasive cleaners.

- **Inspection:** Periodically check connections for any signs of wear or damage.
- **Environment:** Maintain a dry, indoor environment to prevent damage to the IP30 rated strip.

8. Troubleshooting

Problem	Possible Cause	Solution
LED strip does not light up	No power, incorrect voltage, faulty connection, faulty controller.	Check power supply connection and output. Ensure 24V DC. Verify all wiring connections. Test controller functionality.
Only part of the strip lights up	Damaged segment, poor connection between segments, data signal issue.	Inspect the unlit section for physical damage. Re-check connections between strip segments. Ensure data direction is correct.
Colors are incorrect or flickering	Loose data connection, controller settings, power supply instability.	Secure data wire connections. Check controller settings (e.g., LED type, number of LEDs). Ensure power supply is stable and sufficient.
Controller not responding	Controller not powered, incorrect pairing, faulty controller.	Ensure controller is powered. Refer to controller manual for pairing instructions. Replace controller if faulty.

9. Warranty and Support

BTF-LIGHTING provides dedicated customer support for DIY design, installation assistance, troubleshooting, and after-sales warranty service. For any issues or inquiries, please contact BTF-LIGHTING customer service through your purchase platform or the official BTF-LIGHTING website.

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