

WT-SPI+RTS

WiFi & RF RGB/RGBW LED SPI Controller Set



integral LED
Integral LED, NW10 OUF, UK
Iniegraf Europe BV, 2801 DG, NL

CE RoHS

WT-SPI controller is compatible with 49 kinds of chips: TM1803, TM1804, TM1809, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, WS2815, 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, SM16703P, UCS7604(RGBW), UCS7804(RGBW).

By the RF remote controls you can set the color, change type, motion direction, speed, brightness of the dynamic mode, etc.
Or by the Tuya Smart App/Smart life APP, you can perform voice control, music rhythm, drawing style segmented color adjustment of light strips, select various dynamic or custom scene modes, set the number of pixels, etc.

Features

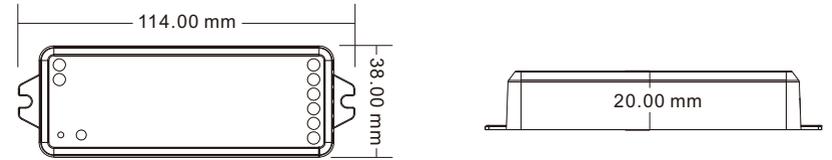
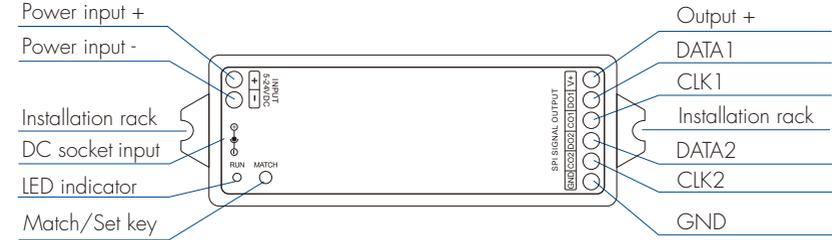
- Multi-pixel RGB/RGBW LED strip controller with SPI signal output, RF 2.4G remote + Tuya smart APP cloud control.
- Compatible with 49 types of RGB or RGBW LED light strips, the chip type and R/G/B/W color order can be set through the RTS remote control.
- RTS remote control support to set LED strip length, chip type, R/G/B/W color sequence.
- Voice control, support for Amazon Alexa, Google Assistant, Tmall Genie and Xiaodu voice assistant.
- Painted segment color mixing: full color filling, color pencil segment painting, eraser segment light off.
- Rich dynamic effects: 44 default and 10+ custom dynamic scenarios, 16 variations.
- 3 APP music rhythms.

Technical Parameters

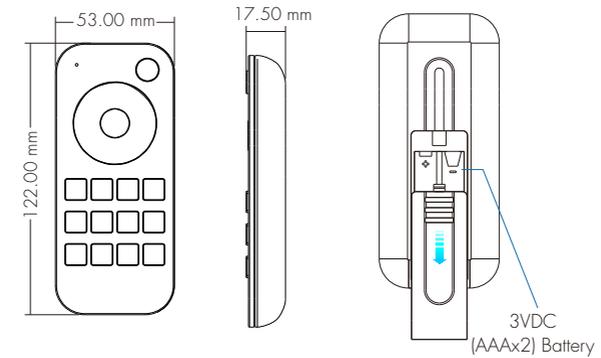
LED Remote		LED Controller	
Output signal	RF(2.4GHz)	Input voltage	5-24VDC
Work voltage	3VDC(AAAx2)	Input Current	8A
Work current	< 8mA	Input signal	WiFi + RF 2.4GHz
Standby current	< 7μA	Output signal	SPI(TTL) x 2
Standby time	1 year	Scenario Mode	44 default and 10+ customizations
Remote distance	30m(Barrier-free space)	Pixel Dots	Max.1000
Size	L122xW53xH17.5mm	Size	L114xW38xH20mm
Safety and EMC		Environment	
EMC standard	EN IEC 55015/EN IEC 61547 ETSI EN 301 489-1/-3/-17	Operation temperature	Ta: -30°C ~ +55°C
Safety standard	EN 61347-1/-2	Case temperature (Max.)	Tc: +65°C
Radio Equipment	ETSI EN 300 440 ETSI EN 300 328	IP rating	IP20
Certification	CE RoHS	Package	
Warranty		Size	L130xW103xH28mm
Warranty	5 years	Gross weight	0.184Kg

Mechanical Structures and Installations

Controller:

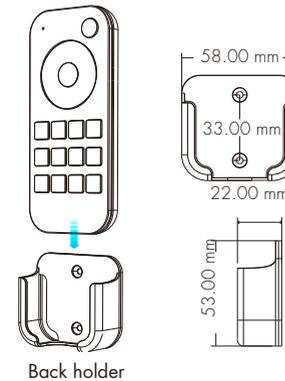


Remote:



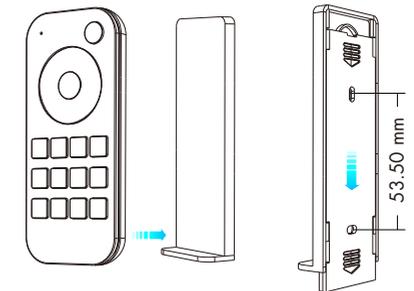
Two options are offered for selection, please fix the back holder on the wall with two screws, or adhere the back holder to the wall with paster.

1. Back holder without magnet



Back holder

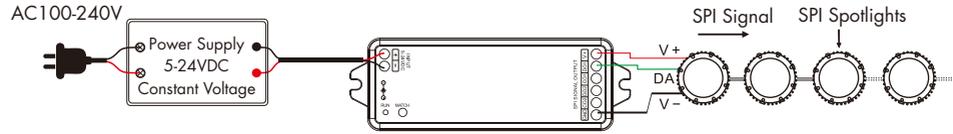
2. Back holder with magnet



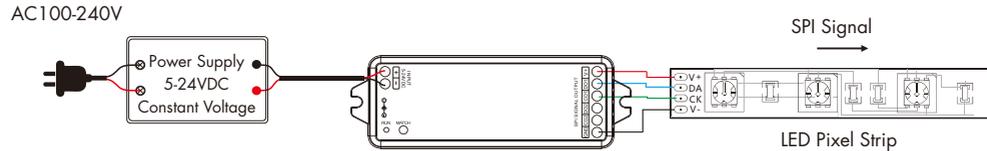
Back holder with magnet

Wiring Diagram

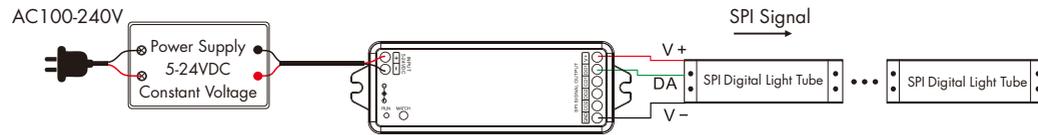
• WT-SPI connect with SPI spotlights (TM1803)



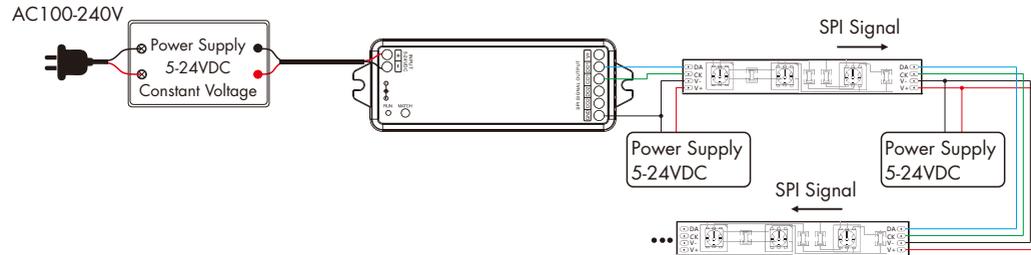
• WT-SPI connect with one SPI pixel strips (WS2801)



• WiFi-SPI connect with SPI digital light tube (TM1809)



• WT-SPI connect with multiple SPI pixel strips (LED strip load over 8A)



Note:

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

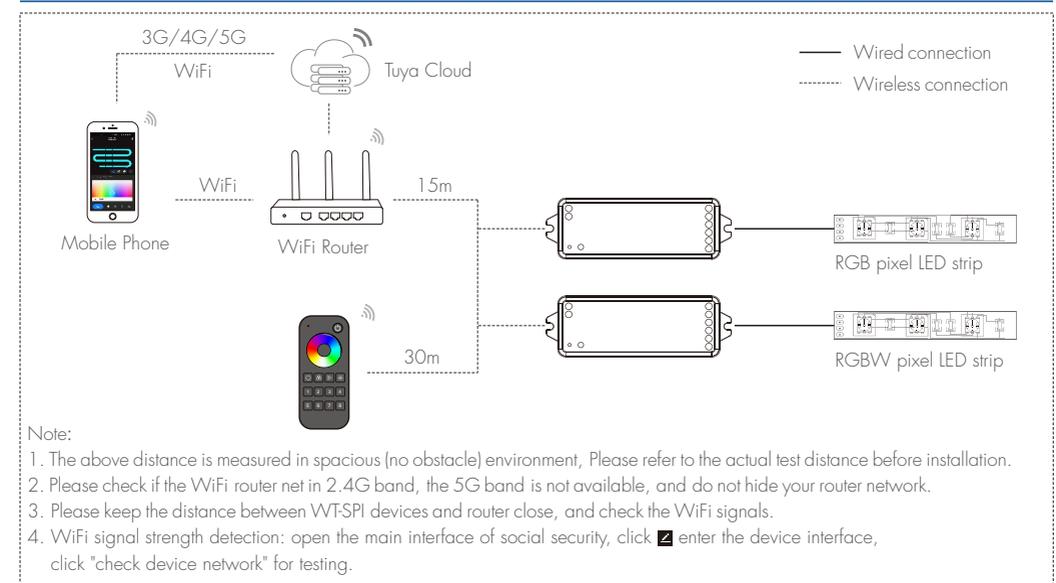
Remote Key Function



- 🔌 Turn on/off light.
- 🌈 Touch to change static RGB color.
- 🔄 Short press: Switch the color of the dynamic mode in sequence (e.g. Red, Orange, Yellow, Green, Cyan, Blue, Purple, White, R/G/B 3-color, 7-color). Long press for 2s: Set 6 levels of color saturation (80%, 60%, 40%, 20%, 0%, 100%) in sequence, i.e., transition the current color to RGB mixed white.
- 🎛️ Short press: Switch the change types of the dynamic modes in sequence (e.g. static, flow, chasing light, pile-up, floating, tail dragging, tail dragging + black segment, bouncing, shuttle, jump, fade, breath, flashing, chaotic flashing). Long press for 2s: Set the first change type (static).
- ▶️ Short press: Switch 10 levels of speed in sequence. Long press for 2s: Switch the direction of light movement in sequence (e.g. forward, backward, round trip, both sides to center, center to both sides, curtains open and close).
- 🌟 Short press: Switch 5 brightness levels in sequence (100%, 80%, 60%, 40%, 20%). Long press for 2s: Get maximum brightness 100%.
- 1 2 3 4 8 Scene storage. Short press: Call up scene 1-8. Long press 2s: Save the current lighting effect to scene 1-8. When saving is successful, the LED indicator is green.

Note: The remote control will automatically get the number of dynamic mode color, the number of change type, and the number of light movement direction from the SPI controller.

System Wiring



Match RTS Remote Control

Match: Short press on the WT-SPI's match key, immediately press on/off key of the RTS remote.

The LED indicator fast flash a few times means match is successful.

Delete: Press and hold WT-SPI's match key for 10s to delete all match,

The LED indicator fast flash a few times means all matched remotes were deleted.

Use RTS Remote Set SPI Digital LED Strip

Long press  key and  key for 2s to enter the parameter setting state and the LED indicator turns green.

Short press  key or touch the RGB color ring to exit the parameter setting status.

 -  key correspond to the number 1-8,  key correspond to the number 9,  key correspond to the number 0, and  key correspond to *.

- Set LED strip length [Pixel number(8~1024)]. * + 3 number + *
Example: *032*: Set pixel number to 32. *600*: Set pixel number to 60. *1024*: Set pixel number to 1024.

- Set LED strip chip type. * + 2 number + *
 - *11*: TM1803
 - *12*: TM1809, TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, SM16703P
 - *13*: TM1829
 - *14*: TLS3001, TLS3002
 - *15*: GW6205
 - *16*: MBI6120
 - *17*: TM1814B(RGBW)
 - *18*: SK6812(RGBW), WS2813(RGBW), WS2814(RGBW)
 - *19*: UCS8904B(RGBW)
 - *21*: LPD6803, LPD1101, D705, UCS6909, UCS6912
 - *22*: LPD8803, LPD8806
 - *23*: WS2801, WS2803
 - *24*: P9813
 - *25*: SK9822
 - *31*: TM1914A
 - *32*: GS8206, GS8208
 - *33*: UCS2904
 - *34*: SM16804
 - *35*: SM16825
 - *36*: SM16714(RGBW)
 - *37*: UCS5603
 - *38*: UCS2603
 - *39*: SM16714D
 - *41*: UCS7604(RGBW)
 - *42*: UCS7804(RGBW)

- Set LED strip RGB order. * + 1 number + *
 - *1*: RGB, *2*: RBG, *3*: GRB, *4*: GBR, *5*: BRG, *6*: BGR
- Set RGBW LED strip RGB and W order.
 - *7*: W after RGB
 - *9*: W before RGBExample: *1* + *7* set RGBW order, *1* + *9* set WRGB order.

Tuya Smart APP Network Connection

• Download and open APP

Search for "Tuya Smart/Smart Life APP" in the app store, or scan the QR code on the right to download the APP. Register and login after installation.

• APP Pairing Network

Push twice Match key fastly, or press and hold Match key for 5s: clear previous network connection, enter WiFi config mode, LED indicator flash fastly.

If Tuya Smart APP network connection succeed, the RUN LED indicator will stop flash, and in Tuya Smart APP, you can find WT-SPI device.

When controlling the light with Tuya Smart/Smart Life APP, if the network connection is poor, you can control the light with Bluetooth connection within the Bluetooth control range.

Note: The light can not be directly controlled by Bluetooth without WiFi configuration.



Smart life APP Tuya smart APP

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 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 multi-color circle, evenly distribute these colors on the LED strip.



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



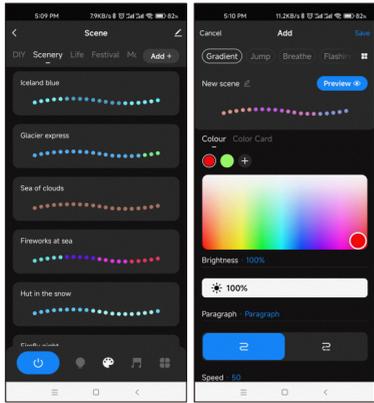
Color pen: change the color of a single segment of the LED strip.



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



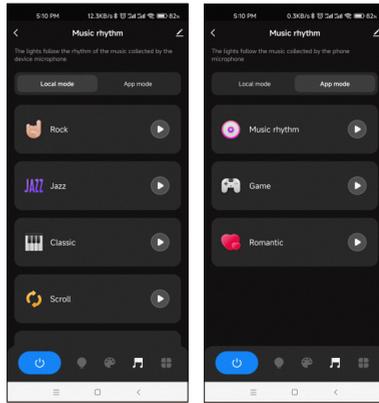
Color transition: When there are multiple colors in the LED strip, you can set to turn on or off the color segment gradient transition.



Scene interface

44 predefined scenarios and 10+ custom dynamic scenarios selectable.

The custom scenarios can select 16 types 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) selectable.

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

Adjustable sensitivity of the received sound.

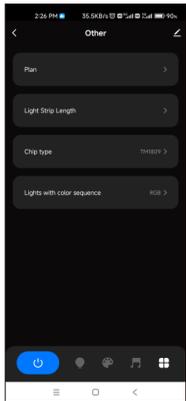
The light follows the rhythm according to the music collected by the phone microphone.

Note: the controller only supports APP mode.

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

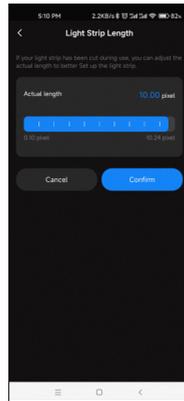
Installation Precautions

- Please read all instructions carefully before starting the installation.
- When installing the batteries, pay attention to the positive and negative poles of the batteries; please remove the batteries when you don't use the remote control for a long time; please replace the batteries in time when the distance of the remote control becomes smaller or the remote control fails frequently.
- If the receiver does not respond, repair the remote control.
- Hold it gently and avoid dropping it.
- For indoor and dry environments only.
- Avoid using it in large metal areas or areas with strong electromagnetic waves, otherwise the remote control distance will be affected.
- When installing, the length of the signal line (DATA/CLK) needs to be ≤ 10 metres, and if it exceeds 10 metres, 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.
- When installing, the SPI signal lines (DATA, CLK) need to be separated from the strong power (100~240VAC) lines at a distance of ≥ 15 cm to avoid the magnetic field generated by the strong power from interfering with the signal transmission.
- 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.



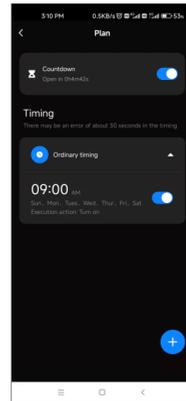
Other interface

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.



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.

Restore Factory Default Setting

Factory default parameters: RGB light type, pixel length 300, TM1809 chip type.

- Long press the match key for 15s, restore the factory default parameter settings, and set RGB color light and W white light can be turned on at the same time (When changing the chip type to RGBWW lighting).
- Long press the match key for 20s, restore the factory default parameter settings, and set RGB color light and W white light can not be turned on at the same time (When changing the chip type to RGBW lighting).

Notes.

- In APP, a light strip is fixed with 20 segments,
Strip length (total number of pixel points) \div 20 segments = number of pixel points per segment.
- The maximum length of the light strip is 1000 pixels, for example, a light strip of 5 meters long with 60 pixels per meter, you can set the length to 300 pixels.
The whole light strip is divided into 20 segments, each segment has 15 pixels.
- 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.
- 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.