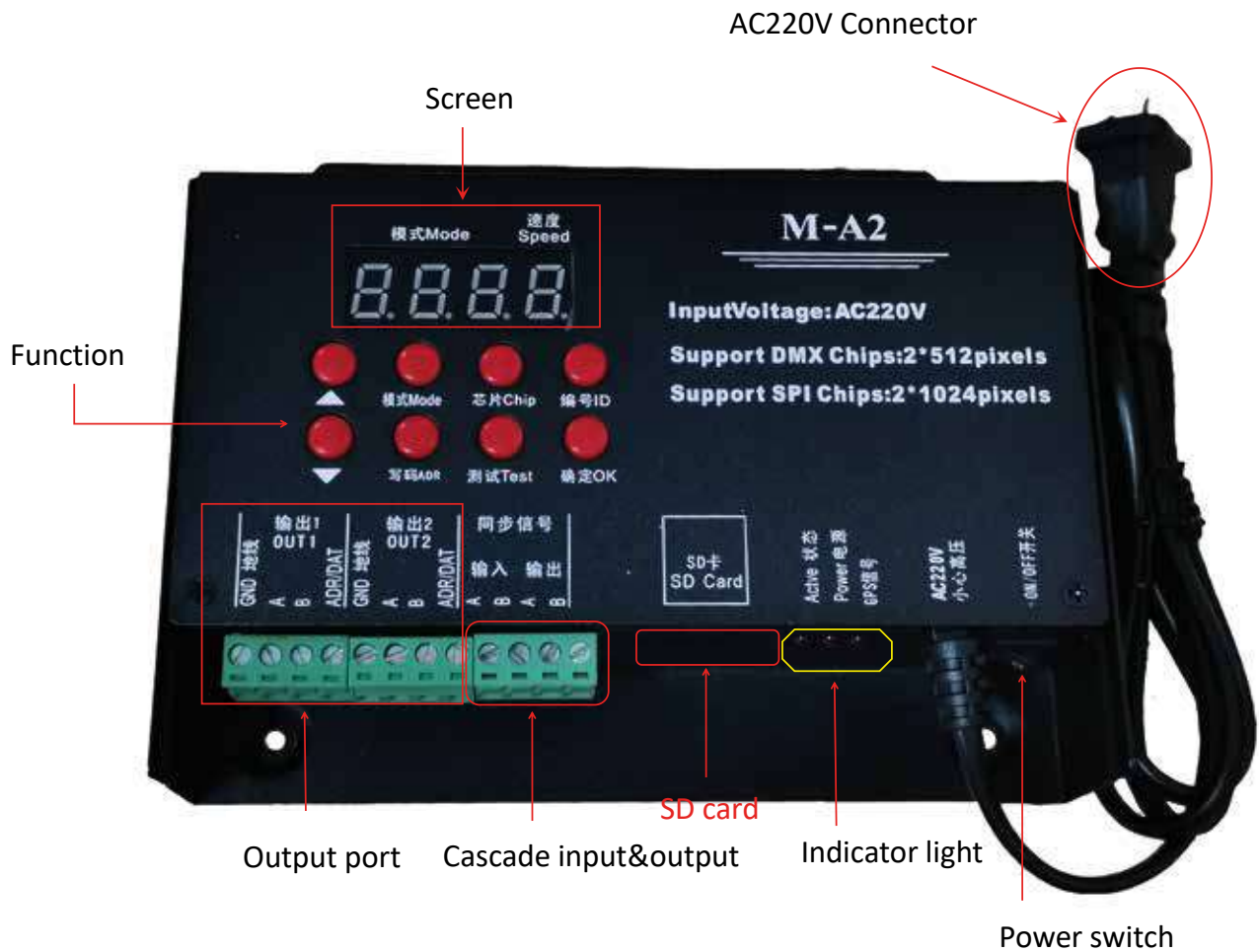


Controller Specifications

Model: M-A2





Remark: The controller is a cascaded synchronous controller, so in the actual application of multiple synchronization, it needs to be connected by wire. For the specific connection method, see (cascade diagram).



Before using the SD card, you must format it first, and then copy the program files into the SD card. An SD card stores the content according to the capacity, and the maximum cannot exceed 4G.

I.M-A2 System Features.

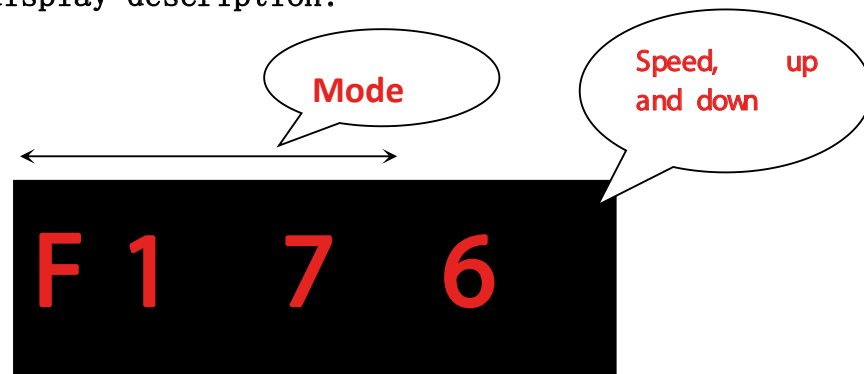
1. 32-65536 gray level control, software Gamma correction processing.
2. Support various point, line and surface light sources, support various rules, and special-shaped processing.
3. The controller port can be equipped with DMX 2*512pixels; SPI 2*1024 pixels.
4. Use AC220V alternating current, set the corresponding controller ID number, multiple cascade synchronization, only operate the first controller during cascade synchronization, and the subsequent controllers are equivalent to sub-controllers. Using Simple LED program software, all programs export a set file, after inserting the card, set the ID number of the controller, and the controller will identify the corresponding part of the controller in the file according to the ID number.
5. The M-A2 can store files without limitation, but it cannot exceed the storage capacity of the SD card. It is recommended that you try to compress the program files to the smallest extent when doing the program, and the two ports are output independently without interfering with each other.
6. The controller must be equipped with SD card for single use and multiple simultaneous use. You need to copy the program to the SD card, and then set the ID number corresponding to the controller. The controller automatically reads the program content of the corresponding part of the program .
7. Support conventional RGB lamps (serial, DMX512) and RGBW lamps (UCS2904, SK6812, DMX512).

8. The controller has a new one-key reset function. Press and hold the  OK button and the  up selection button at the same time on the main interface.

II. Meaning of digital display screen and buttons:

Button Name	Meaning
 	Up and down keys to select, number to switch up and down, channel up and down selection; at the same time long press the up and down keys to cycle mode
MODE	d--represents the number of files copied in the Flash memory, in the order of up and down switching
CHIP	Press the chip key and the digital model will be displayed on the digital screen, press up and down to switch to the corresponding model of the lamp
ID	Set the number sequence of the controller 01---255, switch the number by the up and down keys
ADDRESS	Used for addressing operation when loading DMX chip
Test	A total of three test results, check whether the signal is unblocked and the power supply is sufficient, and whether the code is written correctly
OK	After setting the above items, you must press OK to save, return and exit.

III. Main interface display description:







- ① ID: 0001 The number representing the current controller is 0001, which is the first controller, the maximum is 254.
- ② BRI: 99 BRI is the abbreviation of bright. It stands for brightness, that is the current control brightness is 99%, and the maximum is 100%.
- ③ FI: 05 Fi is the first two letters of file, representing the built-in mode,

which is currently the fifth built-in mode.

SD: 05 SD is the abbreviation of SD card, which stands for SD file mode, which is to play the fifth file of SD card.

④ Speed: 03 It is speed in English, which means the current speed is 3 levels; press the up and down keys to switch directly.

⑤ F: It represents a single built-in mode running; press and hold the   key at the same time to switch to E: represents a built-in loop.

D: It means that a single SD card file is running; press and hold the   key at the same time to switch to A: it means SD card cycle.


IV. Parameters:

1. Power supply: AC220V
2. Each port loading: DMX 2*512 ; TTL 2*1024
3. Synchronization method: cascade synchronization/GPS synchronization; installation outdoor rainproof.
4. Loading method: SD card program;
5. SD card format: FAT32 format 7, SD card capacity: 4G
6. Size: 160*127*40 unit (mm)
7. Weight: 0.9Kg

V. Operation step description:



1.ID setting:

When multiple controllers are used synchronously, the ID number must be set and set in order. The ID number of a single unit is 0001, because the drawing port number will be set when the program is made, and the port in the range of 1--2 must be the first controller.

Step 1: Press the number ID  key, the controller display

000 1

 flashes, indicating that the operation can be performed.

Step 2: Press the up and down   keys to switch numbers and select the number corresponding to the controller.

Step 3: Press the OK  button and save to the controller.

2. Setting chip (CHIP): The chip is the model of the lamp. The commonly used chip models in the market are as follows:

UCS1903、UCS1904、UCS2909、UCS2903、UCS1912、TM1803、TM1804
 TM1809、TM1914 (SPI)、WS2811、WS2812、WS2818 (SPI)
 SM16703、SK6812、SK6814、GS8206(SPI)、GS8205(SPI)
 UCS5603 (SPI)、P9883 (SPI) each controller need select chip model
 UCS512C.B.D series; SM16512, TM512AC

Full-color lamps are controlled by a chip, no matter what full-color lamps are used, there are models, so when using it, you must first clarify the specific chip model of the lamp and know the model before operating the controller.

The specific steps are as follows:

Step 1: Press the CHIP  button, flashing

1	9	0	3
---	---	---	---

 means you can make a selection.

512H	512L	1903	6812
6703	1804	2904	2811
2812	1914	9883	8206
8205	5603		


Step 2: Press the up and down   keys to switch the chip numbers and select the corresponding model of the lamp.

Step 3: Press the OK  button, save it to the controller, and the lamp will start to produce effects.

2.Adjust brightness (Bright):



When the actual brightness of the lamp is bright or low, the brightness value can be adjusted appropriately, and only the overall brightness can be adjusted. The level is 5%---100%. The greater the percentage, the higher the brightness.


The specific steps are as follows:

Step 1: Long press the  code write (ADR) key for 3 seconds, and it flashes

0	0	0	5
---	---	---	---

, indicating that it can be adjusted.


Step 2: Press the up and down   keys to switch the digital level and select the appropriate brightness of the lamp (5--100).



Step 3: Press the OK  button and save it to the controller, and the lamp will adjust to the selected corresponding brightness.




3.Test setting (Test): (①I don't know the number of lamps ②I don't know the channel order of the lamps RGB, RBG, GRB, GBR, BRG, BGR ③Whether the lamps have dead spots ④Whether the power supply of the lamps is sufficient ⑤ Whether the writing codes of the DMX512 lamps are normal or garbled) mentioned in the appeal Problems can be tested out through the test function




3.Channel: refers to a luminaire with a mixture of three colors of R, G, and B; 4-channel: refers to a luminaire with a mixture of four colors of R, G, B, and W.

The specific steps are as follows:

Step 1: Press the Test button  , it means 3 channel CH---3 lamp test

Step 2: Press the up and down   keys to switch the 3/4 channel lamp test status (take the 3 channel test as an example)

Step 3: Press the OK  key to enter, which represents the first L 0 0 0 1 test mode, the xxx number starts from movement increase (automatic test mode); when the automatic running point, press the key   arbitrarily, the beating number stops at 1.

Press the   key to add and subtract numbers manually (manual mode), and then press the  Test key to switch to automatic mode.

Step 4: When the test is in automatic mode, press  Test key in turn to switch the test mode

- 2 - -

Si ngl e Red

- 3 - -

Si ngl e Green

- 4 - -

Si ngl e Bl ue

- 5 - -

Si ngl e Whi te

Step 5: After the test is complete, press the  OK button to return to the main interface. (Note: Use 2, 3, 4, 5 to measure the channel sequence).

4.Switch mode (MODE): Press and hold the OK button  for 3 seconds to switch between the two modes.

5. It can be divided into SD card program mode and built-in effect mode, and the two modes can be


switched mutually. If you don't like the built-in effects that come with the controller, you need to copy the program to the SD card. If the simple outline effect does not require too many changes, you can directly use the built-in effects, a total of 69 kinds.

SD card program mode: It is designed by program software, according to customer requirements, or by the designer himself.

The specific steps are as follows:

Step 1: Press the MODE button  , the interface will display SD: x x and you can switch.


Step 2: Press up and down keys   to switch mode files.


Step 3: Press the OK button  to save to the controller and return to the main interface.

Built-in effect mode: (The built-in effect can be called up by the controller with or without a card. In short, it has nothing to do with the SD card.)


The effect program that comes with the controller itself, these built-in effect programs are relatively simple, mainly used to test whether the lights are unblocked and the controller is working normally, if you want more beautiful effects, you need to write a program file and place it in SD In the card. You can use built-in effects like some simple contours.

The specific steps are as follows:

Step 1: Long press the OK button  for 3 seconds. When the interface displays F: x x , it means the switch is successful.

Step 2:  Press the MODE button, FL: x x



Step 3: Press the up and down keys   to switch the mode file, a total of 69 modes.

Step 4: Press the OK button  to save to the controller and return to the main interface.

6. Cycle mode:

The built-in effect mode loop means that 69 modes run from 1 to 69 one after another, and then from 1 to 69 again, switching the effect files back and forth; the other is when you have multiple effect files stored in the SD card, and you want The effect files in the SD card are switched back and forth in turn, which is a loop.

The specific steps are as follows:

On the interface of SD card mode and built-in effect mode, long press the up and down   keys at the same time to start the cycle.

D/A

D: stands for SD card file alone mode; A: stands for SD card file loop mode.

F/E

F: stands for the built-in mode alone mode; E: stands for the built-in mode loop.

7. Speed switching:


Step 1: Make sure that the display of the controller is on the main interface.

Step 2: Press the up and down keys   directly to switch the speed level, the larger the number, the faster the speed.


Speed grade of storage mode: 1---6, speed grade of built-in mode: 1---6

8. Channel switching: (The channel refers to the sequence of R, G, B of the lamp, there are 6 kinds of sequences in total; when the designed program file differs from the actual lamp color, it must be the RGB sequence A misalignment occurs, so the RGB order must be adjusted through the controller)

The specific steps are as follows:

Step 1: Long press the ID  button for 3 seconds, RGB **R G B** channel.


Step 2: Press the up and down   keys to switch channels (RGB, RBG, GRB, GBR, BGR, BRG)

Step 3: Press the OK  button to save and return to the main interface.

9. Code writing operation: (For DMX512 lamps, the manufacturer may write the address of the lamp individually when testing the lamp, but when it comes to the actual construction site, the installation method and installation sequence are different, which will cause the original lamp address code to be duplicated or offset. Therefore, you need to use the controller to perform uniform coding operations on the installed lamps)





Before operation, you need to determine the chip model of the lamp, the writing channel of the chip, and check whether the wiring of the controller is correct, and the direction of the lamp is correct. After confirming these, start to write the code.


The specific steps are as follows:




Step 1: Press the code ADR  key to enter the chip IC 01 selection state

Step 2: Press up and down   keys to switch chips

01: UCS512B3, 02: UCS512C*, 03: TM512AL, 04: TM512AC, 05: SM16512, 06: SM16512P
 07:GS8512

Step 3: Press the OK  key to enter the channel selection interface CH=03 represents 3 channels, at this time you can press up and down   Key to switch the number of channels, and press the ADR  key to return to the previous level of operation.

Step 4: After confirming that there is no error, press the OK  button to enter the port selection, which means that all ports PO AL are written together.

Step 5: Press the up and down   keys to select the port to write the address code PO --1 the first port PO-2 the second port. By analogy, there are a total of 8 ports; in the case of cascade synchronization, all subsequent controllers follow the selection of the first controller. Press the write code ADR  key to return to the previous operation.

Step 6: After the channel and port are confirmed correctly:

Press  **OK** Button to write address

- - - -

Start writing address


C e n d

During the code writing process, pay attention to whether the lamp has any code writing status changes.

After the code is written, it will automatically switch back to the main interface.

Step 7: After the above code writing operation is completed, there is no need to reset the chip channel and other operations after changing the lamp or repairing. The controller adds one-key code writing function.

The specific operations are as follows:

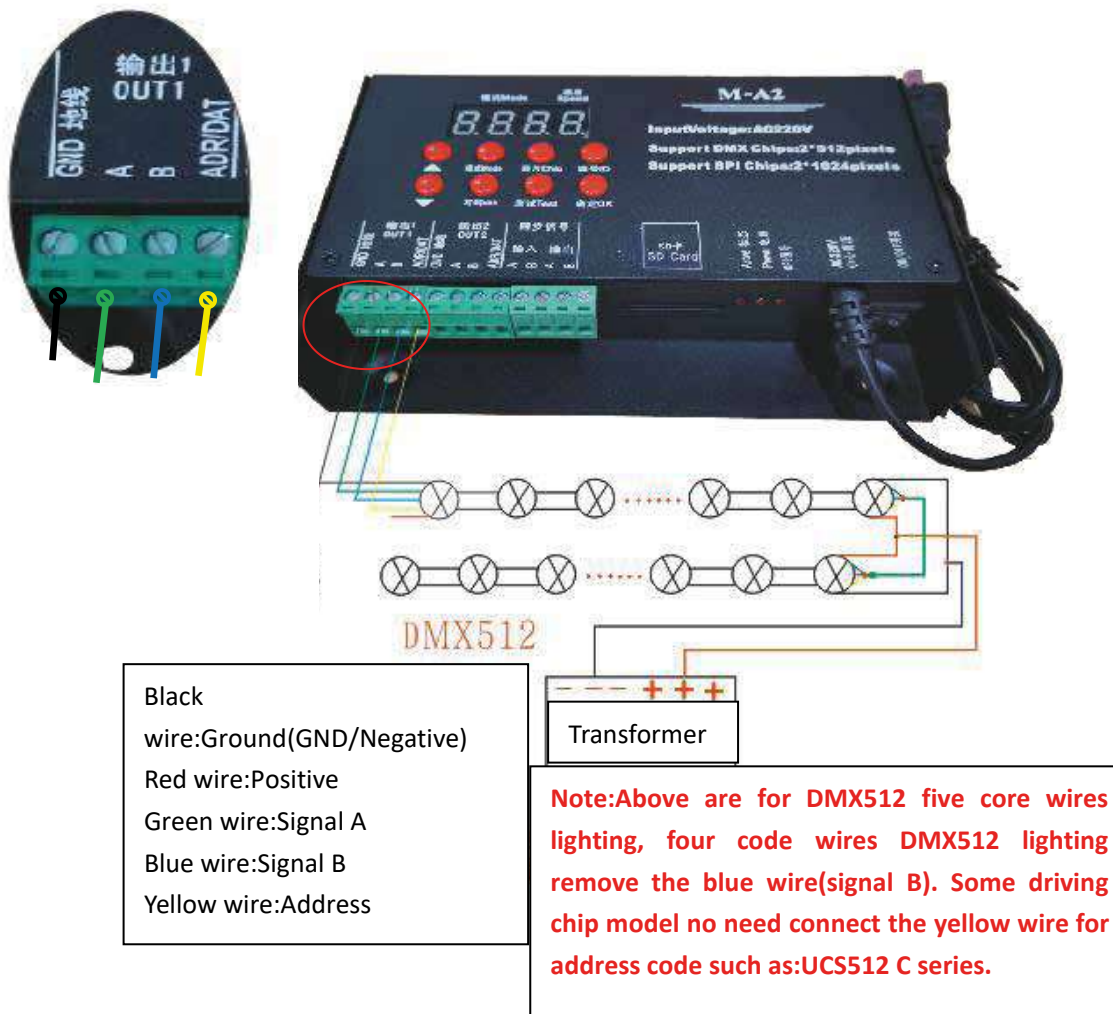
Long press the MODE  button for 3 seconds, the controller interface will automatically display all the contents of the last code writing operation and will automatically start to write the code. After the code is written, it will automatically return to the main interface. Display content: IC: 0X Channel: CH0X Port:

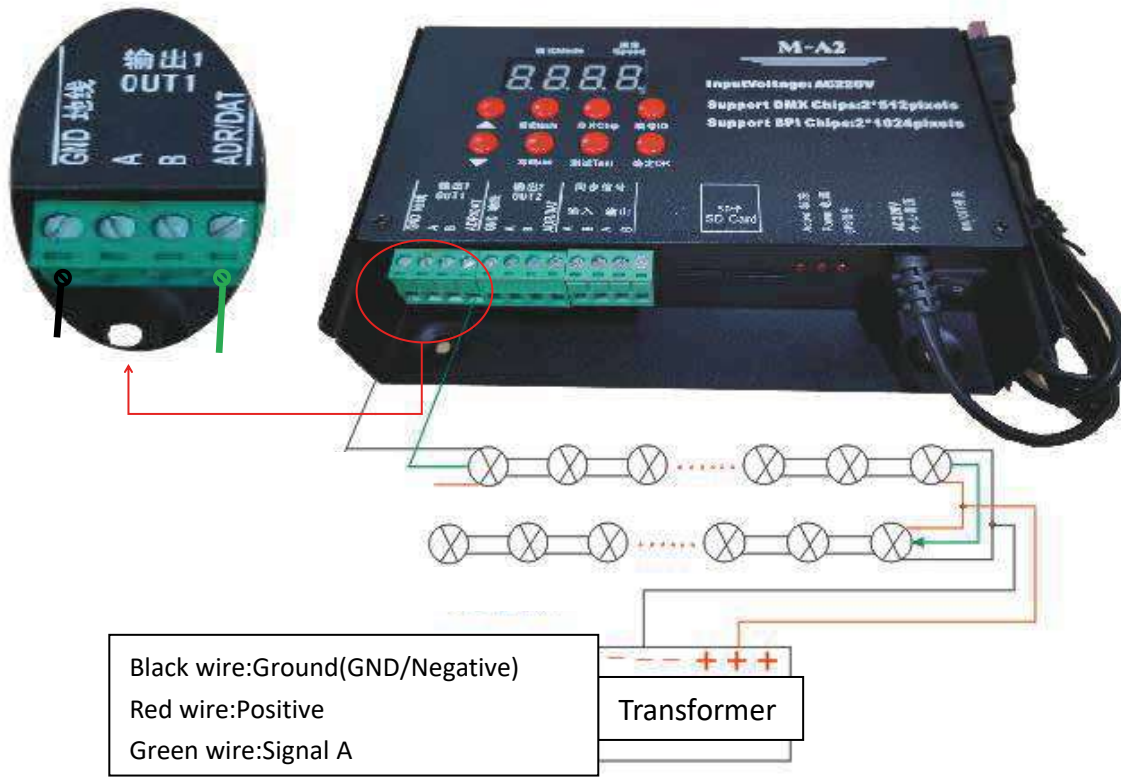
Note: Whether the address code is written successfully, use the test function mode 1 after writing to see whether the lamp is running down point by point in order or manually switched to increase point by point. If the sequence is normal, it is successful. If the sequence is not normal, continue to write codes or find out the reasons for unsuccessful code writing.

Common reasons for unsuccessful code writing:

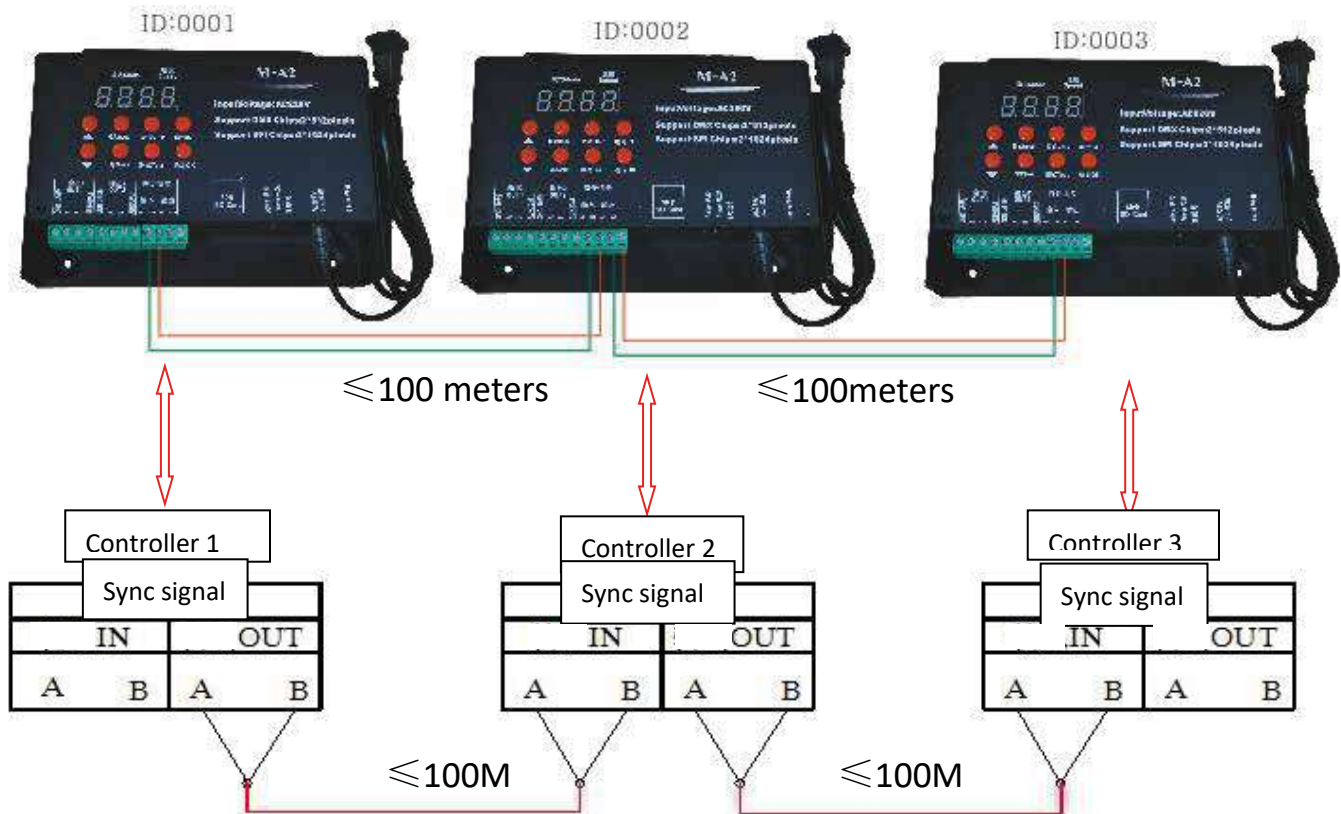
- ① The direction of the lamp is wrong. Although DMX512 transmits signals in parallel and bidirectionally, the direction of writing code is unidirectional.
- ②. There is a problem with the wiring of the lamp and the line sequence is incorrect. Check the controller port and the line sequence of the lamp.
- ③ The power supply of the lamp is not sufficient, which makes it impossible to drive the chip to write codes.
- ④ The signal line of the lamp is too long, which exceeds the effective distance range of the chip.

VI. Schematic diagram of wiring drawing: DMX512 series and SPI series





VII. The cascade diagram is as follows:




VIII. GPS synchronization diagram:



Wiring notes:

- ① Do not operate the lamp with power during the actual wiring process. You need to cut off the power supply before connecting, changing wires and changing lamps.
- ②, SPI signal lamps are directional, so first determine the direction of the lamps during operation, and then operate.

The controller port 

P	Lamp both side	PO
--		

 PI input terminal is connected to the controller PO output terminal to the next lamp.

- ③ The power supply of the controller is AC220V high voltage, pay attention to safety when using it.
- ④ The controller SD card capacity is limited. Pay attention to the file size when doing the program, try to be less than 5000 frames.
- ⑤ The controller is suspended vertically to prevent rain and water from falling into the interior.
- ⑥ . M-A2 controller is integrated with DMX512 and differential signal, and the 2 output ports are independently controlled and do not interfere with each other; according to the different chips on the market, the transmission distance of the lamp is also different.

Transmission distance:

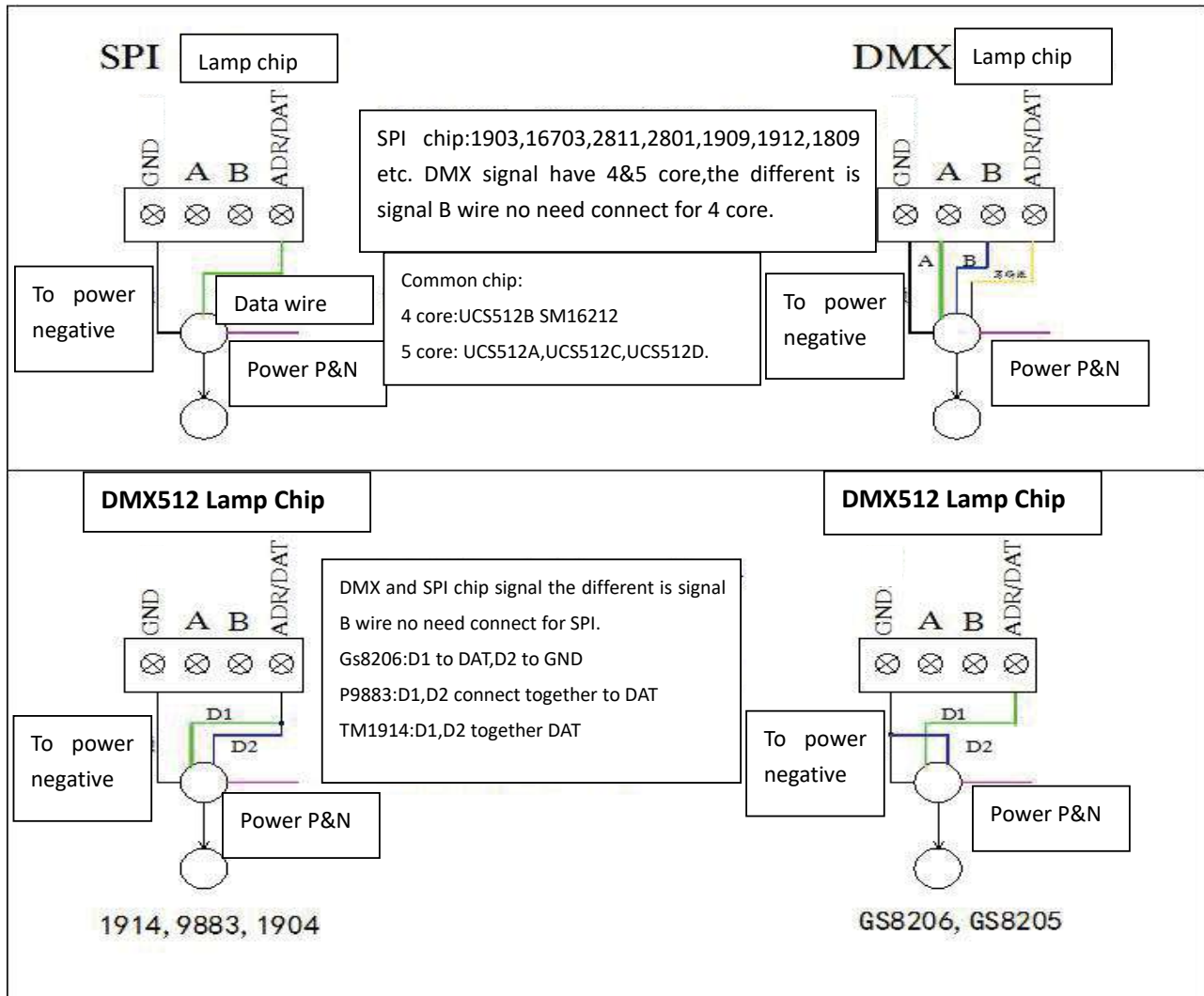
Four-wire DMX512 100 meters from the controller to the last lamp

Five-wire DMX512 150 meters from the controller to the last lamp

SPI signal 15-20 meters from the controller port to the first lamp

GPS synchronization distance is unlimited, as long as it can receive satellite signals.

IX.Note: The wiring is divided into SPI signal lamps and DMX signal lamps. Different wiring methods of lamps are different. The specific types of lamps and the wiring sequence of the lamps should be distinguished.



X.Common considerations

- ① The controller has eight output ports, and each port is independently controlled; the load of the port should be around 80% as much as possible. Don't go to full load when the power supply cannot guarantee 100%, otherwise there will be signal problems and voltage drop problems.
- ② Each controller is the main controller, with card control; after cascading, only the first controller needs to be controlled, and the buttons of the subsequent controllers do not need to be operated; but before cascading, the ID number of each controller must be set.
- ③ The way the controller makes the program is the same as the main control and sub-control, but it cannot be mixed with M-C8 and D8 at the same time.
- ④ The controller GPS is synchronized. Currently, it only supports the GPS positioning signal of the Beidou satellite. When in use, the GPS module antenna is best placed in an open outdoor

area and should not be covered to ensure the stability of the GPS receiving signal.

XI. Common problem:

① There is no program effect display when the card is inserted?

Solution: a. Check whether the program file is copied correctly, not a compressed file, OFF001.arm is the correct file

b. Is the SD card formatted as FAT32? c. Is the white card lock on the SD card locked?

② The cascade line is connected, the program card is inserted, but it is not synchronized?

Solution: a. Check whether the cascading line is connected incorrectly and whether the input and output directions are correct

b. Whether the ID number of the controller is adjusted to the corresponding number in sequence