# SUNTECH S-8000L Bar Club Console Pixel LED Controller User Manual



SUNTECH

S-8000L User Manual

Contents



## Features of S-8000L system:

1. Support 32-65536 level grayscale, correcting with software Gamma.
2. Support various point, line and area light sources, various rules and special-shaped processing.
3. Support 8 output ports, each can carry a maximum of 512/1024 lamps (three channels), and enhance TTL and DMX512 signal output.
4. The play content can be stored in SD card, which can store up to 32 effect programs.
5. Support 32 SD effects (only supports four-channel effects), and various lamp control chips.
6. DMX512 console is connected to the S-8000L controller through the XLR line or network cable, and the console sends commands to control the controller mode, speed, lighting color change, etc.
7. The S-8000L controller can be used alone or in cascade. The cascade adopts the photoelectric isolation method, featuring anti-interference and better stability.
8. Built-in 16 test effects and support three/four-channel play.
9. Edit the effect by using the software of master controller (can modify the channel sequence), and select K-8000-L-RGB/RGBW to change the effect.

**Note:**

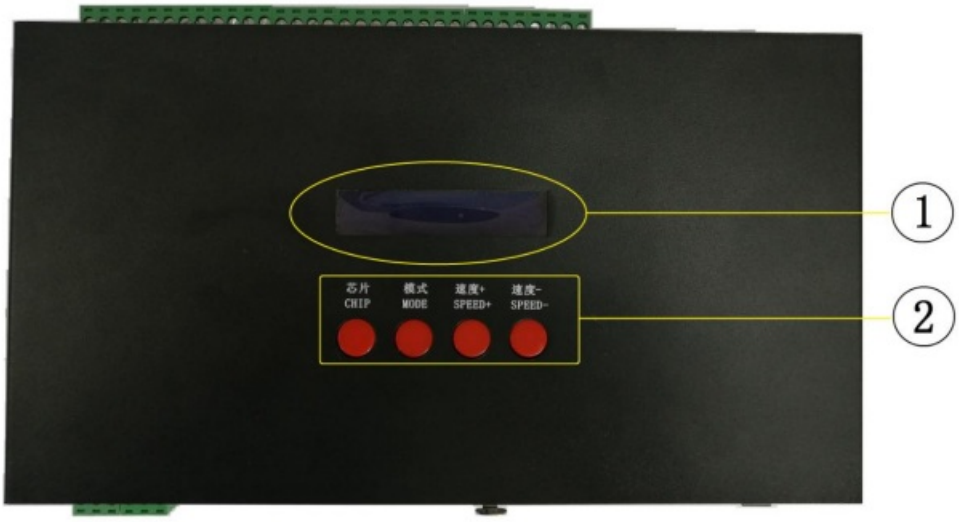
1. The speed of 512 pixels of lamps on the controller can reach 30 frames/second, the speed of 768 pixels can reach 25 frames/second, and the speed of 1024 pixels can reach 22 frames/second (The above parameters take the IC data of 1903 protocol as an example, and the data may be different for different ICs)
2. A maximum of 512 pixels of international standard DMX512 (1990 protocol) can be loaded. When the load is the international standard 170 pixels, the speed can reach 30 frames/second, the speed of 340 pixels is about 20 frames/second, and the speed of 512 pixels is about 12 frames/second.

**Support chip (the master controller software chooses K-8000-L-*):**
00: UCS1903,1909,1912,2903,2904 2909,2912 TM1803,1804,1809,1812
SM16703 16709,16712 WS2811 INK1003 LX3203,1603,1103 GS8205,
8206; SK6812 (support up to 1024*8=8192 pixels)
01: SM16716,16726 (support up to 1024*8=8192 pixels)
02: P9813 (support up to 1024*8=8192 pixels)
03: LPD6803 (support up to 1024*8=8192 pixels)

04: LX1003,1203 (support up to 1024*8=8192 pixels)
05: WS2801 (support up to 1024*8=8192 pixels)
06: LPD1886 (support up to 1024*8=8192 pixels)
07: TM1913 (support up to 1024*8=8192 pixels)
08: TM1914 (support up to 1024*8=8192 pixels)
09: P9883,P9823 (support up to 1024*8=8192 pixels)
10: DMX (support up to 512*8=4096 pixels, suggest to load ≤320*8=2560 pixels)
11: DMX 500K (support up to 512*8=4096 pixels, suggest to load ≤320*8=2560 pixels)
12: DMX 250K-CZF (support up to 512*8=4096 pixels, suggest to load ≤320*8=2560 pixels)
13: DMX 250K-CZF (support up to 512*8=4096 pixels, suggest to load ≤320*8=2560 pixels)
14 UCS5603-Test
15 UCS5603A
16 UCS5603B
17 TM1814
18 INK1003
19: APA102
20: UCS8904
21: SM16714
22: SM16813

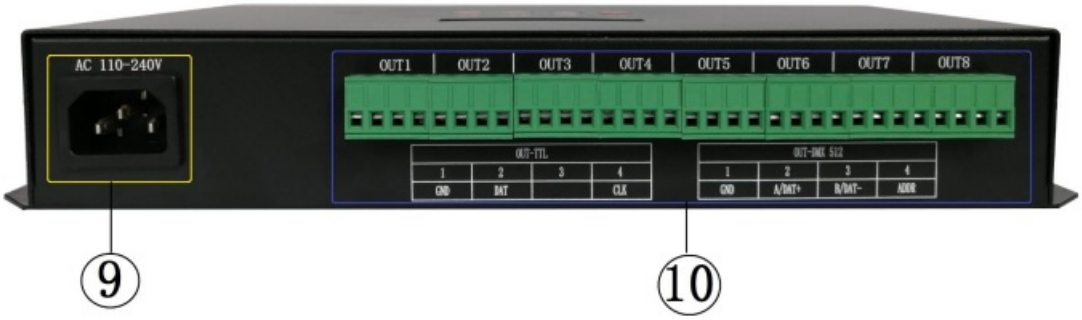
**Controller image:**

**Front view:**




**Side view 1:**


**Side view 2:**




| No. | Marking | No. | Marking | No. | Marking |
|---|---|---|---|---|---|
| **1** | Display | **2** | Function button | **3** | Cascade port INA/B OUTA/B |
| **4** | SD card slot | **5** | Indicator | **6** | Console XLR interface |
| **7** | Console network cable interface | **8** | Power switch | **9** | Power socket |
| **10** | Lamp signal port OUT 1-8 | | | | |

**Marking meaning:**

1. Key meaning:

<table>
<tr><td rowspan="2">Marking</td><td colspan="3">Normal Mode</td><td>Console control mode</td></tr>
<tr><td colspan="2">Key function</td><td>Power-on key function</td><td>Key function</td></tr>
<tr><td>CHIP</td><td colspan="2">Switch the chip</td><td rowspan="2">Press “CHIP” and “SPEED-” at the same time to power on, then enter the Write Address and Test Address interface.</td><td>NA</td></tr>
<tr><td>MODE</td><td>Switch the file</td><td>Press and hold “MODE” to enter one-key address writing interface.</td><td>NA</td></tr>
<tr><td>SPEED+</td><td>Speed up</td><td rowspan="2"></td><td rowspan="2">Press “Speed-” to power on and enter the Edit Console Address interface</td><td>NA</td></tr>
<tr><td>SPEED-</td><td>Slow down</td><td>NA</td></tr>
</table>

2. **Ports and Indicators**

<table>
<tr><td>POWER 1</td><td>Power indicator</td><td>Always on (console)</td></tr>
<tr><td>POWER 2</td><td>Power indicator</td><td>Always on (decoder)</td></tr>
<tr><td>STATUS</td><td>Status indicator</td><td>Off</td></tr>
<tr><td>SYNC</td><td>Cascade indicator</td><td>Off if without console signal/Flash if with console signal</td></tr>
<tr><td>Power supply interface</td><td colspan="2">AC100-220 50HZ input</td></tr>
<tr><td>SWITCH</td><td colspan="2">Controller switch I/O</td></tr>
<tr><td>SD CARD</td><td colspan="2">SD card slot</td></tr>
<tr><td rowspan="2">DMX IN/OUT</td><td colspan="2">Console XLR connector male 1 GND / 2 DAT- / 3 DAT+</td></tr>
<tr><td colspan="2">Console XLR connector female 1 GND / 2 DAT- / 3 DAT+</td></tr>
<tr><td>DMX IN/OUT</td><td colspan="2">Console network cable interface 1 DAT+/ 2 DAT-/ 3 N/ 4 N/ 5 N/ 6 N/ 7 GND/ 8GND</td></tr>
<tr><td>IN A/B OUT A/B</td><td colspan="2">Cascade sync input port, cascade sync output port</td></tr>
</table>

3. **Signal output (OUT 1-8)**

| **TTL output** | | | **DMX512 output** | | |
|---|---|---|---|---|---|
| Serial No. | **Marking** | Definition | Serial No. | **Marking** | Definition |
| 1 | **GND** | GND (negative electrode) | 1 | **GND** | GND (negative electrode) |
| 2 | **DAT** | Data | 2 | **A/DAT+** | Signal+ |
| 3 | / | / | 3 | **B/DAT-** | Signal- |
| 4 | **CLK** | Clock | 4 | **ADDR** | Write address |

4. Built-in effect list

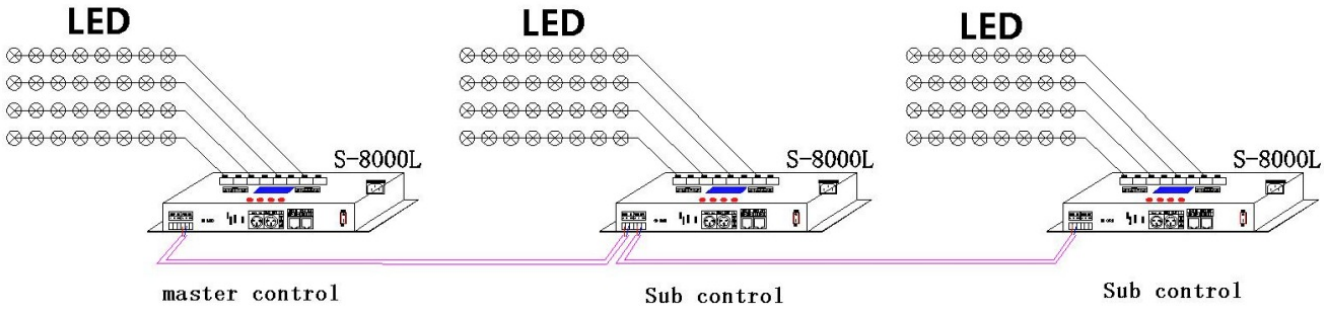
| **Built-in effect list** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **1** | Alternate red, green, blue, white and black | **5** | Alternate red and white shift | **9** | Yellow shift | **13** | White single-point scanning |
| **2** | White always on | **6** | Red shift | **10** | Cyan shift | **14** | Red, green and blue shift |
| **3** | Colorful ramp | **7** | Green shift | **11** | Purple | **15** | Seven colors shift |
| **4** | Overall scanning | **8** | Blue shift | **12** | White shift | **16** | Red, green and blue swinging |
| **Remarks** | The internal control effect supports three/four-channel lamps | | | | | | |

5. **Description of display content**

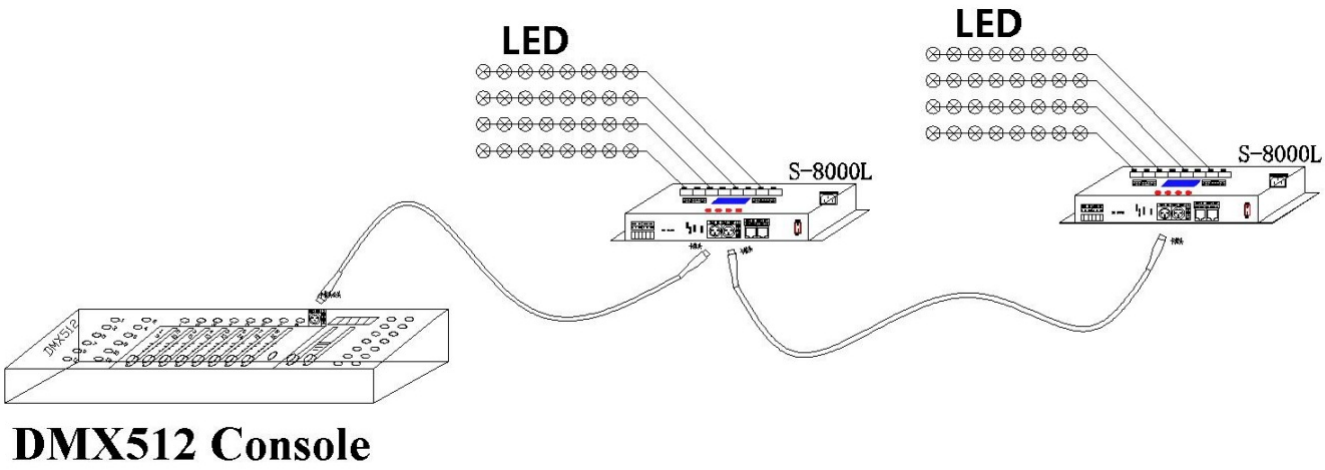
| **Display** | | **Definition** |
|---|---|---|
|  | Chip 00 Speed:01 Mode 01/16 | General play interface:<br>Chip: Chip code (00-30) Speed: Play speed (01-16)<br>Mode: Play program (01-32) |
|  | Ch:0001—0008 PLAY>>RGBWYYS 32 | Console control play interface:\<br>Channel: 0001-0008 Play>> |

## Wiring method

1. Controller cascade control – General play

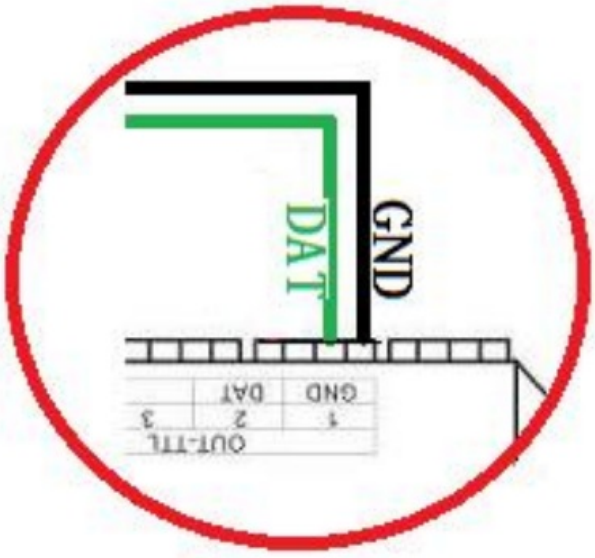



2. Console control – Console control play

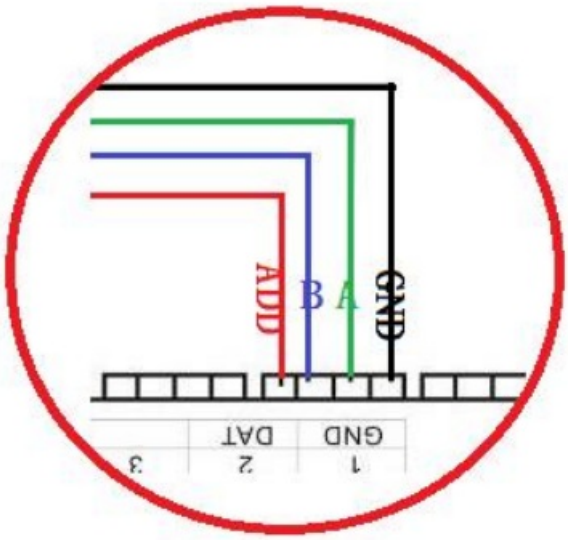



**Controller – Wiring diagram of lamp signal output port**

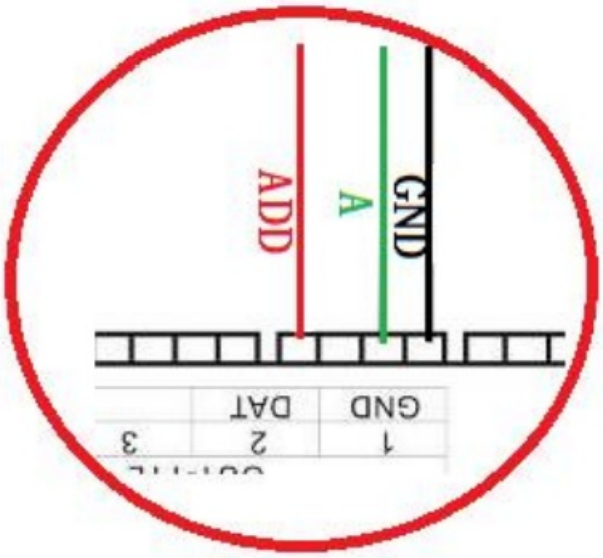
①. General lamp wiring diagram



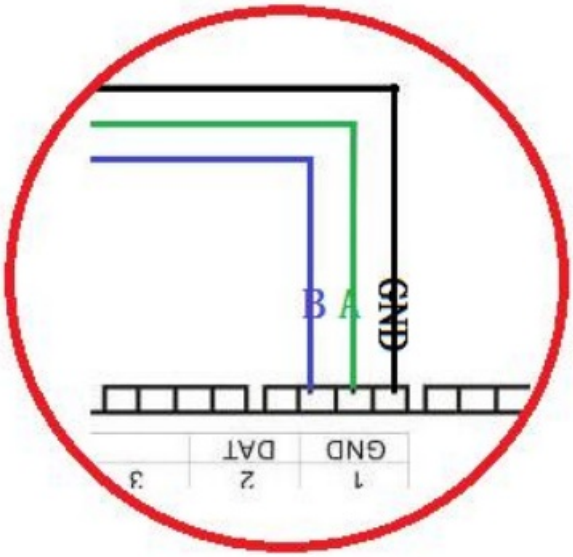

②.Wiring diagram of DMX512 differential signal line




③. Wiring diagram of DMX512 single signal line




④. Wiring diagram of DMX512 differential signal line




Controller writing and testing lamp DMX address — (before connecting with the console)

1. Press “CHIP” and “SPEED-” at the same time to power on, then enter the Write Address and Test Address

interface, as shown in the following figure:

2. Press “MODE” to move the arrow and select “WRITE ADDRESS”, as shown in the following figure:


3. Press “CHIP” to select “WRITE ADDRESS” and enter the Write Address interface, as shown in the following figure:

   ①. START CH: Start channel

   (The start address ranges from 0 to 512, usually 001)

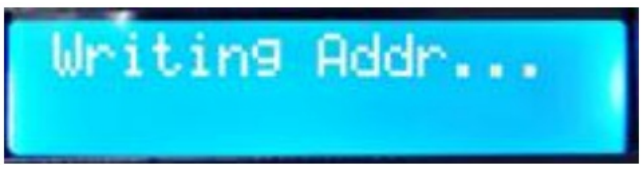

   ②. CH MODE: Interval channel (The interface channel ranges from 0-255)

   ③. IC Chip model (See the DMX512 IC list)

4. Press “MODE” to move the arrow and select the corresponding item, and press “SPEED+”/”SPEED-” to set the START CH/CH MODE/IC.

| **1. DMX512 IC list** | | | |
|---|---|---|---|
| UCS512A*/B*,TM512AL1/AB | WS2821 | DMX512AP | UCS512C* TM512AC* |
| SM1651*-3 | SM1651*-4 | UCS512D*/TM512A D* | UCS512-E |
| SM17512* | SM1752* | UCS512-F | TM512 |
| GS8512 | SM17500 | Hi512D | |

5. After completing settings, press “CHIP” to start writing address, and the screen displays “Writing Addr…”; after completing writing, the screen displays “Writing OK!” ”





6. After writing, the controller automatically goes to the “Test Address” function, and the screen displays:

   ①. AC: **** automatic test/MC: **** manual test

   ②. **CH MODE:** Channel (interval channel cannot be adjusted)


7. Press “MODE” again to enter “AC” test mode and the lamps automatically light up; the controller displays as shown in the following figure:


8. Press “MODE” again to enter the “MC” test mode, and “SPEED+”/”SPEED-” to adjust the pixel (press and hold “SPEED+” or “SPEED-” to rapidly increase or decrease), and lamps will light up one by one; the controller display is as shown in the following figure:


9. If the test fails, press **“CHIP”** to exit the channel test; return to the “Write Address” interface and rewrite the address.


10. If the test is successful, restart the controller and return to the normal play mode.

**Lamp address testing — (before connecting with the console)**

1. Press **“CHIP”** and **“SPEED-“** at the same time to power on, then enter the Write Address and Test Address interface, as shown in the following figure:
2. Press **“MODE”** to move the arrow and select **“TEST DMX ADDR”,** as shown in the following figure:


3. Press “CHIP” to select “TEST DMX ADDR” and enter the Write Address interface, as shown in the following figure:

   ①. AC: **** automatic test/MC: **** manual test

   ②. CH MODE: Channel


4. Press “MODE” again to enter “AC” test mode and the lamps automatically light up; the controller displays as shown in the following figure:


5. To test the lamps manually, press “CHIP” to switch to the “MC” test mode, and press “SPEED+”/”SPEED-” to adjust the pixel (press and hold “SPEED+” or “SPEED-” to rapidly increase or decrease), and lamps will light up one by one; the controller display is as shown in the following figure:


6. Press the “MODE” key again to switch the test channel options (1-99);


7. Press the “MODE” key to switch the test channel options (1-99);
   Press “SET” to switch between MC and AC;
   Press “SPEED+”/”SPEED-” keys to adjust the lamp number in MC mode;

| Description of lamp testing content | | | |
|---|---|---|---|
| **Auto mode: AC** | **Definition** | **Manual mode: MC** | **Definition** |
| AC **** ALL | Channel 1 AC | MC **** ALL | Channel 1 MC |
| CH MODE: 001 | | CH MODE: 001 | |
| AC **** ALL | Channel 2 AC | MC **** ALL | Channel 2 MC |
| CH MODE: 002 | | CH MODE: 002 | |
| AC **** ALL | Channel 3 AC | MC **** ALL | Channel 3 MC |
| CH MODE: 003 | | CH MODE: 003 | |
| AC **** ALL | Channel 4 AC | MC **** ALL | Channel 4 MC |
| CH MODE: 004 | | CH MODE: 004 | |
| …… | …… | …… | …… |
| AC **** ALL<br>CH MODE: 099 | Channel 4 AC | MC **** ALL<br>CH MODE: 099 | Channel 4 MC |

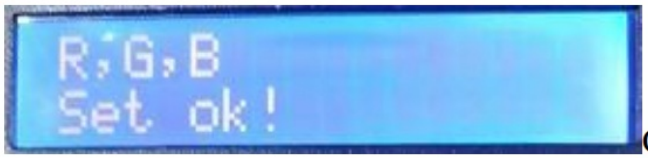
8. After testing, restart the controller and return to the normal play interface.

### Controller built-in effect play – channel switching

1. Press “CHIP” and “SPEED-” at the same time to power on, then enter the Write Address and Test Address interface, as shown in the following figure:


2. Press “MODE” to move the arrow and select “RGB,RGBW”, as shown in the following figure:
   ① R,G,B Three-channel lamps
   ② R,G,B,W Four-channel lamps


3. Press “SPEED+”/”SPEED-” keys to move the arrow up and down and select R,G,B / R,G,B,W channels.
4. Press “MODE” to confirm the selection. The two settings are displayed as shown in the following figures:



Or



5. After completing the channel selection, press “SET” to exit the interface and return to the Home interface

### Controller address code settings (occupying console address)

1. Press and hold the “SPEED-” key and the console powers on, as shown below

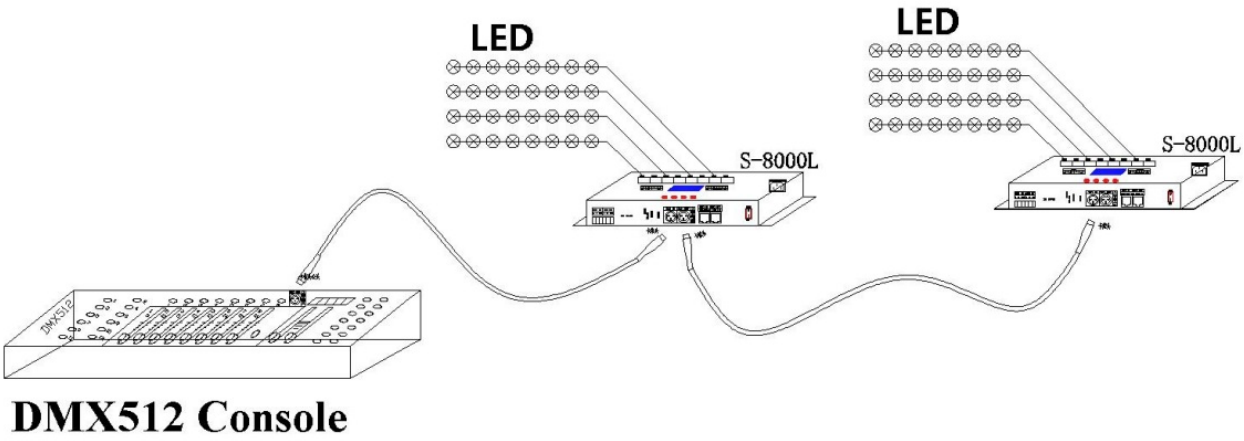

2. Press “**SPEED+**”/”**SPEED-**“ to adjust the address code (the controller occupies 8 address channels of the console)

   For example, the following figure means that the controller occupies the channels 0005-0012 of the console:


3. Press “MODE” to confirm the selection. If the following figure is displayed, it means the setting is successful


4. Connect the console and controller.


5. Connect the console and controller.




6. After activation, the console can control the operation.

### Description of controller channels:

1. After the controller is correctly with the console, when the console push rod is activated or the light base is invoked, the controller displays as follows

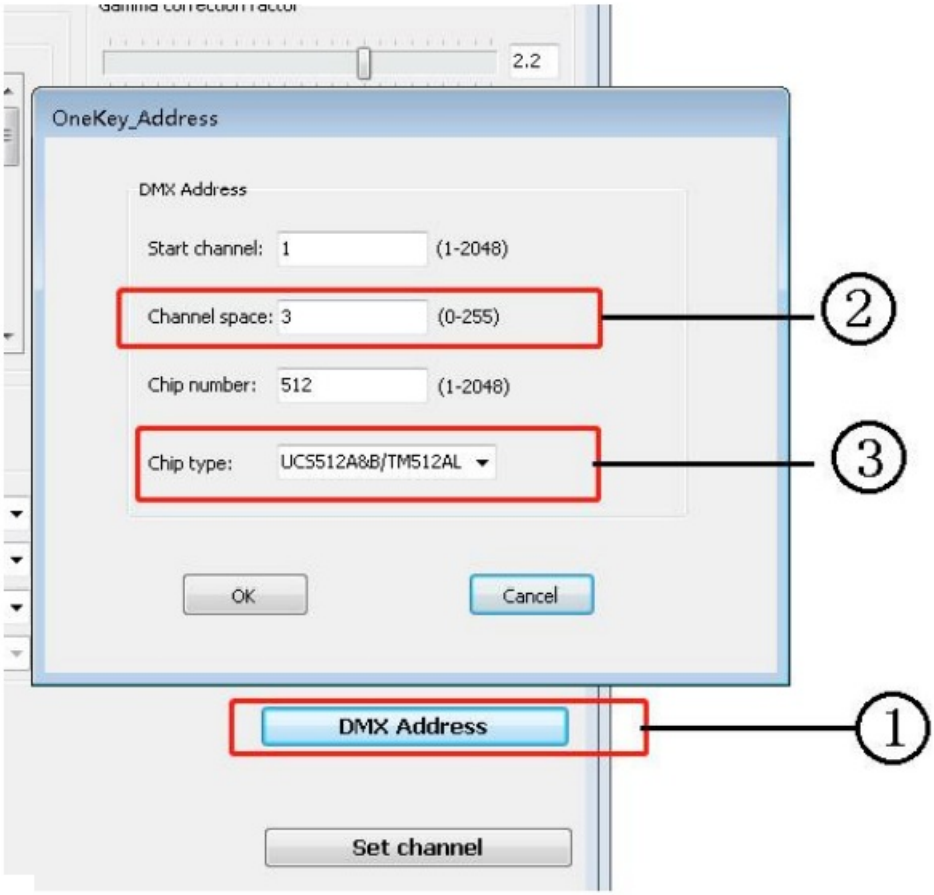

| Definition | Red | Green | Blue | White | Overall brightness | All On/Off | Speed | Mode |
|---|---|---|---|---|---|---|---|---|
| **Activated state** | R | G | B | W | Y | Y | **S** | **32** |
| **Deactivated state** | 0 | 0 | 0 | 0 | N | N | N | 01 |

2. Channel description

| Channel | Definition | Display |
|---|---|---|
| 1 | Red (1-256) | 0 or R |
| 2 | Green (1-256) | 0 or G |
| 3 | Blue (1-256) | 0 or B |
| 4 | White (1-256) | 0 or W |
| 5 | Overall brightness (1-256) | N or Y |
| 6 | All On/Off (All On if >=128, and all Off if <128) | N or Y |
| 7 | Speed (1-256) | N or S |
| 8 | Mode (1-32) | Jan-32 |

### One-key address writing of DMX 512 lamps

1. One-key address: (as shown in the figure below: Step 1) When the software writes the program output, click the key to enter the one-key address writing interface
2. Interval channel input (as shown in the figure below: Step 2)
   The interval channel is input according to the actual number of the lamp, and the number is the number of channels occupied by a DMX512 IC control lamp pixel point.
3. Chip model selection (as shown in the figure below: Step 3)




Click the drop-down button to select the IC model corresponding to the DMX512 IC carried by the lamp.

4. Completing one-key address settings After confirming that the settings are correct, click “SET” to complete the program output.
5. One-key code writing of controller

   ① Insert the SD card into the controller;

   ② Power on the controller;

   ③ Press and hold the “MODE” key for 5s, and the controller will display “Writing Addr…” and then “Writing OK” after writing;

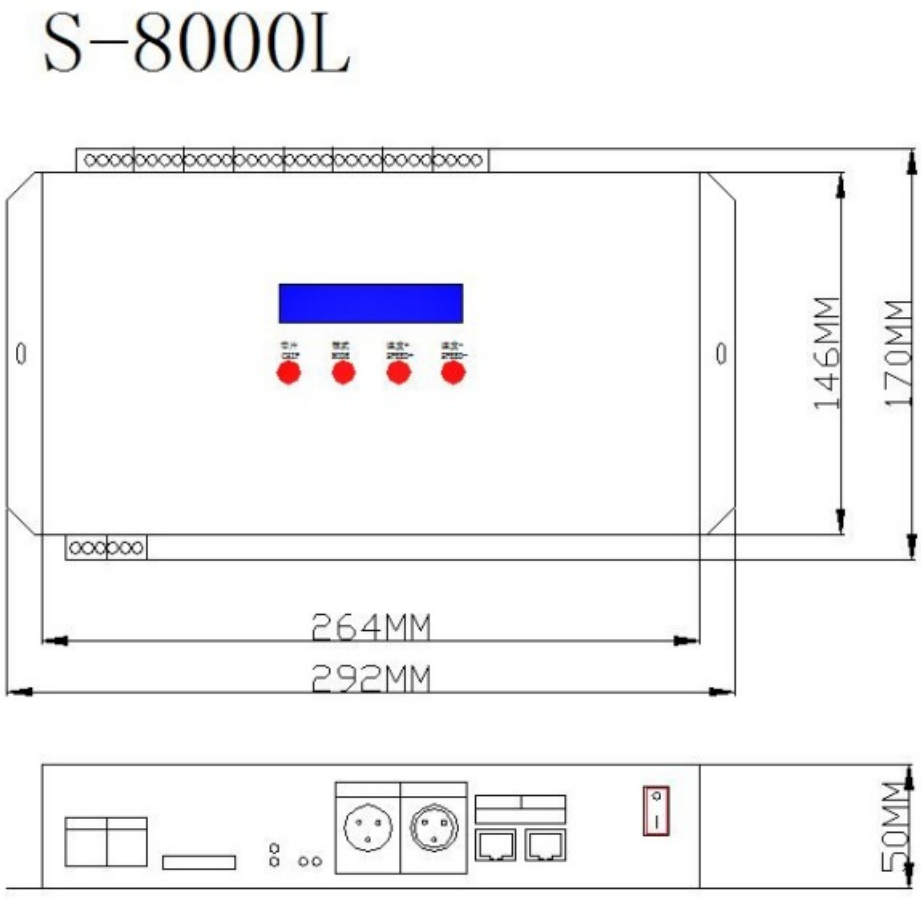
   ④ After writing address, the controller will also enter the channel test mode (same as the channel test after manual address writing).

   ⑤ After completing channel testing, press “CHIP” to exit the test mode and return to the play mode for normal operation.

## Specific parameters:

Memory card:
Type: SD card
Capacity: 128MB-32GB
Format: FAT or FAT32
Storage file: *.led

**Physical parameters:**
Operating temperature: -20℃ 75℃

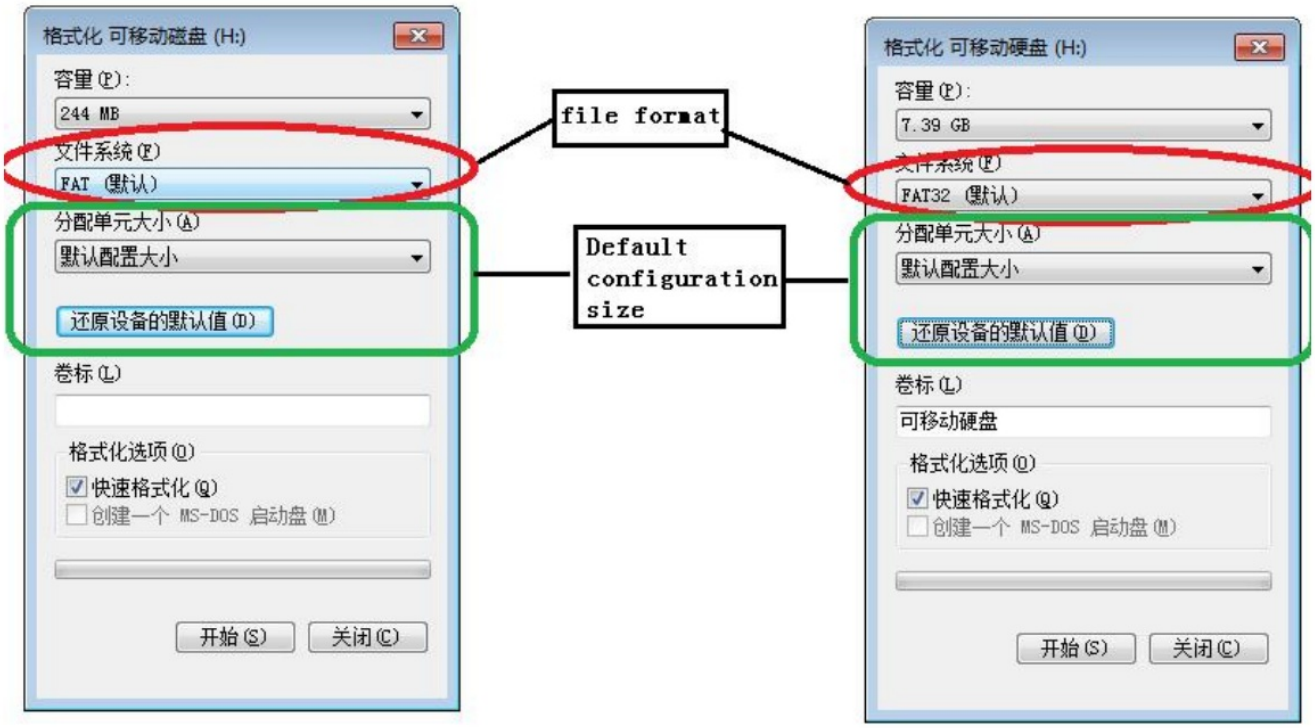



Operating power: AC100-240V input
Power consumption: 10W
Weight: 1.5Kg

Dimensions: L292mm * W170mm * H50mm

## Precautions:

1. Before copying files to the SD card, the SD card must be first formatted. Note that it must be formatted before each copying.
2. SD card must be formatted to “FAT” or “FAT32”.
3. SD card on the controller cannot be hot swapped. It can only be plugged and removed after powering off the controller.




## Handling of common problems:

Question 1: After powering on, if the controller screen displays SD Error and has no effect output

Answer: If the screen displays SD Error, which means that the controller does not read the card correctly. The possible problems are: ①The SD card is empty, and there is no effect file. ② The effect file *.led file in the SD card does not match the controller model, please select the controller model and chip model correctly in the software, and recreate the effect file *.led. ③ Re-test after replacing the SD card to rule out the possibility of the SD card being damaged.

Question 2: After powering on the controller, the indicator lights are normal, but the lamps have no effect.

A: This may be caused by the following reasons: ① Please check whether the signal line of the lamp and the controller are properly connected. ② The signal of conventional lamps is divided into in and out, and it is determined whether the control is the signal input of the first lamp.

Question 3: After the controller and the lamps are connected, the lamps flicker frequently, but the effect changes, and the indicator lights of the controller display normally.

Answer: ① The ground wire between the controller and the lamp is not connected. ② The effect in the SD card is wrong, and the lamp chip selected when doing the effect does not match the actual lamp chip. ③ If the

chip is not locked when making the effect on the software, press the chip of the controller to the corresponding chip of the lamp. For details, please refer to IC sequence on the sticker on the controller. ④ The power supply voltage of the lamps is insufficient.

Question 4: SD card cannot be formatted.

Answer: ① First, confirm whether the protection switch on the side of SD card is unlocked. The unlocking direction is on the end of SD card gold pin. ② The protection lock has been designed as required, but it still cannot be formatted. If this happens, the SD card reader is mostly broken, please replace the SD card reader (it is recommended to use a card reader with better quality, and SSK card reader is recommended). ③ If the preceding operations fail to resolve the formatting problem, replace the SD card and test again

Question 5: After the console is connected to the controller, there is no response to the lighting control by the console.

Answer: ① First, confirm whether the connection between the console and the controller is correct. ② The controller displays whether each channel is normally activated. ③ Check whether the SD card in the controller is normal, remove the connection with the console, and confirm the operation effect (the effect can be run, that is, there is no problem with the SD card, otherwise, the SD is abnormal).

| Version No. | Issue time | Revision history |
|---|---|---|
| V1.0 | 2022/5/8 | Initial issuance |
| V1.1 | 2022/5/19 | Revised the manual – channel definitio n |
| V1.2 | 2022/6/6 | Added function description |

## Documents / Resources

| | |
|---|---|
|  | SUNTECH S-8000L Bar Club Console Pixel LED Controller [pdf] User Manual<br>S-8000L Bar Club Console Pixel LED Controller, S-8000L, Bar Club Console Pixel LED Controll er, Club Console Pixel LED Controller, Console Pixel LED Controller, Pixel LED Controller, LED Controller, Controller |