M-C8 Master Controller User Manual



1. System Features

1. The M-C8 master controller drives up to 300,000 channels while maintaining smooth playback
2. Integrated synchronous and asynchronous control: online playback takes priority, and when the online signal is lost the controller switches automatically to offline effects, providing video source redundancy
3. Built-in keys support program segment selection, overall brightness adjustment, white balance adjustment, playback speed adjustment, testing and address coding, which greatly simplifies commissioning
4. Address coding can be applied to all DMX fixtures driven by the sub-controllers at once, or to an individually selected port
5. Independent brightness control for the three primary colors makes precise white balance adjustment simple and effective
6. Unified control of chips using different protocols: fixtures with serial (TTL) or DMX512 (differential) signals can be connected to different sub-controllers and controlled as a single system
7. Support for five-color fixtures (RGBCW): energy-saving and environmentally friendly, with pure colors
8. Ethernet ports and the UDP network protocol deliver stable transmission over a maximum distance of 100 m
9. The LCD module displays controller parameters and status in real time for easy operation
10. SD card storage: the controller supports up to 32 GB and up to 99 preset program files
11. With no card inserted the controller automatically plays its built-in programs; 86 standard programs are built in for easy commissioning and on-site use.
12. IDs are assigned automatically in sequence when sub-controllers are cascaded, and individual IDs can also be fixed, which shortens commissioning time
13. Encryption protection safeguards the controller against unauthorized use
14. Optional GPS synchronization and 4G control make it easy to synchronize effects across different areas
15. Supports RS485 third-party control and can be integrated into large central control systems
16. Timer function: scheduled tasks are configured in the software for different scenarios, with time ranges, days of the week and holidays set as required

2. Design Philosophy

1. Bi-directional signal redundancy: stability is doubled

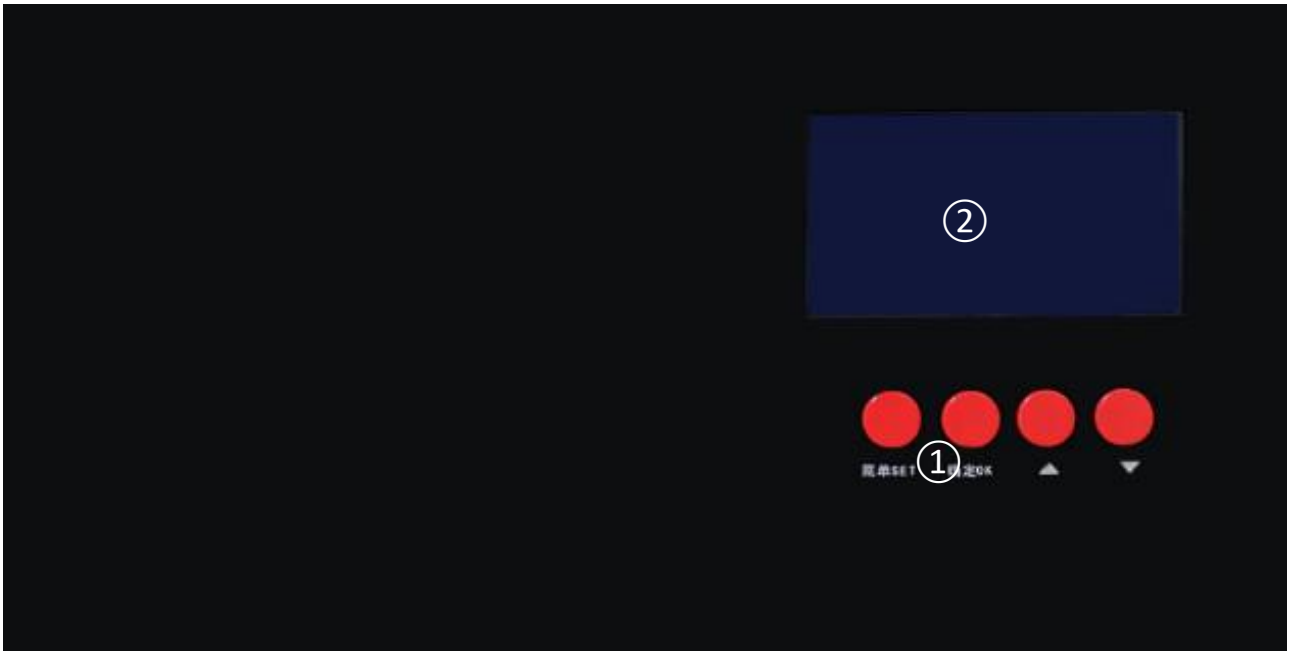
2. Independent four-color algorithm: energy-saving and environmentally friendly, with pure colors
3. All software interfaces support Chinese/English switching, and every operation has a QR-code video tutorial, making the system easy to use for customers at home and abroad
4. Hardware and software are both developed in-house, secure and fully controllable; every product supports online or SD-card firmware updates, so incompatibility caused by version gaps within the same model never arises
5. Higher load capacity and greater openness for complex applications at home and abroad, such as irregular screens, multi-screen installations, building facade screens and pixel-light screens.
6. Programs need not be locked to a specific chip model: simply select the matching chip on the controller, which reduces playback failures caused by programming errors
7. LOGO customization is available in our software, and the cloud service platform provides external secondary-development interfaces
8. Pin order can be modified for each individual fixture, so a single controller can drive fixtures with different pin orders while keeping colors synchronized under unified control
9. Strong compatibility with fixture driver chips: compatible with all types of TTL and DMX512 chips, and compatibility data for new chips is updated promptly
10. Solutions are available for every application scenario, and system solutions for new application scenarios are continuously developed

Controller Appearance

Side 1



Front



Side 2



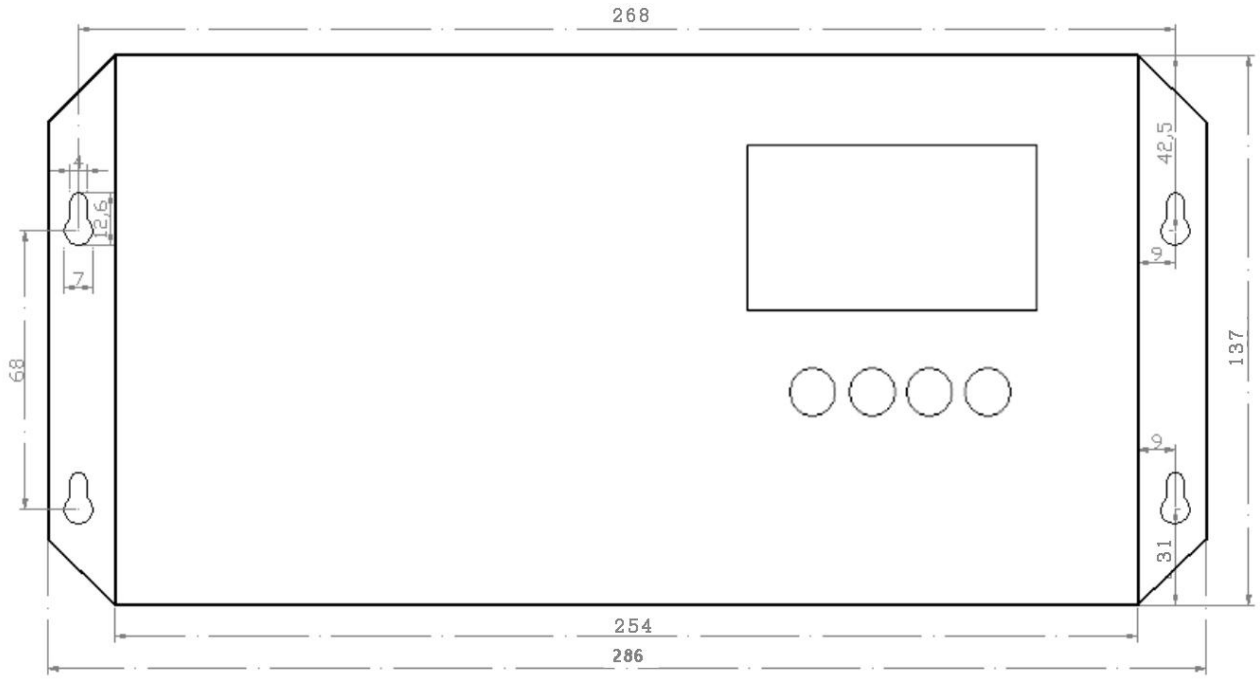
①Keys ②LCD display ③Power socket ④⑤Cascade network ports ⑥SD card slot ⑦Power switch

Dimensions

Front view



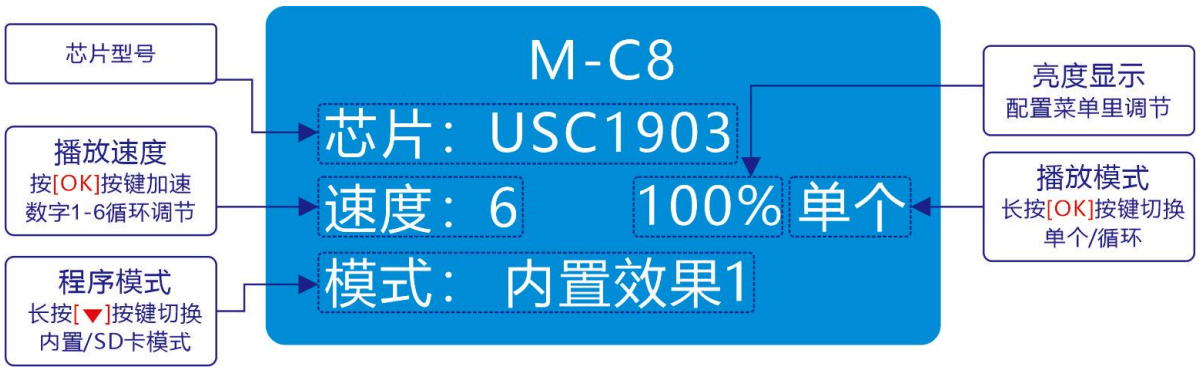
Top view



3. Basic Specifications

Load capacity	300,000 channels
Gray scale	32–65,536 levels
Companion software	SuperLed&SuperPlayer
Operating voltage	AC85-240V
Maximum power	5W
Operating temperature	-40~85℃
Dimensions	286*149*45mm
Mounting hole spacing	268mm；68 mm
Operating modes	Offline, PC-connected playback, RS485 third-party control
Weight	Net weight: 0.95 kg
Accessories	1 m original network cable, power plug, card reader, 8 GB SD card, screwdriver

5. Main Interface



5.1 Operating Instructions

Press the [MENU] key to open the menu interface:



1. Chinese: Mandarin
2. English: English
3. Chip: switch when fixtures of different models are used; effects remain unchanged
4. Mode: switch built-in modes when no card is inserted
5. Coding: for fixtures that use DMX signals
6. Test: available with or without a card; checks fixture channel order and addresses
7. Time: used mainly for scheduling; sets the current time
8. Config: brightness adjustment, channel change, sub-controller parameter configuration, factory reset, encryption and other functions

5.2 English: (the main interface is in Chinese by default; to switch it to English, follow the steps below)

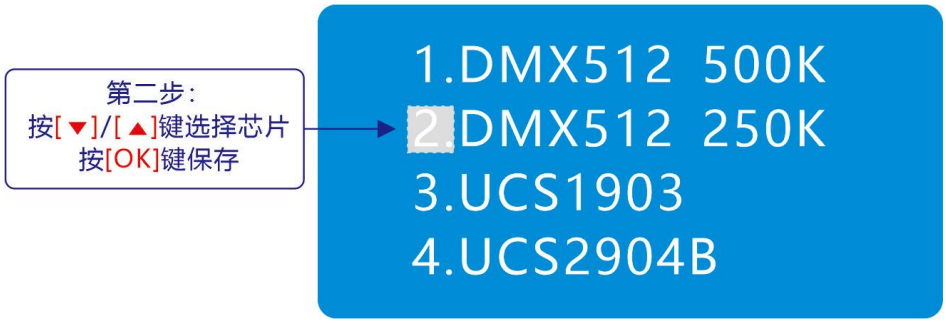


5.3 Chip Selection

Chips from different manufacturers and of different models differ slightly in protocol. The fixtures can be fully controlled only when the compatible chip model matching them is selected, so the chip model of the fixtures must be identified in advance.

The specific steps are as follows: Video tutorial





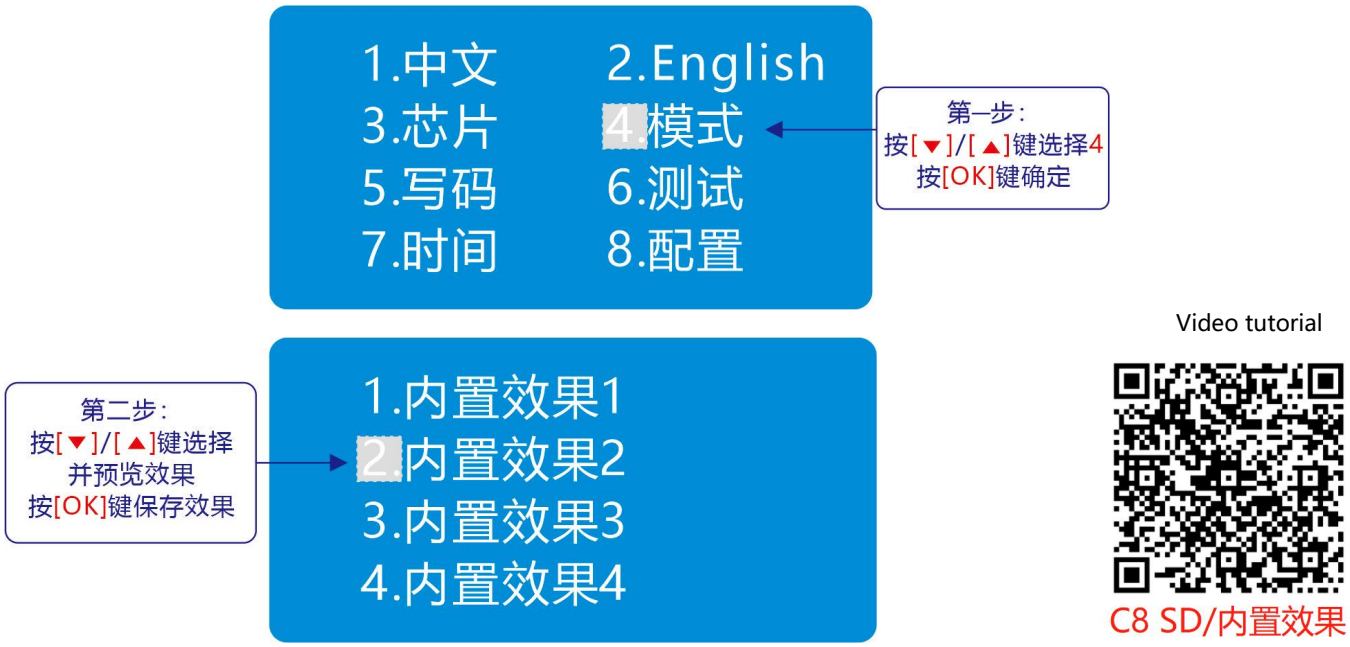
Chip models: see the figure

1	DMX512 1M	8	TM1804	15	WS2811
2	DMX512 750K	9	TM1914A	16	WS2812B
3	DMX512 500K	10	GS8206	17	TM1923
4	DMX512 250K	11	P9883S	18	TM1814
5	UCS1903	12	SM16703P	19	UCS8903

6	UCS2904B	13	SK6812RGBW	20	UCS8904
7	UCS5603	14	SK6812RGB	21	HW1603
22	UCS9812	23	UCS2603	24	TX1816
25	WS2818B	26	SM16813		

Note: The chip models listed above may not be exhaustive. Many manufacturers rename the same chip purely for sales reasons although the protocol is identical, so a complete list cannot be provided. If you encounter an unfamiliar chip, please consult the fixture manufacturer or our technical staff.

5.4 Built-in Effects (56 effect modes in total)



Note: built-in effects can be switched in two ways

(1) When no card is inserted the controller plays built-in effects automatically; with single-loop playback selected, on the main interface

(2) On the main interface, hold the "▼" (down) key for 3 seconds to switch between SD card and built-in modes.

5.5 Address Coding

Before coding, confirm the following: the exact chip model of the fixtures (manufacturer, series and model, e.g. UCS512C*); the fixture type and number of segments (linear light, wall washer, point light), the number of channels (RGB/RGBW), and whether the fixture is correctly wired to the controller port

The coding steps are as follows: Video tutorial



The specific chip models are:

1. UCS512B3, 2. UCS512C*, 3. UCS512D, 4. UCS512E, 5. UCS512F, 6. Hi512A0, 7. Hi512A4, 8. Hi512D, 9. TM512AC, 10. TM512AD, 11. TM512AL, 12. SM16512, 13. SM16512P, 14. SM17500, 15. SM17512, 16. SM17522, 17. GS851*, 18. GS851* (clear address), 19. UCS512KH, 20. UCS512KL, 21. UCS512K (auto channel), 22. UCS512K (auto write ON), 23. UCS512K (auto write OFF), 24. GS852*, 25. GS852* (clear address), 26. SM18522, 27. SM18500, 28. SM17500 (write channel), 29. SM17500 (auto channel), 30. GS8526, 31. GS8526 (clear address)



First calculate the total number of channels occupied by a single fixture. For example, an eight-segment RGB linear light uses 8 segments × 3 = 24 channels

An eight-segment RGBW linear light uses 8 segments × 4 = 32 channels

After coding, use the Test function and the point-by-point chase test to verify that the fixture addresses were written successfully

The extended protocol provides 512 points / 1,536 channels (most 512 fixtures on the market are of the extended type), which is the configuration we use most often. In actual installations, load each port to about 80% of its capacity and also take cable length into account; if the distance is too long, reduce the load on the corresponding port.

5.6 Testing (performed with power applied, to verify that the fixtures and power supply work properly, that coding succeeded, and that the power supply is adequate)

Video tutorial

C8 检测 灯具通道顺序

The specific steps are as follows:



There are seven test modes:

1. Point-by-point chase: mainly used to test the number of fixtures and whether the fixture address sequence is correct

2. Red 3. Blue 4. Green 5. All white (for testing voltage drop and channels)

6. Color jump 7. Fade

8. Configuration list:

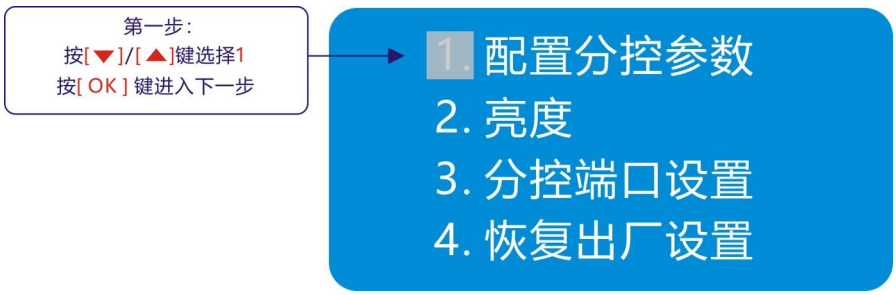
1	Configure sub-controller parameters
2	Brightness
3	Sub-controller port settings
4	Restore factory settings
5	Channel
6	View remaining play count
7	Set time
8	Set RF band
9	Set master controller ID
10	Set master controller address
11	Set gamma value
12	Display GPS time
13	Built-in effect settings
14	Low-gray filtering
15	Set music input port
16	Set music threshold
17	Set music output
18	Set RF sync delay
19	Unlock sub-controller
20	Administrator password settings
21	Unlock master controller

Note: new functions have been added to the configuration menu, as described below:

8.1 Configure Sub-controller Parameters

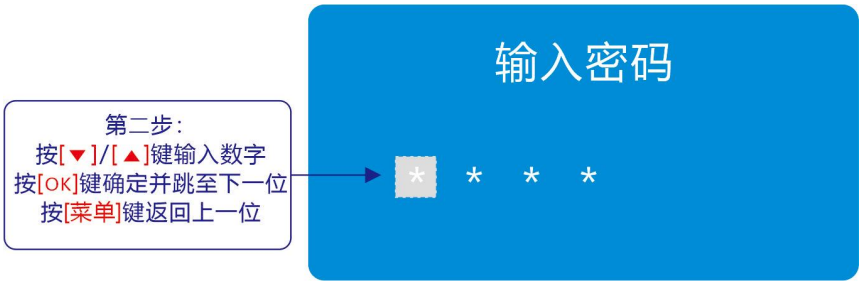
1. Configure sub-controller parameters (mandatory in the following cases: online playback is used, controllers are connected through a switch or fiber, or different sub-controllers drive different chip types). The parameters include the sub-controller start ID, fixture chip, brightness and channel.

The specific operation is as follows:



Video tutorial

C8 固定分控参数

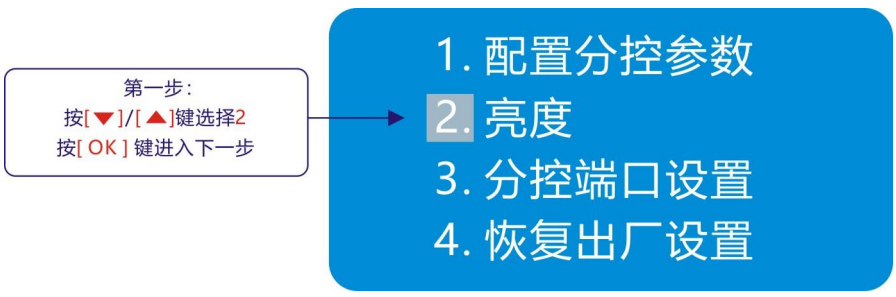




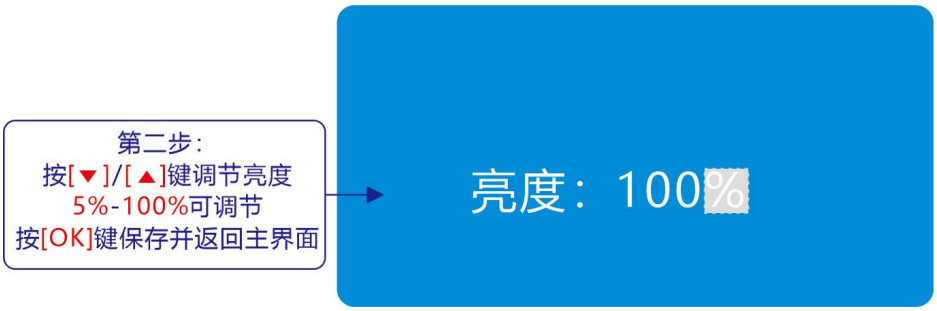
2. Brightness

If the actual fixture brightness is too high or too low, adjust the brightness value as appropriate; the range is 5%–100%

The specific steps are as follows: Video tutorial

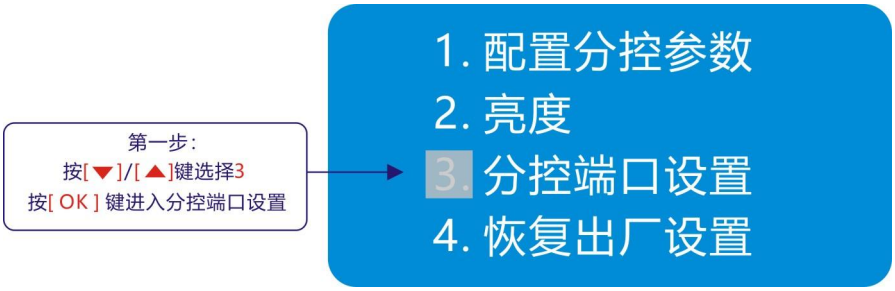


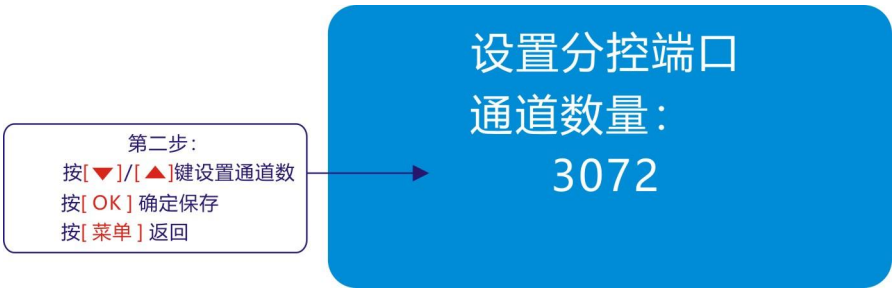
C8 调 亮度



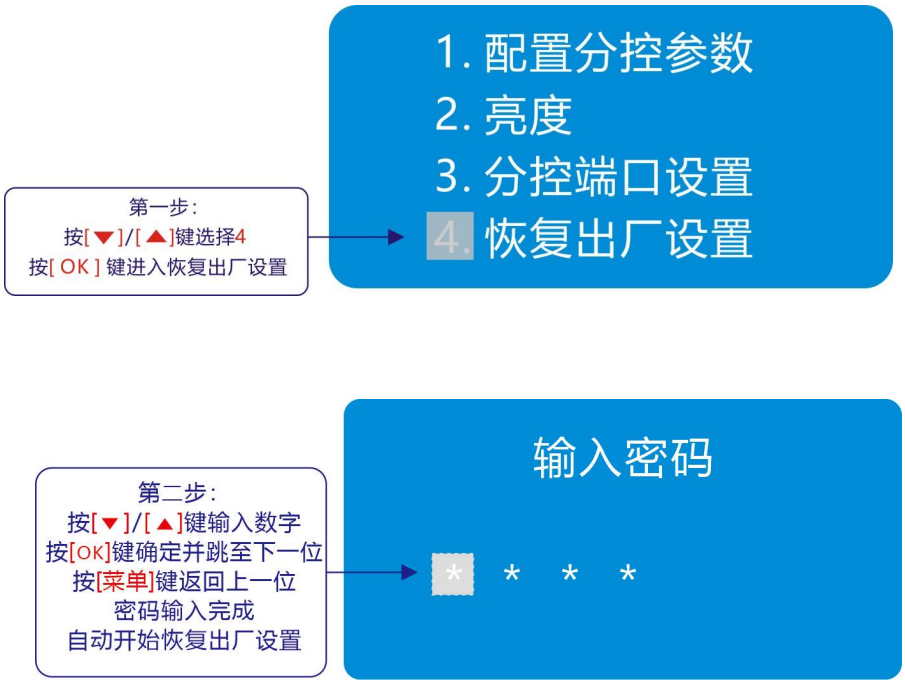
3. Sub-controller port settings

This sets the maximum number of channels for each port of the sub-controller. Normally, the fewer fixtures a sub-controller port drives, the smoother the effect. When this parameter is not set, the maximum number of points configured in the SD card program is used by default; if the program contains more points than the actual installation and you do not want to modify the program, apply the settings below:





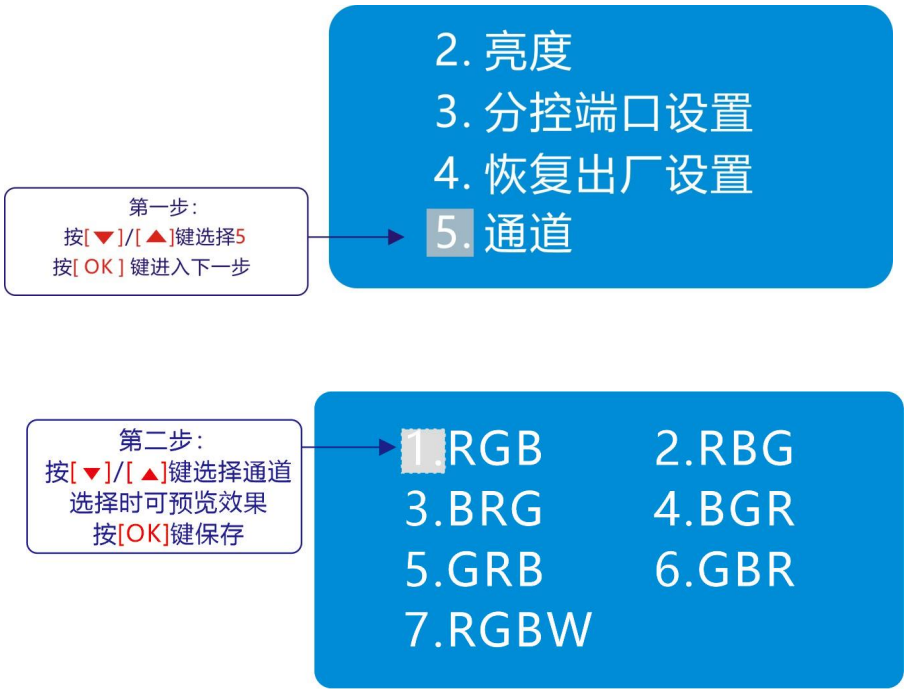
4. Restore factory settings (use this when the master controller parameters have been misconfigured):



Password: 0000

5. Channel (used when a fixture has a non-standard RGB order that needs correcting):

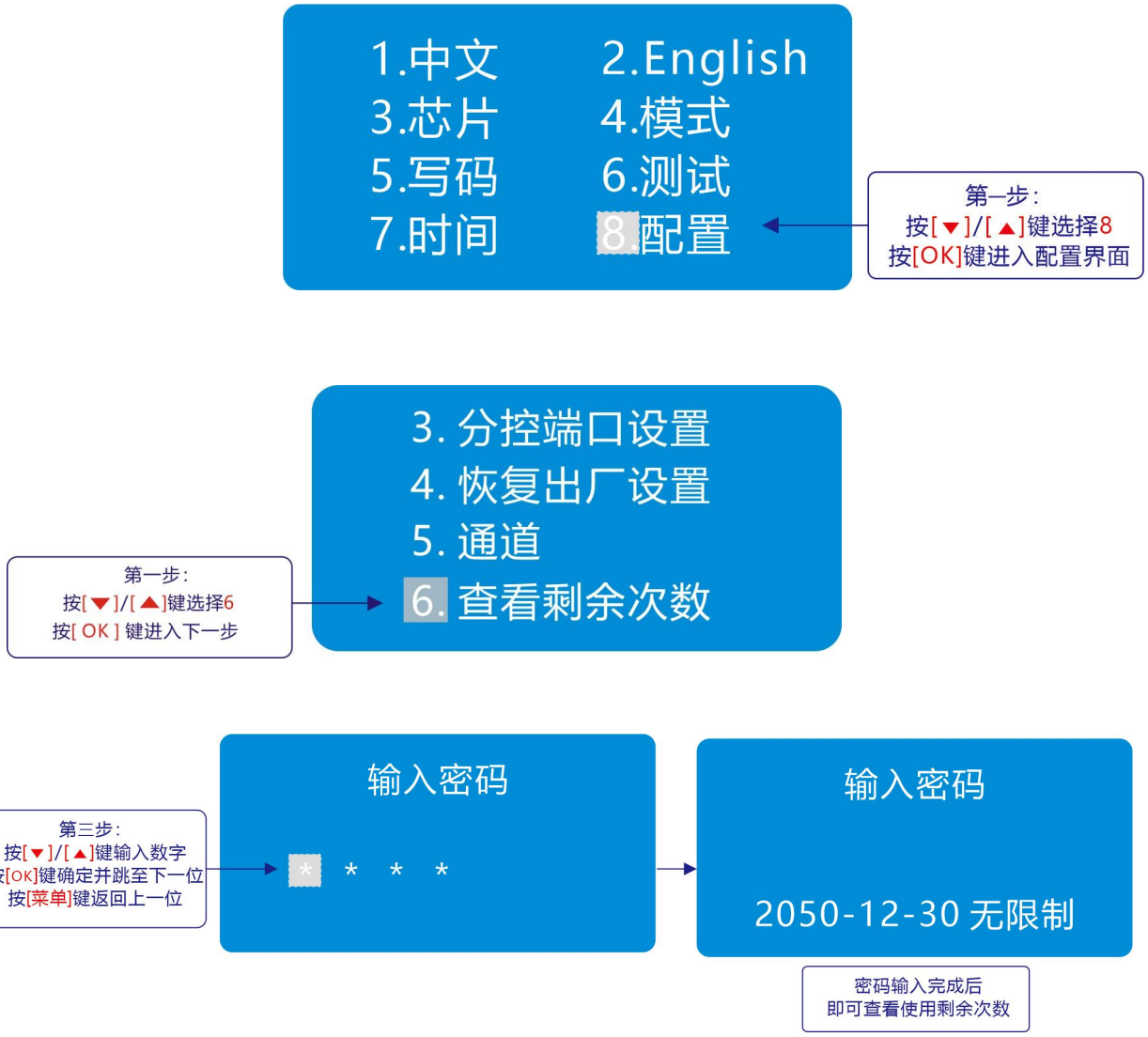
The specific steps are as follows:



6. View remaining play count

Note: this function can be viewed only when encryption has been enabled; otherwise the default is unlimited.

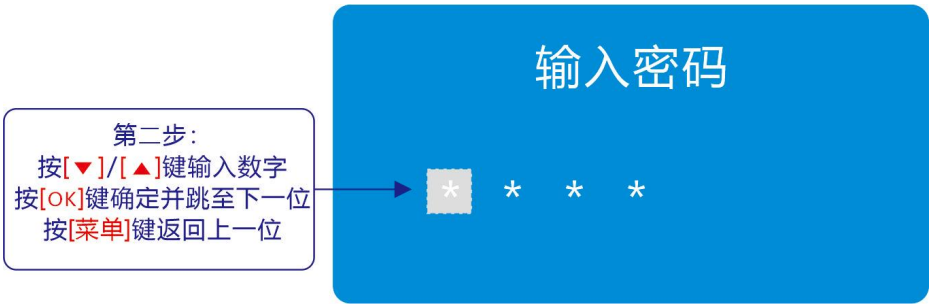
The specific steps are as follows:



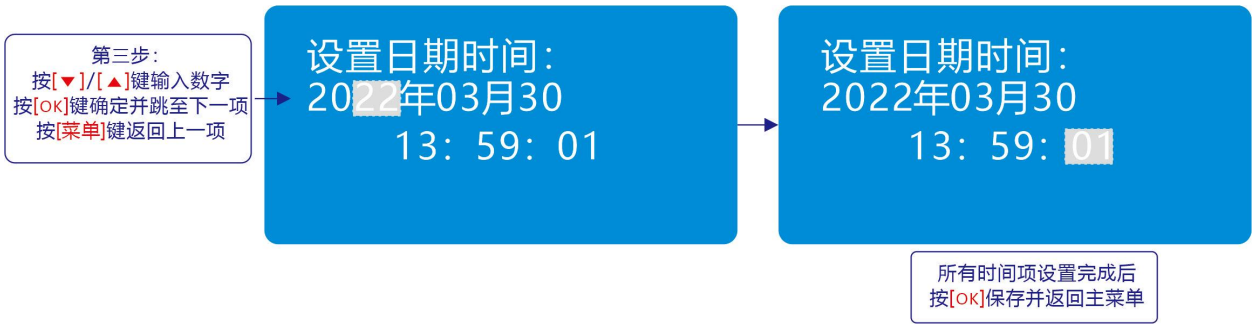
Password: 0000

7. Set Time (set the real time when the master controller uses the timer function)





Password: 0000

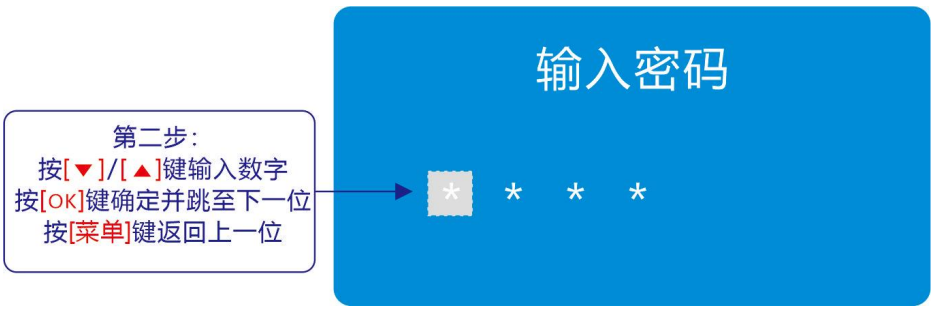


8. Set RF band

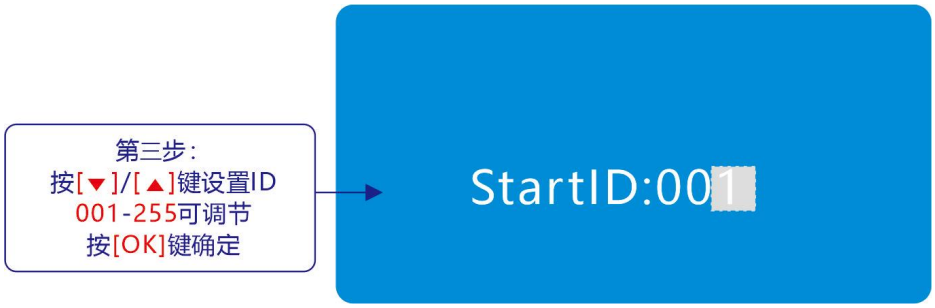
9. Set master controller ID

The steps are as follows:

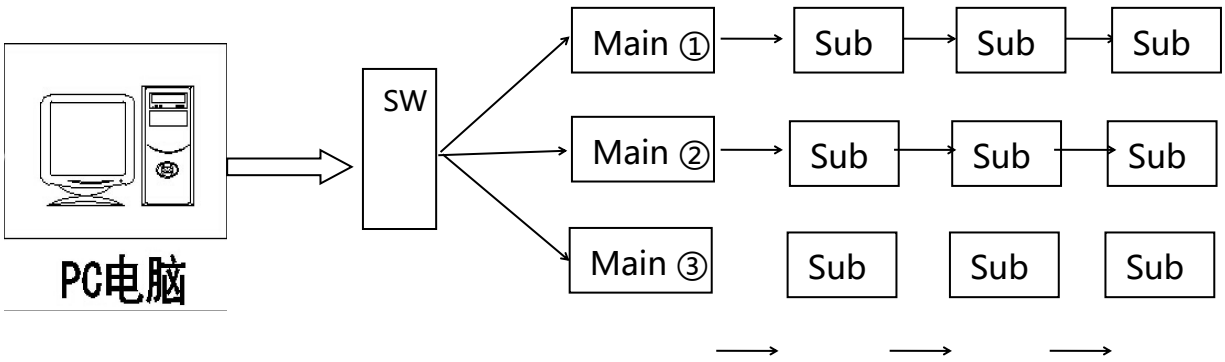




Password: 0000



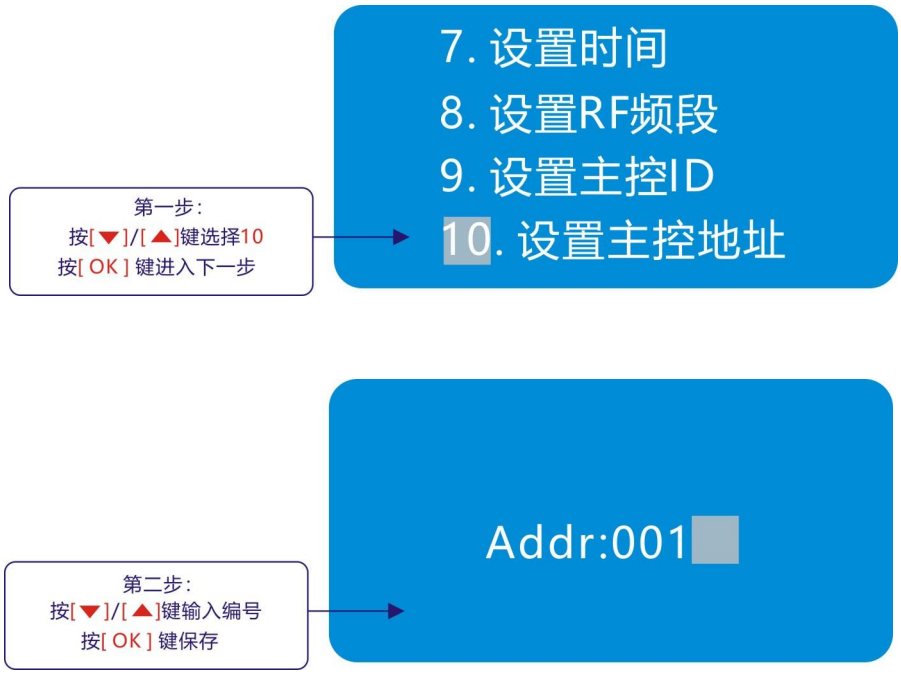
This function is mainly intended for online playback and GPS synchronization



Set the start ID of the master controller; the sub-controllers that follow continue automatically from the master start ID, so no zoning is needed when creating programs.

10. Set master controller address

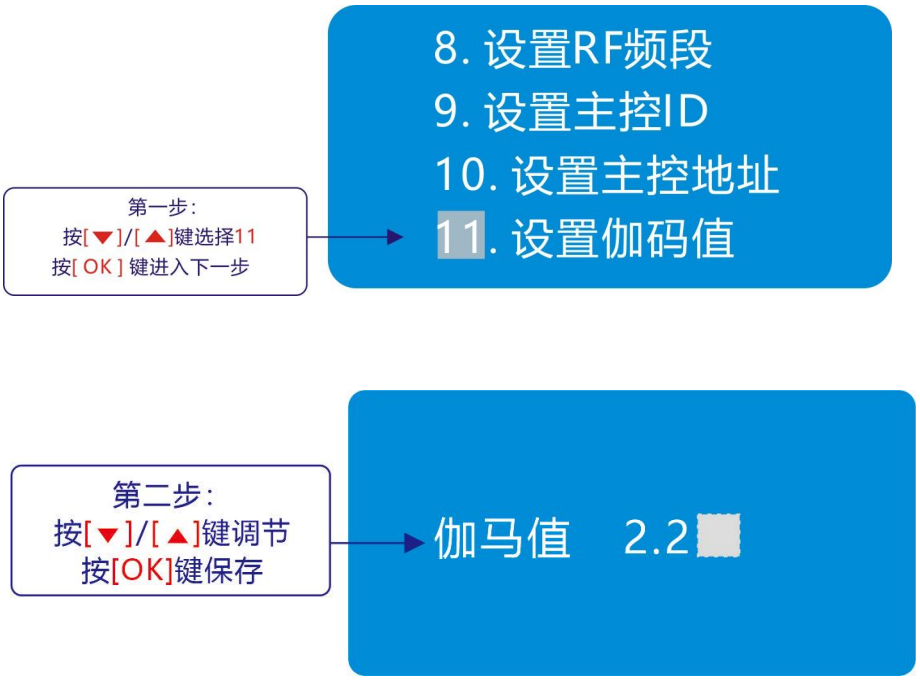
This setting is used for RS485 secondary development and sets the RS485 address. The specific settings are as follows:



11. Set gamma value

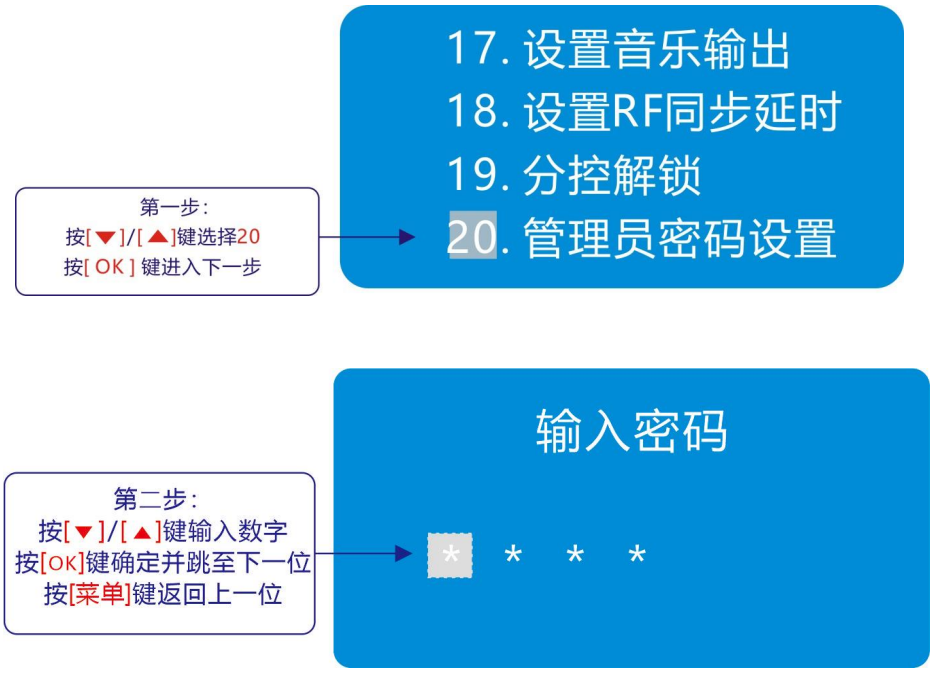
Note: the gamma value is mainly used when the gray levels of the effect are hard to distinguish.

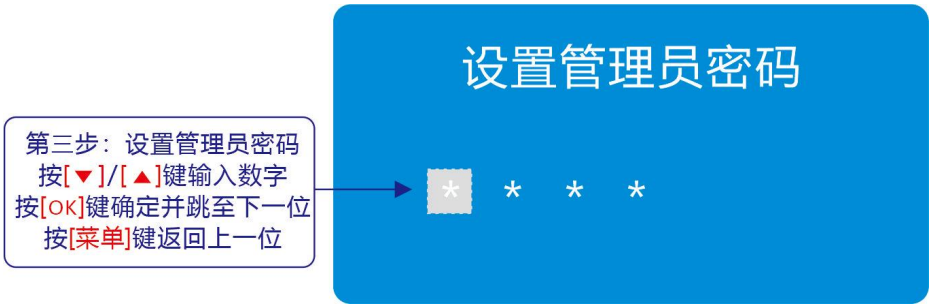
The detailed steps are as follows:



12. Display GPS time (show/hide)
13. Built-in effect settings (maximum number of points per port: 1–1,024; the fewer points, the smoother the effect)
14. Low-gray filtering
15. Set music input port
    1. Disabled
    2. Headphone
    3. Microphone
16. Set Music Threshold (1–101)
17. Set Music Output (OFF/ON)
18. Set RF sync delay
19. Unlock sub-controller
20. Administrator password settings

(Note: operate the controller encryption settings with care. If needed, please contact our technical staff.)





After the administrator password has been changed, press OK to enter the level password settings.

Note: the controller supports three encryption levels, for example level 1 allows XX plays

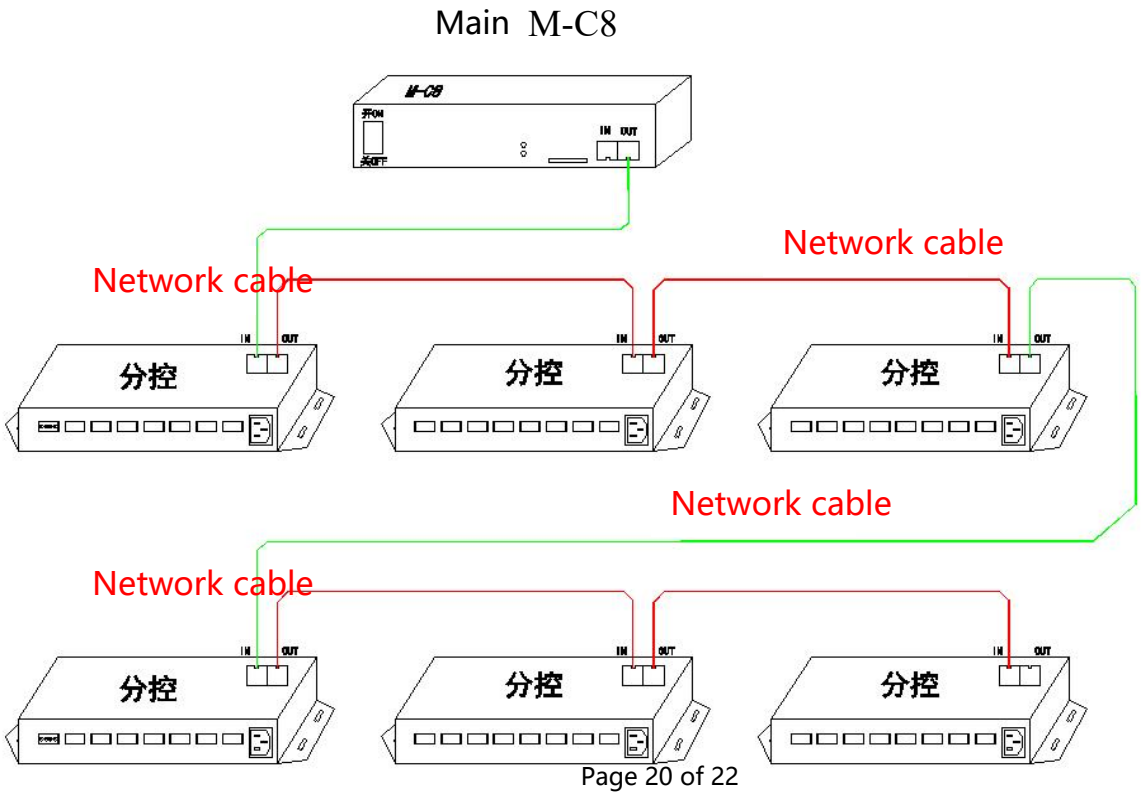
level 2 allows XX plays

level 3 allows XX plays (set to 999)

Encryption method: configure the three levels first, then invoke them. To make the controller apply the play count of a particular level, call the level password when unlocking the master controller; once confirmed, the controller runs according to the play count set for that level.

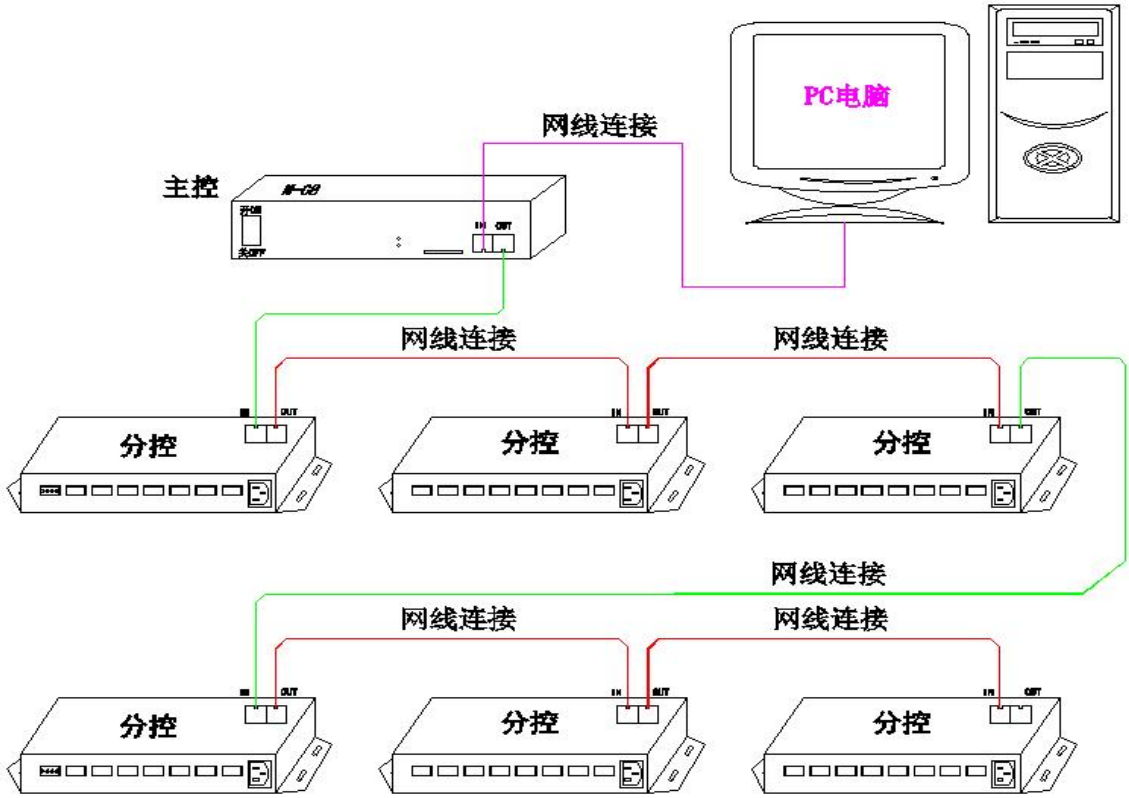
7. Master/Sub-controller Connection Diagram

Offline diagram:

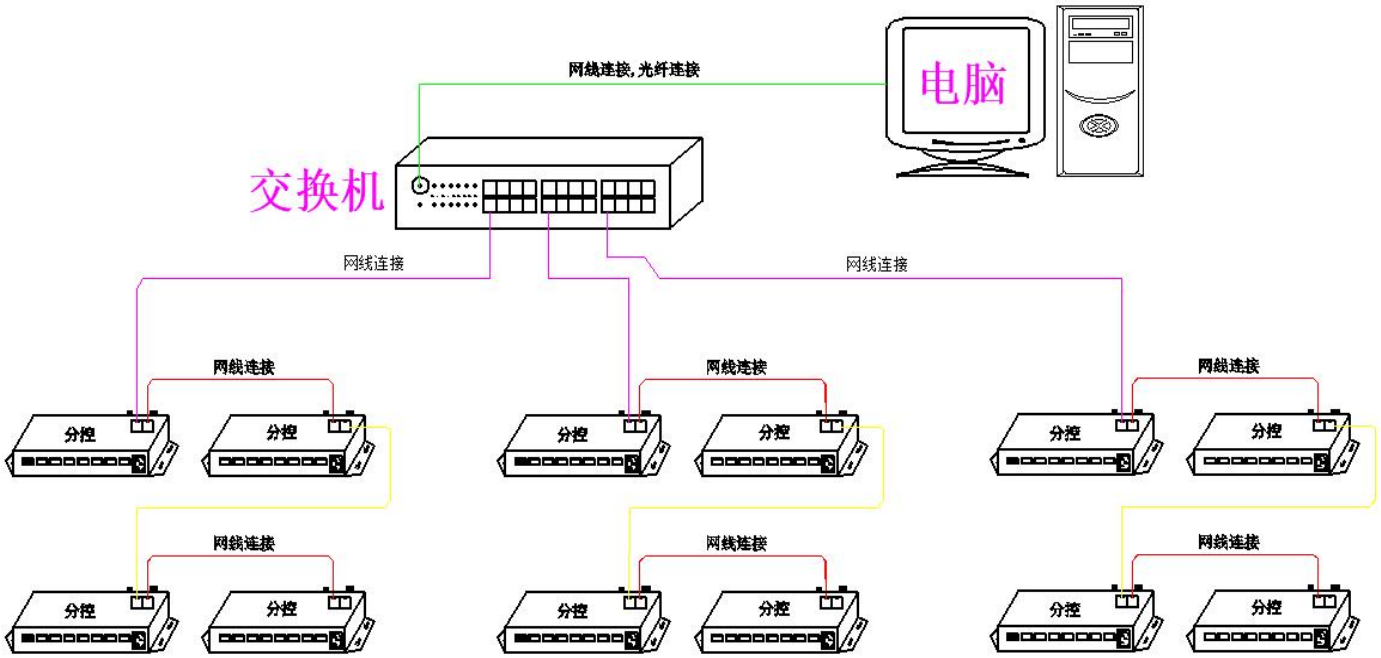


Online connection diagram

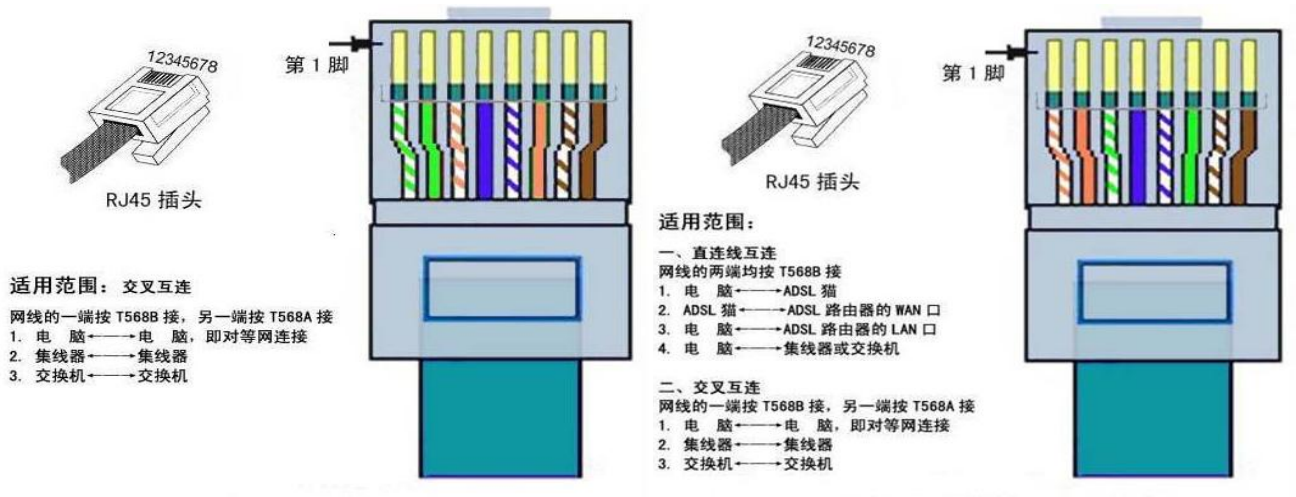
Option 1: PC software + master controller + sub-controllers



Option 2: PC software + switch + sub-controllers



8. Network Cable Assembly



Cable assembly: in practice there are two wiring methods (crossover and straight-through)

We use "straight-through" 568B wiring, i.e. both ends are terminated with the same pin order. The pin order is as follows: 1. White-orange 2. Orange 3. White-green 4. Blue 5. White-blue 6. Green 7. White-brown 8. Brown

9. Control Distances for Standard Signals (for reference only; actual installation conditions prevail)

Item	TTL	4-wire 512	5-wire 512
Distance from controller port to fixture	15 m	30 m	50 m
Distance from controller to the last fixture		80 m	120 m
Distance between fixtures	3 m	30 m	30 m
Distance from controller to amplifier	15 m	35 m	50 m
Distance between amplifier and fixture	---	---	---
Distance between controllers	80 m		

Note: if the distance between the PC and the controller, between the master and sub-controllers, or between sub-controllers exceeds the specified limits, the signal will be subject to interference and cannot be transmitted reliably.