WT-SPI+R9

WiFi & RF RGB/RGBW LED SPI Controller Set

SPI

FC 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, 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 select a variety of dynamic lighting effects, adjust changing speed and brightness, set control pixels quantity, set the IC type and R/G/B/W color sequence, 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 R9 remote control.
- Set the 40 dynamic change modes through the R9 remote control, include horse-race, chase, flow, trail or gradual change style.
- 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.

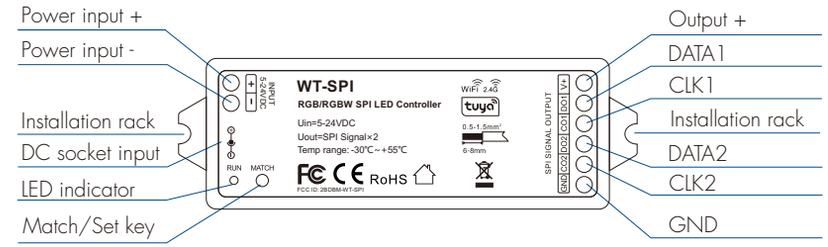
Technical Parameters

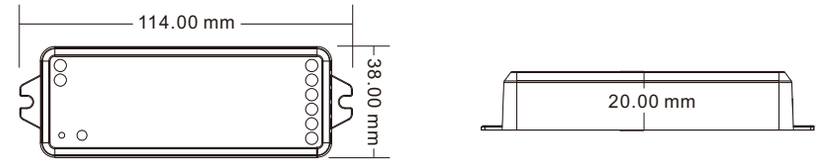
LED Remote	
Output signal	RF(2.4GHz)
Work voltage	3VDC(CR2032)
Work current	<5mA
Standby current	<2μA
Standby time	2 years
Remote distance	30m(Barrier-free space)
Size	L107×W58.5×H9mm
Safety and EMC	
EMC standard	EN IEC 55015/EN IEC 61547 ETSI EN 301 489-1/-3/-17
Safety standard	EN 61347-1/-2
Radio Equipment	ETSI EN 300 440 ETSI EN 300 328
Certification	CE RoHS FCC
Warranty	
Warranty	5 years

LED Controller		
Input voltage	5-24VDC	
Input Current	8A	
Input signal	WiFi + RF 2.4GHz	
Output signal	SPI(TTL) x 2	
Scenario Mode	44 default and 10+ customizations	
Pixel Dots	Max.1000	
Size	L114×W38×H20mm	
Environment		
Operation temperature	Ta: -30°C ~ +55°C	
Case temperature (Max.)	Tc: +65°C	
IP rating	IP20	
Package		
Size / Gross weight	Color Box: L128 x W128 x H27mm	0.285kg
	Suction molding: L265 x H195mm	0.300kg

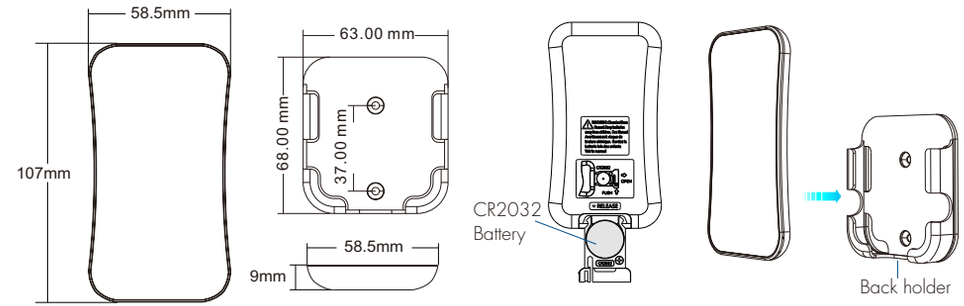
Mechanical Structures and Installations

Controller:





Remote:



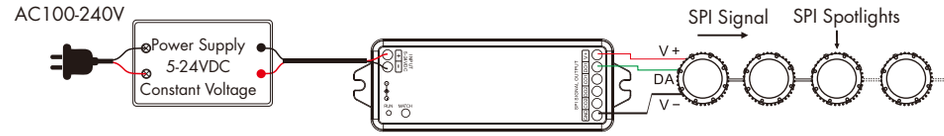
Note:
1. Before the first use, please remove the protective film on the battery.
2. If the LED indicator is not on when press key,
it is due to dead battery or bad contact caused by multiple plugging,
please replace the battery, or raise the battery shrapnel with a screw driver.

To fix the remote, two options are offered for selection:
Option 1:
fix the remote' back holder on the wall with two screws.
Option 2:
adhere the remote' back holder to the wall with paster.

Wiring Diagram

- WT-SPI connect with SPI spotlights (TM1803)

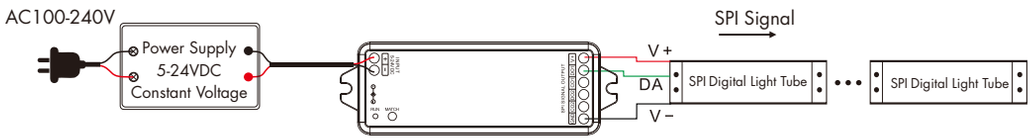
AC100-240V



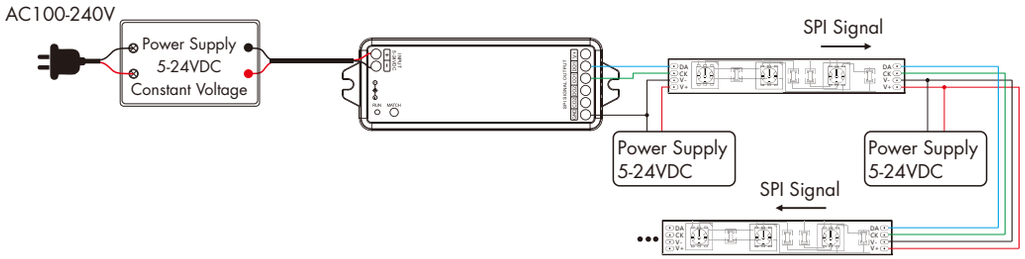
- WT-SPI connect with one SPI pixel strips (WS2801)

AC100-240V

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

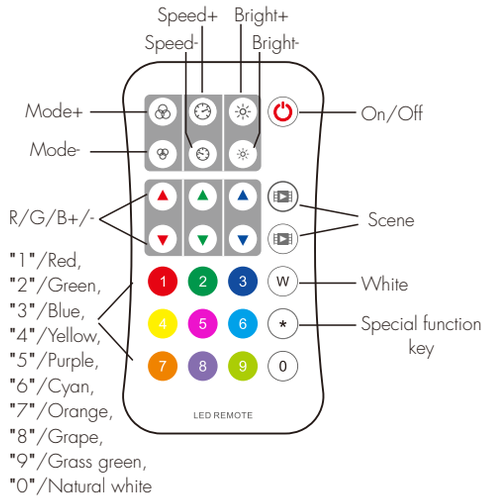


● WT-SPI connect with multiple SPI pixel strips (LED strip load over 8A)



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



Mode+/-: Short press switch dynamic mode built in controller, long press 2s Mode+ run mode cycle, long press 2s Mode- run the first mode. Default 32 dynamic modes, long press the Mode+ key for 2s will automatically get the current number of dynamic modes of the controller.

Speed+/-: Adjust dynamic mode speed, short press 10 levels, long press 2s get the fastest / slowest speed.

Bright+/-: Adjust brightness, short press 10 levels, long press 1-5s for continuous 256 levels adjustment.

R/G/B+/-: Adjust R/G/B brightness respectively, short press 10 levels, long press 1-5s for continuous 256 levels adjustment.

White: Adjust white color, short press turn on/off white(RGB mix), long press 1-5s for continuous 256 levels saturation adjustment.

Scene: Two scene memory, short press recall the scene, long press 2s save current color into the scene.

RGB color light +W white light settings:
When the remote control is used for RGBW light control, it can be operated by long pressing (⏻) key and (W) key for 2s at the same time, to set both RGB color light and W white light can be turned on at the same time or can not be turned on at the same time two ways.
When the red indicator blinks twice, set the RGB color light and W white light can not be turned on at the same time, That is, when the RGB color light is on, the white light automatically turn off, and when the white light is on, the RGB color light automatically turn off.
When the red indicator blinks four times, set the RGB color light and W white light are turned on at the same time(factory default).

Scene locking:
Scene keys can be set to locked state, cancel long press for 2s to save the scene function (default scene is not locked).
Short press the on/off key and any scene for 2s to set all scene keys to unlocked state, the indicator light will flash twice.
Short press the on/off key and any scene for 2s to restore all scene keys to locked state, the indicator light will flash 4 times.

Match R9 Remote Control

Match: Short press on the match key, immediately press on/off key of the remote.
The LED indicator fast flash a few times means match is successful.
Delete: Press and hold match key for 10s to delete all match,
The LED indicator fast flash a few times means all matched remotes were deleted.

Set the Length, Chip Type and RGB Order of The SPI LED Strip Using R9 Remote Control

● Set the LED strip length[number of pixels(10~1000)]: * + 3 digits + * , for example:
032, set the number of pixels 32.
600, set the number of pixels 600.
1000, set the number of pixels 1000.

● Set the LED strip chip type: * + 2 digits + *
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 digit + *
1:RGB, *2*:RBG, *3*:GRB, *4*:GBR, *5*:BRG, *6*:BGR.

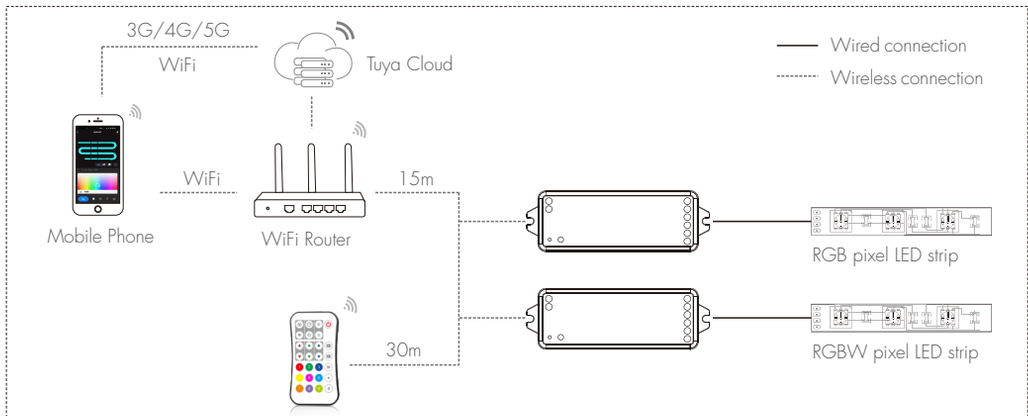
● Set RGBW LED strip RGB and W order.
7:W after RGB
9:W before RGB
Example: *1* + *7* set RGBW order, *1* + *9* set WRGB order.

R9 Remote Control Selectable Dynamic Mode List

No.	Name	No.	Name
P01	Red horse race white ground, forward	P21	Green float, forward
P02	Green horse race white ground, forward	P22	Blue float, forward
P03	Blue horse race white ground, forward	P23	Purple float, forward
P04	Yellow horse race blue ground, forward	P24	RGBW float, forward
P05	Cyan horse race blue ground, forward	P25	Red Yellow float, forward
P06	Purple horse race blue ground, forward	P26	Green Cyan float, forward
P07	7 color multi horse race, forward	P27	Blue Purple float, forward
P08	7 color horse race close + open	P28	Blue White float, forward
P09	7 color multi horse race close + open	P29	6 color float, forward
P10	7 color scan close + open	P30	6 color smooth sectionally, forward
P11	7 color multi-scan close + open	P31	7 color jump sectionally, forward
P12	Blue White chase, forward	P32	7 color strobe sectionally, forward
P13	Green Cyan chase, forward	P33	White horse race (RGB jump)
P14	RGB chase, forward	P34	White smooth horse race (RGB smooth)
P15	7 color chase, forward	P35	White starlight (RGB random jump)
P16	Blue meteor, backward	P36	White smooth starlight (RGB random smooth)
P17	Purple meteor, backward	P37	White flow, forward
P18	White meteor, backward	P38	White flow, forward on + backward off
P19	7 color meteor, backward	P39	White flow, forward on + backward on
P20	Red float, forward	P40	White float

Note:
P33-P40 dynamic modes are applicable to SPI type white light strip.
P33-P36 dynamic modes, if the color SPI strip is connected, the corresponding color effect will appear.

System Wiring



Note:
1. The above distance is measured in spacious (no obstacle) environment, Please refer to the actual test distance before installation.
2. Please check if the WiFi router net in 2.4G band, the 5G band is not available, and do not hide your router network.
3. Please keep the distance between WT-SPI devices and router close, and check the WiFi signals.
4. WiFi signal strength detection: open the main interface of social security, click enter the device interface, click "check device network" for testing.

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

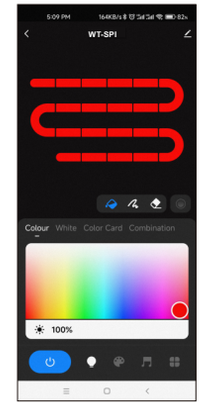
Push twice Match key fastly, or press and hold Match key for 5s: clear previous network connection, enter WiFi config mode, LED indicator flash fastly.

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.

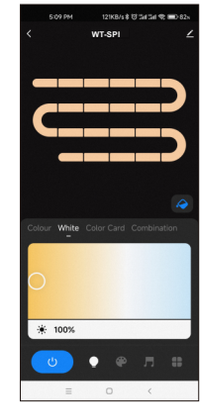
When controlling the light with Tuya Smart/Smart Life APP, if the network connection is poor, you can control the light with Bluetooth connection within the Bluetooth control range.
Note: The light can not be directly controlled by Bluetooth without WiFi configuration.

Smart life APP Tuya smart APP

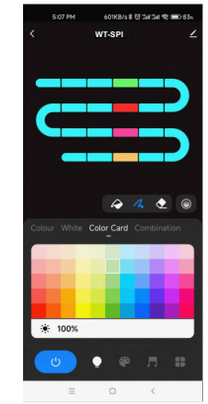
Tuya Smart APP Interface



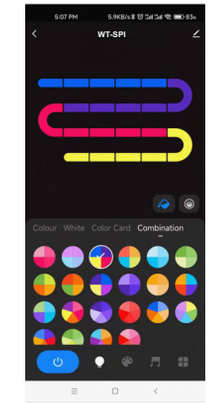
Colour:
Touch the color rectangle to adjust color and saturation. Touch the brightness slide to adjust brightness.



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.



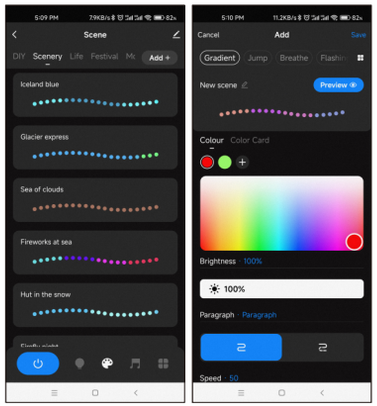
Combination:
Select a proportional distribution of multi-color circle, evenly distribute these colors on the LED strip.

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.

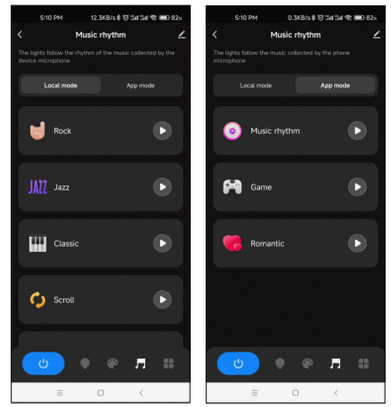
Eraser: Erase the color of a single segment of the LED strip, i.e., turn off the light.

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



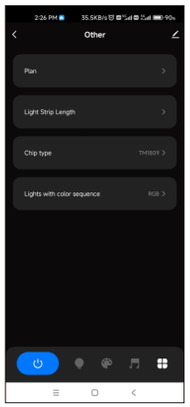
Scene interface

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.



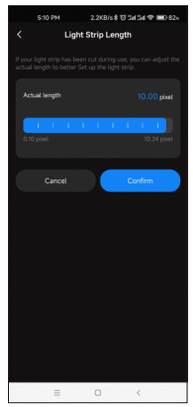
Music rhythm interface

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.



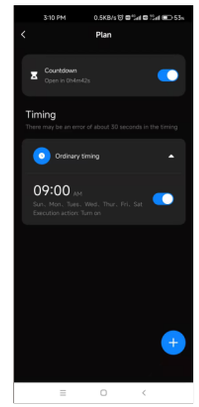
Other interface

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.

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, 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. When the selected dynamic mode cycle running interval is too long, please reset the correct pixel length.
8. 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

1. 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.
2. When installing, the SPI signal lines (DATA, CLK) need to be separated from the strong power (100~240VAC) lines at a distance of ≥15cm to avoid the magnetic field generated by the strong power from interfering with the signal transmission.
3. Each signal output port (DATA/CLK) can only be connected to one set of light strips.
4. 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.

Restore Factory Default Setting

Factory default parameters: RGB light type, pixel length 300, TM1809 chip type.
1. 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 RGBW lighting).
2. 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).

Statement

FCC ID Statement:
Mobile
RF Exposure Information
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.