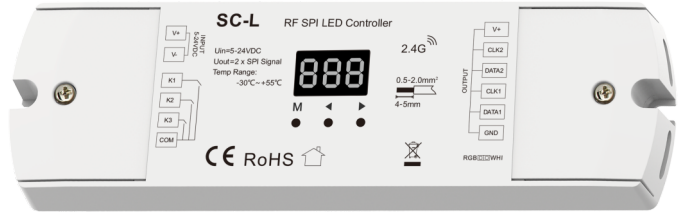


# RF SPI LED Controller

- RF 2.4G Multi-Pixel RGB/RGBWW controller, output two group SPI signals, digital display, 3-button operation.
- Compatible with 47kinds of digital IC RGB/RGBW or white light SPI LED strip, IC type and R/G/B order can be set.  
Compatible ICs: 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, MBI6020, TM1914A, GS8206, GS8208, UCS2904, SM16804, SM16825, SM16714(RGBW), UCS2603, UCS5603, SM16714D.
- Color light or white light mode set by one dip switch.
- 32 kinds color light dynamic mode, 8 kinds white light dynamic mode, include horse-race, chase, flow, trail, meteor or gradual change style.
- Three push switches can be connected for on/off, dynamic change mode and speed selection functions.
- Match with RF 2.4G remote control optional.

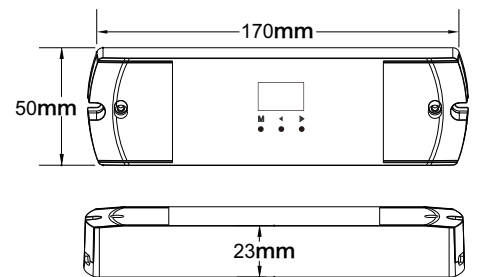
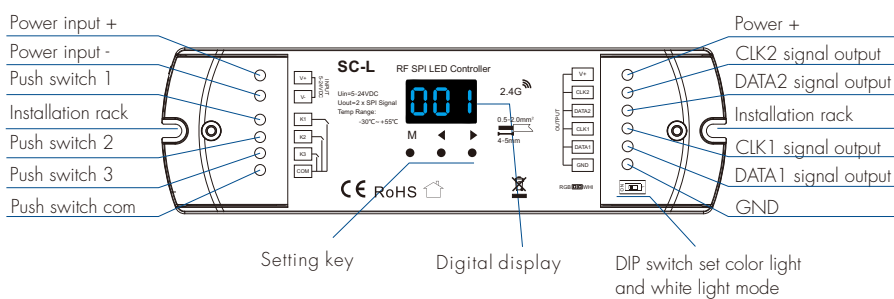


CE RoHS emc RED

## Technical Parameters

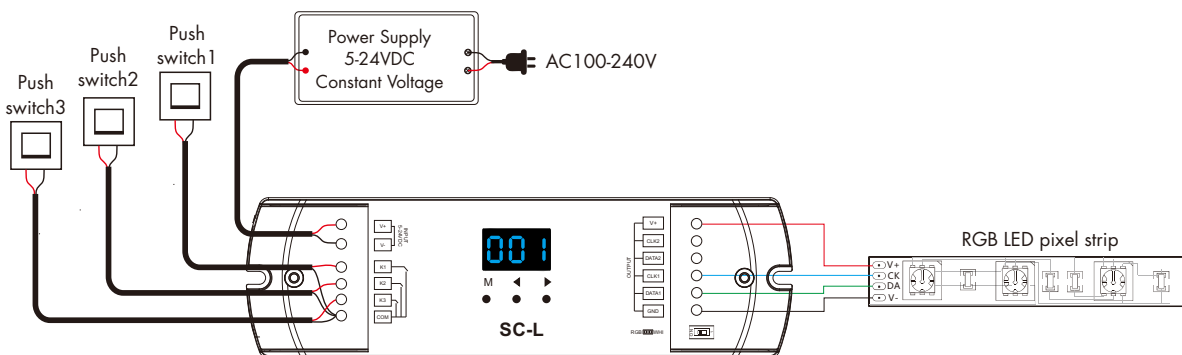
| Input and Output  |   | Safety and EMC       |   | Environment             |                       |
|-------------------|---|----------------------|---|-------------------------|-----------------------|
| Input voltage     | 5-24VDC                                   | EMC standard (EMC)   | ETSI EN 301 489-1 V2.2.3<br>ETSI EN 301 489-17 V3.2.4 | Operation temperature   | Ta: -30°C ~ +55°C     |
| Input current     | 8A  | Safety standard      | EN 62368-1:2020+A11:2020                              | Case temperature (Max.) | Tc: +65°C             |
| Power consumption | 1W  | Radio Equipment(RED) | ETSI EN 300 328 V2.2.2                                | IP rating               | IP20                  |
| Input signal      | RF 2.4GHz + push switch                   | Certification        | CE,EMC,RED  | <b>Package</b>          |                       |
| Output signal     | SPI(TTL) x 2                              | <b>Warranty</b>      |   | Size                    | 175x 54 x 27mm(LxWxH) |
| Dynamic mode      | 32 kinds color light, 8 kinds white light | Warranty             | 5 years   | Gross weight            | 0.122kg               |
| Control dots      | Max. 900pixels                            |                      |   |                         |                       |

## Mechanical Structures and Installations

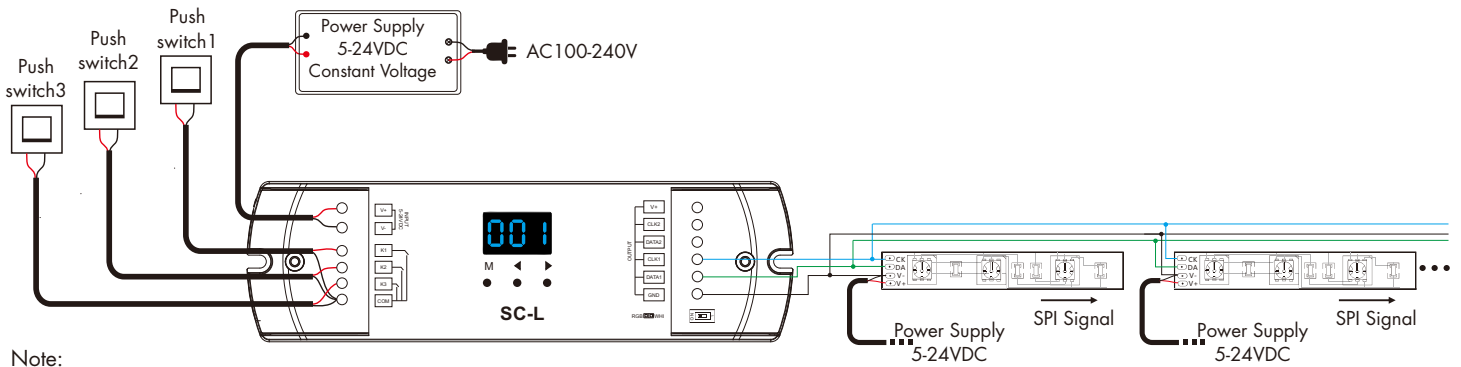


## Wiring Diagram

- SC-L connect with one SPI pixel strips



- SC-L connect with multiple SPI pixel strips (LED strip load over 8A)



- Note:
- If the SPI LED pixel strip is single-wire control, the DATA and CLK output is same, we can connect up to 4 LED strips.
  - If the SPI LED pixel strip is two-wire control, we can connect up to 2 LED strips.
  - 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.
  - 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

## LED strip parameter setting

### IC type, RGB order and pixel length setting

- You must first assure IC type, RGB order and pixel length of the LED strip is correct.
- Long press M and ◀ key for 2s, prepare for setup IC type, RGB order, pixel length, automatic blank screen, Short press M key to switch four item.  
Press ◀ or ▶ key to setup value of each item.  
Long press M key for 2s, or timeout 10s, quit setting.



IC type



RGB order



pixel length



disable automatic blank screen

- IC type select table:

| No. | IC type  | Output signal |
|-----|--|---------------|
| C11 | TM1803   | DATA          |
| C12 | TM1809, TM1804, TM1812, UCS1903, UCS1909, UCS1912, SK6813<br>UCS2903, UCS2909, UCS2912, WS2811, WS2812, WS2813, WS2815 | DATA          |
| C13 | TM1829   | DATA          |
| C14 | TLS3001, TLS3002   | DATA          |
| C15 | GW6205   | DATA          |
| C16 | MBI6120  | DATA          |
| C17 | TM1814B(RGBW)  | DATA          |
| C18 | SK6812(RGBW), WS2813(RGBW), WS2814(RGBW)   | DATA          |
| C19 | UCS8904B(RGBW)   | DATA          |
| C21 | LPD6803, LPD1101, D705, UCS6909, UCS6912   | DATA, CLK     |
| C22 | LPD8803, LPD8806   | DATA, CLK     |
| C23 | WS2801, WS2803   | DATA, CLK     |
| C24 | P9813  | DATA, CLK     |
| C25 | SK9822   | DATA, CLK     |
| C26 | MBI6020  | DATA, CLK     |
| C31 | TM1914A  | DATA          |
| C32 | GS8206, GS8208   | DATA          |
| C33 | UCS2904  | DATA          |
| C34 | SM16804  | DATA          |
| C35 | SM16825  | DATA          |
| C36 | SM16714(RGBW)  | DATA          |
| C37 | UCS5603  | DATA          |
| C38 | UCS2603  | DATA          |
| C39 | SM16714D   | DATA          |

- RGB order: 0-0 ~ 0-5 indicate six order (RGB, RBG, GRB, GBR, BRG, BGR).
- Pixel length: Range is 008~900.
- Automatic blank screen: enable ("bon") or disable("boF") automatic blank screen.

#### Restore factory default parameter

- Long press ◀ and ▶ key for 2s, restore factory default parameter, display "RES".
- Factory default parameter: chip number is C12(TM1809), RGB order is 0-0, pixel length is 300, disable automatic blank screen, without matched RF remote.

### Color light and white light dynamic change mode

- When the dip switch is switched to color light mode (RGB  WHI), short press ◀ or ▶ to switch 32 dynamic change modes: P01~P32.
- When the dip switch is switched to white light mode (RGB  WHI), short press ◀ or ▶ to switch 8 dynamic change modes: P01~P08.
- Each mode can adjust speed and brightness.  
Long press M key for 2s, prepare for setup mode speed and brightness.  
Short press M key to switch two item. Press ◀ or ▶ key to setup value of each item.  
Mode speed: 1-10 level speed(S-1, S-9, S-F).  
Mode brightness: 1-10 level brightness(b-1, b-9, b-F).  
Long press M key for 2s, or timeout 10s, quit setting.



Dynamic change mode



Speed  
(10 level)



Brightness  
(10 level, 100%)

#### Color light dynamic change mode list

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

#### White light dynamic change mode list

| No. | Name                                 |
|-----|--------------------------------------|
| P01 | White horse race                     |
| P02 | White smooth horse race              |
| P03 | White starlight                      |
| P04 | White smooth starlight               |
| P05 | White flow, forward                  |
| P06 | White flow, forward on +backward off |
| P07 | White flow, forward on +backward on  |
| P08 | White float, forward                 |

### RF Remote Operation

You can turn on or off the light, switch the dynamic change mode, set the brightness and speed, memorize or recall the scene, etc. via RF remote control.

- Match: Long press M and ▶ key for 2s, display "RLS", within 5s, press on/off key of the RF remote, display "RLO", match is successful.
- Delete: Long press M and ▶ key for 5s, until display "RLE", delete all matched RF remote.

### Push Switch Operation

#### Push Switch 1 (ON/OFF button)

Short press: Turn on or turn off the light.

Long press(1-6s): Adjustment brightness, with every other long press, the light level goes to the opposite direction.

#### Push Switch 2 (Mode button)

Short press: Sequential switching of dynamic change modes.

Long press(2s): Run dynamic change modes cycle.

#### Push Switch 3 (Speed button)

Short press: Sequential switching of 10 level speed.

Long press(2s): Restore default speed level (8 level).