Online M-C8 Controller User Manual

Play the offline SD card program

Play Online

Function Overview

1. System Features

1. It supports up to 100,000 pixels, which greatly meets the needs of customer projects.
2. The controller has a button to select program clips, adjust overall brightness, white balance, and playback speed.
3. Supports one-click offline code generation and clearing sub-control ID numbers for on-site use.
4. Independent brightness control of the three primary colors makes it easier and more effective to adjust the white balance.
5. The controller integrates both serial (TTL) and DMX512 (differential) signal support, with selectable chips for each.
6. The controller supports both offline and online control with priority selection. It first identifies the network, and then reads the card.
7. Supports four-color lighting (RGBW) for energy efficiency and color purity.
8. The Ethernet interface and UDP network protocol ensure stable transmission with a maximum distance of 100 meters.
9. The LCD display module shows controller parameters and status in real time for easy operation.
10. SD card storage. The controller supports up to 32GB and can preset up to 99 program files.
11. Add the modify channel function to achieve overall picture synchronization when multiple channels are mixed.
12. Built-in animation test program for easy debugging and application in projects.
13. Supports fixed ID, enabling compatibility with various types and protocols of lighting fixtures.
14. Split screen is supported for easy effect application.
15. Enable encryption protection to ensure the controller's security and prevent unauthorized modifications.
16. Supports GPS and RF synchronization for seamless effect synchronization across different zones.

2. Design Concept

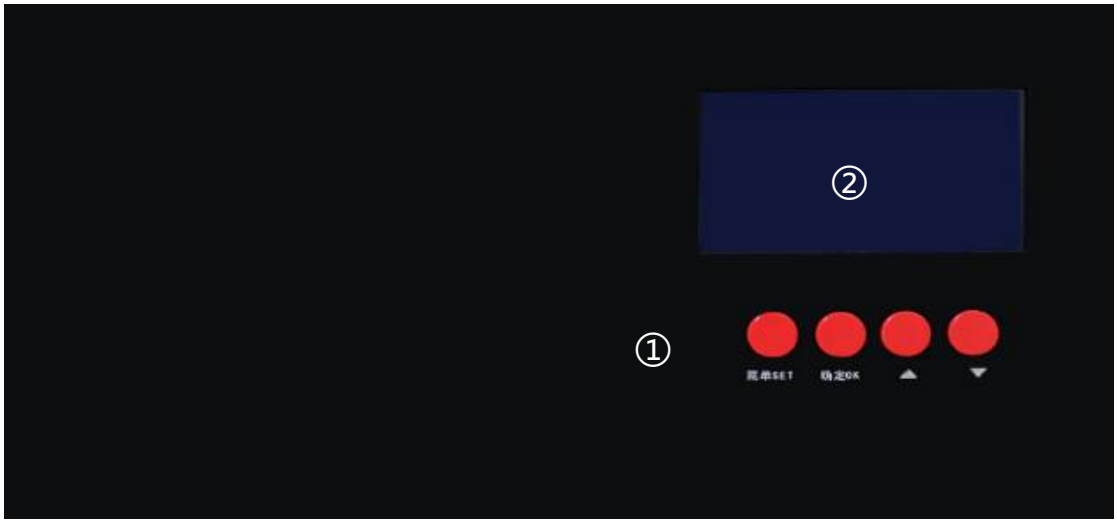
1. System signal bidirectional redundancy: stability doubled;
2. Four-color design: energy saving and environmental protection, pure color;
3. Integrated asynchronous control: Prioritizes online mode, automatically switches to offline mode when no online signal is detected, ensuring video source backup.

4. Large-scale independently developed video editing, playback and wiring design software: more adaptable, more language support, higher openness, used for various domestic and foreign special screens, multi-screen, building screen, pixel light screen and other complex applications.

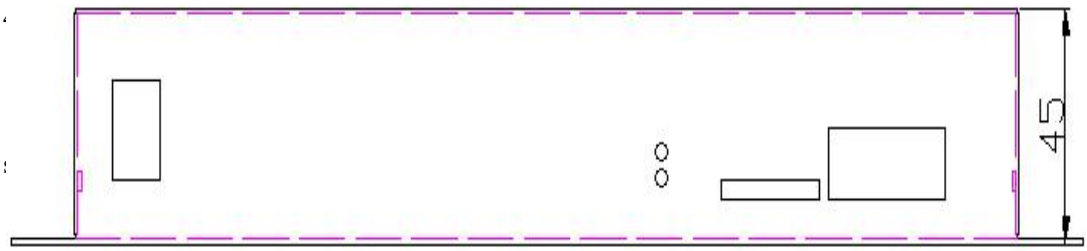
3. Controller interface parameters:

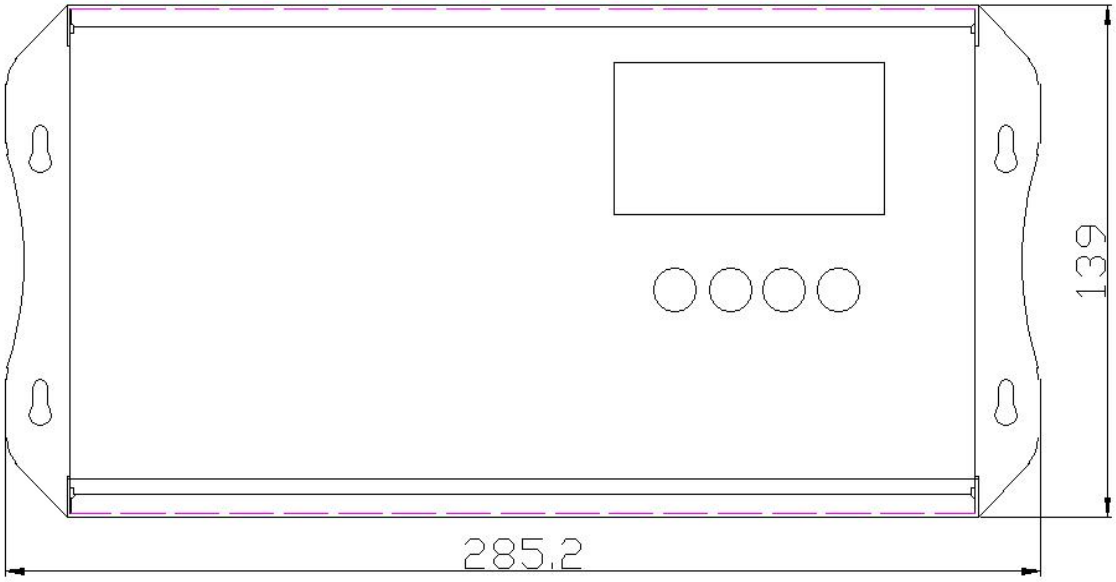
Side 1

front

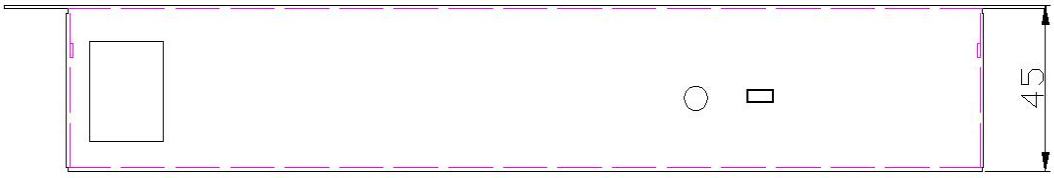


① Key: ② LCD display ③ AC power socket (220V) ④ indicator light ⑤ SD card ⑥ Class network port ⑦ AC switch ⑧ GPS/RF socket

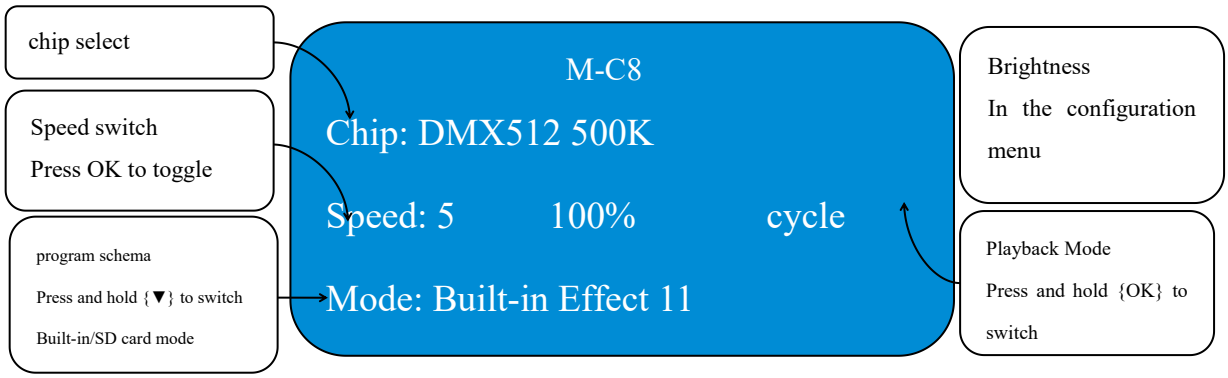




side --②

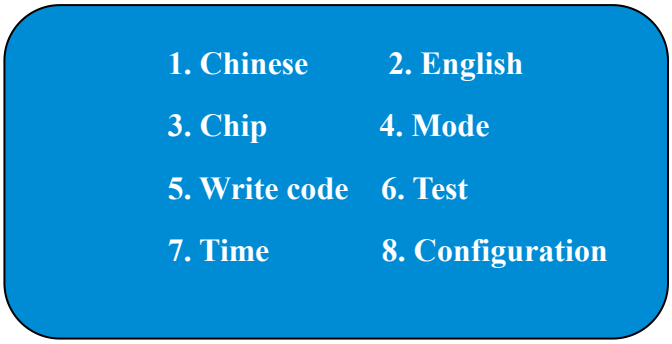


5、Home screen:



5.1. Operation instructions:

Press [MENU] to access the menu interface:



1. Chinese: Mandarin

2. English

3. Chip: When switching between different models of lamps, the effect remains unchanged

4. Mode: Switch to built-in mode when no card is detected

5. Code writing: For DMX signal lighting fixtures

6. Test: Check signal transmission in both card-enabled and card-free states

7. Time: This feature is mainly used for setting time and date (to be developed)

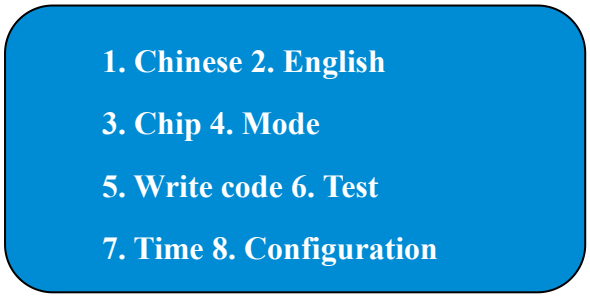
8. Configuration: Adjust brightness, switch channels, set main controller ＩＤ, configure sub-controller parameters, restore factory settings, define port points, assign main controller addresses, and enable encryption/decryption functions.

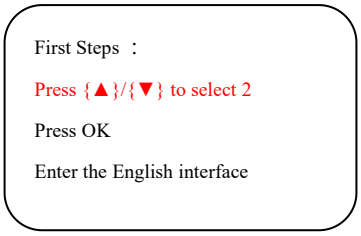
5.2. Technical parameter information:

operate mode ：	Online + Offline + Third-party protocol call
Parameter characteristics:	Wired straight-through connection, auto-encoding, channel testing, single-point testing, supports RGB and RGBW
Load count:	A single master controller supports 100,000 points and can connect 255 slave controllers.
grey scale ：	32-65536 grade
loading regime ：	Play live on computer, copy to SD card
SD card storage:	Up to 32 GB, with a maximum of 99 files
working temperature ：	-20℃--75℃
working voltage ：	AC (alternating current) 85V…240V
maximum power ：	5W
weight ：	Gross weight: 1.35kg Net weight: 0.95kg Gross weight: 1.35kg Net weight: 0.95kg
size ：	Device: 29.1×14.2×5cm, packaging: 31.2×24.7×6cm

6. Operation steps:

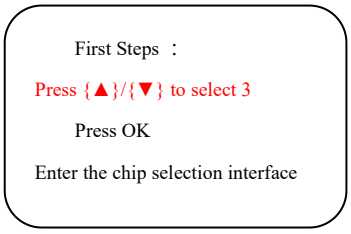
2. English: (The default interface is Chinese. To switch to English, follow these steps)

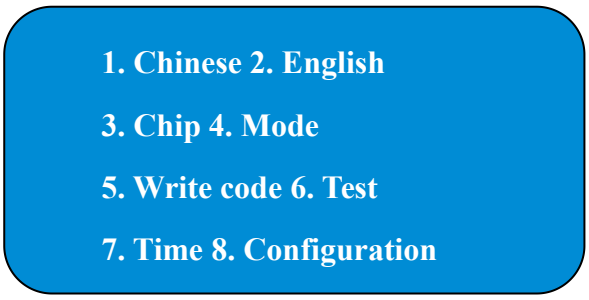


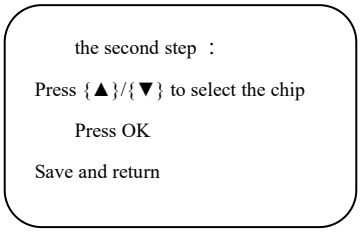


3. Chip Selection: When using controllers, always choose the appropriate chip. Full-color lighting fixtures all require chips, but manufacturers produce different chip series, leading to variations. Additionally, chips come in two types: built-in and external, depending on their size. Before operation, it's essential to thoroughly understand these fundamental details.

The specific operation steps are as follows:







Chip model: as shown in the figure below

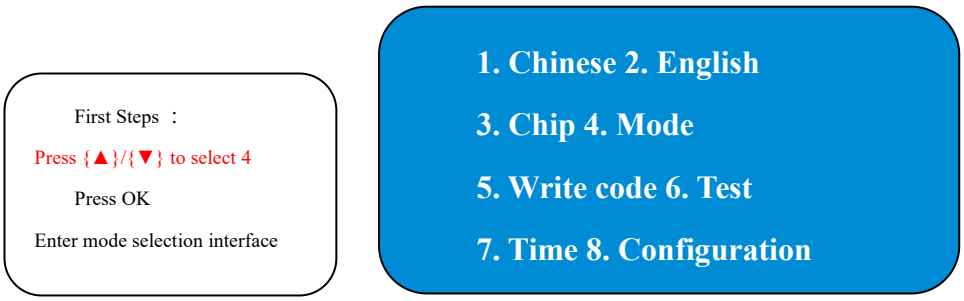
1	DMX512 750K	10	P9883S	19	UCS8904
2	DMX512 500K	11	SM16703P	20	HW1603
3	DMX 250K	12	SK6812RGBW	21	UCS9812
4	UCS1903	13	SK6812RGB	22	UCS2603
5	UCS2904B	14	WS2811	23	TX1816
6	UCS5603	15	WS2812B	24	WS2818B

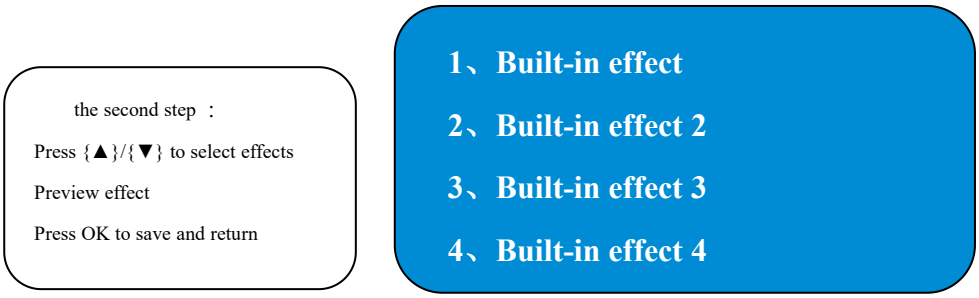
7	TM1804	16	TM1923	25	SM16813
8	TM1914A	17	TM1814	26-50	High Refresh Rate Chip

Note: The chip models listed above may not be particularly comprehensive. There are many manufacturers in the market who change the name of the same chip for sales, but in fact, they have the same protocol, so they cannot be listed. If you encounter any unclear chip, you can consult the manufacturer or our technical staff.

4. Built-in effects: (86 effect modes in total)

Both with and without the controller card, the built-in effects can be activated. Simply put, it has nothing to do with the SD card.





Note: Press and hold the "▼" button on the home screen for 3 seconds to switch between SD card and internal storage modes.

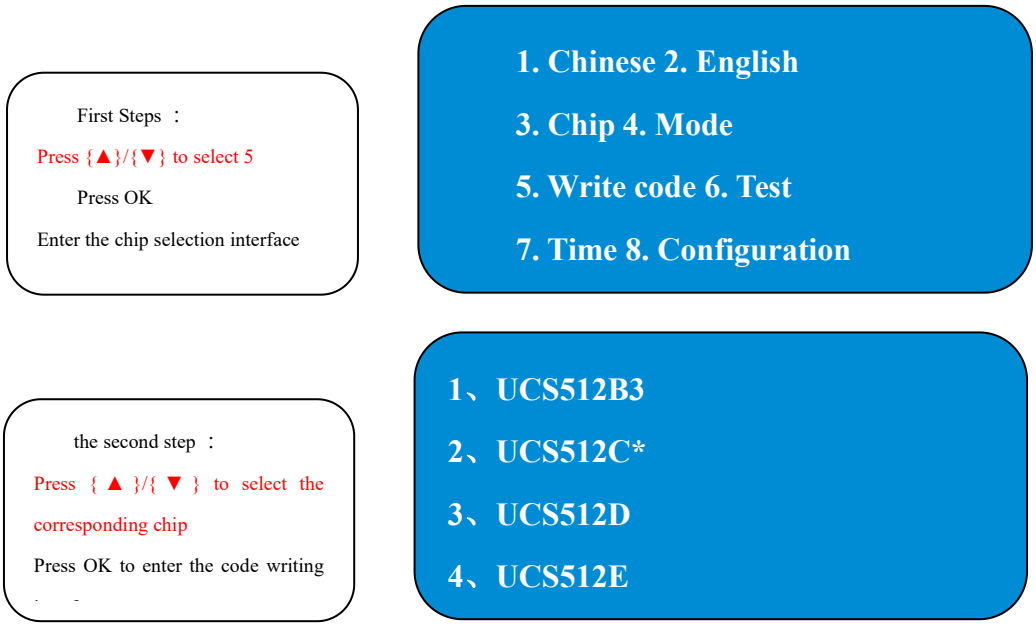
5. Addressing Configuration: (This procedure applies to DMX512 series products. While manufacturers perform basic addressing tests during factory calibration, the actual installation process may disrupt port sequencing, causing address confusion. Therefore, each installed port requires manual readdressing to maintain a consistent, independent sequence for optimal system performance.)

Before writing code, you need to confirm the following: the lamp's chip model (manufacturer, series, model), the number of segments (linear lights, wall washer lights) or points (point light

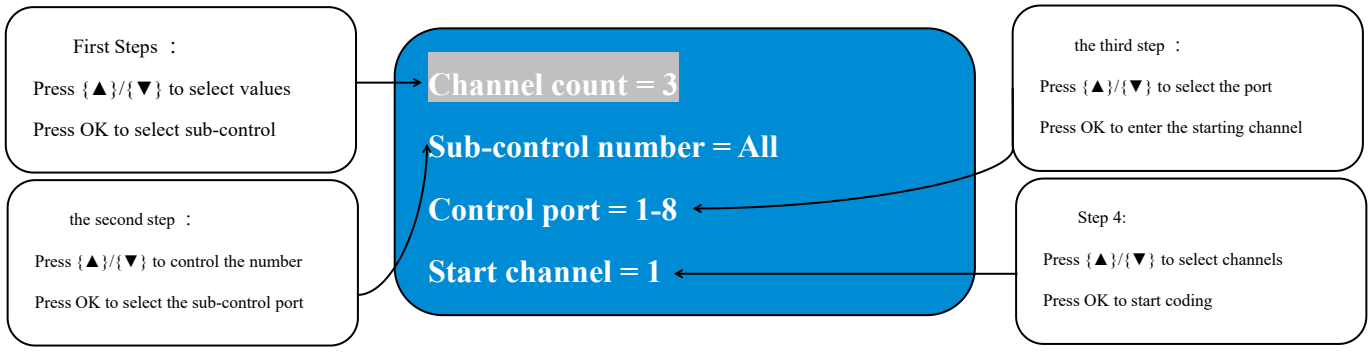
sources), the color sequence (RGB/RGBW), whether the wiring from the lamp to the controller port is correct, whether the lamp's orientation is correct, the power supply voltage, method, and wire diameter, as well as the port's load capacity and distance.

The DMX512 standard protocol provides 512 channels, equivalent to 170 channels (512/3).

The specific steps to write code are as follows:



The specific models include: UCS512B3, UCS512C*, UCS512D, UCS512E, UCS512F, Hi512A0, Hi512A4, Hi512D, TM512AC, TM512AD, TM512AL, SM16512, SM16512P, SM17500, SM17512, SM17522, GS8512, GS8512 Clear Address, UCS512KH, UCS512KL, UCS512K Self-Channel, UCS512K Self-Write On, UCS512K Self-Write Off, GS852*, GS852* Clear Address, SM18522



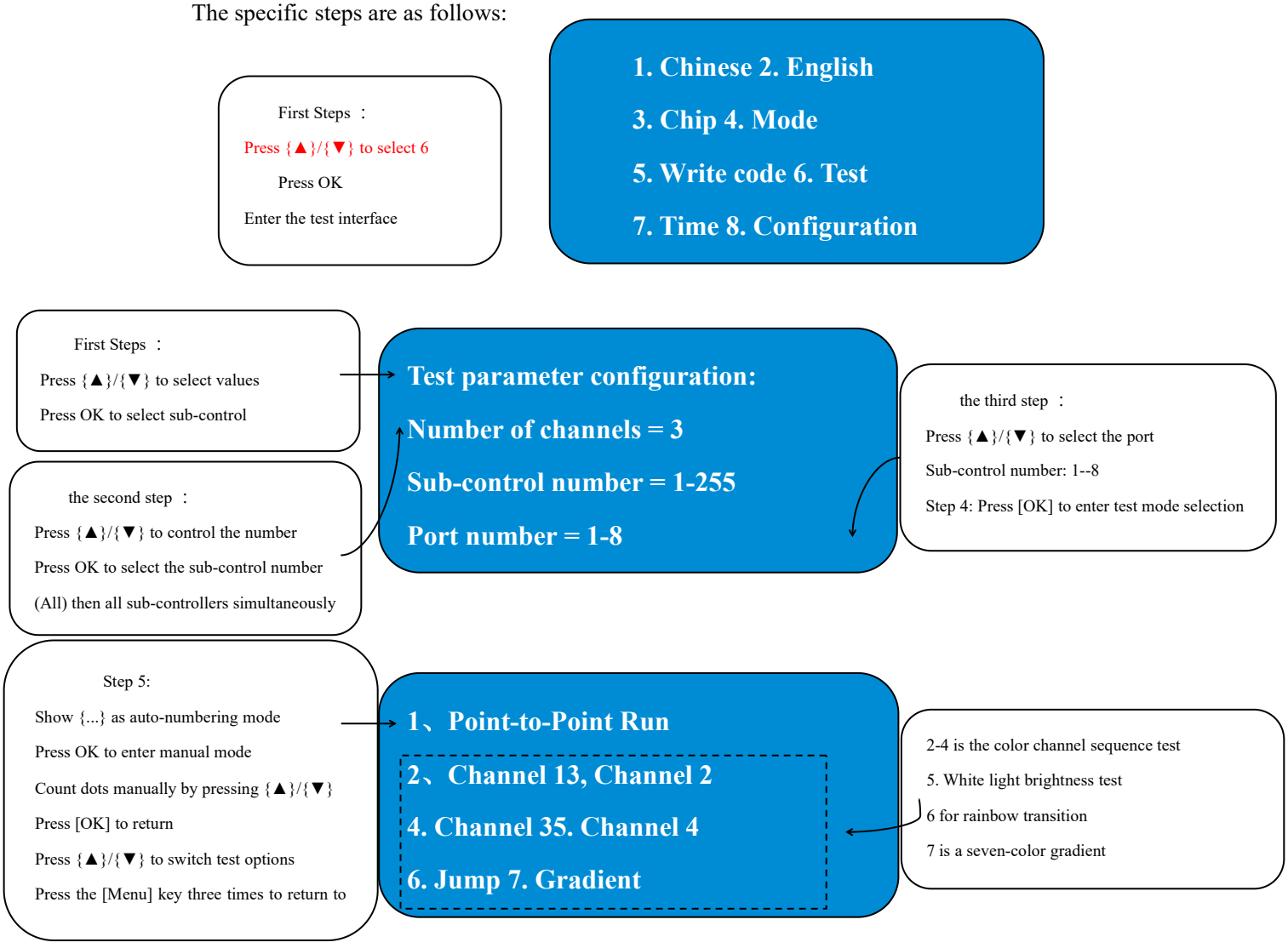
The number of segments in a light varies, and the corresponding code channels differ accordingly. For example, a six-segment code TD: 6*3=18, while an eight-segment code TD: 8*3=24. These values are based on RGB lighting as an example, with RGBW lighting corresponding to the number of segments multiplied by 4.

After writing the code, press the test function and use the point-by-point test function to test whether the address of the lamp is written in the correct order.

The expansion protocol is 512 points and 1536 channels (most 512 lamps on the market are expansion type), which is the most commonly used. In actual installation, each port is loaded at 80% of the load, and the distance of the load is also considered. If the distance is too far, the corresponding port load can be reduced.

6. Test: (under the condition of just being powered on, in order to determine whether the lamp, power supply and code are working normally, and whether the power supply is sufficient)

The specific steps are as follows:



There are seven test modes:

1. Point-by-point run: Mainly used to test the breakpoint location and whether the code writing order is normal

2. Red 3. Blue 4. Green 5. All white 6. Jump 7. Gradient (test voltage drop and channel)

8. Configuration list:

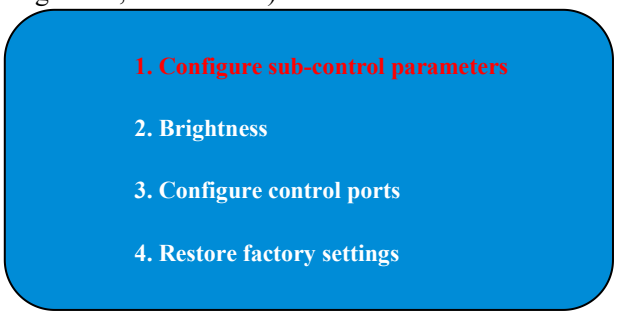
1	Configure decentralized control parameters
2	luminance
3	Control port settings
4	factory data reset
5	channel

6	View remaining attempts
7	set-up time
8	Set RF band
9	Set the master ID
10	Set the master address
11	Set gamma value
12	Show GPS time
13	Built-in effect settings
14	Low-Gain Filter
15	Set music port
16	Set music threshold
17	Set music output
18	Set RF synchronization delay
19	Control Unlock
20	Administrator password
21	Unlock master control

Note: The configuration has added some new features, as follows:

1. Configure sub-control parameters: (In online mode, configure sub-control parameters first, mainly for the lamp chip, brightness, and channel)

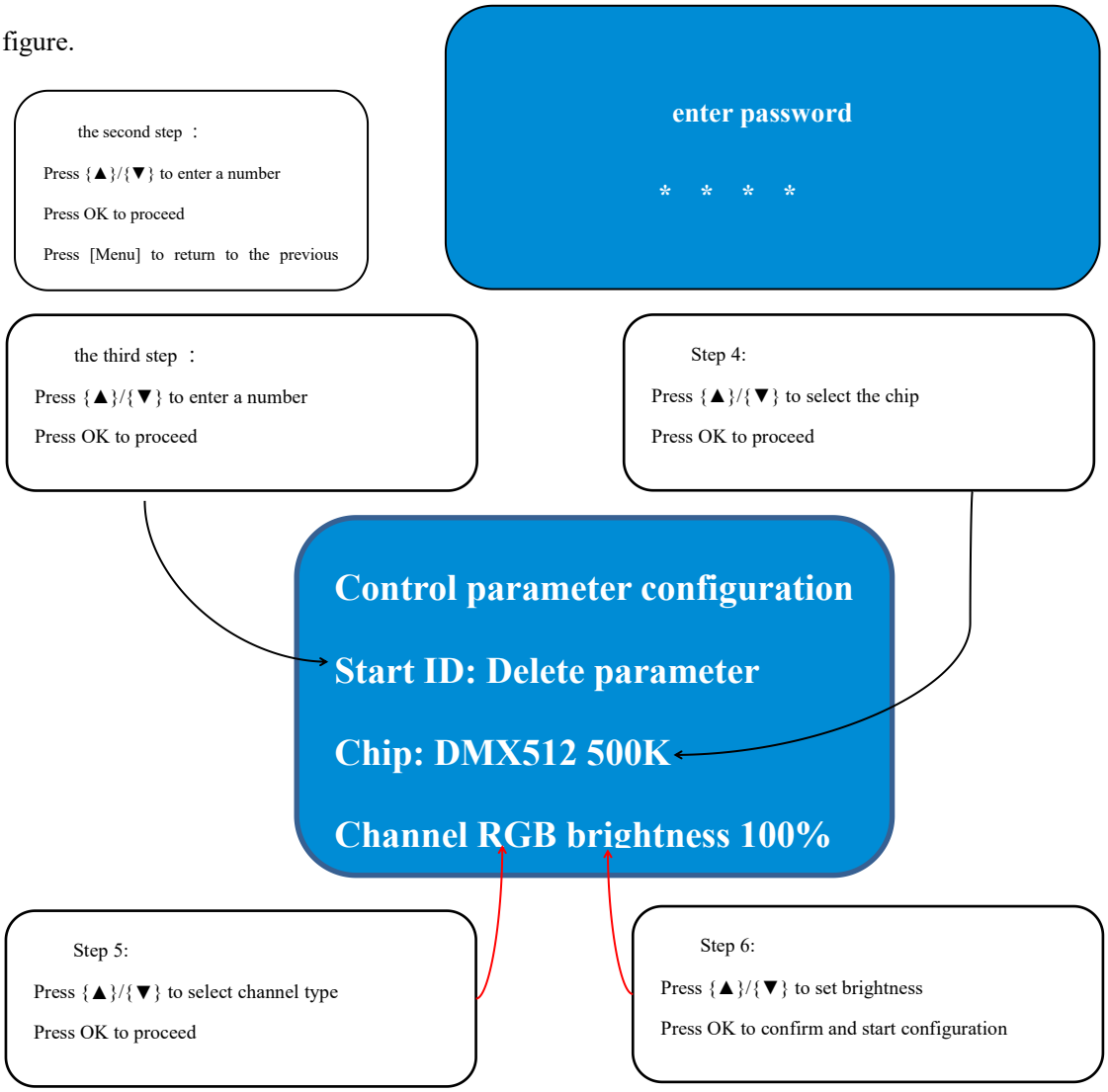
The steps are as follows:



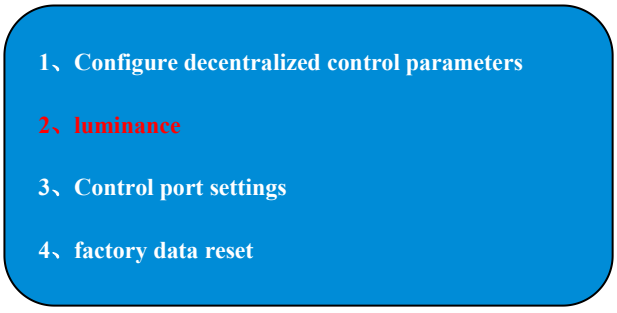
Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "1-Configure Sub-control Parameters", then press OK to enter channel selection

Step 3: Enter the password and press OK to enter the Settings interface as shown in the following figure.

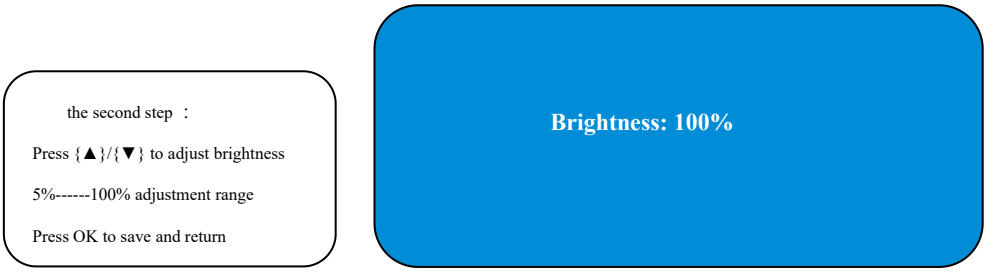


2. Brightness: When the actual lamp is too bright or too dim, you can adjust the brightness value appropriately. The specific operation steps are as follows:

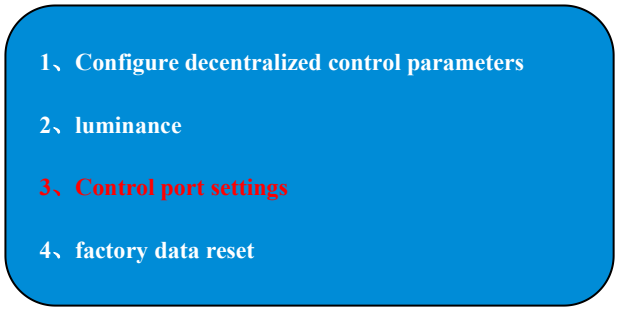


Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "2-Brightness", then press OK to enter channel selection

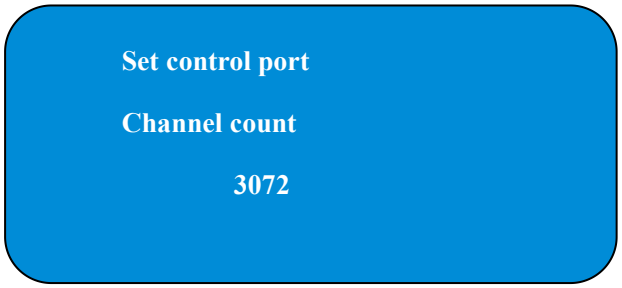


3. Split control port settings: (This feature improves controller responsiveness; smaller ports provide smoother performance)



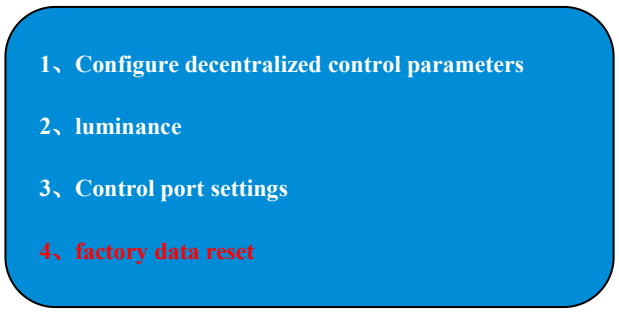
Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "3-Port Control Settings", then press OK to enter channel selection



4. Restore factory settings: (If you forget the settings and the effect does not appear during the operation, you can restore the factory settings, return the controller to the factory settings, and then operate again).

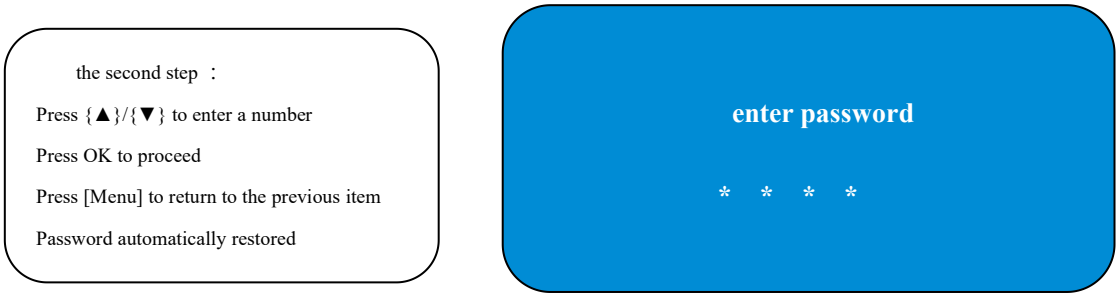
The specific steps are as follows:



Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "4-Restore factory settings", then press OK to enter the channel selection

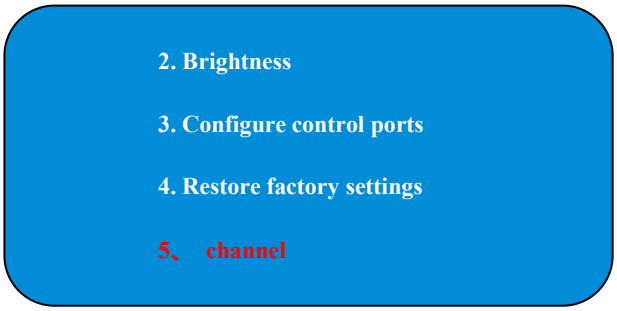
Step 3: Enter the password and press OK to enter the Settings interface as shown in the following figure.



Step 3: Press ▲\▼ to switch channel values, then press OK to save and return.

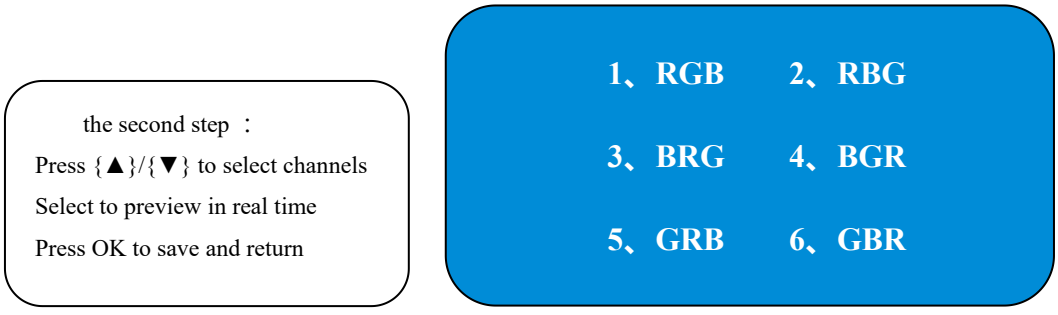
5. Channel (This feature is primarily designed for different lighting channels)

The specific steps are as follows:



Step 1: Go to the main interface, select "Configuration", and enter the options list

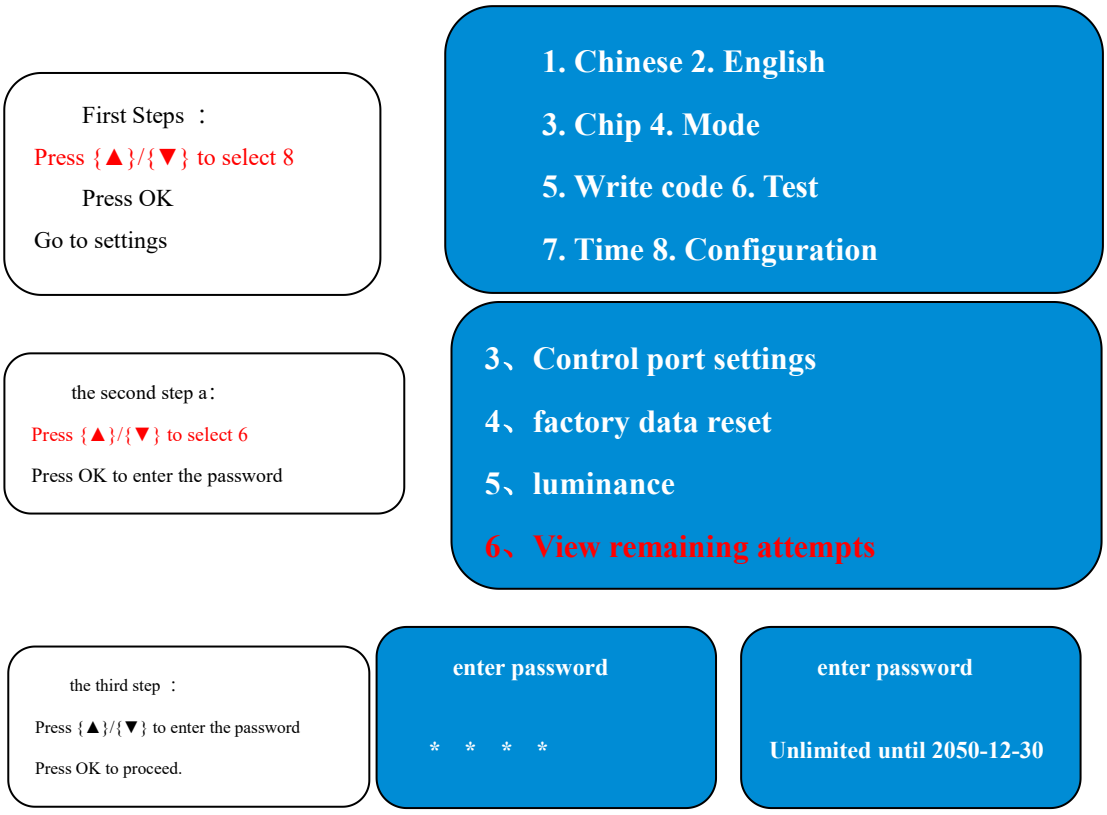
Step 2: Select "5-Channel" and press OK to enter channel selection



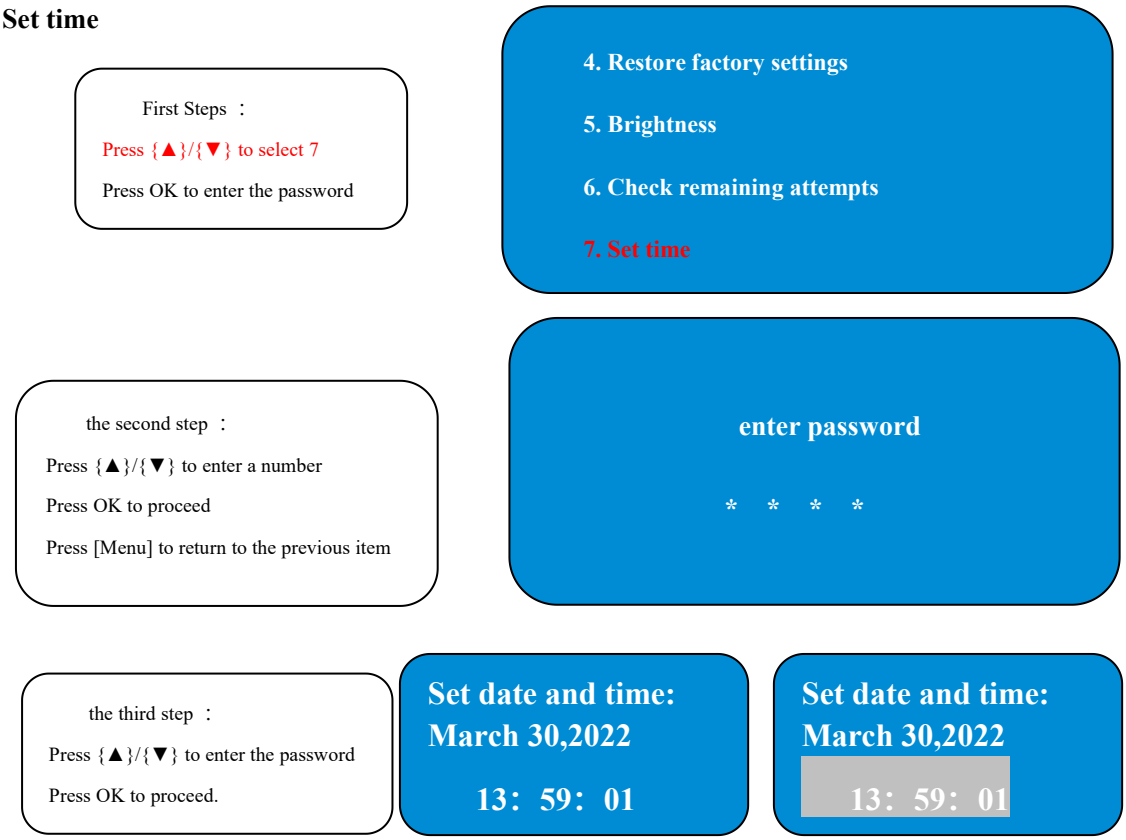
6. Check remaining attempts:

This feature is only viewable when encrypted. Otherwise, it is unlimited by default.

Specific steps:

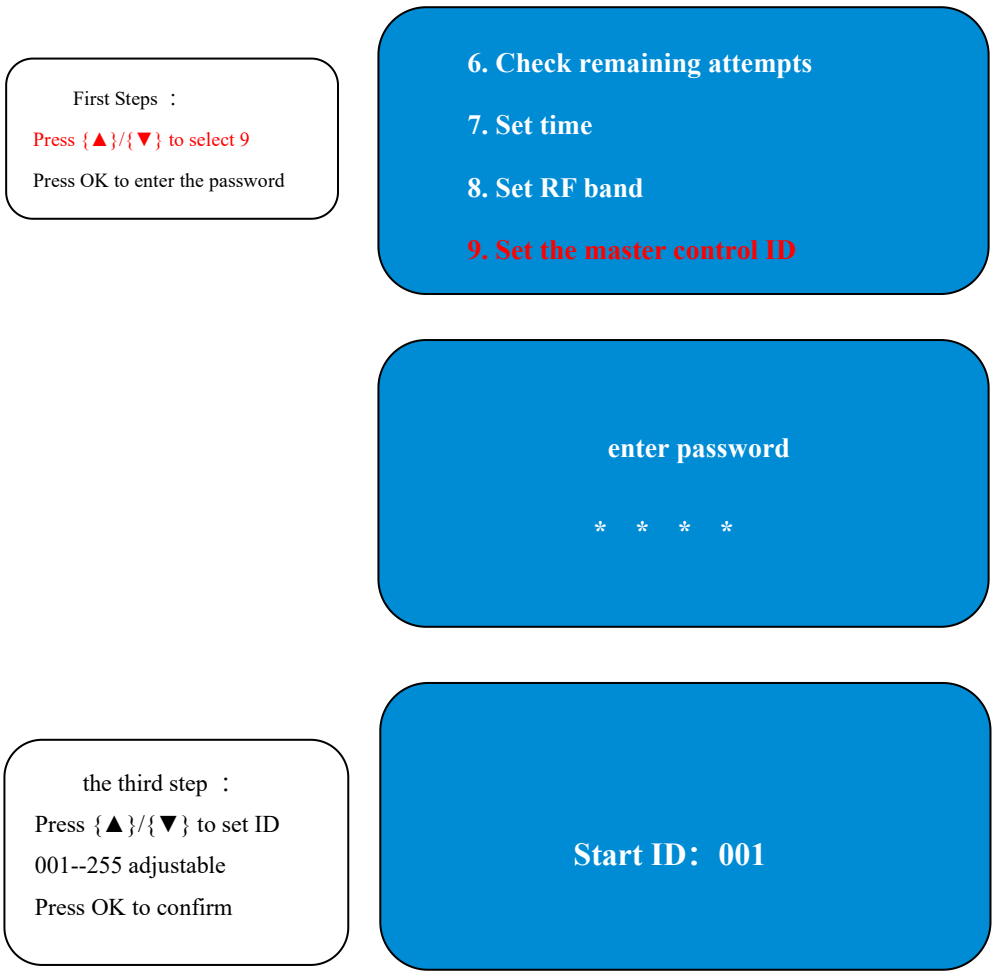


7. Set time

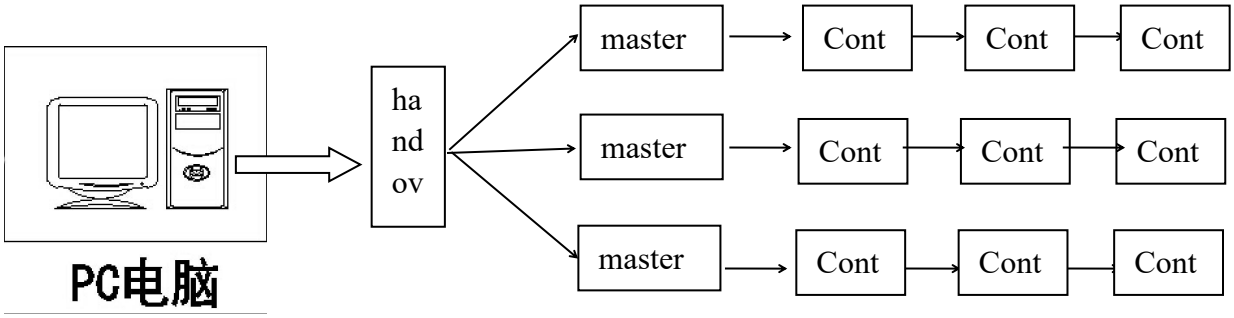


8、Set RF band: (not yet available)

9. Set the master control ID. Follow these steps:

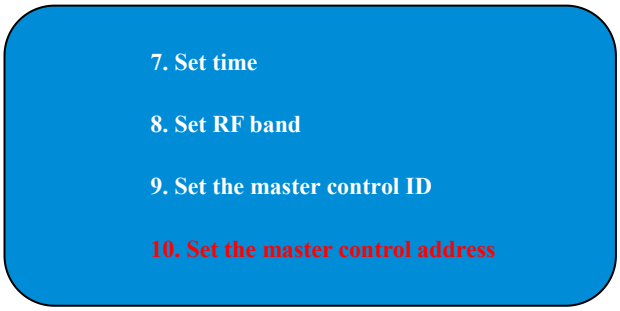


This feature is mainly for online and GPS synchronization



Set the starting ID number for the master controller. Subsequent controllers will automatically use IDs that follow the master's starting number. This eliminates the need to partition the program.

10. Set the master control address: This function is suitable for secondary development of controllers. It can be called separately according to the master control address to realize the simultaneous operation of multiple master controllers.



Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "10-Set Master Control Address", then press OK to enter the numerical selection

Value: 001-----254. Press the "OK" key to save and return.

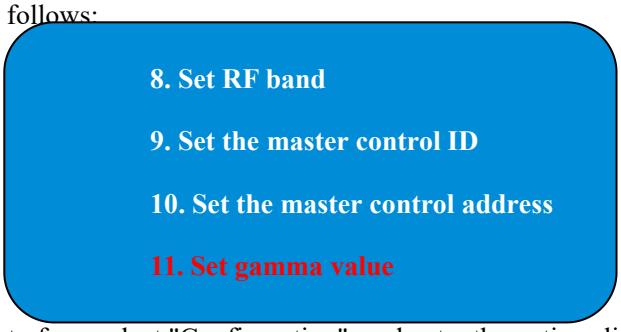
Command: M-C8, SET ADDR=addr.+ command code

Note: Add the above code when sending commands, otherwise it cannot be recognized.

11. Set gamma value

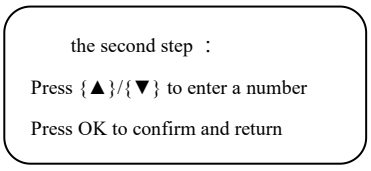
Note: The gamma value is mainly used when the gray level of the effect is not very obvious.

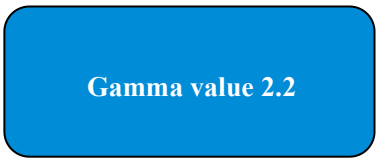
The detailed steps are as follows:



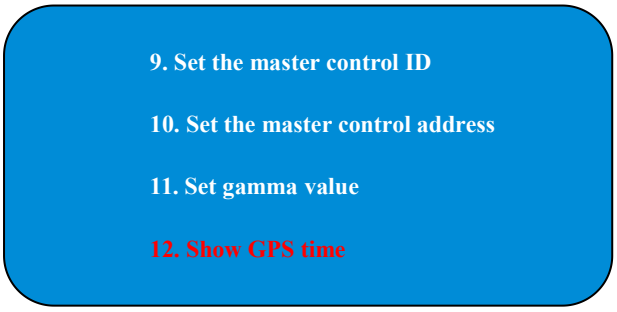
Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "11-Set Gamma Value", then press OK to enter channel selection



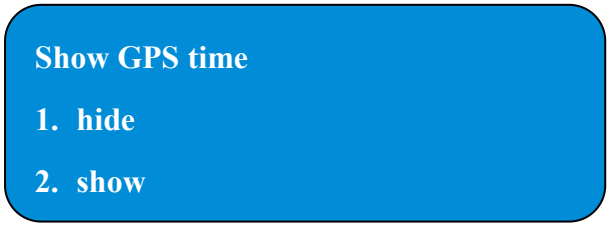


12. Display GPS time (show/hide):



Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "12-Display GPS Time", then press OK to enter channel selection



Hide the time in the upper left corner of the display

Display shows GPS time in the upper left corner of the monitor

13. Built-in effect settings

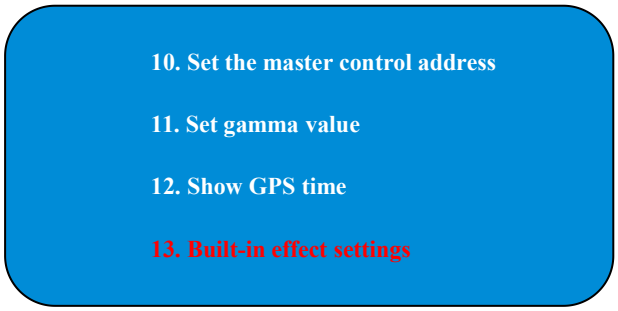
Note: This feature primarily applies to the RGB-RGBW three-color or four-color settings and dot count configurations for built-in effects. The TTL-RGB light defaults to 1024 dots, while TTL-RGBW uses 768 dots.

The DMX512-RGB standard has a default of 512 channels, while DMX512-RGBW has 384 channels. The fewer channels, the better the signal quality.

The settings include: set TTL to 1024 for numerical points

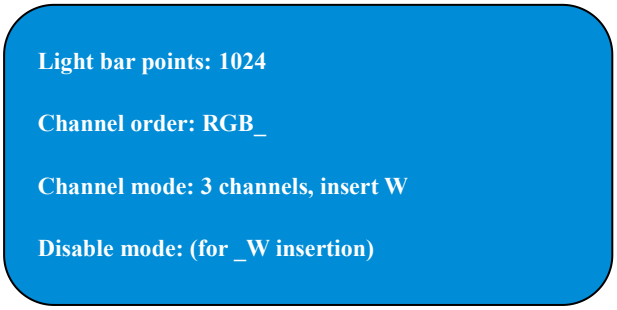
Channel order: RGB, GBR, GRB, BGR, BRG, RGB

Channel mode: 3 channels, insert W (before or after W)



Step 1: Go to the main interface, select "Configuration", and enter the options list

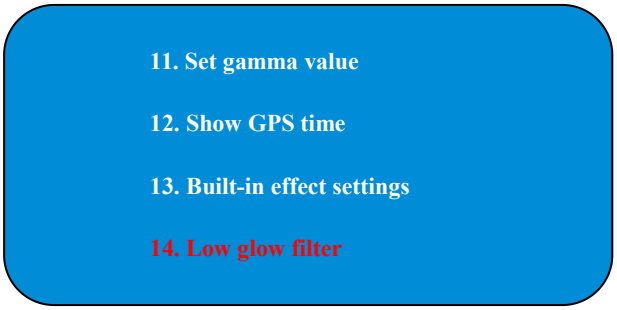
Step 2: Select "13-Built-in Effect Settings", then press OK to enter the channel selection



Insert W: For programs lacking RGBW built-in effects, this feature now enables W insertion. The built-in effects can now operate in four-color lighting modes. Select W insertion mode: Disable mode, Energy-saving mode, High-brightness mode, White light mode, Free mode, or White light fixed. Choose the corresponding mode. W modes vary, refer to the software's four-color setting modes for details.

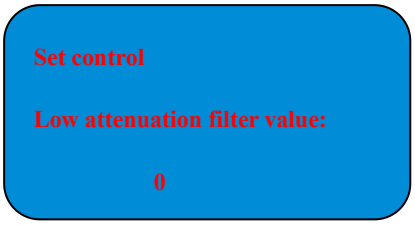
14. Low-bright filter: (eliminates trailing effects and noise)

The low glow problem of lamps is usually related to the current control of lamps, the design of drive or the stability of signal transmission. The low glow phenomenon may be manifested as the brightness of lamps can not reach the expected value when receiving signals, or flickering or dimming under some channel control.



Step 1: Go to the main interface, select "Configuration", and enter the options list

Step 2: Select "14-Low Glow Filter", press OK to enter channel selection



Step 3: Press the up or down buttons to select the corresponding value. Press OK to save and return.

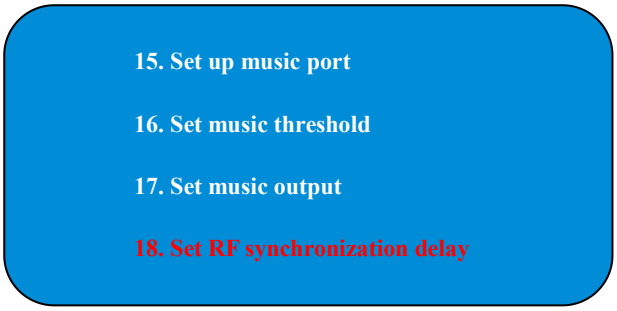
15. Set up the music port (for the music controller)

1. Not enabled 2. Headphones 3. Microphone

16. Set the music threshold (1-101)

17. Set music output (OFF/ON)

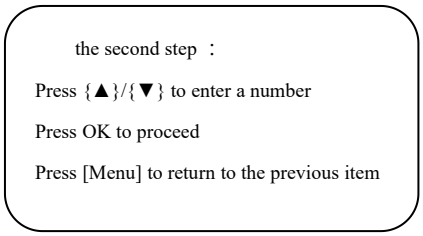
18. Set RF synchronization delay:

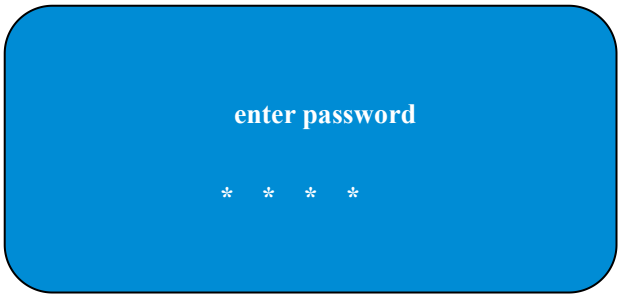


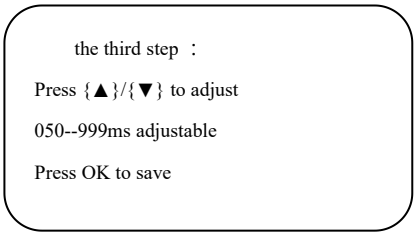
Step 1: Go to the main interface, select "Configuration", and enter the options list

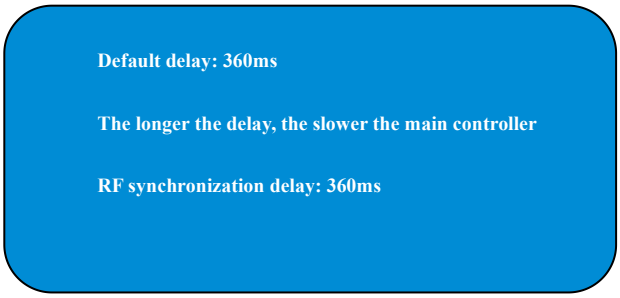
Step 2: Select "18-Set RF Sync Delay", then press OK to enter channel selection

Step 3: Enter the password and press OK to enter the Settings interface as shown in the following figure.





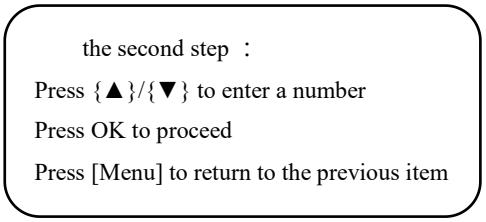




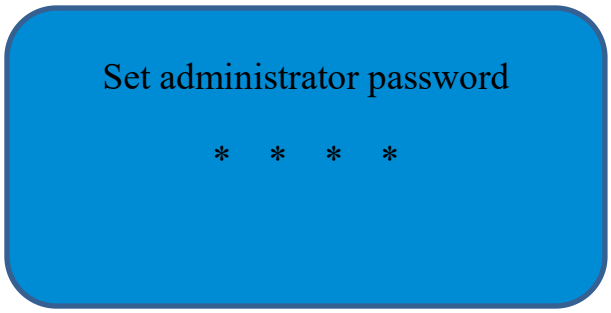
19. Separate Control Unlock

20. Administrator password setup

This password is for internal operations. If you need to perform any operations, please consult our technical staff and proceed only after obtaining permission.



Step 3: Set the administrator password
Press {▲}/{▼} to enter a number
Press OK to proceed
Press [Menu] to return to the previous item



After modifying the administrator password, click OK to proceed to the level password setup.

Note: The controller supports three levels of encryption. For example, the first-level encryption plays XX times.

Secondary encryption playback XX times

Third-level encryption playback XX times (set to 999)

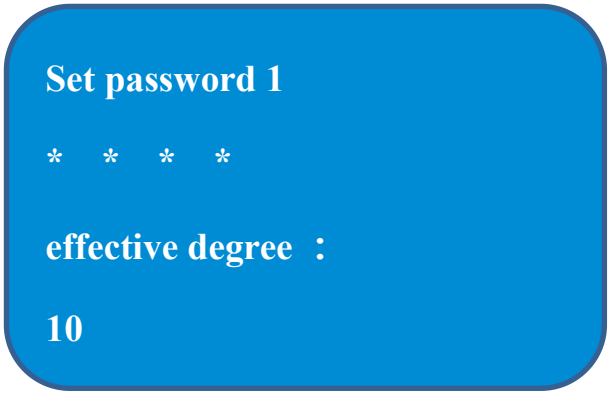
Encryption method: Set three-level encryption first, then call it. For example, if you want the controller to play at a specific encryption level, you need to call the level password during the main controller's decryption. After confirmation, the controller will execute the playback times set by the level.

The specific settings are as follows:

Enter the interface

First Steps ：
Press {▲}/{▼} to enter a number
Press OK to proceed
Enter to proceed to the next step

the second step ：
Press {▲}/{▼} to enter a number
5-999 adjustable
Press OK to save and proceed to the second password screen



Note: Minimum plays: 5 Unlimited plays: 999

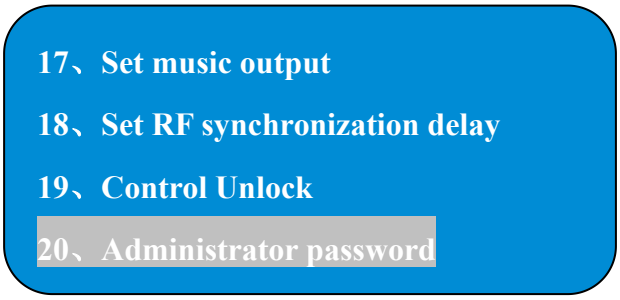
After setting the first password, proceed to the next level of password setup, which follows the same procedure. There are three layers of passwords in total. Save the password after the third layer is encrypted.

When setting up the hierarchical password, remember the administrator password and the three

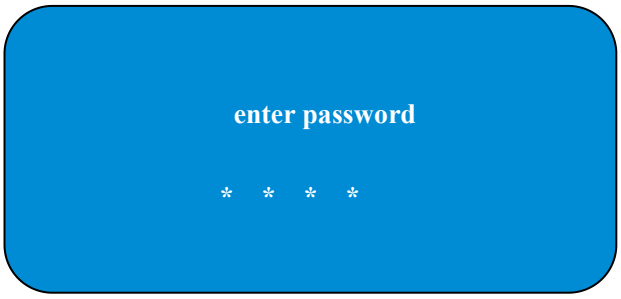
sets of passwords for three-layer encryption. If you forget the password, you cannot use the encryption function normally and need to return to the factory.

The above steps only set the three-layer encryption password and do not enable encryption mode. To enable encryption mode, follow these steps:

First Steps ：
Press {▲}/{▼} keys 20
Press OK to enter the password interface

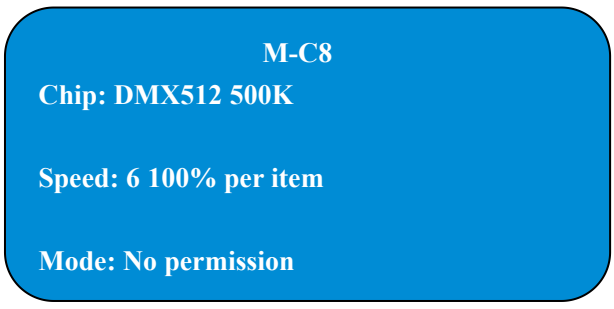


the second step ：
Press {▲}/{▼} to enter a number
Press OK to proceed
Press [Menu] to return to the previous item

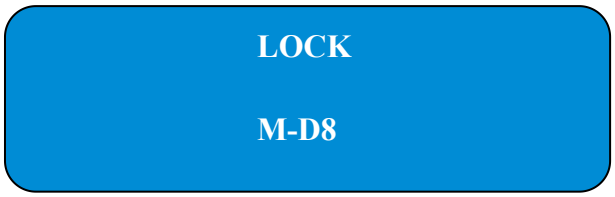


★This password is a three-layer encryption. Enter it three times in sequence.

The controller encryption has officially started. The controller executes according to the playback times set in the encryption level. Powering off and restarting the controller counts as one use. If the number of power-off and restart cycles reaches the set value, the controller will be locked. As shown in the figure below:



When the controller reaches the preset number of switching cycles, it restarts and displays "No Permission". The lighting fixture shows no effect change, and the sub-control also fails. The display is as follows:



Note: If the master lock is locked, the sublock will be automatically locked, and the new sublock connected to the rear will also be automatically locked.

Decryption operation:

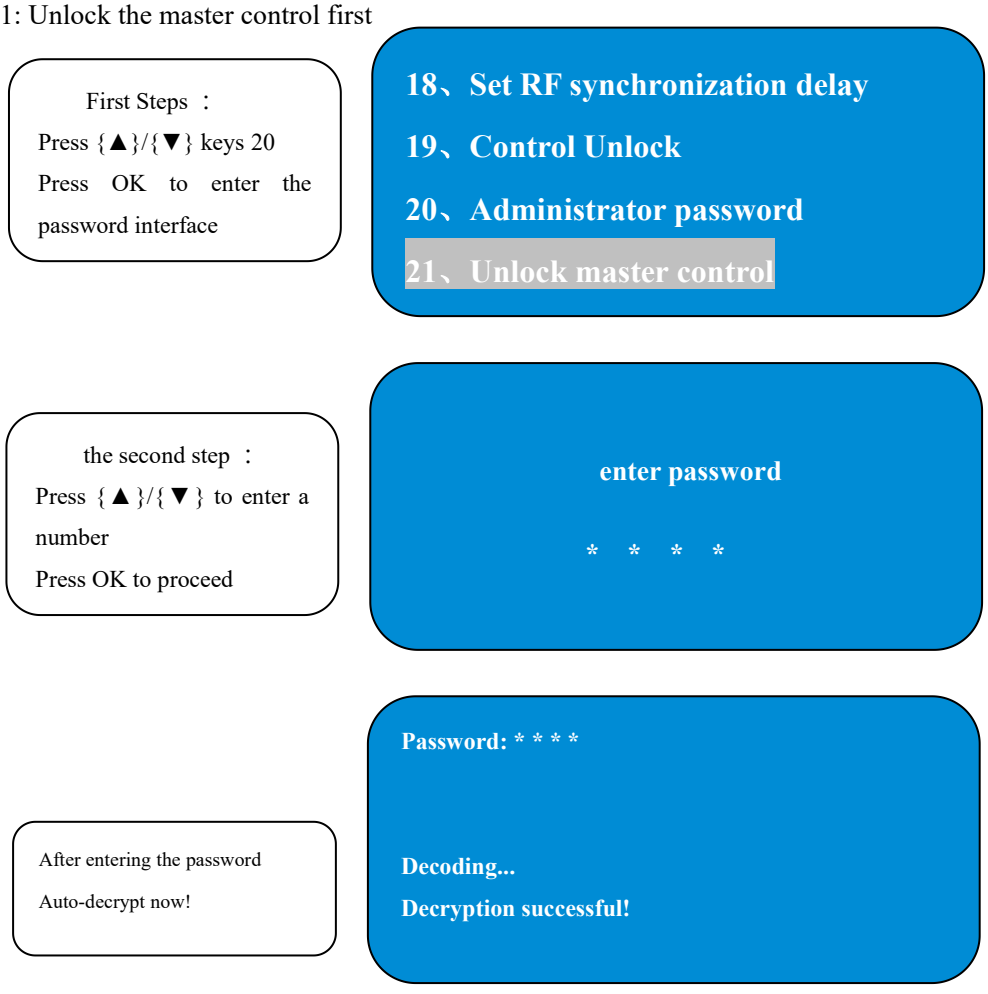
① The above explains how to operate the controller encryption. If the master controller is locked, the sub-controller will also be locked. Therefore, when operating the decryption, it must be done in two steps: first, decrypt the master controller, then decrypt the sub-controller.

② As mentioned above, encryption sets three levels of passwords. Usually, in the last password level, we set the number of plays to 999 (unlimited), which means there is no password.

③ Always write down the password you set during the operation to avoid forgetting it.

21. Main control unlock: The specific operation steps are as follows:

Step 1: Unlock the master control first

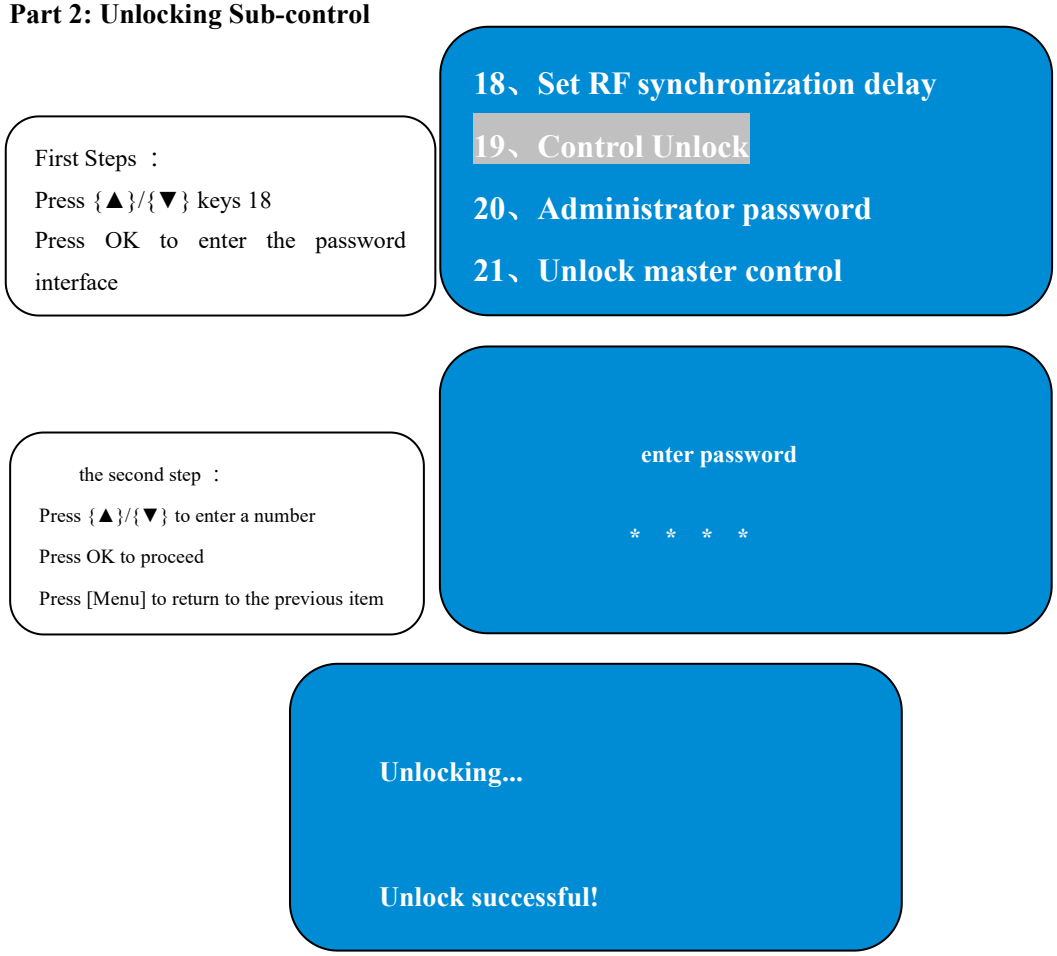


After successful decryption, the controller system returns to the main interface.

Note: The decryption passwords are the passwords of three layers of encryption. After each

decryption, the next layer of encryption is automatically enabled. After the third successful decryption, the encryption is changed to unlimited.

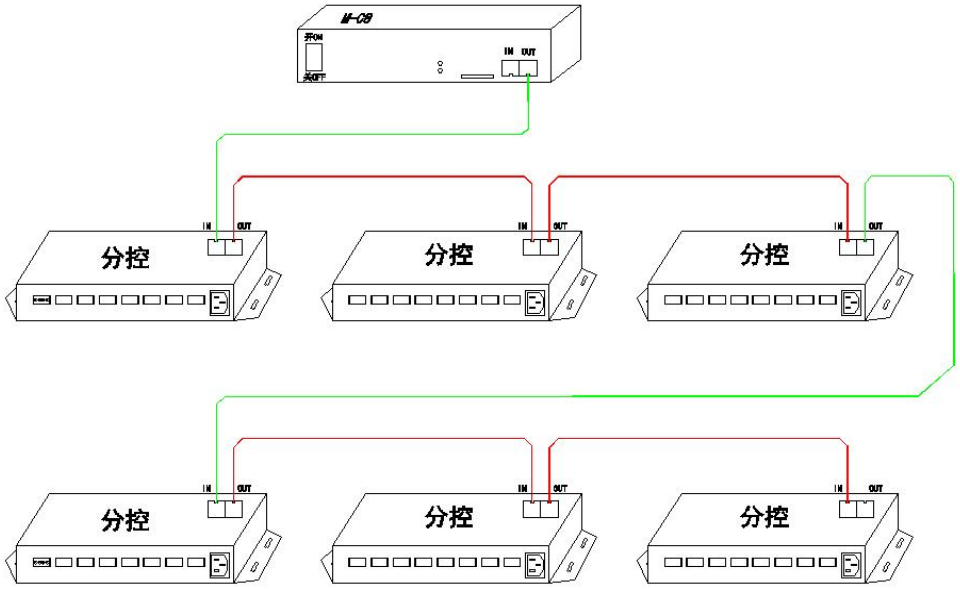
Part 2: Unlocking Sub-control



Note: The sub-control unlock password is the administrator password. After successful decryption, the controller system returns to the main interface.

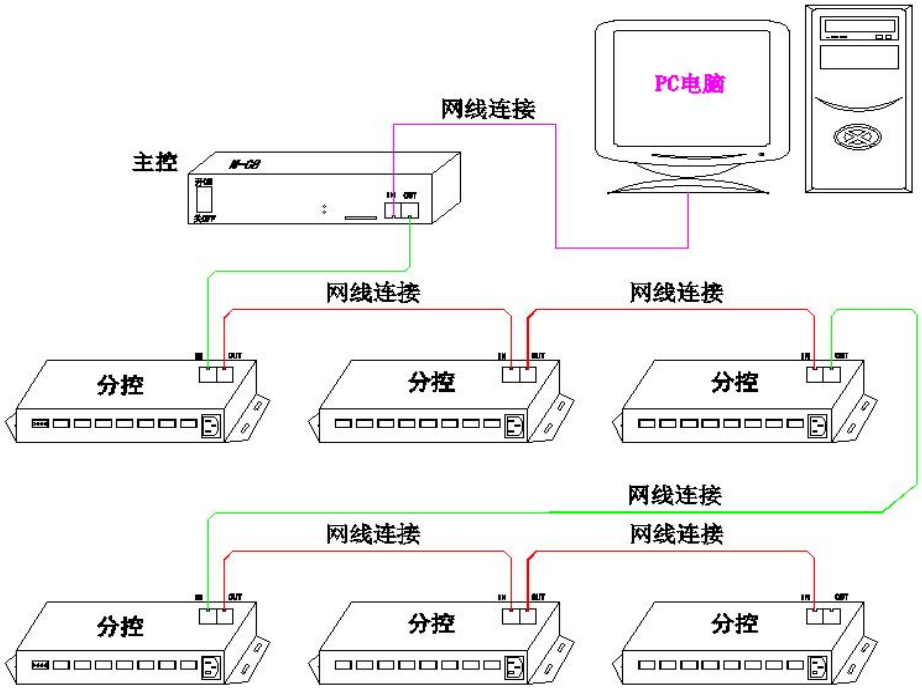
7. Diagram of main and sub-control:

Master Control M-C8

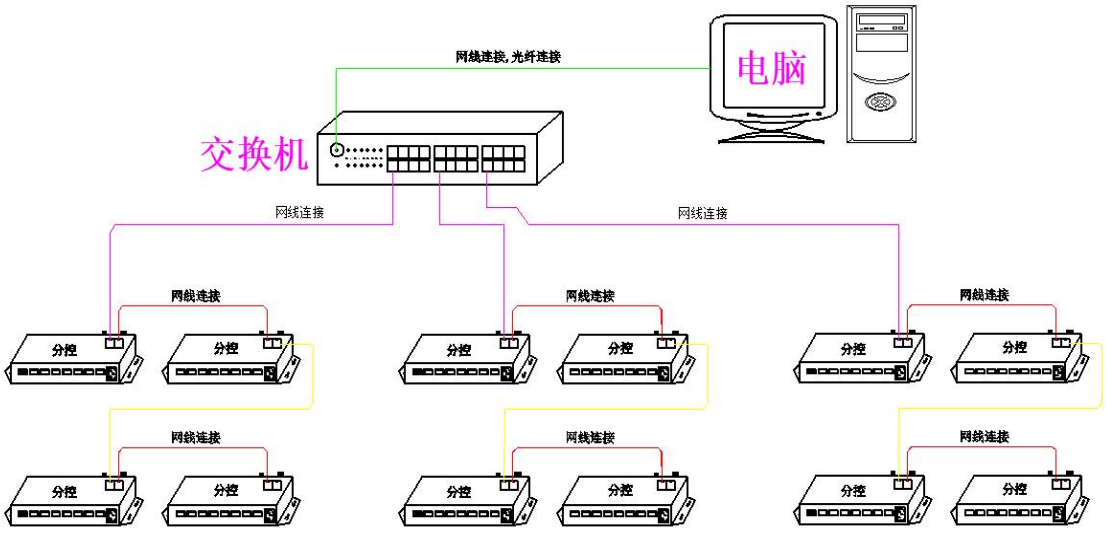


Online diagram:

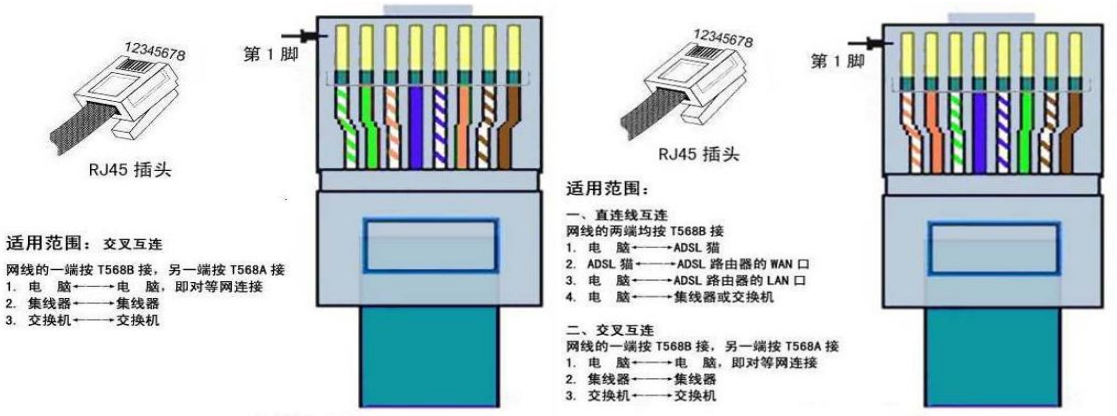
Option 1: Option 1: Computer software + master control + sub control



Option 2: Computer software + switch + sub-control



8. Network cable making method:



Network cable construction: In practical applications, there are two methods for cable construction (cross-connect and straight-through connection).

We uniformly use the "direct connection" 568B standard, meaning both ends use the same wire sequence. The specific wire sequence is as follows:

1、Orange and white 2, orange 3, green and white 4, blue 5, blue and white 6, green 7, brown and white 8, brown

9. Reference table of control distance of conventional signals (only for reference, everything is based on the actual situation)

detailed information	TTL	4 lines 512	Line 5, 512
Distance from the controller port to the light	15 meters	30 meters	80 meters
Distance of the controller to the last light		80 meters	120 meters

Distance between lights	3 meters	30 meters	30 meters
Distance from the controller to the amplifier	15 meters	35 meters	80 meters
Distance between amplifier and lamp	---	---	---
Distance between subcontrollers	60 meters		
Distance between master and slave	80 meters		

Note: If the distance between the computer and the controller, the main controller and the sub controller, or the sub controller and the sub controller exceeds the specified distance, the signal is interfered and cannot be transmitted normally.

Rx ：

1、Add a signal amplifier to extend the distance up to 300 meters

2、Replace network cables with optical fibers to extend the distance up to 5 km

10. Frequently Asked Questions:

1. SD card not recognized?

Answer: a) Format the SD card b) Check the file format c) Verify the SD card orientation

2、The controller shows normal, but the lamp does not run the normal program?

Answer: a. Is the chip selection correct? b. Is the program functioning properly?

3、No signal when the network cable crystal plug is plugged in?

Answer: Check if the cable sequence is correct and the network port is functioning properly.

4、The signal is unstable and the lamp is flashing?

Answer: a) Check if the power supply has a filter function b) Check for poor contact in the circuit c) Verify the controller port is functioning properly d) Ensure the signal line has shielding e) Check for high-power machines or magnetic fields near the controller