

# WT-SPI-D

## 3-Button WiFi & RF Music SPI LED Controller



SPI

CE RoHS

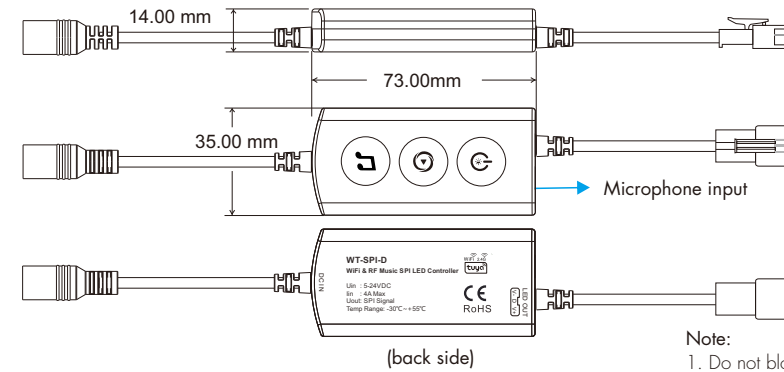
### Features

- Multi-pixel WiFi & RF RGB LED strip controller with single SPI signal output, support WiFi and Bluetooth connection, Tuya smart APP cloud control, RF remote and music control.
- Voice control, support for Amazon Alexa, Google Assistant, Tmall Genie and Xiaodu voice assistant.
- Compatible with RGB LED strips with 20 kinds chip, the chip type and R/G/B color sequence can be set through the APP or RF remote.  
Compatible chip: TM1809(default), TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, SM16703P, TM1914A, GW6205, GS8206, GS8208, TM1829.
- Three buttons for light on/off, dynamic mode change and music mode adjustment.
- Built-in 40 dynamic change modes, set by button or RF remote control.
- Built-in 6 kinds of music dynamic change effects, set by button.
- Painted segment color mixing by APP: full color filling, color pencil segment painting, eraser segment light off.
- Set the dynamic effects by APP: 44 default and 10+ custom dynamic scenarios, 16 variations.
- Built-in microphone, 6 local modes music rhythm, 3 App modes music rhythm optional.
- Match with RF 2.4G RGB remote control optional.

### Technical Parameters

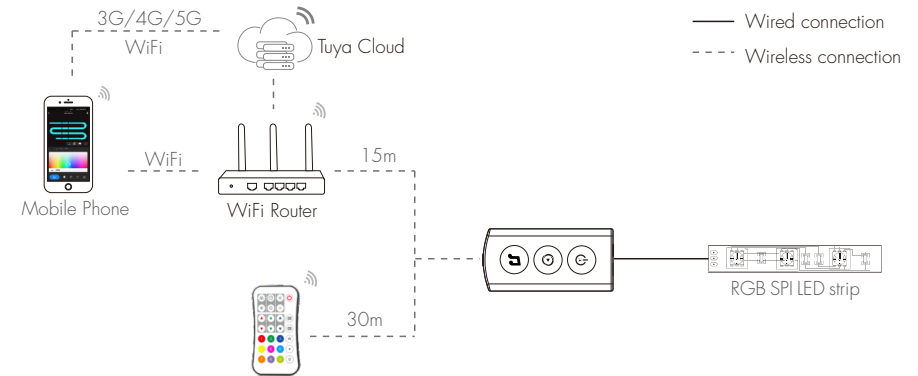
Input and Output		Environment		Safety and EMC	
Input voltage	5-24VDC	Operation temperature	Ta: -30°C ~ +55°C	EMC standard	EN IEC 55015/ EN IEC 61547
Input current	4A Max.	Case temperature (Max.)	Tc: +65°C		ETSI EN 301 489-1/-3/-17
Input signal	WiFi + RF 2.4G	IP rating	IP20	Safety standard	EN 60669-1/-2
Output signal	SPI			Radio equipment	ETSI EN 300 440 ETSI EN 300 328
				Certification	CE RoHS
		Package			
Scenario mode	44 default and 10+ customizations	Size	L120 x W43 x H27mm		
Dynamic mode	40 types	Gross weight	0.057kg	Warranty	
Pixel dots	Max.1000			Warranty	5 years

### Mechanical Structures and Installations



- Note:
1. Do not block the microphone input;
  2. Microphone sound ≥60dB;
  3. The best distance to receive sound ≤1m

### System Wiring

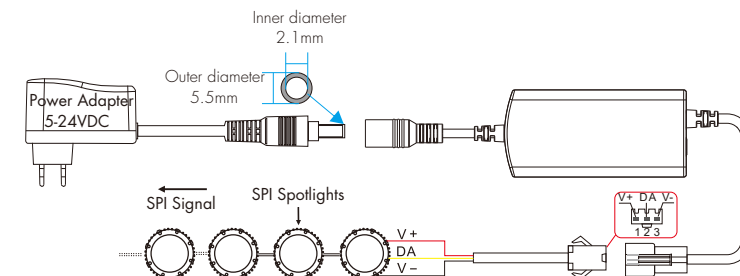


#### NOTE:

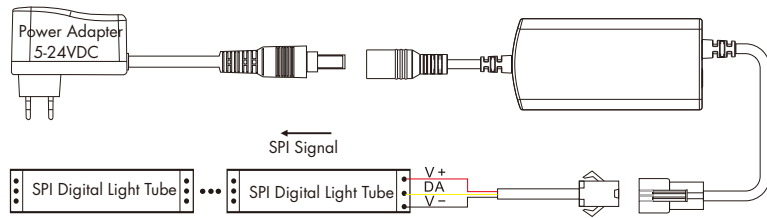
1. The above distance is measured in spacious(no obstacle) environment, Please refer to the actual test distance before installation.
2. Please check if the WiFi router net in 2.4G band, the 5G band is not available, and do not hide your router network.
3. Please keep the distance between WT-SPI-D controller 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.

### Wiring Diagram

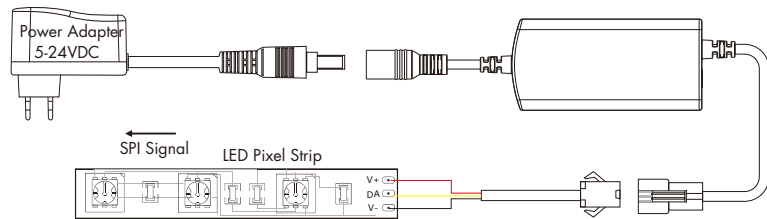
- WT-SPI-D connect with SPI spotlights (TM1803)



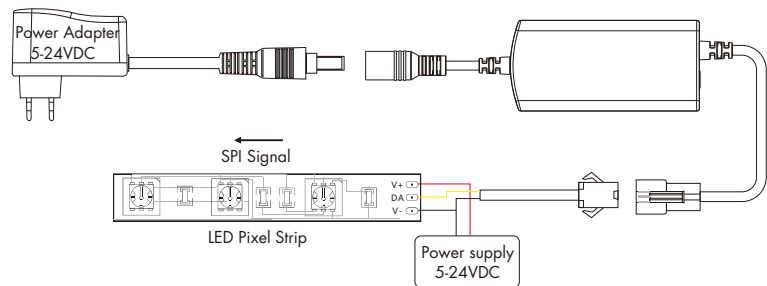
- WT-SPI-D connect with SPI digital light tube (TM1809)



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



- WT-SPI-D connection LED strip load exceeds 4A



#### Installation Precautions:

1. When the load of the LED strip exceeds 4A, the LED strip needs to be powered by another power supply (the LED strip and the power supply must share the same ground), and only the DATA and GND lines are connected between the controller and the LED strip.
2. The output power of the constant voltage power supply is at least 1.2 times that of the output load (LED strip), otherwise the full power output of the load will easily cause the lights to flicker or shake automatically.
3. The voltage of the power supply needs to be the same as the voltage of the LED strip to avoid the phenomenon of the LED strip not being lit or slightly lit.
4. When installing, the length of the signal line needs to be  $\leq 10$  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.
5. When installing, the SPI signal lines need to be separated from the strong power (100~240VAC) lines at a distance of  $\geq 15$ cm to avoid the magnetic field generated by the strong power from interfering with the signal transmission.
6. The LED strip is always on without control, it may be that the signal line is open or the chip of the LED strip is damaged, it is recommended to replace the signal line or the LED strip.

## Button Function

- ⏻ Short press: Turn on or off light.  
Long press 1-6s: Continuous brightness adjustment, dimming range 10-100%.
- ⌚ Short-press: Play 40 dynamic mode in sequence.  
Long press 2s: Continuous 5 levels dynamic mode speed adjustment, switching one level every two seconds.
- 🎵 When not connected to Tuya Smart APP(or connected to Tuya Smart APP, but did not enter the Music Rhythm interface to play the music of local mode), Short press to enter the music mode, sequentially switching 6 music dynamic effects, the sound is received by the controller microphone.  
  
When Tuya Smart APP has been connected and enter the Music Rhythm interface to play local mode, the sound will be received by the controller microphone.  
Short press sequence to switch between 6 local modes (Rock, Jazz, Classical, Roll, Energy, Spectrum).  
At this time, short press ⌚ button, the controller will automatically exit the local mode music rhythm of Tuya Smart APP.

#### List of music dynamic change effects:

No.	Name	Color effect
1	6 color bidirectional fade float	Red, yellow, green, cyan, blue, purple color sequence, segmented bidirectional fade floating.
2	6 color segmented centre parting	Red, yellow, green, cyan, blue, purple color sequence, spread out in sections from the center to both sides.
3	6 color round-trip flow	Red, yellow, green, cyan, blue, purple color sequence, single color flows forward in order then turns back.
4	6 color forward fade float	Red, yellow, green, cyan, blue, purple color sequence, forward segmented fade floating in order.
5	7 color fade breath	Red, orange, yellow, green, cyan, blue, purple color sequence, sequential fade breathing.
6	6 color random flash	Red, yellow, green, cyan, blue, purple color sequence, random flashing with brightness fade.

#### List of Dynamic Change Modes (Called UP by ⌚ Key or RF Remote Control)

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

#### Note:

P33-P40 dynamic modes are applicable to SPI type white LED strip.



P33-P36 dynamic modes, if the color SPI LED strip is connected, the corresponding color effect will appear.

## Match Remote Control

End user can choose the suitable match/delete ways. Two options are offered for selection:

### Use the button to match

Match:

Press and hold  and  button for 2s, the output LED flash 2 times, Immediately press on/off key (single zone remote) or zone key (multiple zone remote) of the remote. The output LED fast flash 3 times means match is successful.

Delete:

Press and hold  and  button for 5s to delete all match, The output LED fast flash 5 times means all matched remotes were deleted.

### Use power restart

Match:

Switch off the power of the controller, then switch on power, repeat again. Immediately short press on/off key (single zone remote) or zone key (multiple zone remote) 3 times on the remote. The light blinks 3 times means match is successful.

Delete:



Switch off the power of the controller, then switch on power, repeat again. Immediately short press on/off key (single zone remote) or zone key (multiple zone remote) 5 times on the remote. The light blinks 5 times means all matched remotes were deleted.

## 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 network connection

Press and hold  and  button for 5s to clear previous network connection, enter WiFi config mode, the output LED strip flashes 10 times. If Tuya smart APP network connection succeed, the output LED strip will stop flash, and in Tuya smart APP, you can find WVT-SPI-D 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.

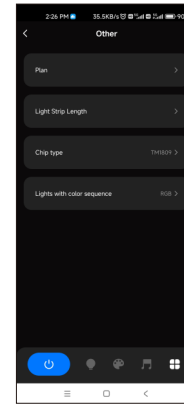


Smart Life



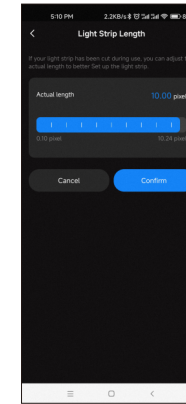
Tuya Smart

## Tuya Smart APP Setting Interface



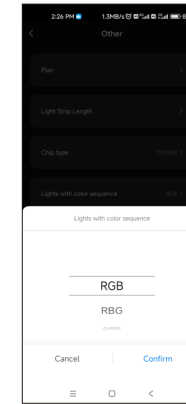
Setting interface

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



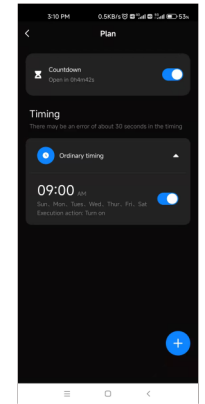
Light Strip Length interface

Strip length setting: Select the appropriate number of pixels according to the actual length of the strip, 10 -1000.



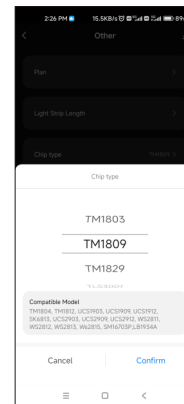
Lights with color sequence interface

Select the corresponding R/G/B sequence according to the color sequence of the light strip. (RGB, RBG, GRB, GBR, BRG, BGR)



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.

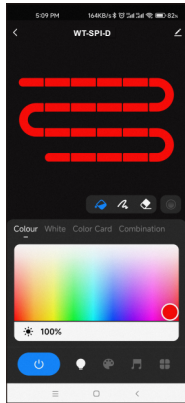


Chip type interface

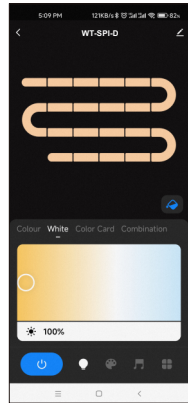
Select the corresponding chip according to the chip type of the light strip.

Chip Type	Compatible Chip
TM1809	TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813, UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815, SM16703P
TM1829	
TM1914A	
GW6205	
GS8206	GS8208

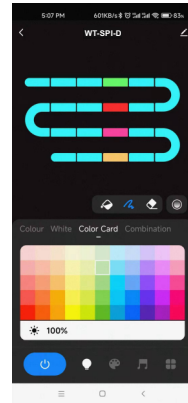
\*The above chip models also support white light types.



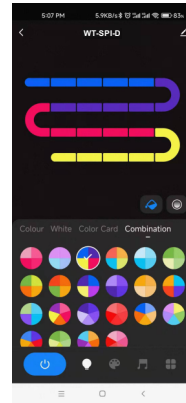
**Colour:**  
Touch the color rectangle to adjust color and saturation. Touch the brightness slide to adjust brightness.



**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.



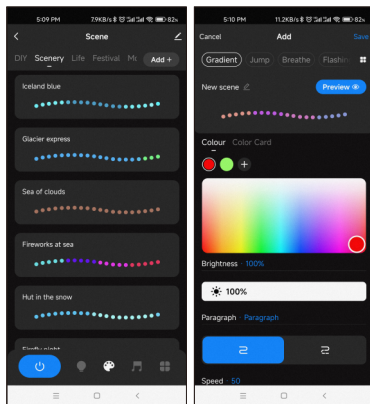
**Eraser:**  
Erase the color of a single segment of the LED strip, i.e., turn off the light.



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

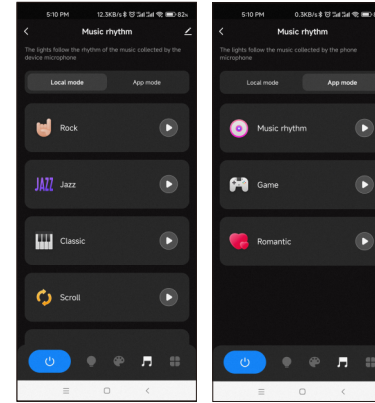


**Color transition:**  
When there are multiple colors in the LED strip, you can set to turn on or off the color segment gradient transition.



**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**

Local modes: Sound received by the controller microphone, 6 local modes (rock, jazz, classical, rolling, energy, spectrum) selectable.  
App modes: Play music on phone or receive sound from the phone's microphone, 3 App modes (music rhythm, game, romance) selectable.  
In local mode, the sensitivity of the received sound can be adjusted.  
The light follows the rhythm according to the phone or controller microphone.

**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.