

# K-1000C User Manual



## I. Features of K-1000C 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 single output port, which can carry a maximum of **512 (DMX IC)/1536 (TTL/SPI) pixels** (DMX lamps with a maximum of 512 pixels take three channels as an example).
4. The play content can be stored in SD card, which can store up to 32 effect files. The SD card capacity supports 128MB-32GB.
5. The controller can be used alone or in cascade. The cascade adopts the photoelectric isolation method, featuring anti-interference and better stability. The cascade distance between two controllers can reach 100m by using pure copper power cord of 0.5 mm<sup>2</sup>.
6. The controller with a loaded IC can be locked in the software with the loaded IC, or can be not locked and adjust the controller's "IC" button to select the loaded IC, which is more flexible and convenient.
7. The IC controller for DMX lamps has its own address writing function; in addition, with our LedEdit-K software or above version, you can set the one-key address writing function.
8. Support 3/4/multiple-channel (RGBWYA) pixels or single-channel pixels for loading lamps.
9. The built-in effect of the controller supports three channels (RGB) and four channels (RGBW).
10. The controller can test the addresses of DMX512 lamps.
11. Support enhanced TTL and 485 differential (DMX) signal output.
12. The controller has 22 test effects and DMX512 test function.

**Note:** 1. The speed of 512 pixels of lamps on the controller can reach 30 frames/second, the speed of 1024 pixels can reach 25 frames/second, and the speed of 1536 pixels can reach 15 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. The speed can reach 30 frames/s when loading 170 pixels of international standard, about 20 frames/s when loading 340 pixels of international standard, and about 12 frames/s when loading 512 pixels.

## II. Support IC (the master controller software chooses K-1000-\*):

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- 00: UCS19\*\*,UCS29\*\*, TM18\*\*,SM167\*\*,WS28\*\*,GS82\*\*; SK6812 (support up to 1536 pixels)**
- 01: SM16716,16726 (support up to 1536 pixels)**
- 02: P9813 (support up to 1536 pixels)**
- 03: LPD6803 (cancel) (support up to 1536 pixels)**
- 04: LX1003,1203 (support up to 1536 pixels)**
- 05: WS2801 (support up to 1536 pixels)**
- 06: LPD1886 (support up to 1536 pixels)**
- 07: TM1913 (support up to 1536 pixels)**
- 08: TM1914 (support up to 1536 pixels)**
- 09: P9883,P9823 (support up to 1536 pixels)**
- 10: DMX (support up to 512 pixels at 250kbps, suggest to load  $\leq 320$  pixels)**
- 11: DMX 500K (support up to 512 pixels at 500kbps,suggest to load  $\leq 320$  pixels)**
- 12: DMX 250K-CZF (support up to 512 pixels, suggest to load  $\leq 320$  pixels)**
- 13: DMX 500K-CZF (support up to 512 pixels, suggest to load  $\leq 320$  pixels)**
- 14: UCS5603-Test (support up to 1536 pixels)**
- 15: UCS5603A (support up to 1536 pixels)**
- 16: UCS5603B (support up to 1536 pixels)**
- 17: TM1814 (support up to 1536 pixels)**
- 18: INK1003 (support up to 1536 pixels)**
- 19: APA102 (support up to 1536 pixels)**
- 20: UCS8904 (support up to 1536 pixels)**
- 21: SM16714 (support up to 1536 pixels)**
- 22: SM16813 (support up to 1536 pixels)**
- 23: GS8512 (support up to 512 pixels, suggest to load  $\leq 320$  pixels)**
- 24: QED3110 (support up to 1536 pixels)**
- 25: WS2816 (support up to 1536 pixels)**
- 26: UCS9812 (support up to 1536 pixels)**
- 27: SM16803 (support up to 1536 pixels)**
- 28: SM16804 (support up to 1536 pixels)**
- 29: UCS2603-T (support up to 1536 pixels)**
- 30: UCS2603 (support up to 1536 pixels)**

Note: 1. Lamps of RGB three channels should select **K-1000-RGBW**.

2. Lamps of RGBW four channels should select **K-1000-RGBW**.

3. Lamps of more than four channels should select **K-1000-RGBWYA**.

4. Lamps of single channel should select **K-1000-W**. At this time, one channel represents one pixel, and the software effect is white light.

### III. Controller image:



### IV. Marking meaning:

#### 1. Key meaning:








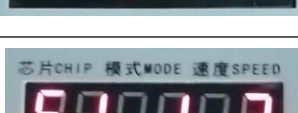
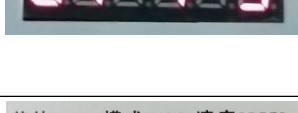
Key	Normal operation	Key function	Key combination function
<b>CHIP</b>	Switch the chip	NA	First press "CHIP" and then "MODE" to enter the <u>Write Address</u> interface; after writing, press "CHIP" and then "MODE" to exit the interface.
<b>MODE</b>	Switch the file	In the play interface, press and hold "MODE" to enter the DMX one-key address writing interface.	
<b>SPEED+</b>	Speed up	Press "SPEED+" to power on and enter the built-in effect channel setting interface.	Press "SPEED+/" "SPEED-" simultaneously to enter the effect file cycle mode. If the screen displays <b>C C C</b> and flashes, it means the file cycle mode is entered.
<b>SPEED-</b>	Slow down	Press "SPEED-" to power on and enter the DMX channel testing interface.	

#### 2. Port meaning:

<b>DC 5-24V</b>	DC 5-24V power positive input	<b>IN A</b>	Cascade synchronous signal, connect to the OUTA of upper controller
<b>GND</b>	DC power negative input	<b>IN B</b>	Cascade synchronous signal, connect to the OUTB of upper controller
<b>POWER</b>	Power indicator	<b>OUT A</b>	Cascade synchronous signal, connect to the OUTA of lower controller
<b>ERROR</b>	Status indicator	<b>OUT B</b>	Cascade synchronous signal, connect to the IN B of lower controller
<b>SD CARD</b>	SD card slot		
<b>GND</b>	Ground wire (negative)	<b>B</b>	Signal - (DAT-)
<b>CLK</b>	Clock line (address writing line for DMX lamps)	<b>A</b>	Signal+ (DAT+)
<b>DAT</b>	USB cable		

#### 3. Description of display content (6-digit display)

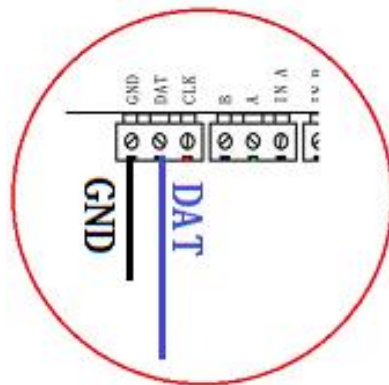
Display	Definition
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1		F_F_F	Card reading error
2		A_A_A	DMX512 writing address
3		C_C_C	Effect cycle
4		2_2_2	Cascaded control
5		0_0_0	Enter DMX lamp address test/parameter writing
6		CH 3	Built-in effect three-channel settings (RGB)
7		CH 4	Built-in effect four-channel settings (RGBW)
8			Address writing interface      Chip display: DMX512IC code 61-83 Mode display: Undefined      Speed bit: Channel number 0-99
9			Play interface      Chip display: Loading IC code 0-30 Mode display: Program sequence      Speed bit: Level 1-16

#### 4. Frame frequency of speed level:

Speed	Frame frequency/sec	Speed	Frame frequency/sec	Speed	Frame frequency/sec	Speed	Frame frequency/sec
1	4 frames	5	8 frames	9	14 frames	13	23 frames
2	5 frames	6	9 frames	10	16 frames	14	25 frames
3	6 frames	7	10 frames	11	18 frames	15	27 frames
4	7 frames	8	12 frames	12	20 frames	16	30 frames

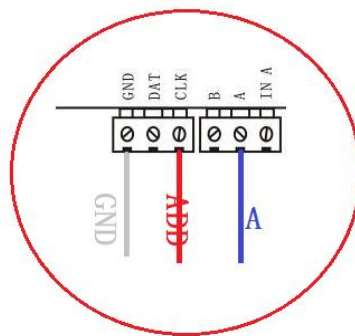
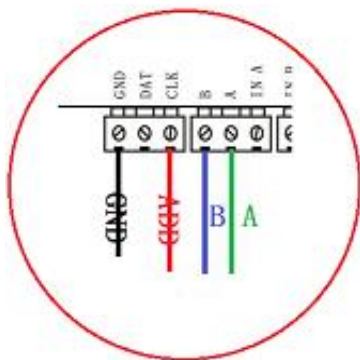
## V. Wiring method of general IC lamps (DAT/GND)



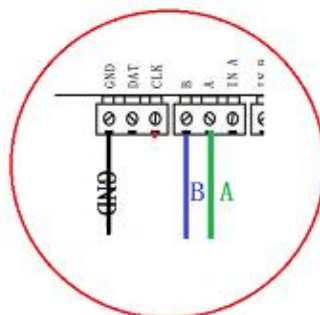
## VI. Wiring method of DMX512IC lamps:

1. Wiring diagram of DMX512 differential signal line

2. Wiring diagram of DMX512 single signal line

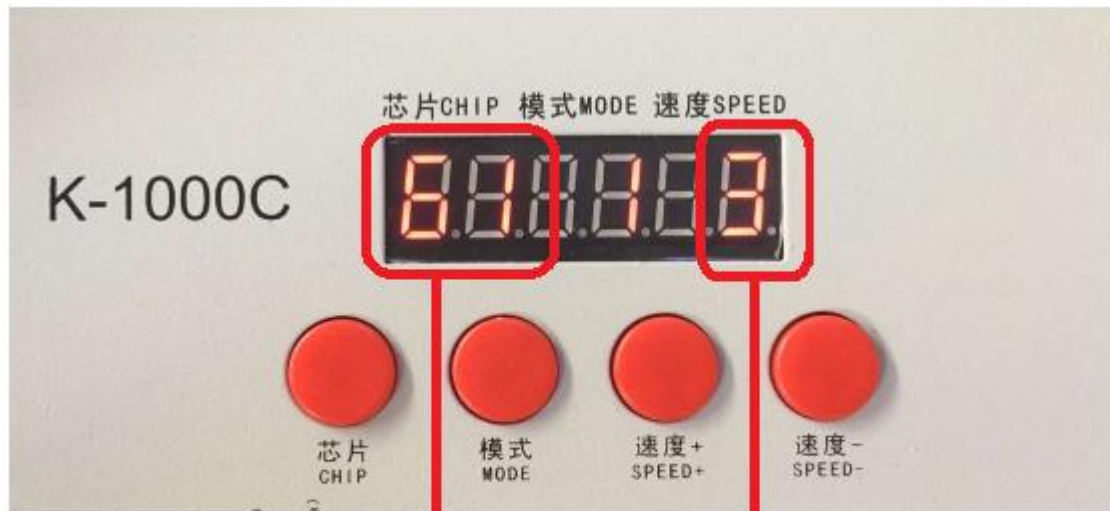


Note: For the installation of some DMX512 lamps, the controller output ports do not need to connect with the ADDR writing line of the lamps, but only to connect with the A/B/GND, and the data bus will automatically write the address (for details, refer to the IC specifications of DMX512 lamps).



## VII. Address writing and address test for DMX512 lamps

1. After connecting the wires as shown in the above figure and starting the controller, first press "CHIP" and then "MODE" to switch to the "Write Address" mode, and the display is as shown in the following figure: "61\_\*\_3":



**Number of intervals**  
**Chip code**

2. Press "CHIP" to select the DMX512 loading IC model, and "SPEED+"/"SPEED-" to adjust the lamp interval channels (0-99).

The DMX512 IC codes are listed in the following table:

Appendix: Correspondence table between DMX512 IC codes and IC models			
61: UCS512A*/B*,TM512AL1/AB	64: UCS512C*,TM512AC*	65: SM1651*-3CH	66: SM1651*-4CH
67: UCS512D*/TM512AD*	68: UCS512E*	70: SM17512*	71: SM17522*
72: UCS512-F	73: TM512AC*	74: SM17500 (general address writing)	76: SM17500 (write address after the channel number)
77: GS8512 (general address writing)	78: GS8512 (write single address)	79: GS8512 (set to no address)	80: QED512P
81: HI 512D	82: SM1852*	83: UCS512-G	

**Note 1:** 78: GS8512 writes single address. It is used for loading IC GS8512 and write the same address to multiple lamps at the same time.

**Note 2:** 79: GS8512 is set to no address mode. It is used for loading IC GS8512 and set to use in TLL/SPI mode.

**Note 3:** 62/63 chips do not support address writing function.

**Note 4:** 69/75 address writing function is blocked. The lamps using UCS512E and SM17500 chips should write the number of channel by computer or SD card (this should be set by the manufacturer or professionals).

3. After selecting, press the "MODE" key to write the address, and the screen will display "A A A." as shown in the following figure;



4. After writing the address, the controller will automatically enter the DMX512 lamp channel test mode:

The LCD screen displays: **A 0000;**



5. Press "MODE" to enter the "AC" test mode, and the screen displays "A \*\*\*\*" (\* is the number of channels). At this time, lamps will automatically light up in white from the first pixel, as shown in the following figure, which displays "A 0232"



6. Press "MODE" again to enter the "MC" test mode, and the screen displays "C\*\*\*\*" (\* is the number of channels); press "SPEED+"/"SPEED-" to adjust the pixel (press and hold "SPEED+" or "SPEED-" to rapidly increase or decrease), and lamps will light up the pixels one by one; as shown in the following figure, which displays "C 0247"



7. After completing the test, press "CHIP" to exit the channel test; return to the "Write Address" interface;

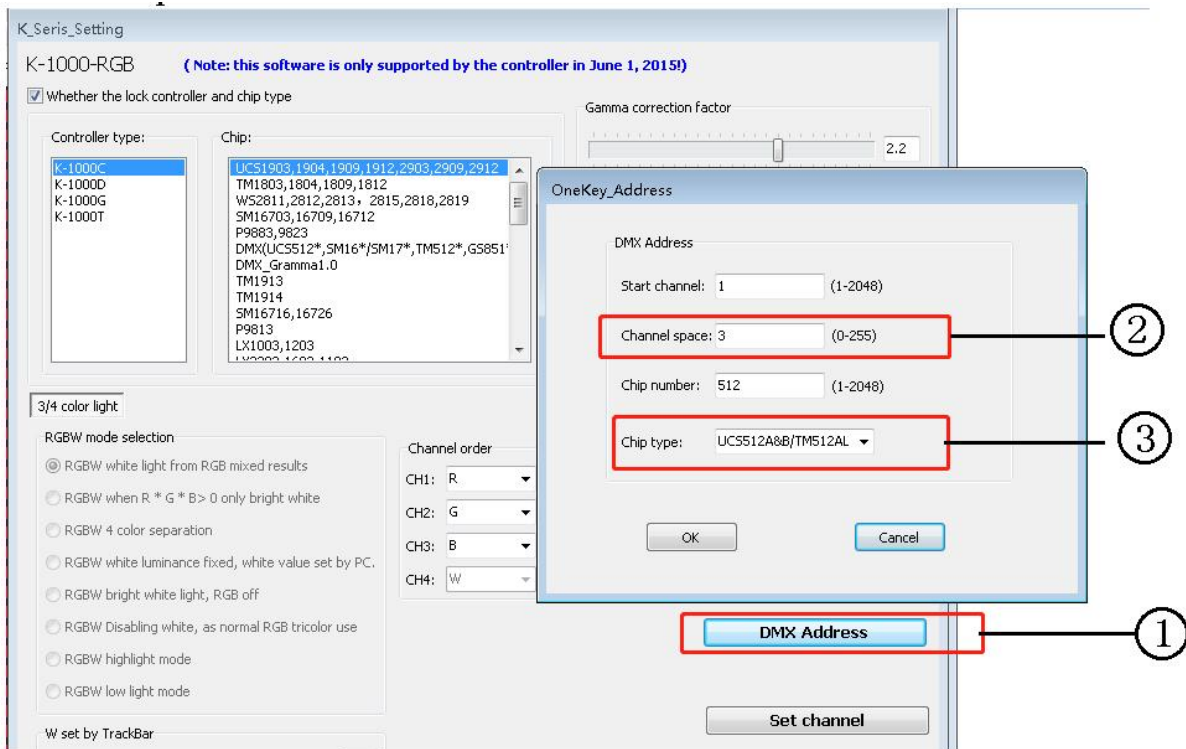


8. First press "CHIP" and then "MODE" to switch to the play mode and switch to Chip: 10, i.e. the DMX512 standard protocol 250Kbps play mode. At this time, press the "MODE" and "SPEED" keys to switch the play mode and adjust the speed, as shown in the following figure: **10 1 16**



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

1. When the software writes the program output, click the key to enter the one-key address writing interface



## 2. Interval channel input

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

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 **DMX Address** 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 "A-A-A", that is writing address;
- 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.

## IX. DMX512 lamp test

1. Press the "SPEED-" key to power on and enter the lamp test interface, which displays "0 0 0"



2. After about 2s, the controller will enter the lamp address testing interface and the controller displays "A3 0000"





3. Press "MODE" to start automatically testing of lamp address, and press "CHIP" to switch between auto and manual test.
4. After starting testing, press "Mode" to switch the number of test channel (1-99).
5. In manual test, press "SPEED+"/"SPEED-" to adjust the test lamp forward and backward.

Appendix: Description of display content			
Auto mode	Definition	Manual mode	Definition
A 1 ****	Channel 1 AC	C1 ****	Channel 1 MC
A 2 ****	Channel 2 AC	C2 ****	Channel 2 MC
A 3 ****	Channel 3 AC	C3 ****	Channel 3 MC
A 4 ****	Channel 4 AC	C4 ****	Channel 4 MC
A 5 ****	Channel 5 auto test	C5 ****	Channel 5 manual test
.....	.....	.....	.....
A 99 ***	99-channel auto test	C99 ***	99-channel manual test

**Note 1:** The first Nixie tube indicates the auto or manual mode: A is auto test mode, and C is manual test mode, which can be switched by pressing "CHIP";

**Note 2:** The second Nixie tube indicates the pixel channel (1-99) of lamps: 1 is single-color single-channel lamp; 2 is dual-color dual-channel lamp; 3 is three-color lamp; 4 is four-color lamp, which can be switched by pressing "MODE";

**Note 3:** The fourth-sixth Nixie tubes indicate the number of lamps.

6. After completing the test, restart the controller and it will enter the normal play mode.

## X. Built-in effect channel settings

Most lamps use RGB and RGBW, i.e. Channel 3/4. For lamps with different channels, the **Built-in Play Effect** shall preset the effect channel.

1. When the controller channel is started, it will display the current built-in effect channel, as shown in the following figure:



CH 3 (RGB) or CH 4 (RGBW)

2. If the lamps need to play the built-in effect, but the lamp channels are not the built-in effect channels, you can modify the channels manually.
3. Power off the controller and press "SPEED+" to power on it, and the controller will automatically change the channels;



If the controller displays CH 3, it means the current channel changes to Channel 3 (the original channel is CH 4)

If the controller displays CH 4, it means the current channel changes to Channel 4 (the original channel is CH 3)

4. After completing settings, the controller will automatically return to the play interface.

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Note: The settings only apply to channel changes when playing the built-in effects.

## XI. Specific parameters:

Physical parameters:           Memory card:

Operating temperature: -30°C~85°C

Type: SD card

Operating power: DC 5V -24V input   Capacity: 128MB-32GB

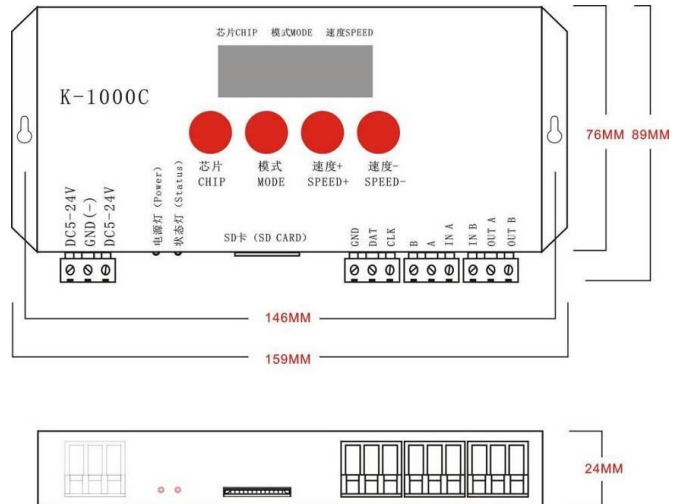
Power consumption: 2W                   Format: FAT or FAT32

Data transmission port: 3pin wiring terminal

Storage file: \*.led

Weight: 0.35Kg

Dimensions: L159mm\*W89mm\*H24mm



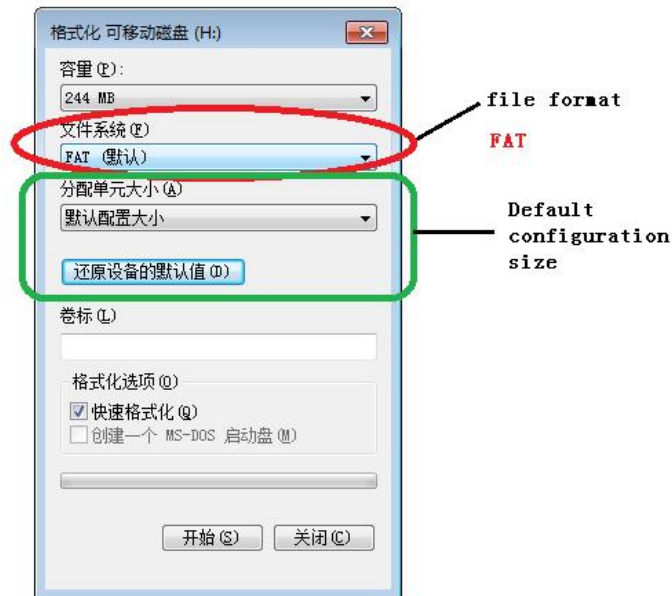
## XI. SD card formatting

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. Format program

- ① SD card setting - "File System", "FAT".
- ② SD Card Settings - "Allocation Unit Size", click the drop-down button to select "Default configuration size" or click "Restore default value of device".
- ③ Start formatting.

As shown in the figure below:



3. The SD card 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 FFF and has no effect output

Answer: If the screen displays FFF, which means that the controller does not read the card correctly. The possible problems are:

- ① The 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 outputs the built-in effects but not the effect in SD card

Answer: The controller cannot detect the SD card and automatically plays the built-in effect:

- ① No SD card is inserted. Insert the SD card.
- ② SD card is inserted but not inserted in place. Reinsert the SD card.
- ③ SD card is inserted but does not match the controller. Change the SD card.

Question 3: 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 4: After the controller and the lamps are connected, the lamps flicker frequently, but the effect changes, and

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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 5: 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