SPI Controllers
Installation Guide

CE RoHS emc RED

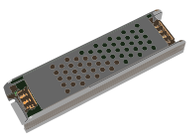
Skydance SPI series controllers have RF 2.4G, WiFi, and DMX512 control options. Compatible with 49 chips, can control many kinds of SPI color LED light strips on the market.
Built-in 40 dynamic mode, include horse-race, chase, flow, trail and float style etc. Suitable for home, store and landscape decoration.
This guide is for on-site installation only, please refer to the instruction manual for various parameter setting operations and function selection.

Package List


SPI Controller


Manual

Outsourced Accessories


Power Supply


SPI Signal Amplifier


2.4 G RF Remote


SPI Color Light Strip


Signal Wires (to be cut)


Power Supply Cable (to be cut)

Note:
1. The output voltage of the power supply must be the same as the supply voltage of the strip, and the output power of the power supply ≥ 1.25 times of the total output power of all connected strips.
2. A wire diameter with too small a cross-sectional area can lead to overheating and higher voltage drops, and system stability and color consistency can be compromised.

Cable Selection:
The wire can be selected from solid or stranded cables with a cross-section of 0.5 to 1.5 mm^2,
Select the right wire with the right cross-sectional area according to the total output power of the light strip.
Example: 5m 1m/12W 12V strip light output 5A 60W.
When it is necessary to increase the wiring distance of the light strip, choose a wire with a cross-section area of 0.5mm^2 and more.

Cross-sectional area of copper wire	0.5mm^2	0.75mm^2	1.0mm^2	1.5mm^2	2.0mm^2	2.5mm^2	4.0mm^2
Output current (total)	<=5A	<=8A	<=10A	<=12A	<=16A	<=20A	<=30A

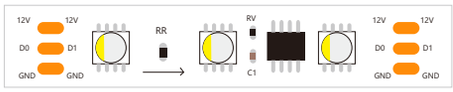
Installation Steps

1 Determine the light strip length and LED bead density as needed and select a LED strip that matches the SPI controller chip type.

Color light LED strips are divided into 5V strips, 12V strips and 24V strips, and must be powered by a power supply of the same voltage.
When the power supply voltage is less than the strip voltage, the strip will not light up; when the power supply voltage is greater than the strip voltage, the strip will be damaged.
Incorrect setting of the controller chip type may result in uncontrolled light strips or flashing lights.
Color light LED strips with IC chips, each chip corresponds to one pixel point.
When cutting the length of the light tape, you need to cut it at the marked line.

5V LED strips: 1 LED bead 1 pixel (built-in chip)

12V LED strips: 3 LED bead 1 pixel (external chip)

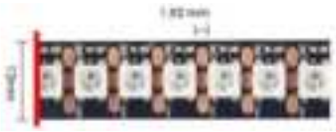


24V LED strips: 6 LED bead 1 pixel (external chip)

LED bead density of different LED strips (take 5V LED strip as an example):


30 LEDs/Meter


60 LEDs/Meter


144 LEDs/Meter

2 Set the chip type, RGB order, and pixel length of the SPI LED strip.

After the length of SPI LED strip is determined, you need to set the number of pixel points of LED strip, if it is not consistent with the actual pixel length of the strip, there will be the phenomenon that the rear section of the LED strip is not controlled or the overall dynamic effect is not smooth.

1. Use the remote control (R9) to set the chip type, RGB order, and pixel length.

Example: Set the LED strip chip type to WS2811, the RGB order to RBG, and the pixel length to 60.

Step 1: Match the controller with the remote control.

Step 2: Press the remote control button *12 * to set the LED strip chip type to WS2811.

Step 3: Set the RGB order, first press the R (red), G (green), B (blue) key of the remote control to get the corresponding light color,
If the colors are not consistent, you need to press the remote control button *+1 digit +* again to correct the order of RGB.
For example: The corresponding light color obtained by pressing the R, G, B keys of the remote control are
red (R), blue (B), and green (G), set the RBG sequence by pressing the remote control keys *2*.
(RGB order definition *1*: RGB, *2*: RBG, *3*: GRB, *4*: GBR, *5*: BRG, *6*: BGR).

Step 4: The length of the LED strip is 60 pixels, press the remote control button *060* to set the number of pixel points to 60.

2. For WiFi SPI controller, you can set the chip type, RGB order, and pixel length through Tuya APP.

3. For SPI controllers with setup keys and digital display, you can set the chip type, RGB order, and pixel length by pressing the keys.

Select the chip type,
display "C11" for WS2811 chip type.

Set the RGB color order,
display "0-2" is the RBG order.

Set the number of pixels,
display "060" as 60 pixels.

3 According to the installation position of SPI controller, connect and mark the power supply and LED strip to SPI controller respectively.

Single Line

Two-Line

For only one signal line of the LED strips, the CLK and DATA interface output the same signal, a set of SPI output ports are connected to 2 LED strips. One SPI signal splitter (SA6) can connect up to 12 LED strips.

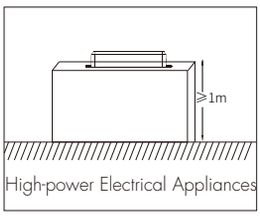
Signal transmission direction

SPI LED strip with signaling direction, cannot be reversed.

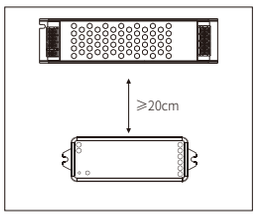
SPI signal splitter can divide the output signals from the SPI controller into multiple groups.
When you want to realize synchronous control of multiple LED strips, match one or more SPI signal splitters.

When the LED strip load current exceeds 8A or more, the controller and the strip are powered by separate power supplies.
This prevents temperature rises or interferences caused by high currents from affecting the controller's performance.

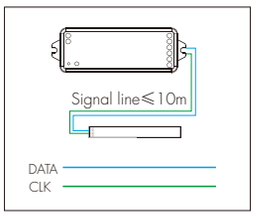
Installation notes:



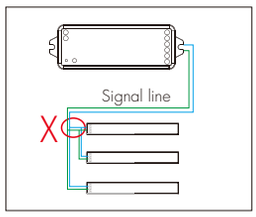
Do not place the controller close to high-power electrical appliances.
The distance between the controller and high-power electrical appliances should be more than 1 meter.
Avoid signal interference from affecting utilization.



Do not stack the controller and power supply. The distance between the controller and the power supply should be ≥20cm.
Avoid any interference signal caused by radiation from the power supply.



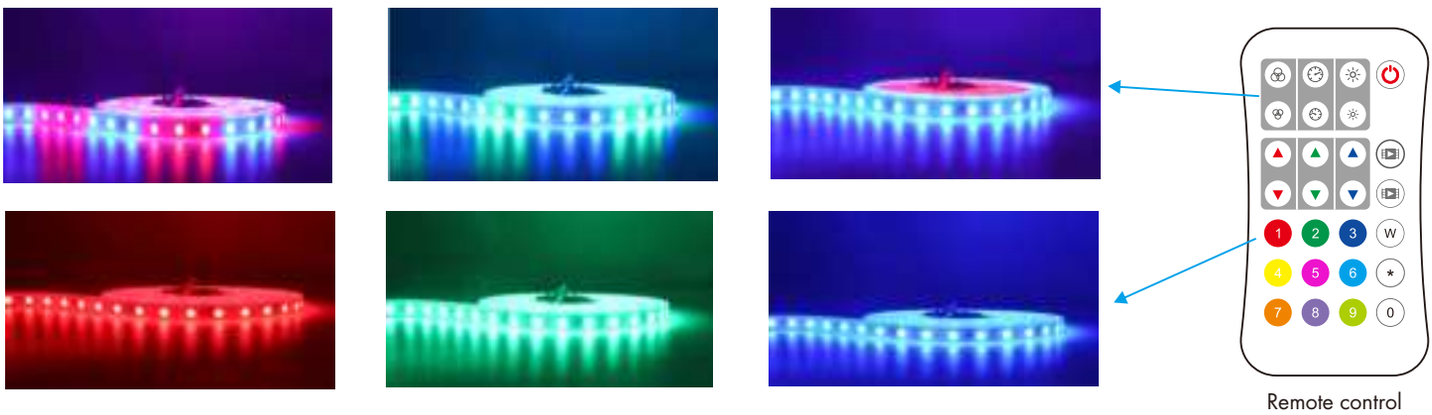
The length of the signal line between the controller and the LED strip should be ≤10m.
Avoid the signal line is too long signal and be affected by the interference.



Do not connect multiple LED strips in parallel to the SPI signal output port to avoid flashing light phenomenon.
When multiple LED strips are controlled synchronously, an SPI signal splitter is required. Each SPI signal output port is connected to only one LED strip.

4 Multiple color effects via remote control or Tuya APP

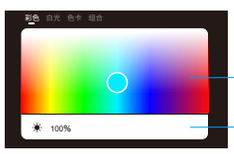
1. Use the R9 remote control to call up static color or dynamic mode. Factory default 32 kinds of dynamic effects, short press mode +/- key to switch dynamic modes, long press mode + key for 2 seconds can automatically get the number of dynamic modes of the current SPI controller.



Remote control

2. For SPI controllers with built-in Tuya WiFi or Zigbee module, you can realize cloud control, voice control, painting-style segmented color mixing, rich dynamic effects, and music rhythm through Tuya APP.

Output Effect

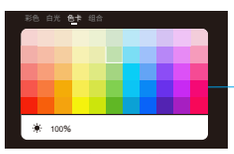


Colored Light

Color Palette: Adjust color, saturation

Brightness bar: Adjusts brightness

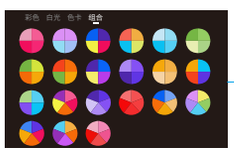
Output Effect



Color Card

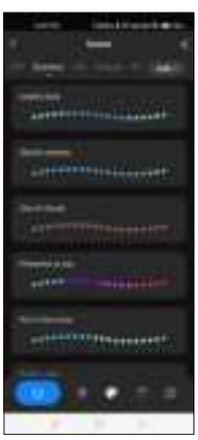
Color cards: Choose many kinds of different colors

Output Effect



Combinatorial

Combination: The multicolored discs are distributed in a ratio.
Distributes colors evenly across the LED strip.



Sence interface: user-definable scenario modes.
44 predefined scenarios and 10+ customized dynamic scenarios to choose from.