

SPI
ZigBee
RGB LED
Controller



SPI ZigBee RGB LED Controller Owner's Manual

[Home](#) » [SPI](#) » SPI ZigBee RGB LED Controller Owner's Manual 

Contents

- 1 SPI ZigBee RGB LED Controller
- 2 Technical Parameters
- 3 Mechanical Structures and Installations
- 4 System Wiring
- 5 Documents / Resources
 - 5.1 References

SPI

SPI ZigBee RGB LED Controller



- Multi-pixel RGB/RGBW LED strip controller with SPI signal output, Tuya smart APP cloud control.
- Voice control, support for Amazon Alexa, Google Assistant, Tmall Genie and Xiaodu voice assistant.
- Compatible with RGB or RGBW LED strips with 49 kinds of chips, the chip type, and R/G/B/W color sequence

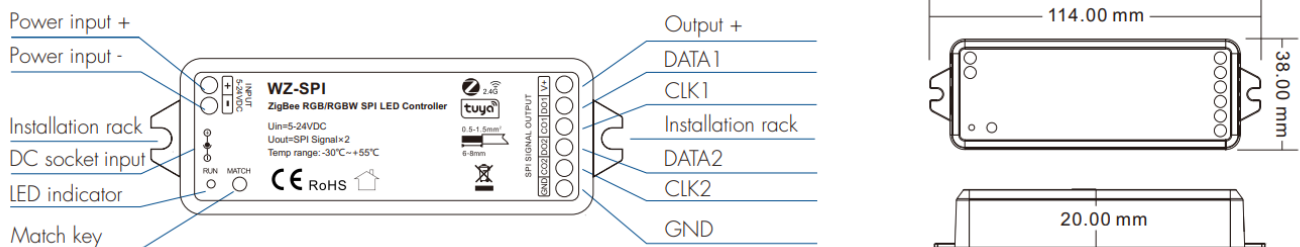
can be set through the APP.

- Compatible chip: TM1809(default), TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, SM16703P ,TM1803, TM1829, TLS3001, TLS3002, GW6205, MBI6120, TM1814B(RGBW), SK6812(RGBW), WS2813(RGBW), WS2814(RGBW), UCS8904B(RGBW), LPD6803, LPD1101, D705, UCS6909, UCS6912, LPD8803, LPD8806, WS2801, WS2803, P9813, SK9822, TM1914A, GS8206, GS8208, UCS2904, SM16804, SM16825, SM16714(RGBW), UCS2603, UCS5603, SM16714D, UCS7604(RGBW), UCS7804(RGBW).
- Painted segment color mixing: full-color telling, color pencil segment painting, eraser segment light off.
- Rich dynamic effects: 44 default and 10+ custom dynamic scenarios, 16 variations.
- 3 APP music rhythms.
- Match with RF 2.4G RGB remote control optional, such as R9.

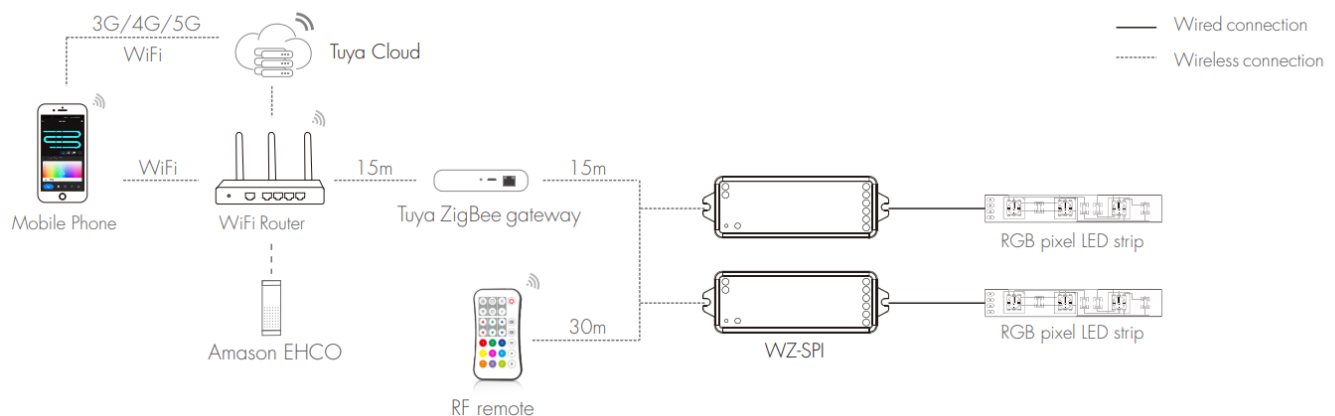
Technical Parameters

| Input and Output | | Safety and EMC | | Environment | |
|------------------|-----------------------------------|-----------------------|---------------------------|-------------------------|--------------------|
| Input voltage | 5-24VDC | EMC standard (EMC) | ETSI EN 301 489-1 V2.2.3 | Operation temperature | Ta: -30℃ ~ +55℃ |
| Input Current | 8A | | ETSI EN 301 489-17 V3.2.4 | Case temperature (Max.) | Tc: +65℃ |
| Input signal | ZigBee + RF 2.4G | Radio Equipment (RED) | ETSI EN 300 328 V2.2.2 | IP rating | IP20 |
| Output signal | SPI(TTL) x 2 | Certification | CE, EMC, RED | Package | |
| Scenario Mode | 44 default and 10+ customizations | Warranty | | Size | L120 x W43 x H27mm |
| Pixel Dots | MAX.1000 | Warranty | 5 years | Gross weight | 0.066kg |

Mechanical Structures and Installations



System Wiring

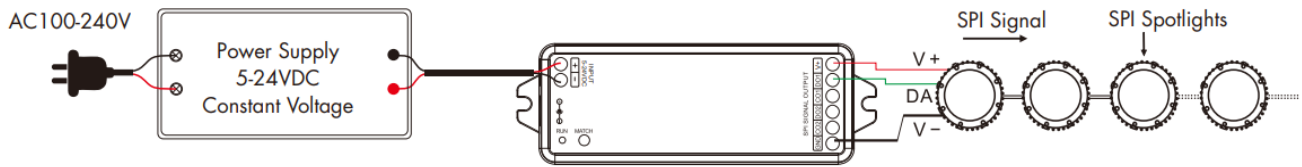


- The above distance is measured in a spacious (no obstacle) environment, Please refer to the actual test distance before installation.

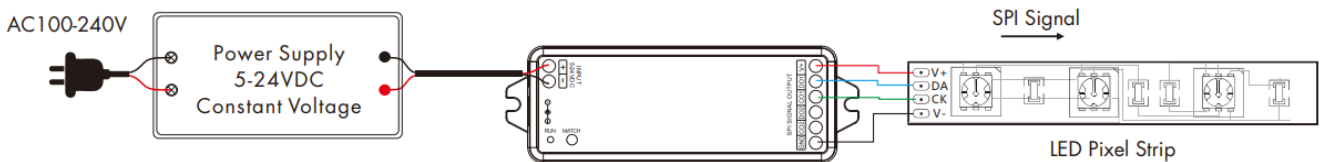
2. Users must use the Tuya ZigBee gateway to realize remote control and voice control

Wiring Diagram

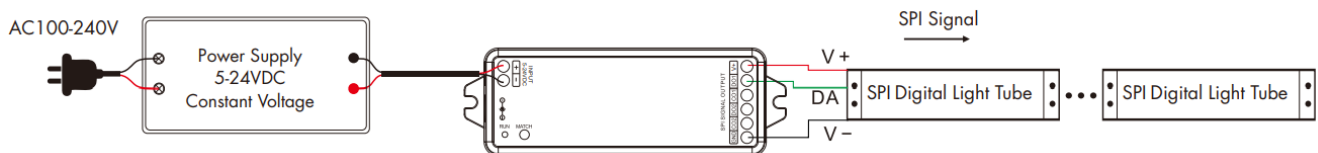
- WZ-SPI connects with SPI spotlights (TM1803)



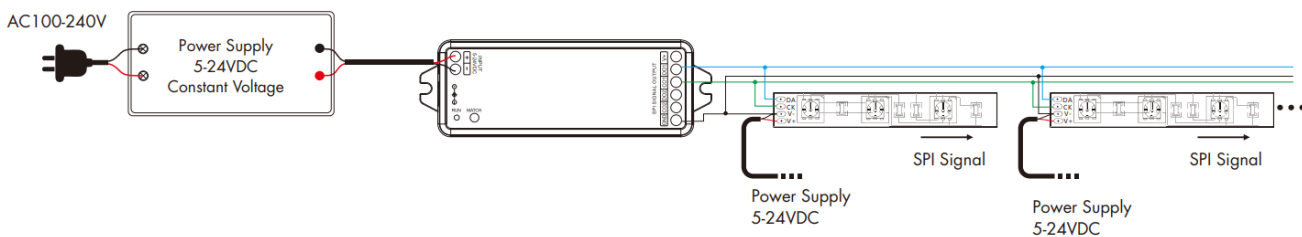
- WZ-SPI connects with one SPI pixel strip (WS2801)



- WZ-SPI connects with SPI digital light tube (TM1809)

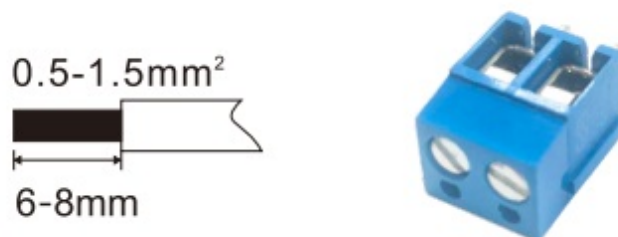


- WZ-SPI connects with multiple SPI pixel strips (LED strip load over 8A)



Wire Preparation

- The wiring can be solid or stranded with a cross-sectional area of 0.5 to 1.5 mm².



- Conventional 1mm² can withstand 10A output current.
- When wiring is installed, the terminals must be tightened.
- If they are not tightened, the contact point resistance will be too high and the terminals will easily burn due to heat when used at full load for a long time.

Installation Precautions

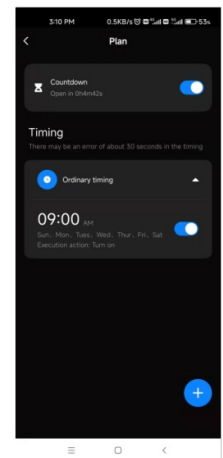
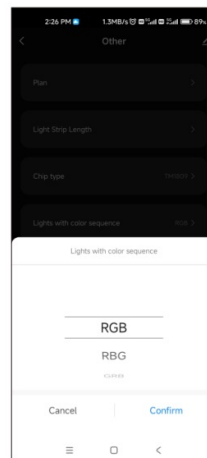
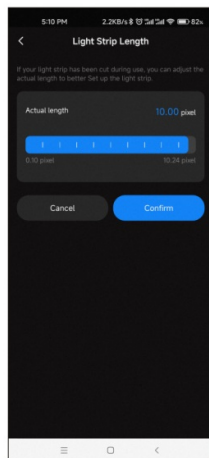
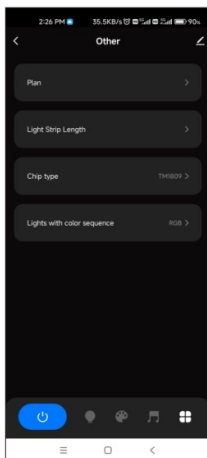
- The SPI LED strip is a single wire control method, the DATA and CLK signal line outputs of the controller are the

same, and one controller can connect 4 LED strips.

2. When the load of the light strip exceeds 8A, the light strip needs to be powered by another power supply (the light strip and the power supply must share the same ground), and only the DATA/CLK and GND lines are connected between the controller and the light strip.
3. The output power of the constant voltage power supply is at least 1.2 times that of the output load (light strip), otherwise the full power output of the load will easily cause the lights to flicker or shake automatically.
4. The voltage of the power supply needs to be the same as the voltage of the light strip to avoid the phenomenon of the light strip not being lit or slightly lit.
5. When installing the length of the signal line (DATA/CLK) needs to be ≤ 10 meters, and if it exceeds 10 meters, it needs to be connected to an SPI signal amplifier (common ground) for signal amplification, to avoid signal interference due to the line being too long.
6. When installing the SPI signal lines (DATA, CLK) need to be separated from the strong power (100-240VAC) lines at a distance of 215cm to avoid the magnetic field generated by the strong power from interfering with the signal transmission.
7. Each signal output port (DATA/CLK) can only be connected to one set of light strips. The light strip is always on without control, it may be that the signal line (DATA/CLK) is open or the chip of the light strip is damaged, it is recommended to replace the signal line or the light strip.

Tuya Smart APP Network Connection

- Press and hold the Match key for 5s, or push twice the Match key fastly:
- Clear the previous network connection, enter config mode, LED indicator flash fastly.



- In the Tuya smart APP, you can find a WZ-SPI device.
- If the Tuya smart APP network connection succeeds, the RUN LED indicator will stop flashing.

Other interface

For the first time use, set LED strip length, chip type, and color sequence. Light Strip Length interface.

Strip length setting

Select the appropriate number of pixels according to the actual length of the strip, 10 -1000. Lights with color sequence interface.

Select the corresponding

R/G/B/W sequence according to the color sequence of the light strip.

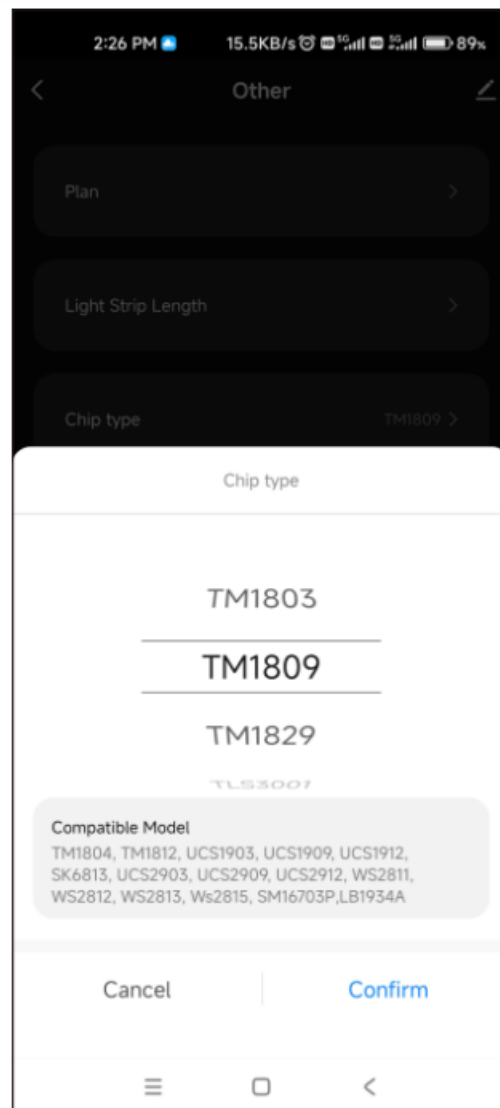
- (RGB, RBG, GRB, GBR, BRG, BGR, RGBW, RBGW, GRBW, GBRW, BRGW, BGRW, WRGB, WRBG, WGRB, WGBR, WBRG, WBGR)
- Plan interface

Countdown

- Customize the countdown time
- (Max.24 hours) to perform the on/off action.
- Timer: Customize multiple times to perform the on/off light action.

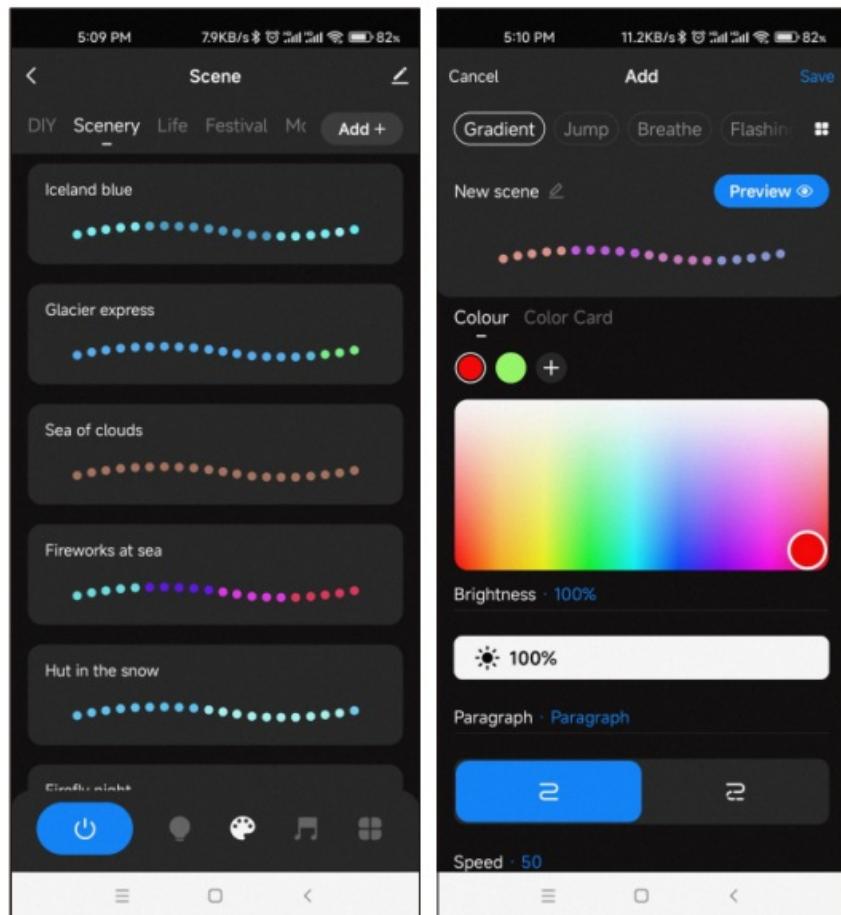
Chip type interface

Select the corresponding chip according to the chip type of the light strip.



| Chip Type | Compatible Chip |
|----------------|--|
| TM1803 | |
| TM1809 | TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, SM16703P |
| TM1829 | |
| TLS3001 | TLS3002 |
| GW6205 | |
| MBI6120 | |
| TM1814B(RGBW) | |
| SK6812(RGBW) | WS2813(RGBW), WS2814(RGBW) |
| UCS8904B(RGBW) | |
| LPD6803 | LPD1101, D705, UCS6909, UCS6912 |
| LPD8803 | LPD8806 |
| WS2801 | WS2803 |
| P9813 | |
| SK9822 | |
| TM1914A | |
| GS8206 | GS8208 |
| UCS2904 | |
| SM16804 | |
| SM16825 | |
| SM16714(RGBW) | |
| UCS5603 | |
| UCS2603 | |
| SM16714D | |
| UCS7604(RGBW) | |
| UCS7804(RGBW) | |

Tuya smart APP Interface



Colour

Touch the color rectangle to adjust color and saturation. Touch the brightness slide to adjust brightness.

White

Touch the color rectangle to adjust the color temperature. Touch the brightness slide to adjust brightness.

Color Card

Touch the color card array to select many different colors. Touch the brightness slide to adjust brightness.

Combination

Select a proportional distribution of the multi-color circles, and evenly distribute these colors on the LED strip.



Color Fill: Change the color of the full segment of the LED strip.



Color pen: change the color of a single segment of the LED strip.



Eraser: Erase the color of a single segment of the LED strip, i.e., turn off the light.



Color transition: When there are multiple colors in the LED strip, you can set it to turn on or off the color segment gradient transition.

Scene interface

44 predefined scenarios and 10+ custom dynamic scenarios selectable.

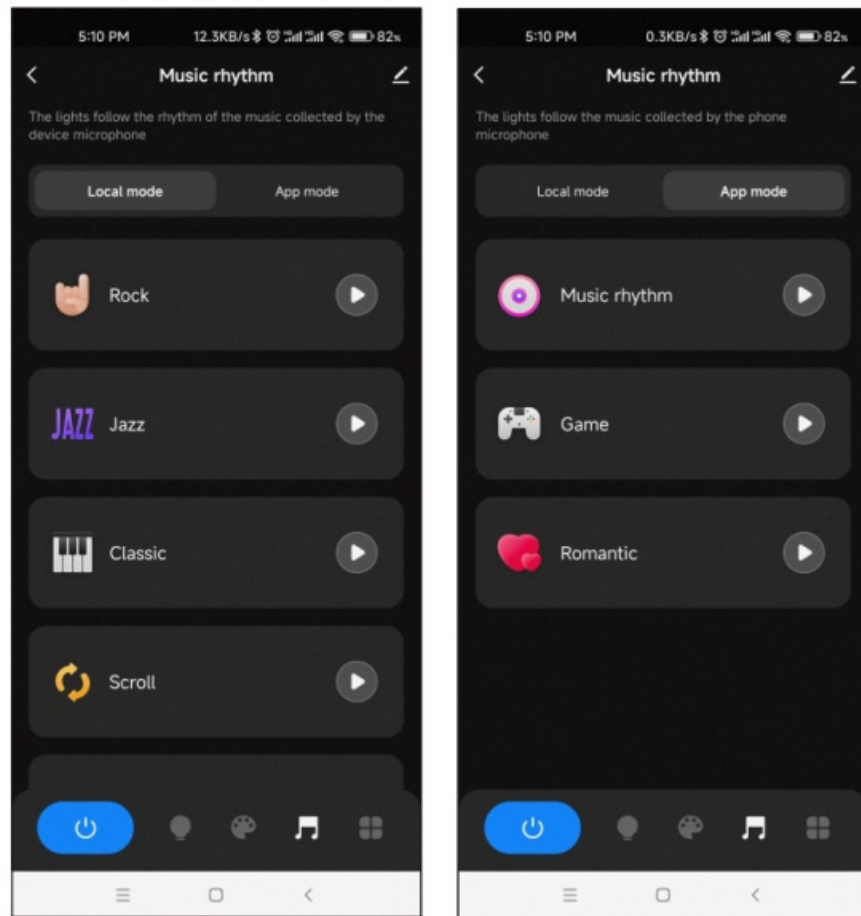
The custom scenarios can select 16 types of variations (fade, jump, breath, flash, flow, rainbow, shooting star, pile-up, floating down, chasing light, floating, flashing, bouncing, shuttle, chaotic flashing, open and close), the 1-8

colors, full or segment control, forward or reverse motion direction, adjustable brightness, and speed.

Music rhythm interface

6 local music modes (rock, jazz, classical, rolling, energy, spectrum) are selectable.

3 APP modes (music rhythm, game, romance) are selectable.



Adjustable sensitivity of the received sound

The light follows the rhythm according to the music collected by the phone microphone.

Note: the controller only supports App mode.

Notes

1. In APP, a light strip is fixed with 20 segments, strip length (total number of pixel points) ÷ 20 segments = number of pixel points per segment.
2. The maximum length of the light strip is 1000 pixels, for example, for a light strip of 5 meters long with 60 pixels per meter, you can set the length to 300 pixels.
3. The whole light strip is divided into 20 segments, each segment has 15 pixels.
4. When the light strip length is less than or equal to 20 pixels, for example, 10-20, each pixel sequentially corresponds to each segment from the beginning.
5. When the light strip length is not an integer multiple of 20, the remainder of the strip will display the color of the last segment.
6. When the actual light strip length is not an integer multiple of 20, it is recommended to set the length longer and increase the value to a multiple of 20.
7. When the set of the light strip length is less than the actual length, the back part of the light strip can not be controlled.

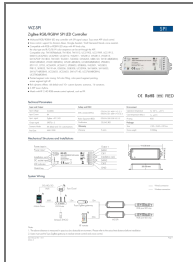
8. When the selected dynamic mode cycle running interval is too long, please reset the correct pixel length.
9. When the static or dynamic mode color display is not consistent with the APP interface, please re-select the light strip color sequence.

Match R9 Remote Control

Match: Short press the match key, and immediately press the on/off key of the remote. The LED indicator fast flashes a few times means the match is successful.

Delete: Press and hold the match key for 10 to delete all matches, The LED indicator fast flashes a few times means all matched remotes were deleted.

Documents / Resources

| | |
|---|---|
|  | SPI ZigBee RGB LED Controller [pdf] Owner's Manual ZigBee RGB LED Controller, RGB LED Controller, LED Controller, Controller |
|---|---|

References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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