User Manual of XB-809 Master Controller

I. Features of master controller

Salient features:

1. Ultra-large touch screen, intuitive display, quick and simple operation, controller status monitoring at any time.

2. Powerful performance, able to load up to 160,000 pixels or 80 slave controllers

3. Adopting GPS/Beidou dual satellite synchronization module to realize the synchronization of each frame between multiple devices.

4. Equipped with RS-485 ports (Modbus) and UDP ports for connecting to third-party devices.

5. Supporting Bluetooth control, mobile phone control, real-time PC/mobile phone APP control, LAN file replacement, and the Internet remote file replacement.

6. Supporting timing play and multi-level encryption function.

General features:

1. The play content is stored in the SD card, which can store up to 32 effect files. The SD card capacity supports 4G-32GB, supporting single effect play, effect cyclic play, and effect acceleration and deceleration.

2. The master controller can automatically/manually the slave IDs. Multiple controllers can be set together or individually.

3. The master controller has multiple built-in effects and dimming function to test the loaded multi-channel lamps.

4. The controller has DMX512 address writing and testing functions. It can write address for DMX512 IC loaded on single port or all ports, and test the address.

5. The controller adopts standard TCP/IP network protocol, and the signal transmission is more stable. 100-BASE/1000-BASE transmission rate can be selected.

6. It can be used offline with our T-730/T-790 and can carry up to 160,000 pixel points or 80 controllers.

7. Support GPS/BDS dual-mode-satellite synchronization, wireless RF synchronization, and GPS/BDS dual-mode cyclic synchronization.

8. IC controller for DMX lamps comes with address writing function.

II. Support controller:
T-790/T-790D/T-750/T-730

III. Controller image

Controller identification

1. LCD screen	2. RS485 control interface	3. Controller indicator	4. GPS/BDS interface
5. SD card slot	6. Network interface and signal indicator	7. Power interface	8. Power switch
9. GPS/BDS antenna (optional)	10. 4G industrial router (optional)	11. 4G antenna (optional)	

IV. Definition of indicators and keys

1. Indicator definition:

POWER	Power indicator	Always on after power on

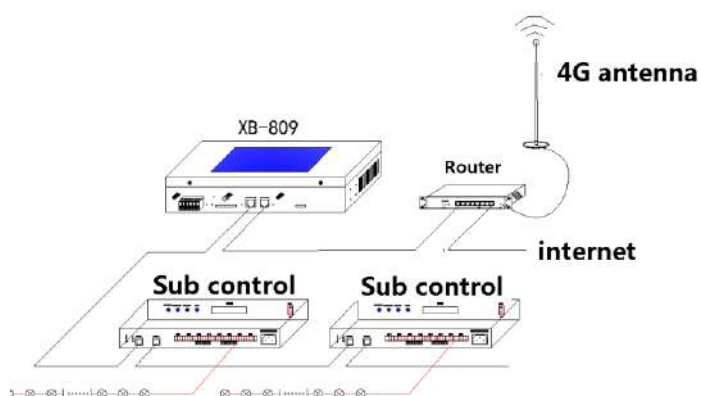| STATUS	Status indicator	Off when normal
Signal	Synchronous signal indicator	Frequently flash when there is an RF/GPS/BDS signal
NET1 signal indicator	Cascade signal	Frequently flash when there is a signal
NET2 signal indicator	Cascade signal	Frequently flash when there is a signal

2. Port definition

| Name	Marking	Remarks
Power interface	**AC110-240V**	Power cable equipped when leaving the factory
GPS/BDS antenna interface	**GPS/BDS**	GPS/BDS satellite antenna interface
RS485 interface	**A1/B1/GND**	Channel 1 485 interface (third-party device, etc.)
	A2/B2/GND	Channel 2 485 interface (connect to console decoder and other devices)
Network cascade interface	**NET1**	RJ45 network signal interface 1
	NET2	RJ45 network signal interface 2
SD card	**SD card**	SD card slot

3. Frame frequency of speed level:

| Speed Level	Frame frequency/sec	Speed Level	Frame frequency/sec	Speed Level	Frame frequency/sec	Speed Level	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 diagram

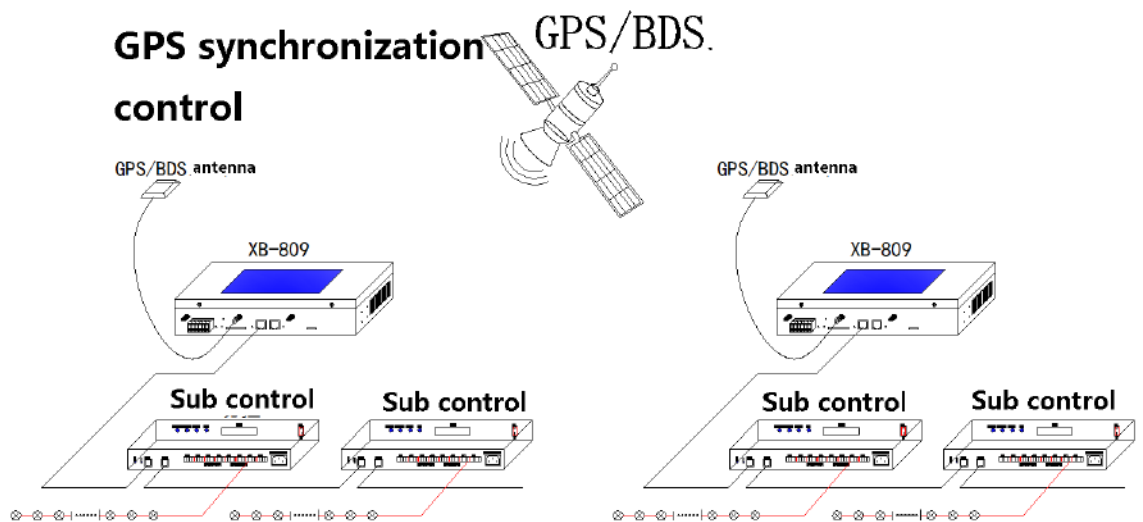## 1. Single could master controller control   ## 2. Integrated online/offline control
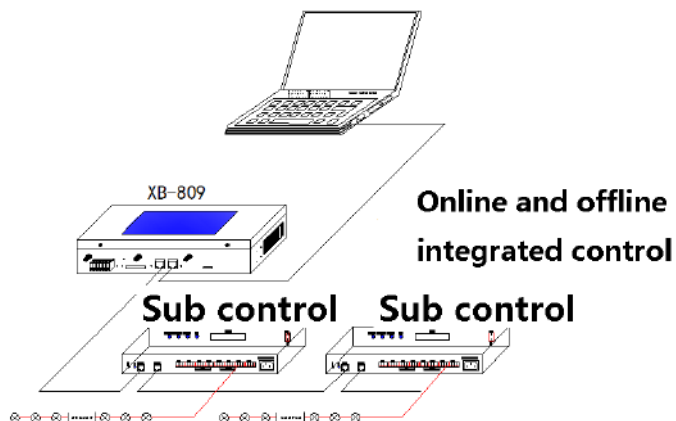
3. Integrated online/offline control of multiple master controllers
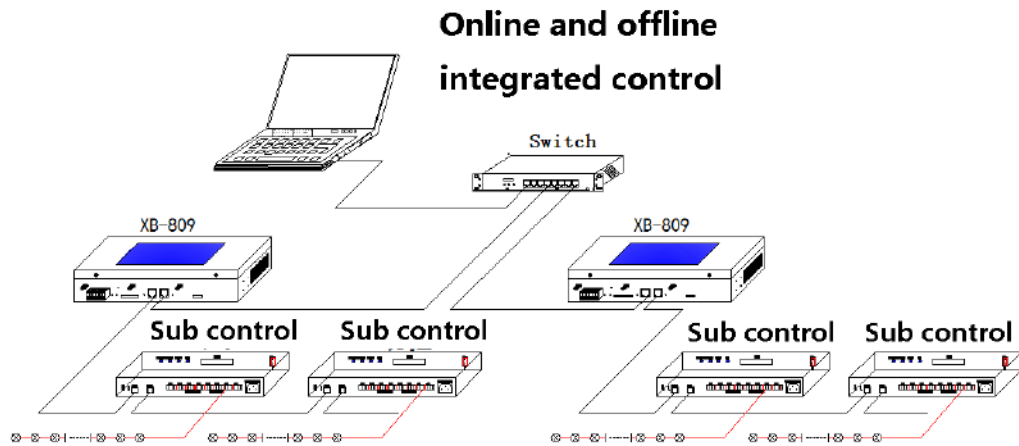
4. Synchronous control of GPS/BDS satellite signal of multiple master controllers


Note: The synchronization method is GPS/BDS dual-mode satellite signal control. When the controller adopts satellite for synchronization, the antenna of the satellite shall be placed outdoor.

VI. Introduction of touch screen operations

①Screen protection interface　　②Play interface　　③Function interface

1. Screen protection interface

1.1 **Screen protection interface**: If the main touch screen has no operation for 1 min, it will enter the **screen protection interface**.
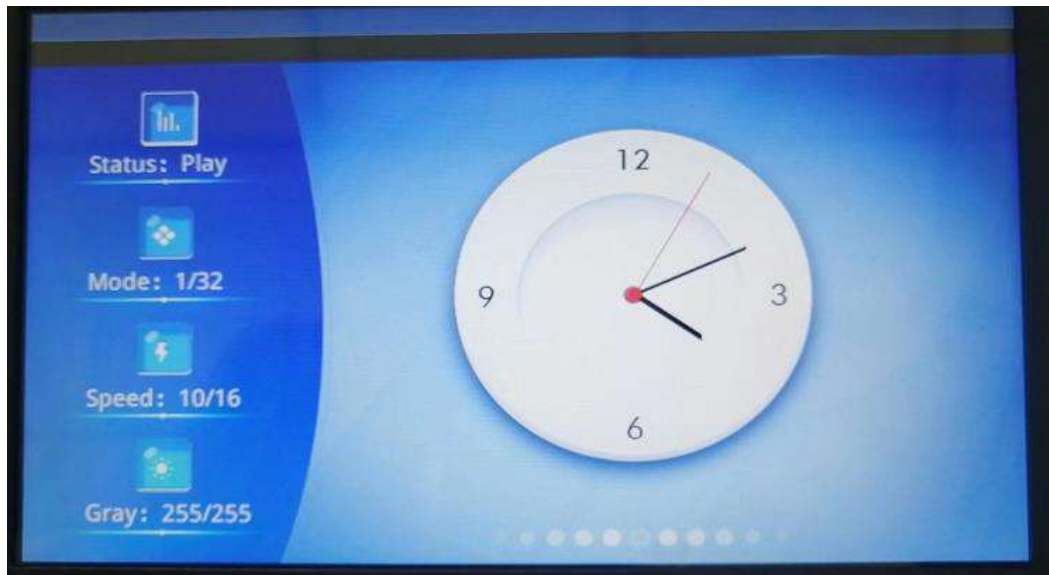
1.2 Display content

    Status: Play/Pause

    Program: Current program number/total number of SD card programs

    Speed: Current play speed level/maximum play speed level

    Brightness: Current lamp display brightness/maximum display brightness

    Time: Current time

    1.3 Exit screen protection: Click the screen to exit and enter the play interface

2. Play interface

2.1 **Play Interface**: Normal play of master controller, display the play status and set parameters of current master controller

2.2 Display content

    1.   **Mode**: Current play program (click the up/down arrow on the mode icon to switch the mode)

2. **Speed**: Current play speed (click the up/down arrow on the mode icon to switch in the range of 1-16)

3. Brightness: Current lamp brightness (click the up/down arrow on the speed icon to switch the brightness)

Click "Brightness 255":

Pop up a numeric keypad for entering values.

Change the brightness of all channels.

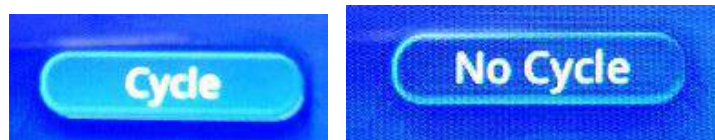Click "*": Change the brightness of each channel.

The click 255.

Pop up a numeric keypad for changing value.

4. **Play/Pause**: Click to switch
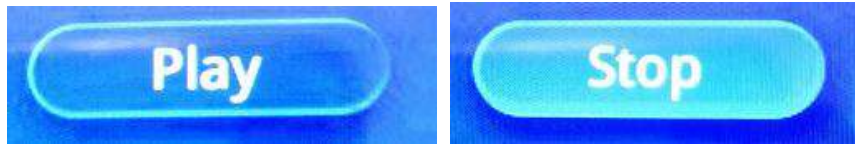
5. **Cycle/Not Cycle**: Click to switch

6. **Auto play** (not forced/timing play)/**forced play** (switch between manual and forced play mode)/**Timing play** (local/remote timing)
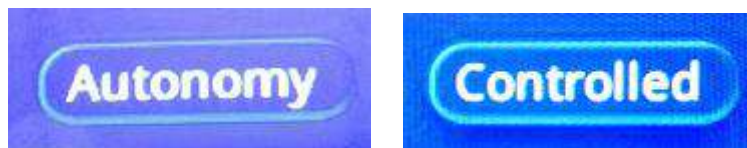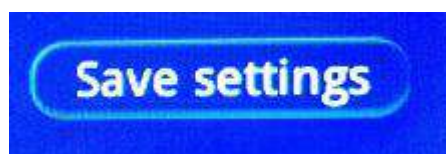

7. **Online state:** Display whether the controller is online

8. **GPS switch:** Turn on GPS when the synchronous mode is selected. If connected normally, the upper right corner of the play interface displays "GPS connected successfully".
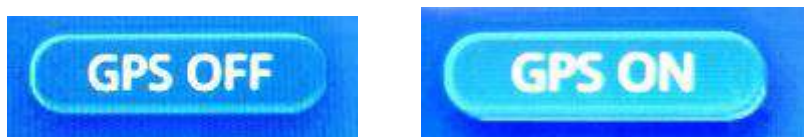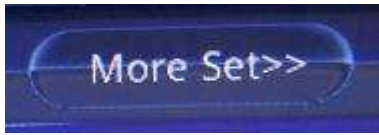

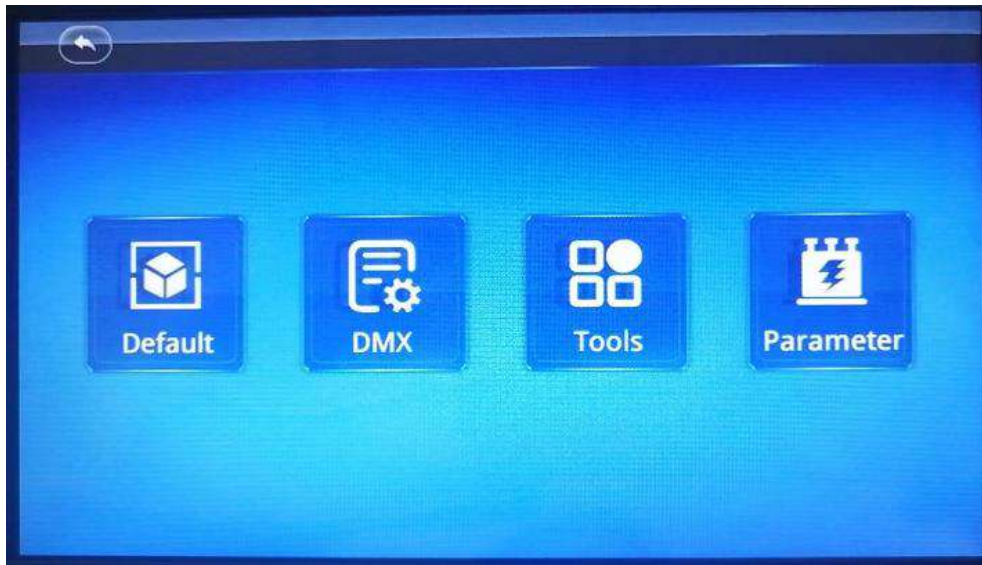9. **Save current settings:** Click to save the settings

Note: If you need to keep the settings on the play screen, you need to click **Save Current Settings** before shutting down the computer.
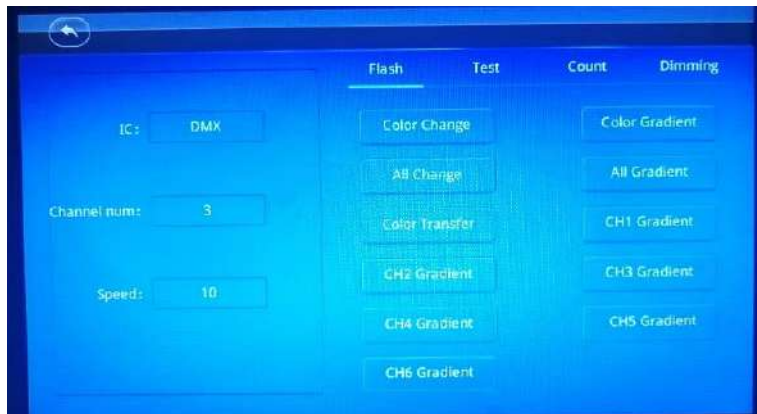
3. Test function interface

Click in the lower right corner of the play interface to enter the function interface

① **Built-in effect** ② **DMX settings** ③ **Auxiliary functions** ④ **System parameters**

1. Built-in effect: Play the built-in effects in the controller

IC model: Loading lamp IC (click to enter the list and select a model)
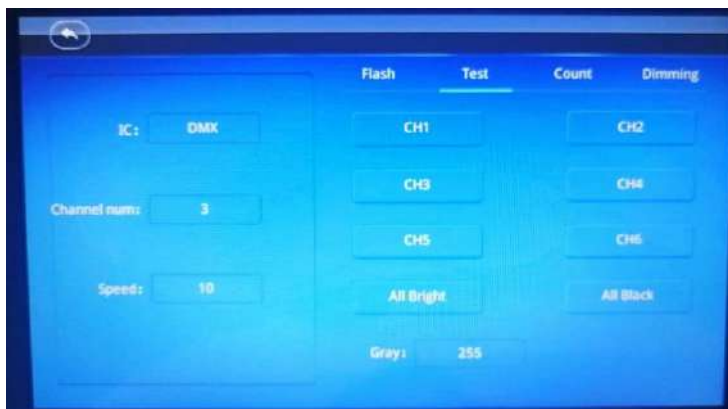

Channel Number: Click 1-6 to switch.

Speed: Click 1-16 to switch.

1.1 Built-in Effect

Jump from channel to channel	Ramp from channel to channel
All jump	All ramp
Shift from channel to channel	Channel 1 ramp
Channel 2 ramp	Channel 3 ramp
Channel 4 ramp	Channel 5 ramp
Channel 6 ramp	

1.2 Channel test (overall test of lamp pixels)

Channel 1	Channel 2
Channel 3	Channel 4
Channel 5	Channel 6
All ON	All OFF
Brightness: 255 (0-255 adjustable)	

1.3 Pixel counting function

Pixel Number: (adjustable range)

 Current Pixel: Change with test

  Maximum Pixel: Set to 1-1024 ("-"/"+" to adjust) before testing

Port Number: (adjustable range)

 Current Port: Change with test

 Maximum Port: Test port 1-640 ("-"/"+" to adjust)
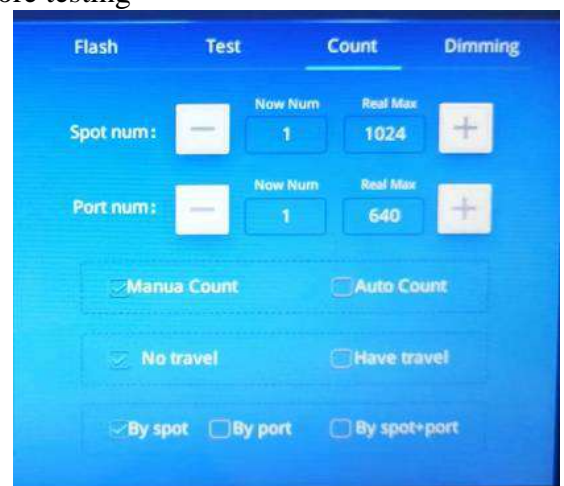
Manual Count: Manually click test (check to enable)

Auto Count: Automatically test (check to enable)

Without Track: Single-point scan test (check to enable)

With Track: Click drag test (check to enable)

Pixel-by-Pixel: Test by pixel (test the next port after completing test of one port) (check to enable)

Port-by-Port: Test by port (overall test of port lamps) (check to enable)

Pixel-by-Pixel + Port-by-Port: All ports set are tested at the same time (check to enable)

1.4 Static dimming (cannot be saved)

Brightness of each channel: Temporarily change the color between 0 and 255 (click the color bar to modify; or click the number to pop up a numeric keyboard to enter the value).

Color temperature adjustment: 1000K-9300K

Note 1: Brightness adjustment for temporary dimming is not used as a fixed channel brightness adjustment.
Note 2: Built-in effects will pause during brightness adjustment of channels.
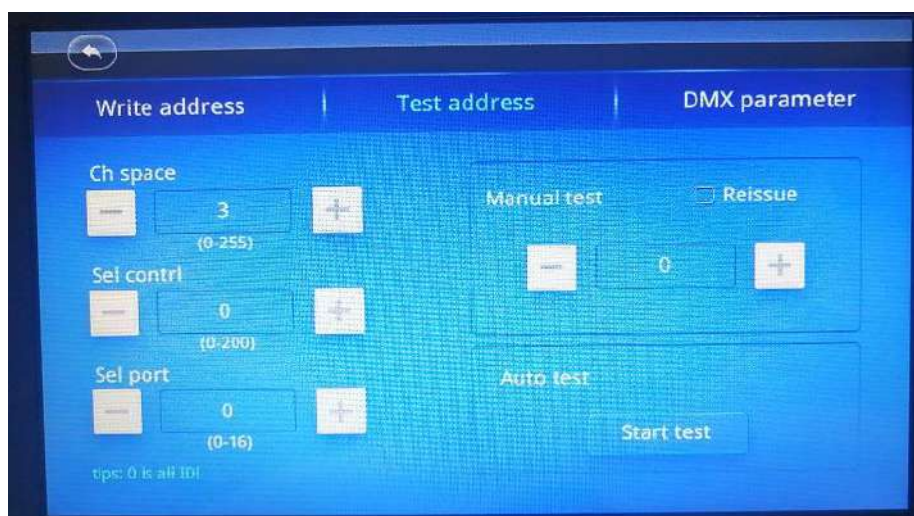
*2. DMX settings

① **Address writing**

② **Test DMX address**

③ **DMX parameters**

2.1 Number

START CH: *(1-4096)---(click "+"/"-" to switch).

CH MODE: * （(0-255)---(click "+"/"-" to switch).

Controller ID: All controllers (1-80) (click "+"/"- to switch").
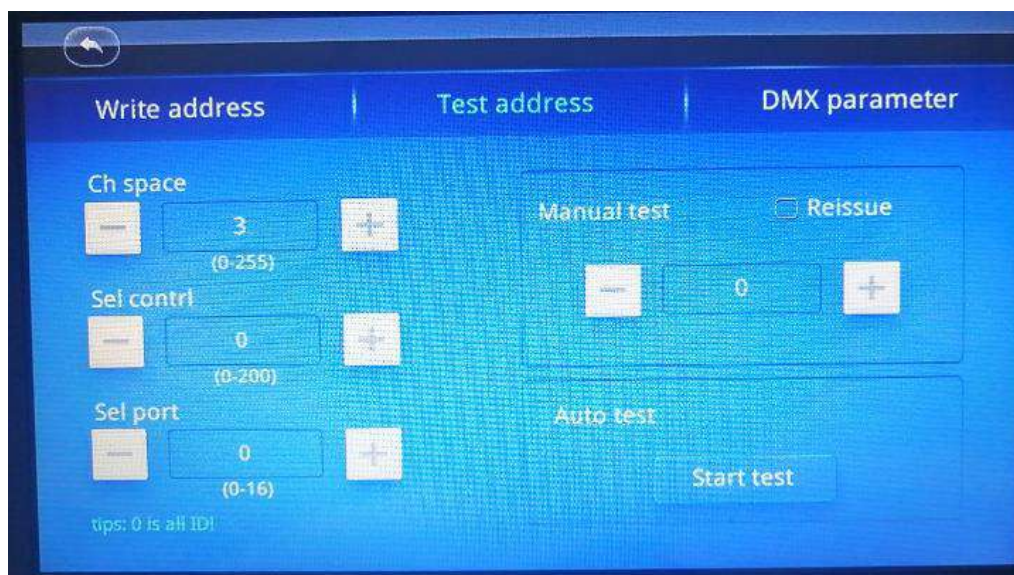
PORT NUM: All ports (1-16) (click "+"/"- to switch").

IC: Click to select the chip

Write Address: Click to start writing

Note: Chip list

2.2 Test DMX address

CH MODE:　*（(0-255)---(click "+"/"-" to switch).

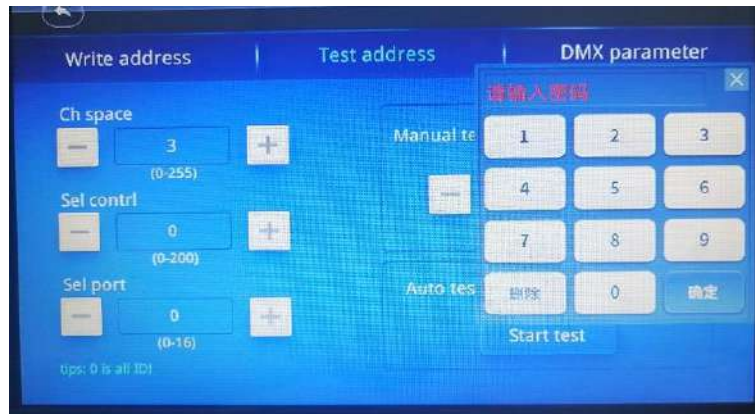**Controller ID:** All controllers (1-80) (click "+"/"- to switch").

PORT NUM: All ports (1-8) (click "+"/"- to switch").

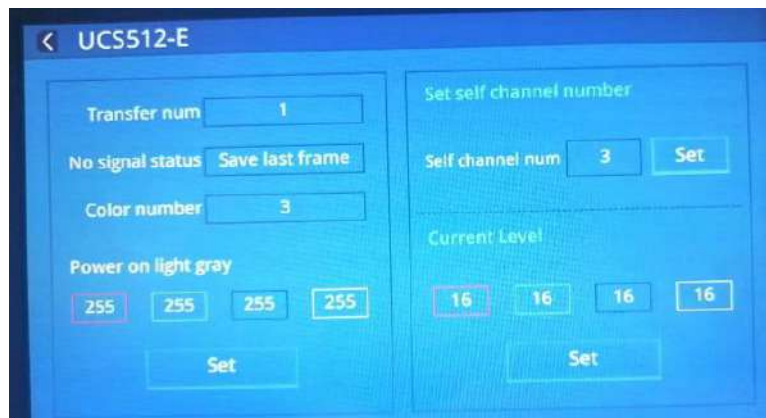**MC Test:** Click to test manually (click "+"/"-" to switch).

Compensate Mode: Click and the controller will send signal continuously

AC Test: Click to test automatically (click "+"/"-" to switch).

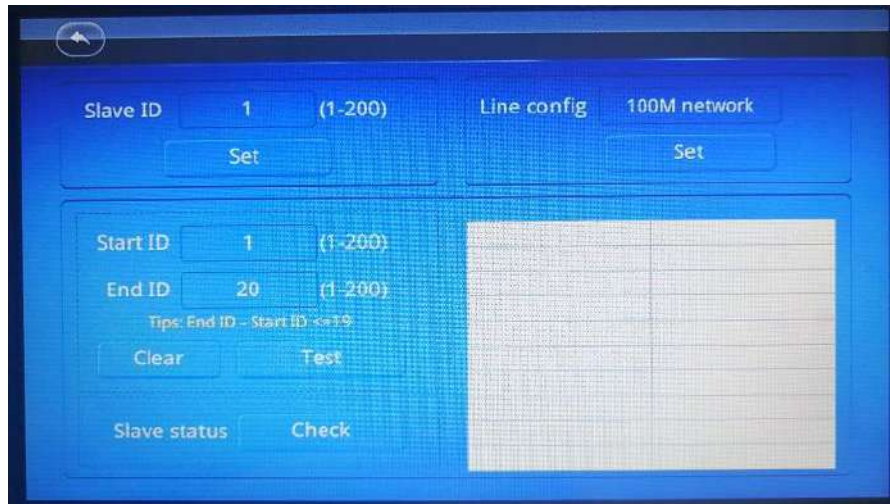## 2.3 DMX parameters (only for use by professionals)

1. Click the IC model in the IC list. For example, click "UCS512-E*" and it displays as shown in the figure below:
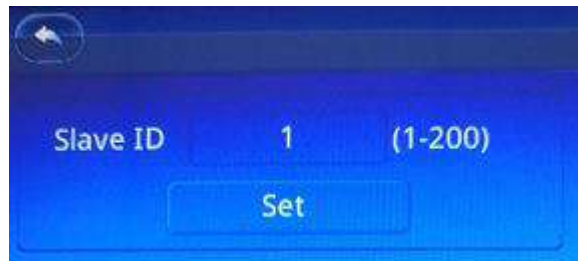

2. Select the IC parameters to be changed, and click "SET" to complete settings.

*3. Auxiliary functions

3.1 Set slave ID:
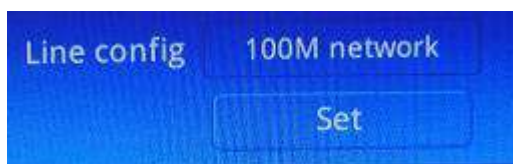
1.1 Set the start slave ID and click "SET".

1.2 Start setting the ID and feed back the ID information.

1.3 Complete setting and click "Close".

3.2 Network configuration: Set the signal transmission rate **1000-BASE or 100-BASE adaptive / forced 100-BASE**

 Or

1. Select the required signal transmission rate.

2. Confirm the selection and click "SET".

3.3 Packet loss rate test

1. Set the start slave ID and end slave ID **(A maximum of 20 controllers can be tested at the same time)**

2. Click "Test" to view the test data

Packet loss rate is 0%: Data connection is normal.

Packet loss rate is 1-99%: Data connection is abnormal.

Packet loss rate is 100%: Data connection is completely disconnected.

3.4 Online status test: Test whether the controller is online

1. Click "Query"

2. View data

*4. System parameters

1. **Set Master ID**

   When multiple master controllers are cascaded in the same network, the controllers shall be set with different IDs (IPs)

   Note: ID must be unique.

   1.1 LAN Master Controller: When multiple master controllers are cascaded in the same network for synchronization, one controller is set as the master controller of the LAN, and others are the slave controllers. These slave controllers display "controlled by the first master controller" during synchronization.

2. **Modbus Address** (1 by default)

   When a third-party device/software controls the master controller, the Modbus address (1-240) of the controller shall be set.

3. Bluetooth Switch (turned on by default)

   Click to switch - **Enabled/Disabled**

4. Cycle SYNC (cycle the programs in case of GPS synchronization)
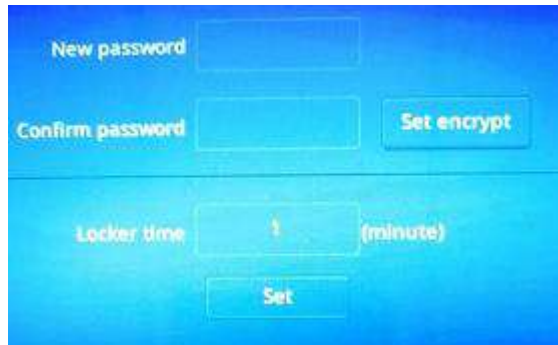

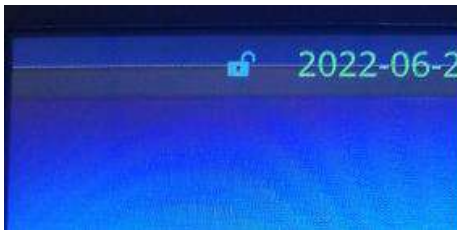   Enabled/Disabled

5. Factory Reset

6. Set Lock Screen:

After inputting the password in the password box, click "Set Password" (1-6 digits, remember the password) to set the lock screen time.

After setting the lock screen, there will be a lock logo in the play interface, and you need to enter the password to enter the playback interface after the lock screen is enabled.

7. Other information of controller

① UID： XB**********

② Remote Encryption Status: No encryption/Level 1 encryption/Level 2 encryption

③ Boot Times Encryption: No encryption/remaining boot times

④ Master Controller Version: Hardware version of master controller

⑤ Large Screen Version: Software version of large screen

⑥ Controller Time Calibration (GPS synchronization)

⑦ Work Mode: Single/master (the selected mode takes effect after restarting the controller; the single mode applies to 809D)

⑧ Language Selection: Chinese/English (the selected language takes effect after restarting the controller)

⑨ Cloud Controller Selection: Cloud Controller 3.0/4.0 (3.0 is selected by default)

8. Boot Encryption (see attachment)

VII. Specific parameters

Memory card:

Type: SDHC card

Capacity: 4GB-32GB

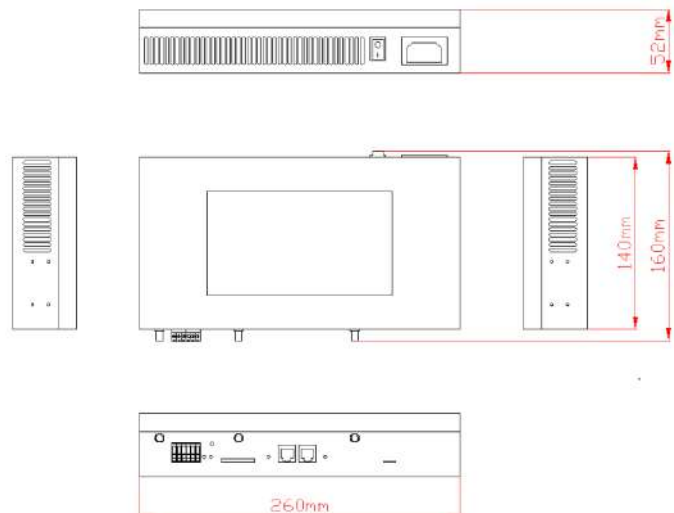Format: FAT32

Storage file: *.BIN

Physical parameters:

Operating temperature: -10℃～60℃

Operating power: AC110-240V

Power consumption: 10W

Weight: 2.0 Kg

Data interface: Network interface

Dimensions: L260mm * W160mm * H52mm

VIII. 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 Settings - "File System", "FAT32".

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:
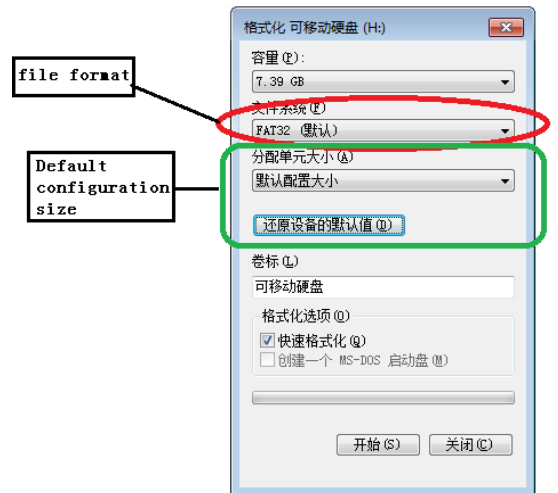
3. The SD card cannot be hot swapped. It can only be plugged and removed after powering off the controller.

IX. Precautions:

1. The maximum cascade between each two nodes (between controllers, between controller and master controller, and between controller and computer) can be 100 meters using CAT5 or above network cable.

Beyond this distance, switches or optical fibers can be added for long-distance transmission.

2. The crimping method of network cable is 568B direct connection.
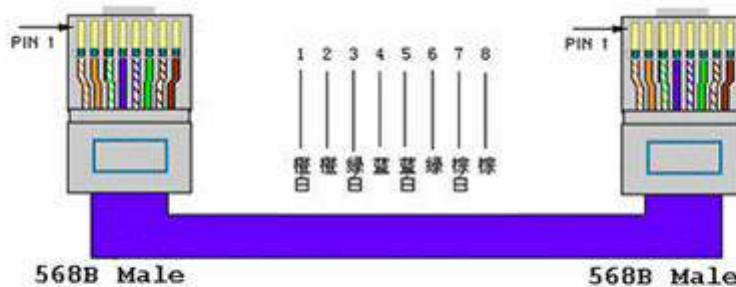
Orange white-1, orange-2, green white-3, blue-4, blue white-5, green-6, brown white-7, brown-8

Version No.	Issue time	Revision history
V2.1	/	/
V2.2	2022/5/12	Device updated, added lock screen and encryption functions