



# SN-500 MANUAL

Model: AVTMS-B2, AVTGMS-B2  
AVTXMS-C2, AVTGXMS-C2  
AVTXMS-C3, AVTGXMS-C3

2018-11

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# 1. FUNCTION OVERVIEW

1. Support PC and SD card integrated control; work with EN-508 series controller, can switch freely between PC control and SD card control which is flexible and convenient.
2. When SN-500 works as main controller in SD card control system, the effects of sub-controller on the same link can be changed by just changing the effects in its SD card. **The SD card file cannot be renamed.**
3. Each SN-500 can control 100,000 pixel and 154 controllers.
4. SN-500 controller system cannot use the same software to output multiple lighting fixtures at the moment. Please contact with our engineer first if necessary.
5. Audio control, voice control, cascade, DMX512 decoding, time controller, GPS atellite sync and mobile WIFI control are optional as additional functions.
6. Specialized software of making animation is included, users can make their own effects.

# 2. TECHNICAL PARAMETERS

## 2.1 PRODUCT INFORMATION

- Size: 330L×200W×46H (mm)
- Input voltage: AC 100V - 240V  
[Cascade of SN] optocoupler
- Input signal: [PC - SN, SN-EN, EN – EN] SW Ethernet Protocol
- Ethernet: RJ45 Ethernet interface
- Output control: 154 controller at most (sugust within 80).
- Work power: <5W
- Working temperature: -15°C~60°C
- Relative humidity: ≤ 50% RH
- Transmission distance: Use UTP—unshielded twisted pair cable, distance between the controllers can be 100m.  
Please use the other program if the distance of SN cascade over 100m.  
For further distance of SW Ethernet Protocol, fiber converter can be used and the distance can reach 5 km.
- IP grade: IP0 (not dustproof and not waterproof)
- Working environment: Please install under dry indoor condition, avoid any dust, moist and rain.
- Weight: 2600g (N.W. 2300g)
- Accessories attached:  ×1,  ×1,  ×1
- Fittings for additional functions:  (1m)×1,  (1m/cascade)×1,  (2m)×1  
**(Only use with corresponding functions.)**

## 2.2 ERROR CODE

Explanation of controller error:

Error Introduction	Reason
01 No SD card	Poor seat connection. / No SD card.
02 SD card no response	Card is broken. / Card doesn't support read sequentially.
03 Cannot reset SD card	Card is broken. / Card doesn't support read sequentially.
04 Cannot activate SD card	Card is broken. / Card doesn't support read sequentially.
05 Cannot read SD card	Cannot read part of the card. / Bad connection.
06 Cannot find feature code	Card is unformatted. / No files.
07 SD card file sequence doesn't match the controller	SD card file error. / Unfinished video synthesis.
09 Control sequence doesn't match file sequence	Player setting does not match the cover number.
10 Wrong password	Input wrong password.
11 UID does not match	UID on main controller does not match the one on slave controller in cascade.
12 UID error in Confit file	UID on Confit file does not match the one on controller.
13 Controller is not fully unlocked	When controller is reading Confit file, it is not fully unlocked.
14 UID error on SD card	UID on SD card does not match the one on controller.

## 2.3 LOAD EN CAPACITY OF SN

Speed of SN	Frame	QTY' load EN		The pixels of each En port (Unit:pixel)			
		EN-402	EN-508 EN-408	Single channel	Double channel	3 channels	4 channels
2	50fps	32	8	within 1006	within 503	within 335	within 251
3	33fps	52	13				
4	25fps	76	19				
5	20fps	96	24				
6	17fps	120	30				
7	14fps	140	35				
2	50fps	16	4				
3	33fps	24	6				
4	25fps	36	9				
5	20fps	48	12				
6	17fps	60	15				
7	14fps	68	17				
2	50fps	8	2	2013-3018	1007-1509	671-1006	504-754
3	33fps	16	4				
4	25fps	24	6				
5	20fps	32	8				
6	17fps	40	10				
7	14fps	44	11				
2	50fps	8	2				
3	33fps	12	3				
4	25fps	16	4				
5	20fps	24	6				
6	17fps	28	7				
7	14fps	32	8				

### 3. CONNECTION MODE

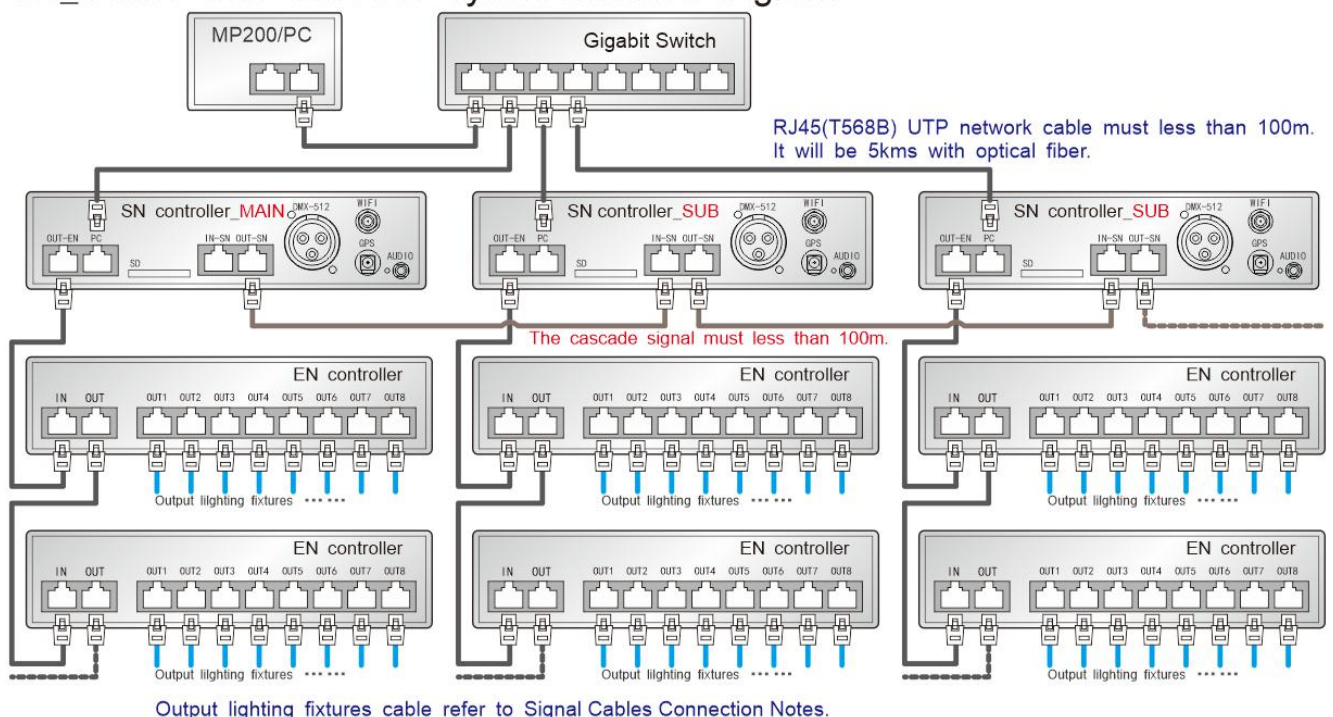
#### 3.1 INPUT INSTRUCTION



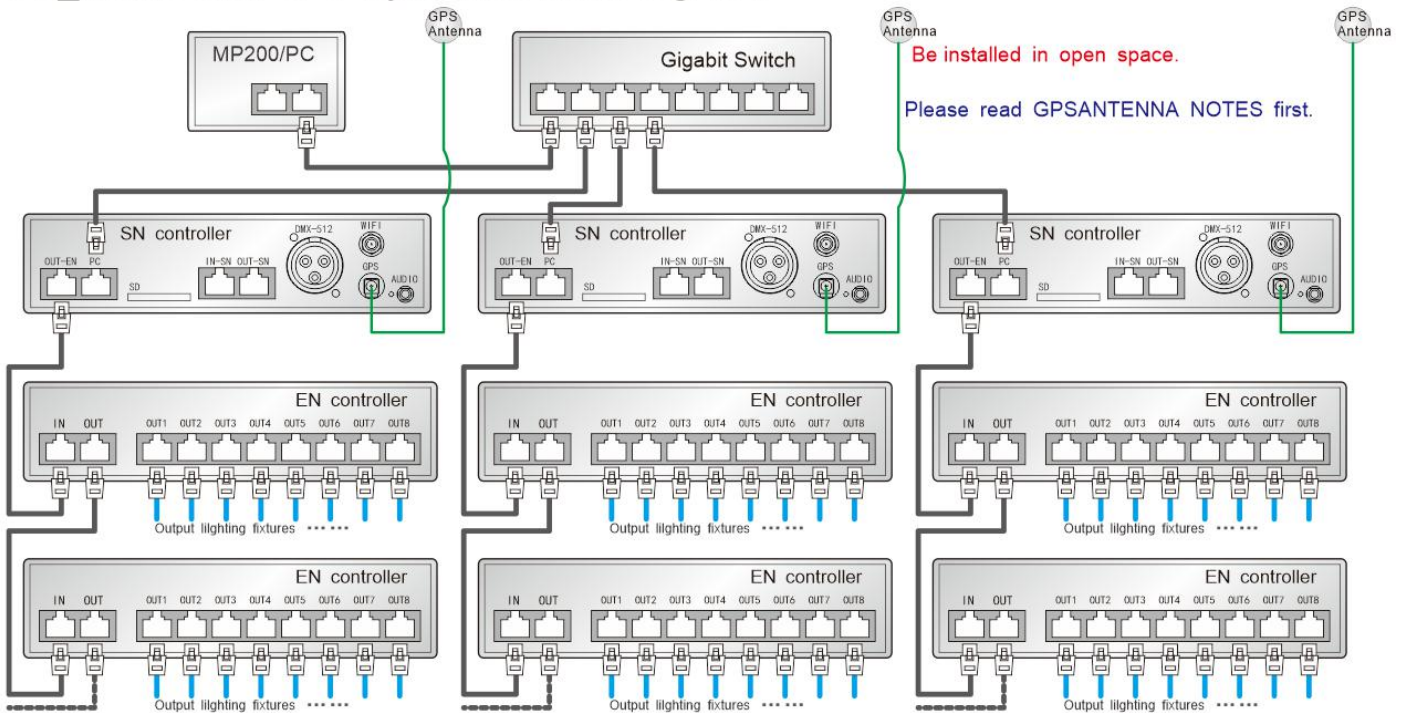
Port/Indicator light	Function description	备注	
1	Switch (ON/OFF)	Switch of power supply.	
2	AC100V-240V	Connect with power (AC100V-240V).	
3	Signal indicator	a. Heartbeat light of system, twinkle 1 time in 1 second. b. Data light of SN, it is twinkling with the data output to EN controller. c. Neglect. d. Data light of PC, it is twinkling with receiving the Pdata.	
4	SD	SD card deck (input the SD card when the controller at work). The yellow light at left shines while the controller is working online. The yellow light at right shines while the controller is working offline.	
5	network cable port (OUT-EN)	In PC control system or SD card control system, connect with input port (IN) of EN-508 sub-controller.	<b>ALL the cables at both ends of the network are T568B.</b>
6	network cable port (PC)	In PC control system, connect to PC wired network cable port in series. "PC" network cable port is not used in SD card control system.	
7	network cable port (IN-SN)	Insert network cable, signal input, connect with previous SN controller as a series.	
8	network cable port (OUT-SN)	Insert network cable, signal output, connect with next SN controller as a series or no need.	
9	DMX-512	DMX512 XLR Male, connect with DMX512 controller.	
10	GPS	GPS port, put the GPS antenna in it and receive the synchronous satellite signals.	
11	AUDIO	Audio cable port, plug one end of audio line into AUDIO port, and plug the other end into music player.	

#### 3.2 CONNECTION DIAGRAM OF CONTROLLER

SN\_Offline with Cascade synchronization Diagram:



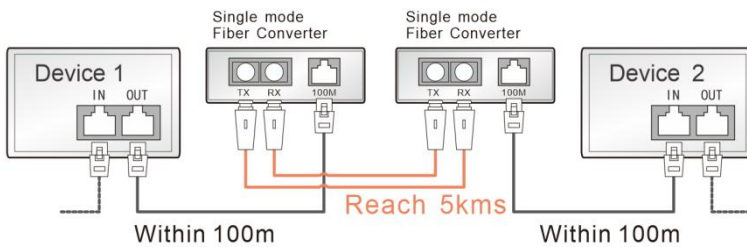
## SN\_Offline with GPS Synchronization Diagram:



RJ45(T568B) UTP network cable must less than 100m. It will be 5kms with optical fiber.

Output lighting fixtures cable refer to Signal Cables Connection Notes.

### Fiber Converter Connection Diagram:

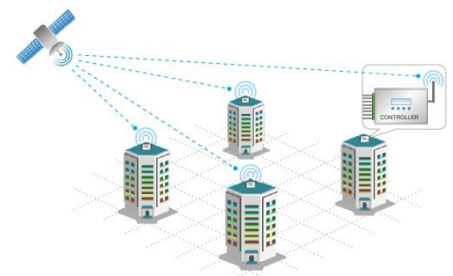


NO.	Material	Standard	Connection Port	Transmission Distance	Connecting Device
1	Network cable	Straight cable	RJ45 network cable plug (crystal head) (T568B line sequence)	Within 100m	PC and SN controller, SN controller and ethernet switch
2					Ethernet switch and optical fiber converter
3					Ethernet switch and EN controller
4					Optical fiber converter and EN controller
5	Optical fiber	Fiber converter (one pair)	Optical fiber patch cable (LC-SC single mode)	Within 5km	Optical fiber converter and optical

## 3.3 GPS ANTENNA NOTES

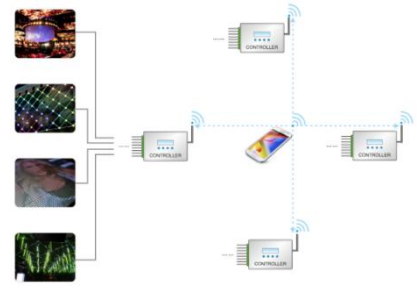
**2m GPS antenna is provided. User can also purchase GPS marine antenna with standard SMA interface according to on-site engineering requirement. The longer the antenna is, the larger the difficulty of searching satellite will be.**

- GPS Antenna should be installed in open space to guarantee view angle within 30 degree, there is no big shades (such as trees, iron towers, buildings etc.). GPS Antenna should be more than 2m away from the metal objects which size is bigger than 20cm.
- For the satellite appears on the equator more than other places, in the North Hemisphere, you'd better put the GPS antenna south of the installation place.
- Please don't put GPS antenna around other transmitting and receiving equipment to avoid other transmitting antenna direction point to GPS antenna. Please keep them 2m away with each other. Suggesting install different GPS antenna in different places to avoid disturbing.



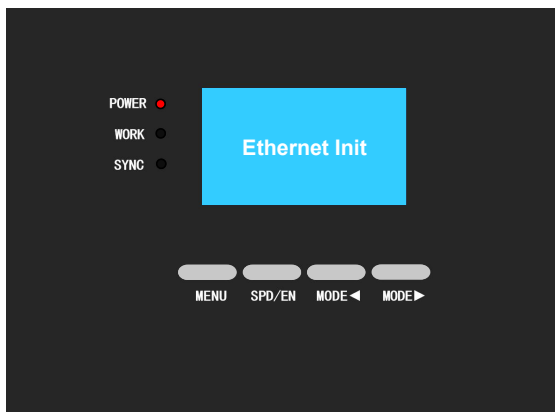
### 3.4 WIFI ANTENNA NOTES

- a) Please try to keep WIFI Antenna perpendicular to the floor.
- b) Wall, glass and interval would reduce WIFI signal rapidly during transmission. Besides, external electromagnetic interference (EMI) could lead to signal interruption, short transmission distance, failed connection and related problems. **Therefore, the distance between mobile phone and WIFI antenna cannot be too long which should be less than 30m without blocks.** (Estimate strength of WIFI signal according to WIFI signal bar on the controller.)
- c) Controller can only be controlled by ONE mobile APP. Also, one mobile APP can only control ONE controller.

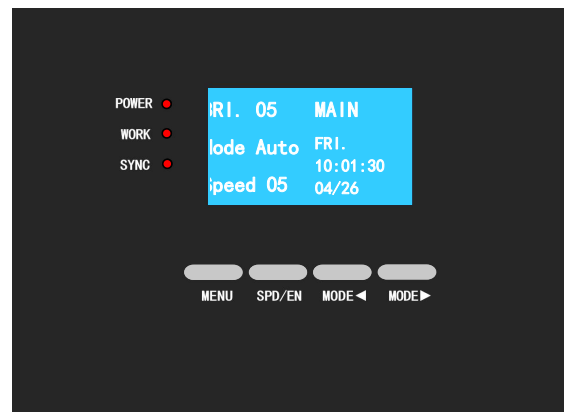


## 4. BASIC OPERATION

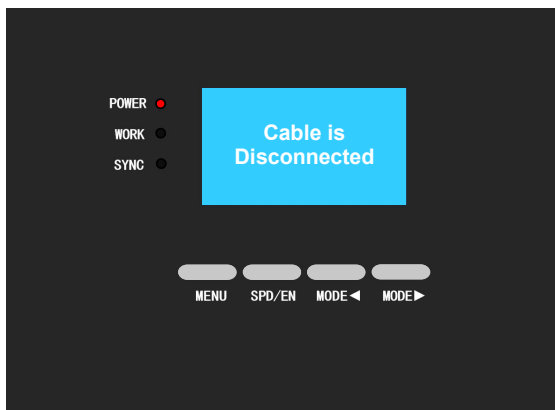
### 4.1 START NORMAL



Check the ethernet



SN-500 controller within the EN controllers.



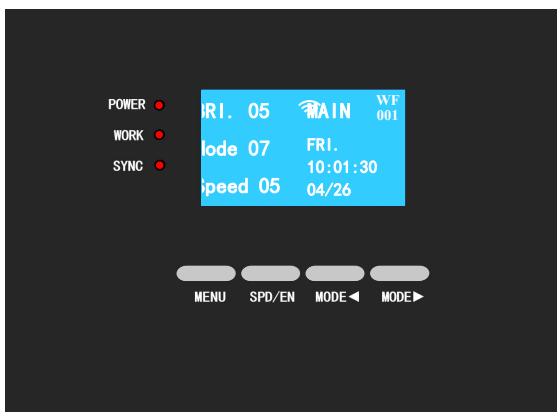
SN-500 controller without the EN controllers.

★ Make sure the controllers are connecting by rule and line. There are exact SD card file in SD card. It cannot rename the SD card file.

### 4.2 BUTTONS FUNCTION

Button	Function	Explanation
MENU	Menu key	Selection picture, audio control, Voice control+audio mode. Hold press 2 seconds to enter menu setting.
SPD/EN	speed key confirm key	Common mode: 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 15, 20, 30, 50, 80, 99. Press it to save current setting on the menu setting.
MODE<	mode-key	Mode minus selection. Long press can be quickly change.
MODE>	mode+key	Mode add selection. Long press can be quickly change.

## 4.3 INTERFACE INTRODUCTION



Display	Explanation
Mode	Current display mode.
Speed	Current display speed.
TUE.	Day of the week.
SD	Wait to enter SD card time control status. It shows the n <sup>th</sup> time control list when it entered SD card time control status.
WiFi	Controller is connected with mobile APP thus it is controllable.
WF	Wait to enter WIFI time control status. It shows the n <sup>th</sup> time control list when it entered WIFI time control status.
19:01:30	Current setting Beijing time.
02/28	Date (MM/DD).
G --	Signal of searched GPS satellite. They can reach synchronization if they shows G04. (There is no signal if it shows --. The value is the signal strength of searched GPS satellite. Higher values mean better signal.)

Before turning on the controller, please well connected all signal cables, network cables and power cables of hardware, then turn on the power of main controller.

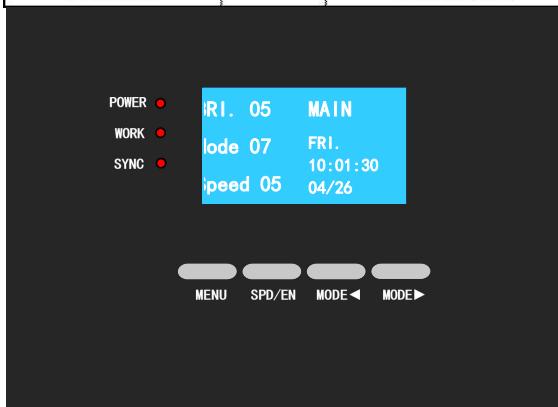
## 4.4 MODE SELECTION

### 4.4.1 CONTROL MODE SWITCHING

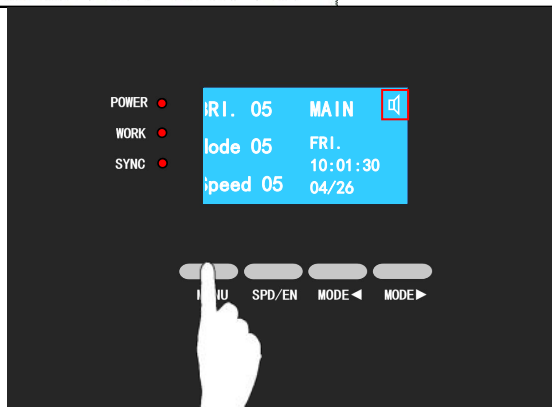
Press "MENU" button, select audio control, voice control or pictures 3 control modes.

When switch the mode, it will memorize previous effect of this mode and start to play.

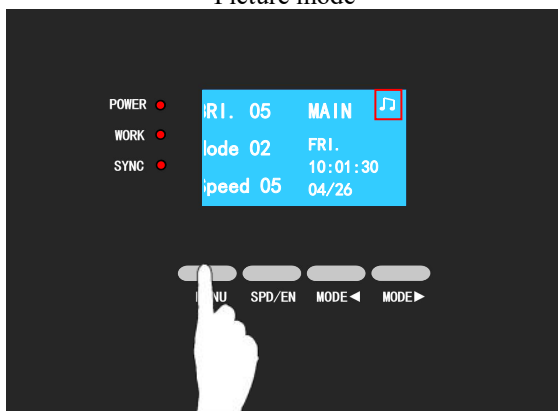
Control Mode	Icon	Automatic Mode	Manual Mode (Default)	Remark
Voice Control		Automatic	01-19	User can set the quantity of effects by software. No more than 96 effects.
Audio Control		Automatic	01-19	
Picture		Automatic	01-55 (+1) / 20-70 (+1)	



Picture mode



Press "MENU" once to become voice mode.



Press "MENU" once to become audio mode.

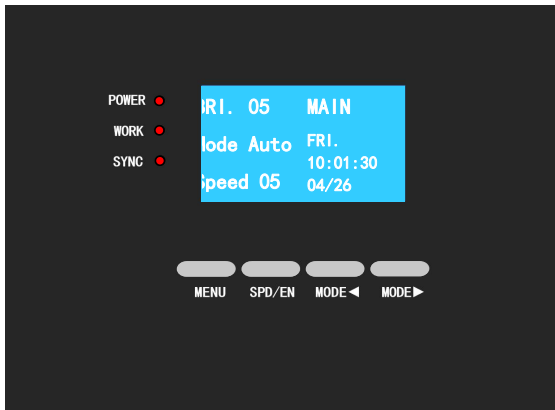


## 4.4.2 EFFECT SWITCHING

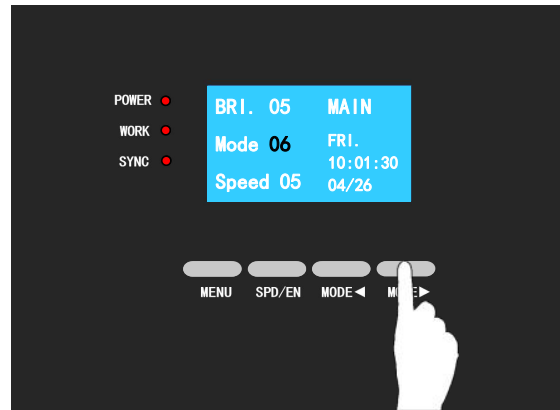
Press “MODE◀” and “MODE▶” on control panel to select effects.

(Apply to voice control, audio control and picture three control modes.)

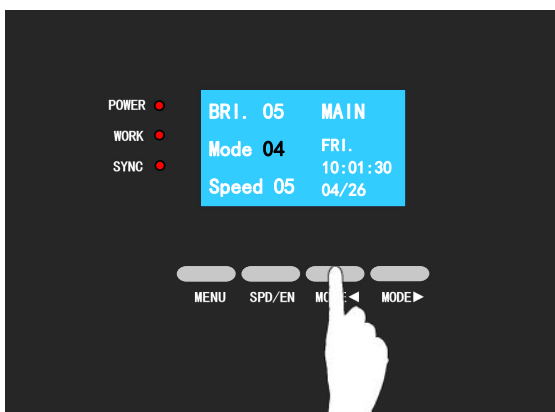
It can switch increased or decreased quickly with long press “MODE◀” or “MODE▶”.



Auto mode



Press ”MODE▶” 6 times, the mode is 6.



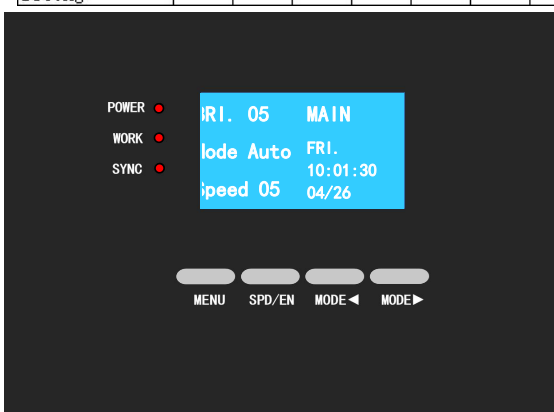
Press ”MODE◀” twice, the mode is 4.

★ it is valid with the offline controller only.

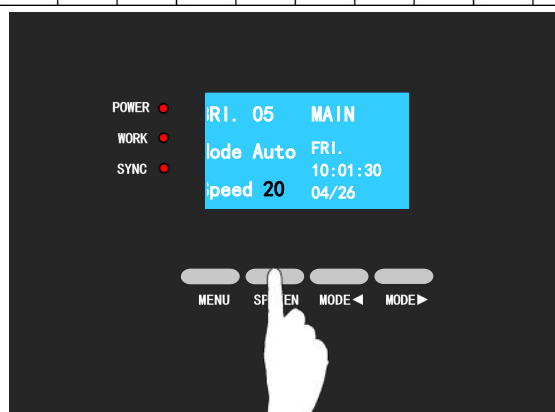
## 4.5 SPEED SELECTION

Press button “SPD/EN” on control panel to select play speed, the less the rate, the quicker the speed. **it is valid with the offline controller only.**

Parameters	Speed Display																Notes
Main Control Speed	03	04	05	06	07	08	09	10	11	12	15	20	30	50	80	99	Independent Speed
Frame Rate(ms)	30	40	50	60	70	80	90	100	110	120	150	200	300	500	1000	2000	
Frame Per Secong	33	25	20	17	14	13	11	10	9	8	7	5	3	2	1	0.5	

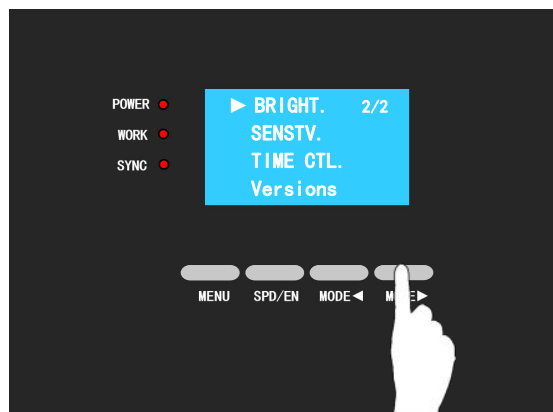
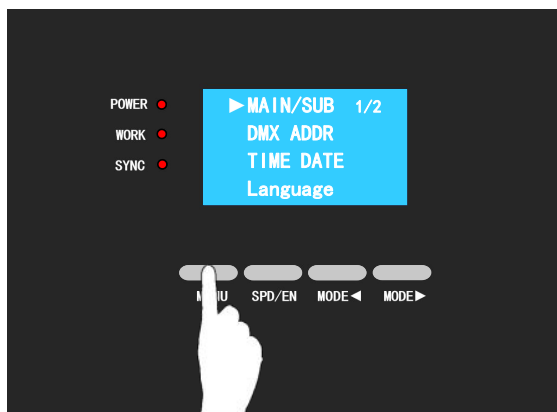


The speed is 05.



Press “SPD/EN” 9 times, the speed is 20.

## 4.6 MENU SETTING



Long press "MENU" button for 2 seconds to enter/exit menu setting up. Press "MODE ◀" and "MODE ▶" to select function.

Select function through "MODE ◀" and "MODE ▶". Details functions are shown as below:

	Menu	LED Display	Operation
menu setting	MAIN/SUB	MAIN / SUB	1) Press "MODE ◀" and "MODE ▶" to select MAIN/SUB. Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" to select main control properties. <i>Resting Stste only "MENU" can use. Other functions are controlled by main controller.</i> 3) Press "SPD/EN" to save. And press "MENU" return to parent menu.
	DMX ADDR	DMX ADDRESS ***	1) Press "MODE ◀" and "MODE ▶" to select DMX ADDR. Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" to select address data (long press change quickly). 3) Press "SPD/EN" to save. And press "MENU" return to parent menu. <i>SY DMX additional function occupy 8 channels, next DMX equipment address is X+8.</i>
	TIME DATE	TUESDAY 00: 01 2017/02/28	1) Press "MODE ◀" and "MODE ▶" to select TIME DATE. Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" to select the currnet data. Press "SPD/EN" to save. 3) Press "SPD/EN" 2 second to confirm the setting. And press "MENU" return to parent menu. <i>※ The controller with GPS function cannot change the time and the date.</i>
	Language	Chinese English	1) Press "MODE ◀" and "MODE ▶" to select LANGUAGE. Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" to select LANGUAGE diplay. 3) Press "SPD/EN" to save. And press "MENU" return to parent menu.
	BRIGHT.	Brightness 5	1) Press "MODE ◀" and "MODE ▶" to select BRIGHT. Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" to select brightness. 1 is the darkest, and 5 is the brightest. 3) Press "SPD/EN" to save. And press "MENU" return to parent menu.
	SENSTV.	Sensitivit 2	1) Press "MODE ◀" and "MODE ▶" to select SENSTV. Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" to select sensitivity. 0 is the dulllest, and 5 is the strongest. 3) Press "SPD/EN" to save. And press "MENU" return to parent menu. <i>※ Apply to the controller with voice control or audio control only. Merged SD.BIN file must contain musical effects.</i>
	TIME CTL.	SD_CTL WiFi_CTL OFF	1) Press "MODE ◀" and "MODE ▶" select "TIME CTL", Press "SPD/EN" enter. 2) Press "MODE ◀" and "MODE ▶" select "SD_CTL", "WiFi_CTL", "OFF". 3) Press "SPD/EN" to save. And press "MENU" return to parent menu.
	Versions		Get the information of the current version.

## 5. ADDITIONAL FUNCTION

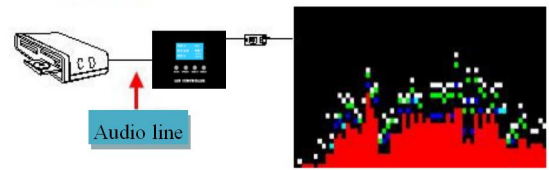
### 5.1 AUDIO & VOICE CONTROL


It includes audio and voice control function.

Press "MENU" to transfer voice control or audio control. The effect of the two controls is same. Voice control and audio control quantity can be changed according client's needs. **Please ensure there are .YEL/.YIN format effects in the software before merging files in SD card. Otherwise the audio/voice control will be unavailable.**

◆ Audio control

Connect controller with audio output equipment by audio line. Manual adjust to audio control mode. The controller will output Different audio color column based on voice volume. Higher volume, Higher color column. Lower volume, lower color column.

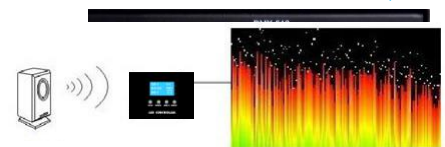


Additional fittings:  (1m)×1

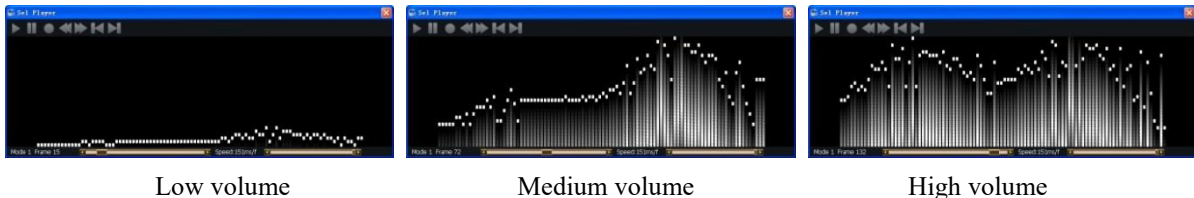
When the controller is power off, plug one end of audio line into AUDIO port, and plug the other end into music player. Then switch on the power of controller and music player. Ensure the status is "Audio control". It can be seen the effect of lamp will change along with the rhythm of music.

◆ Voice control

Controller with built-in microphone, put the controller near voice equipment and make the voice clear. Manually adjust to voice mode. Different audio color columns base on voice volume. Higher volume, higher color column. Lower volume, lower color column. Additional fittings: None



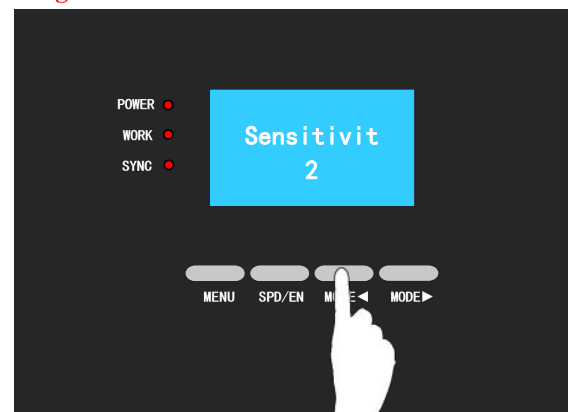
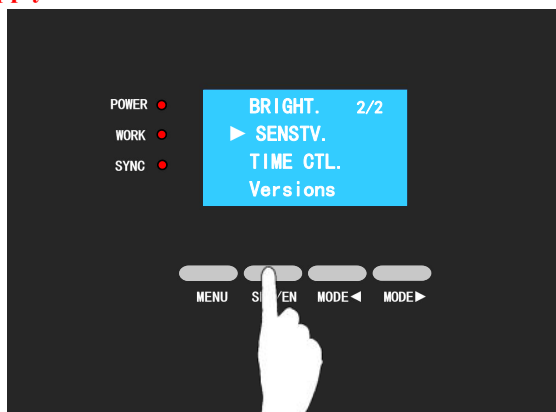
Voice control / audio control effects show:



## 5.2 SENSITIVITY

1. Long press "MENU" for 2 seconds to enter MENU SETTING UP mode.
2. Press "MODE◀" and "MODE▶" select "SENSTV.", Press "SPD/EN" enter.
3. Press "MODE◀" and "MODE▶" select sensitivity. (5 is 200%, 4 is 160%, 3 is 130%, 2 is 100%, 1 is 67%, 0 is 50%.)
4. Press "SPD/EN" to save. And press "MENU" return to parent menu.

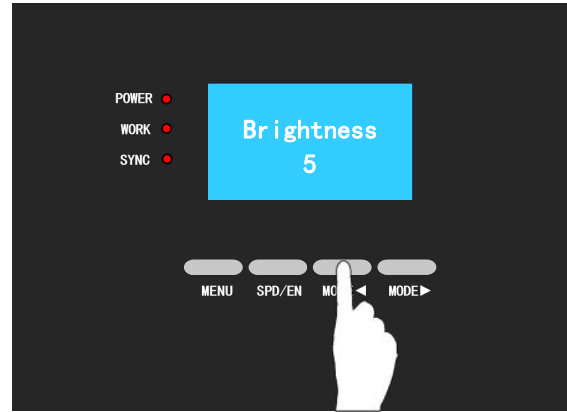
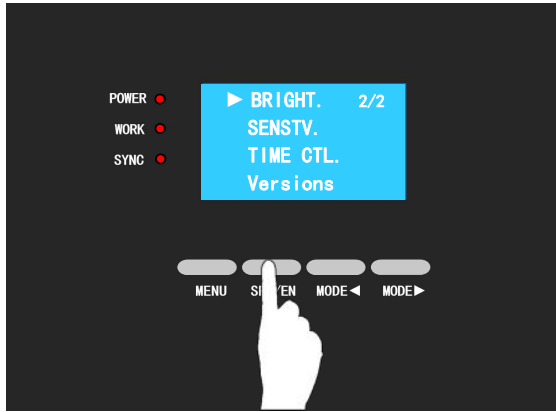
※ Apply to the controller with voice or audio control only. Merged SD.BIN file must contain musical effects.



## 5.3 BRIGHTNESS

1. Long press "MENU" for 2 seconds to enter MENU SETTING UP mode.
2. Press "MODE◀" and "MODE▶" select "BRIGHT.", Press "SPD/EN" enter.
3. Press "MODE◀" and "MODE▶" select Brightness. (5 is 100% bright, 4 is 80%, 3 is 60%, 2 is 40%, 1 is 20%.)

4. Press "SPD/EN" to save. And press "MENU" return to parent menu.



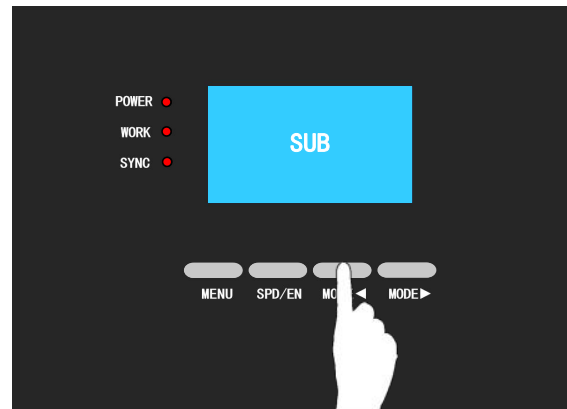
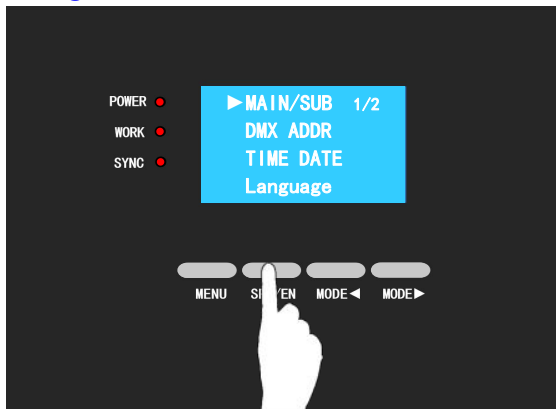
## 5.4 CASCADE FUNCTION

**If single controller cannot drive the whole project lights, can try cascade controllers. It connects Main controller with slave controllers by cables to make the whole project synchronization.**

The normal controller (the model is MS.) should be set as sub controller.

1. Long press "MENU" to enter MENU SETTING UP.
2. Press "MODE◀" and "MODE▶" select "MAIN / SUB". Press "SPD/EN" enter.
3. Press "MODE◀" and "MODE▶" to select "SUB" control. Press "SPD/EN" to save.

**Change "SUB" into "MAIN" at the end to set as main controller.**

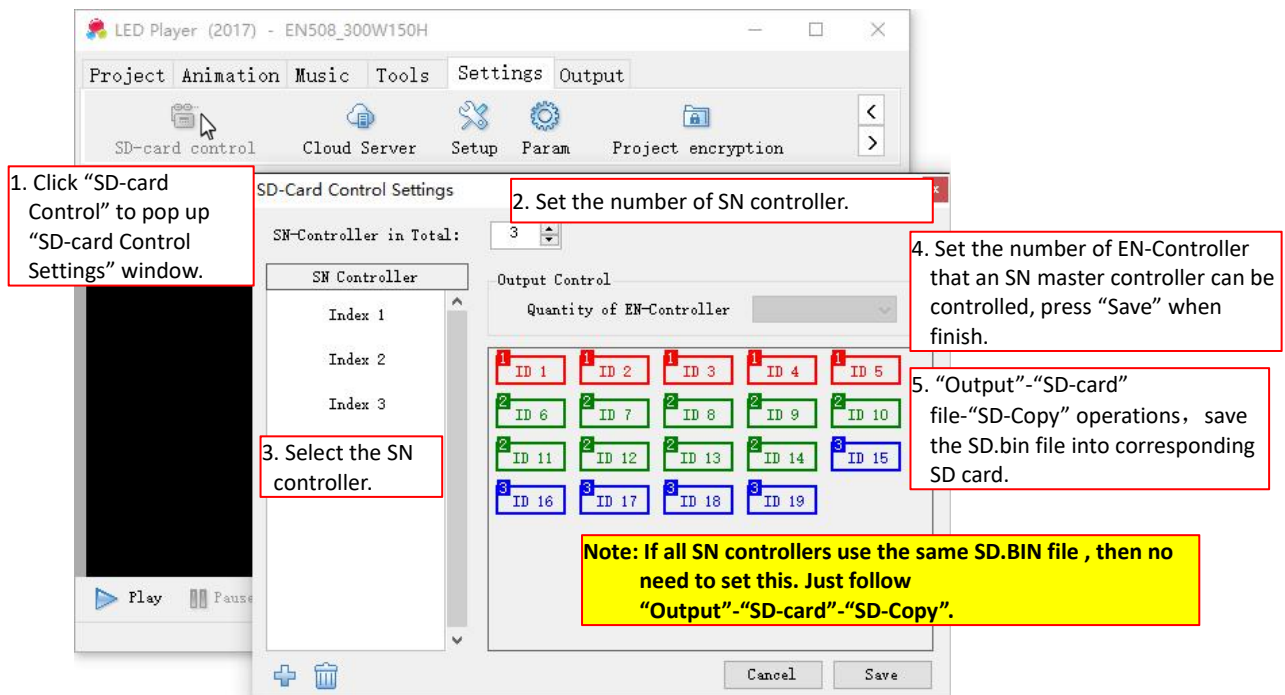


4. Switch off the controller. Plug a head of network cable into main controller "OUT", plug the other head into sub-controller "IN". Then restart the controller.

**Slave control S can only start to work by connecting to Master control.** CASCADE controller uses high quality cables as connection, the distance must be less than 100M. GND and DATA signals only use Orange white + orange twisted pair wires. Clients can extend the cables or by clipping straight-through wires (cables two ends based on T568B).



5. If there are 3pcs SN controller, each SN controller controls 5pcs, 9pcs and 5pcs EN controllers. Software settings are as below.



The ID of first EN controller which controlled by different SN controller needs to be set 1 by 1. E.g. As the picture shown above, ID6 EN controller should be set as ID6 manually; ID7 should be ID7, and so on.

## 5.5 DMX512 DECODING

User can adjust the effect, speed and brightness by DMX512 control console.

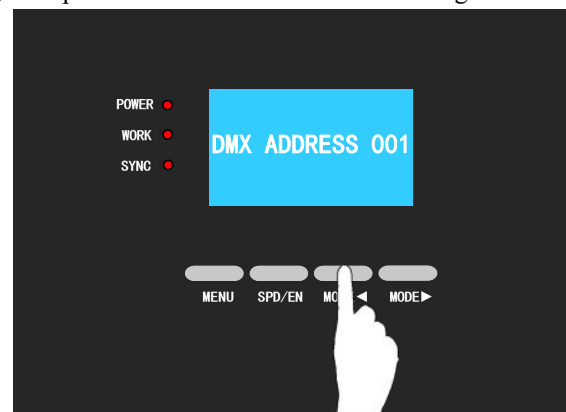
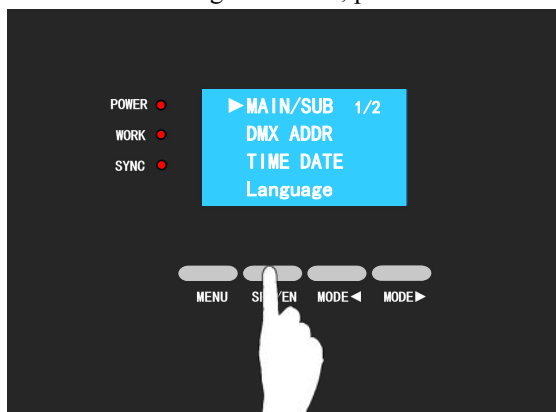
**SN-500 can connect with DMX512 controller, but not the other SN-500 controller.**

Male port receives the signal of DMX512 control console. Port Introduction:

P1 = GND; P2 = D-/B; P3 = D+/A

Address Setting:

1. Long press "MENU" for 2 seconds to enter MENU SETTING UP mode.
2. Press "MODE◀" and "MODE▶" to select DMX ADDR, Press "SPD/EN" enter.
3. Press "MODE◀" and "MODE▶" to select address data (long press change quickly).
  - ☑ Formula of address setting:  $(N-1) * 8 + 1$ . N represents the N<sup>th</sup> controller.
4. When address setting is finished, press "SPD/EN" to confirm, then press "MENU" to return to status of general mode.



Introduction of Push Rod of DMX Control Console:

Label Diagram: **DC Status**

CH.	01				02				03				04				05				06	07				08						
	Sensitivity				Speed				Effect				Mode (Tensdigit)				Mode (Singledigit)					Sync Status				Brightness						
	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range		Show	Range	Show	Range	Show	Range	Show	Range			
Position of Push Road	05	215 ~ 255	99	240 ~ 255	Audio Control	170 ~ 254			09	225 ~ 255	09	225 ~ 255	AC	128 ~ 255																		
			80	224 ~ 239					08	200 ~ 224	08	200 ~ 224																		05	204 ~ 255	
	04	172 ~ 214	50	208 ~ 223	Voice Control	85 ~ 169			08	175 ~ 199	07	175 ~ 199	DC	0 ~ 127																		
			30	192 ~ 207					07	150 ~ 174	06	150 ~ 174																				04
	03	129 ~ 171	15	160 ~ 175	Picture Control	0 ~ 84			06	125 ~ 149	05	125 ~ 149																				
			12	144 ~ 159					05	100 ~ 124	04	100 ~ 124																				
	02	86 ~ 128	9	96 ~ 111	Picture Control	0 ~ 84			04	75 ~ 99	03	75 ~ 99																				
			8	80 ~ 95					02	50 ~ 74	02	50 ~ 74																				
	01	43 ~ 85	7	64 ~ 79	Picture Control	0 ~ 84			03	25 ~ 49	01	25 ~ 49																				
			6	48 ~ 63					02	0 ~ 24	00	0 ~ 24																				
	00	0 ~ 42	4	16 ~ 31	Picture Control	0 ~ 84			01	0 ~ 24	00	0 ~ 24																				
			3	0 ~ 15					00	0 ~ 24	00	0 ~ 24																				

Label Diagram: **AC Status**

CH.	01				02				03				04				05				06	07				08					
	Sensitivity				Speed				Effect				Mode (Tensdigit)				Mode (Singledigit)					Sync Status				Brightness					
	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range	Show	Range		Show	Range	Show	Range	Show	Range	Show	Range		
Position of Push Road	05	215 ~ 255	99AC	224 ~ 255	Audio Control	170 ~ 254			09	225 ~ 255	09	225 ~ 255	AC	128 ~ 255																	
			50AC	192 ~ 223					08	200 ~ 224	08	200 ~ 224																			05
	04	172 ~ 214	20AC	160 ~ 191	Voice Control	85 ~ 169			07	175 ~ 199	07	175 ~ 199	DC	0 ~ 127																	
			12AC	128 ~ 159					06	150 ~ 174	06	150 ~ 174																			
	03	129 ~ 171	10AC	96 ~ 127	Picture Control	0 ~ 84			05	125 ~ 149	05	125 ~ 149																			
			08AC	64 ~ 95					04	100 ~ 124	04	100 ~ 124																			
	02	86 ~ 128	06AC	32 ~ 63	Picture Control	0 ~ 84			03	75 ~ 99	03	75 ~ 99																			
			04AC	0 ~ 31					02	50 ~ 74	02	50 ~ 74																			
	01	43 ~ 85	01	25 ~ 49	Picture Control	0 ~ 84			02	0 ~ 24	01	25 ~ 49																			
			00	0 ~ 24					00	0 ~ 24	00	0 ~ 24																			
	00	0 ~ 42	00	0 ~ 24	Picture Control	0 ~ 84			00	0 ~ 24	00	0 ~ 24																			
			00	0 ~ 24					00	0 ~ 24	00	0 ~ 24																			

- ★ When the fastest speed of software is 5, it will display 5 in the controller even it is in 3-5. It will display accordingly from 6.
- ★ **The channel will be blank if the controller doesn't have corresponding function.**

## 5.6 TIME CONTROL

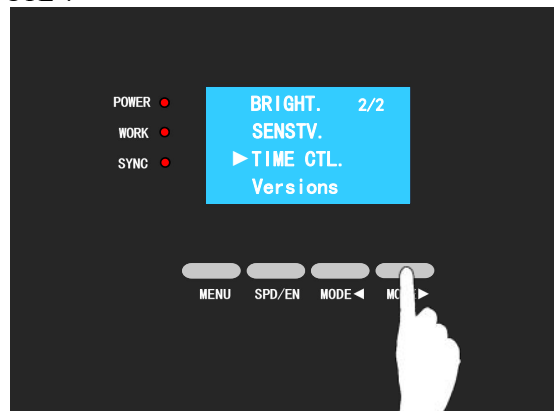
It has time control function, SD card time control, GPS SYNC time control and mobile WIFI time control are optional.

※ **Maximum time control lists of player can be 100, and maximum 10 pcs of effects can be set in each list.**

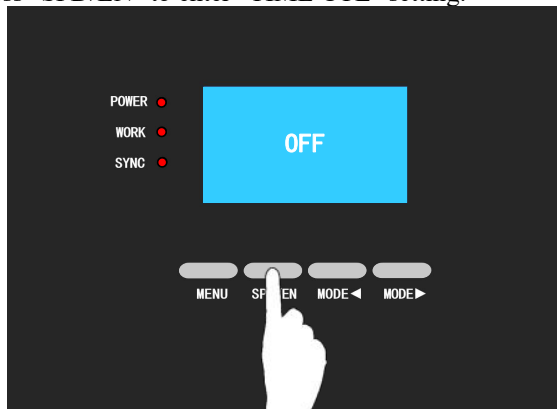
*While switching on main controller, it will keep latest status of switching off previously.*

If need to enter time control status, please switch it on manually and refer to the operations below. **(The same of exit the time control.)**

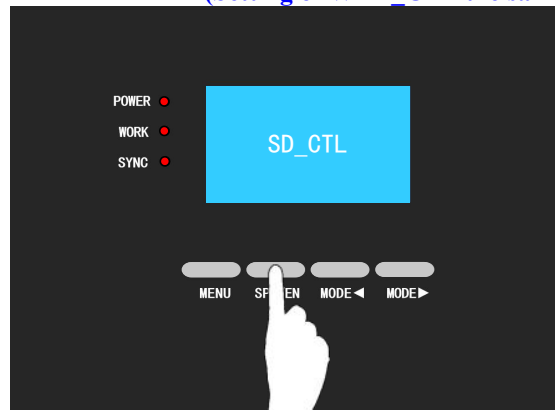
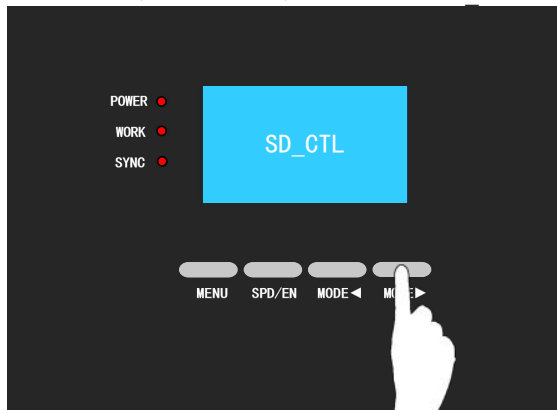
1. Press "MENU" to enter MENU setting up and select "TIME CTL".



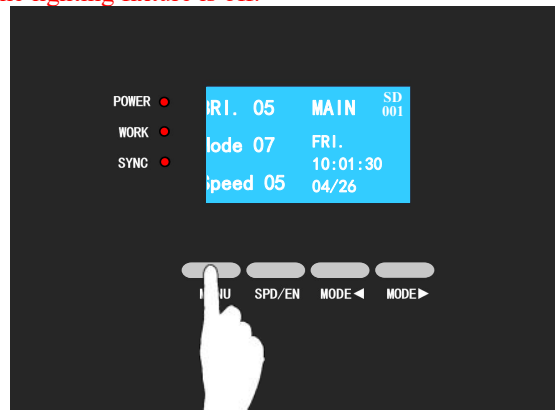
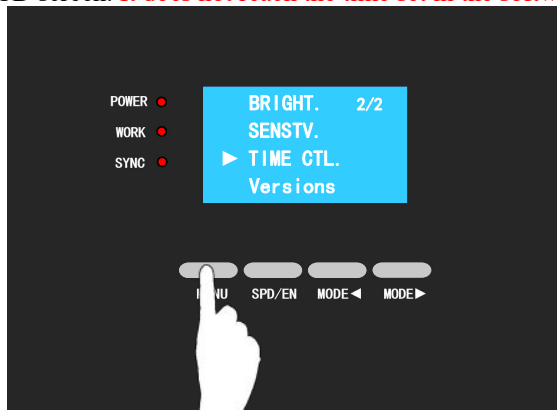
2. Press "SPD/EN" to enter "TIME CTL" setting.



3. Press "MODE◀" or "MODE▶" to select "SD CTL". Press "SPD/EN" to save. **(Setting of WIFI\_CTL the same.)**



4. Long press "MENU" to exit menu. The corresponding icon of time control status will display at the top right corner of LCD screen. **It does not reach the time set in the software. The lighting fixture is off.**



★ Time control status can be seen at the top right corner of LCD screen.

Mode	Display	Description	Picture
SD-card time control	SD	Controller enters SD card time control status, but it does not reach the time set in the software. The lighting fixture is off.	
	SD 001	Controller enters SD card time control status and it reaches the time set in the software. The controller will switch to corresponding effect mode set in time control list.	
WIFI time control	WF	Controller enters WIFI time control status but it does not reach the time set in the software. The lighting fixture is off.	
	WF 001	Controller enters WIFI time control status and it reaches the time set in the software. The controller will switch to corresponding effect mode set in time control list.	
Normal		No icon represents in the top right corner when exit time control.	

★ Please download the latest version of time control software.

For any question, please don't hesitate to contact with us.

For the settings of WIFI time control, please refer to “WIFI Mobile APP User Manual”.

## 5.7 REMOTE CONTROL

There is build-in remote control module. It can send wireless signal within 5-15m control distance. Speed and mode can be changed by remote controller.

Each remote controller is corresponding to one controller. The remote control will be unavailable if the number in remote controller does not correspond to the one in remote control module of controller.

When switch the mode, it will memorize previous effect of this mode and start to play.

Long press “MODE+” in the remote, the mode will play with multiple loop.

Control mode switching					
	Picture Mode	Press AUTO 1 times.	Voice Mode	Press AUTO 1 times.	Audio Mode
Speed selection					
	Speed=5	Press SPEED 4 times.	Speed=9		
Effect switching					
	Mode=Auto	Press MODE+ 5 times.	Mode=5	Press MODE- 3 times.	Mode=2



## 6. ADDRESSING

### 6.1 ADDRESS SETTING

#### 6.1.1 UCS512A/UCS512B

※ "ADDRESS PLUS \*\*\*\*" means entering "auto addressing" mode, e.g. #1, #2, #3.....#999.

"ADDRESS PLUS 0000" means entering "fixed addressing" mode, e.g. #6, #6, #6.....#6.

Number of channels in single chip: number of lighting fixture ÷ number of DMX chips × Number of Channels.

The first address of N<sup>th</sup> lighting fixture is X \* (N-1) where X is the number of channels in each lighting fixture.

Color of LED	Number of Channels	Number of Lighting fixtures	Number of DMX chips in each lighting fixture Pixels	Number of channels in single chip	First Add. Of Each Chip					Type of control signal	Color display when addressing successfully
					Chip 1	Chip 2	Chip 3	Chip 4	Chip 5		
UCS512	3	1	1	3	0	3	6	9	12	485 differential signal	Blue
			8	24	0	24	48	72	96		
		8	8	3	0	24	48	72	96		
			12	36	0	36	72	108	144		
		12	12	3	0	36	72	108	144		
			16	48	0	48	96	144	192		
UCS512 UCS512A UCS512A2	4	1	1	4	0	4	8	12	16		
			8	32	0	32	64	96	128		
		8	8	4	0	32	64	96	128		
			12	48	0	48	96	144	192		
		12	12	4	0	48	96	144	192		
			16	64	0	64	128	192	256		
UCS512B UCS512B3	3	1	1	3	0	3	6	9	12	TTL single-wire signal	
			8	24	0	24	48	72	96		
		8	8	3	0	24	48	72	96		
			12	36	0	36	72	108	144		
		12	12	3	0	36	72	108	144		
			16	48	0	48	96	144	192		
UCS512B4	3	1	1	1	0	1	2	3	4		
			8	3	0	3	6	9	12		
		8	8	24	0	24	48	72	96		
			12	3	0	24	48	72	96		
		12	1	36	0	36	72	108	144		
			16	3	0	36	72	108	144		
	4	16	1	48	0	48	96	144	192		
			16	3	0	48	96	144	192		
		1	1	4	0	4	8	12	16		
			8	32	0	32	64	96	128		
		8	8	4	0	32	64	96	128		
			12	48	0	48	96	144	192		
12	12	4	0	48	96	144	192				
	16	64	0	64	128	192	256				
16	16	4	0	64	128	192	256				

## 6. 1. 2 DMX512AP/SM512

※ "A\* \*\*\*" means entering "auto addressing" mode, e.g. #1, #2, #3.....#999.

"A0 00" means entering "fixed addressing" mode, e.g. #6, #6, #6.....#6.

Number of channels in single chip: number of lighting fixture pixel ÷ number of DMX chips × Number of Channels.

The first address of N<sup>th</sup> lighting fixture is X\*(N-1)+1 where X is the number of channels in each lighting fixture.

Color of LED	Number of Channels	Number of Lighting fixture Pixels	Number of DMX chips in each lighting fixture	Number of channels in single chip	First Add. Of Each Chip					Type of control signal	Color display when addressing successfully
					Chip 1	Chip 2	Chip 3	Chip 4	Chip 5		
<b>DMX512AP-N</b>	3	1	1	3	1	4	7	10	13	TTL single-wire signal	White
<b>DMX512AP-NB</b>	3	1	1	3	1	4	7	10	13		Green
<b>SM512-4</b>	4	1	1	4	1	5	9	13	17		
<b>SM512-9</b>	9	1	1	9	1	10	19	28	37		
<b>SM512-12</b>	12	1	1	12	1	13	25	37	49		

## 6. 1. 3 SW-U

※ "A\* \*\*\*" means entering "auto addressing" mode, e.g. #1, #2, #3.....#999.

"A0 00" means entering "fixed addressing" mode, e.g. #6, #6, #6.....#6.

Number of channels in single chip: number of lamp pixel ÷ number of DMX chips × Number of Channels.

The first address of N<sup>th</sup> lighting fixture is X\*(N-1) where X is the number of channels in each lighting fixture.

Color of LED	Number of Channels	Number of Lighting fixture Pixels	Number of DMX chips in each lighting fixture	Number of channels in single chip	First Add. Of Each Chip					Type of control signal	Color display when addressing successfully
					Chip 1	Chip 2	Chip 3	Chip 4	Chip 5		
<b>D01U</b>	3	1	1	3	0	3	6	9	12	485 differential signal / TTL single-wire signal	Blue
<b>D12U</b>		12	1	36	0	36	72	108	144		
<b>D16U</b>		16	1	48	0	48	96	144	192		
<b>D01U</b>	4	1	1	4	0	4	8	12	16		
<b>D12U</b>		12	1	48	0	48	96	144	192		
<b>D16U</b>		16	1	64	0	64	128	192	256		

## 6. 1. 4 UCS512C\*

※ "A\* \*\*\*" means entering "auto addressing" mode, e.g. #1, #2, #3 ..... #999.

"A000" means entering "fixed addressing" mode, e.g. #6, #6, #6 ..... #6.

Number of channels in single chip: number of lighting fixture pixel ÷ number of DMX chips × Number of Channels.

The first address of N<sup>th</sup> lighting fixture is X\*(N-1) where X is the number of channels in each lighting fixture.

Color of LED	Number of Channels	Number of Lighting fixture Pixels	Number of DMX chips in each lighting fixture	Number of channels in single chip	First Add. Of Each Chip					Type of control signal	Color display when addressing successfully
					Chip 1	Chip 2	Chip 3	Chip 4	Chip 5		
UCS512C	1	1	1	1	0	1	2	3	4	485 differential signal	White
		8	1	8	0	8	16	24	32		
			8	1	1	0	8	16	24		
		12	1	12	0	12	24	36	48		
			12	1	1	0	12	24	36		
		16	1	16	0	16	32	48	64		
	16		1	1	0	16	32	48	64		
	2	1	1	2	0	2	4	6	8		
		8	1	16	0	16	32	48	64		
			8	2	0	16	32	48	64		
		12	1	24	0	24	48	72	96		
			12	2	0	24	48	72	96		
		16	1	32	0	32	64	96	128		
	16		2	0	32	64	96	128			
	3	1	1	3	0	3	6	9	12		
		8	1	24	0	24	48	72	96		
			8	3	0	24	48	72	96		
		12	1	36	0	36	72	108	144		
			12	3	0	36	72	108	144		
		16	1	48	0	48	96	144	192		
	16		3	0	48	96	144	192			
	4	1	1	4	0	4	8	12	16		
		8	1	32	0	32	64	96	128		
			8	4	0	32	64	96	128		
12		1	48	0	48	96	144	192			
		12	4	0	48	96	144	192			
16		1	64	0	64	128	192	256			
	16	4	0	64	128	192	256				

## 6. 1. 5 SM16512

※ "A\* \*\*\*" means entering "auto addressing" mode, e.g. #1, #2, #3.....#999.

"A0 00" means entering "fixed addressing" mode, e.g. #6, #6, #6.....#6.

Number of channels in single chip: number of lighting fixture pixel ÷ number of DMX chips × Number of Channels.

The first address of N<sup>th</sup> lighting fixture is X\*(N-1)+1 where X is the number of channels in each lighting fixture.

Color of LED	Number of Channels	Number of Lighting fixture Pixels	Number of DMX chips in each lighting fixture	Number of channels in single chip	First Add. Of Each Chip					Type of control signal	Color display when addressing successfully
					Chip 1	Chip 2	Chip 3	Chip 4	Chip 5		
SM16512	3	1	1	3	1	4	7	10	13	485 differential signal	Green
	4	1	1	4	1	5	9	13	17		
SM16511	3	1	1	3	1	4	7	10	13		
	4	1	1	4	1	5	9	13	17		

## 6. 1. 6 SW-D

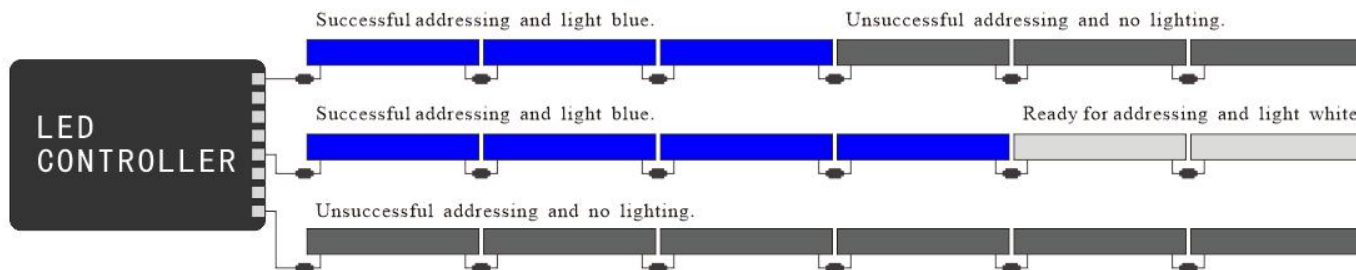
※ Led screen displays "0000", it means entering "Automatic" addressing mode (e.g. #1, #2, #3.....#999).

The first address of N<sup>th</sup> lighting fixture is X\*(N-1)+1 where X is the number of channels in each lighting fixture.

Color of LED	Number of Channels	Number of Lighting fixture Pixels	Number of DMX chips in each lighting fixture	Number of channels in single chip	First Add. Of Each Chip					Type of control signal	Color display when addressing successfully
					Chip 1	Chip 2	Chip 3	Chip 4	Chip 5		
D01D	3	1	1	3	1	4	7	10	13	485 differential signal / TTL single-wire signal	The first lamp connects with controller will have yellow light, the others are green light.
D06D		6	1	18	1	19	37	55	73		
D08D		8	1	24	1	25	49	73	97		
D12D		12	1	36	1	37	73	109	145		
D16D		16	1	48	1	49	97	145	193		
D01D	4	1	1	4	1	5	9	13	17		
D06D		6	1	24	1	25	49	73	97		
D08D		8	1	32	1	33	65	97	129		
D12D		12	1	48	1	49	97	145	193		
D16D		16	1	64	1	65	129	193	257		

## 6.2 ADDRESSING RESULT

### 6.2.1 UCS512A/UCS512B



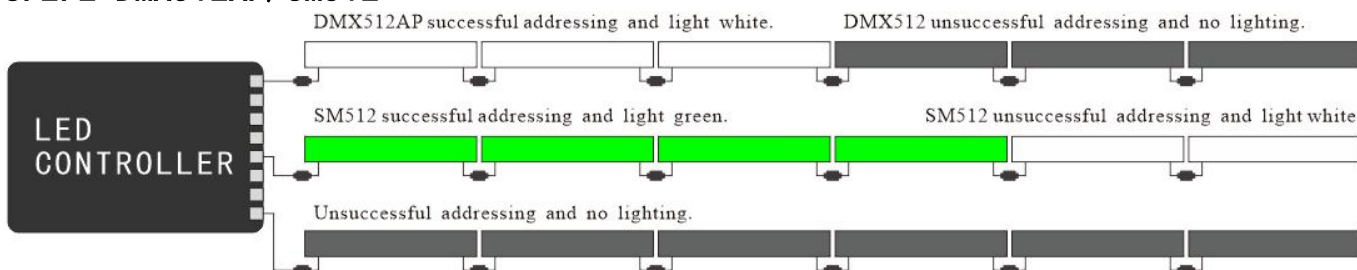
The addressing cable between the controller and the first lighting fixture must connect.

Otherwise controller can not send the addressing data to the DMX512 lighting fixture.

When the UCS512A/B lighting fixture is addressed successfully, the lighting fixture will be blue light.

Or it means the connection is abnormal. Please check the cable again.

### 6.2.2 DMX512AP/SM512



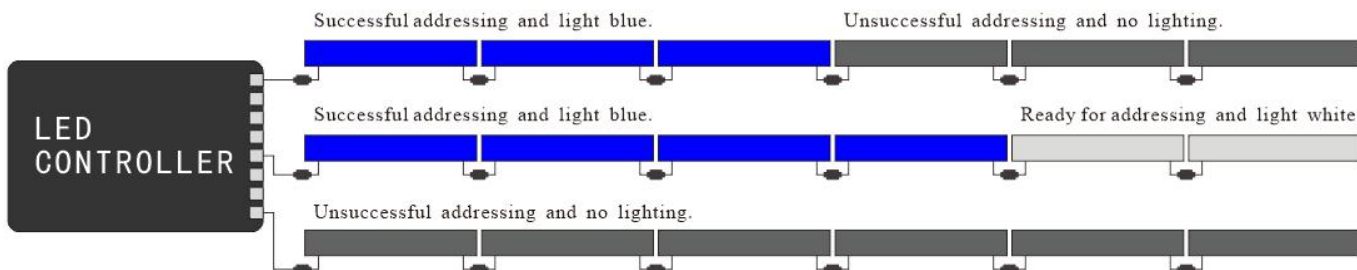
The addressing cable between the controller and the first lighting fixture must connect.

Otherwise controller can not send the addressing data to the DMX512 lighting fixture.

When the DMX512AP/SM512 lighting fixture is addressed successfully, the lighting fixture will be white (or green) light.

Or it means the connection is abnormal. Please check the cable again.

### 6.2.3 SW-U



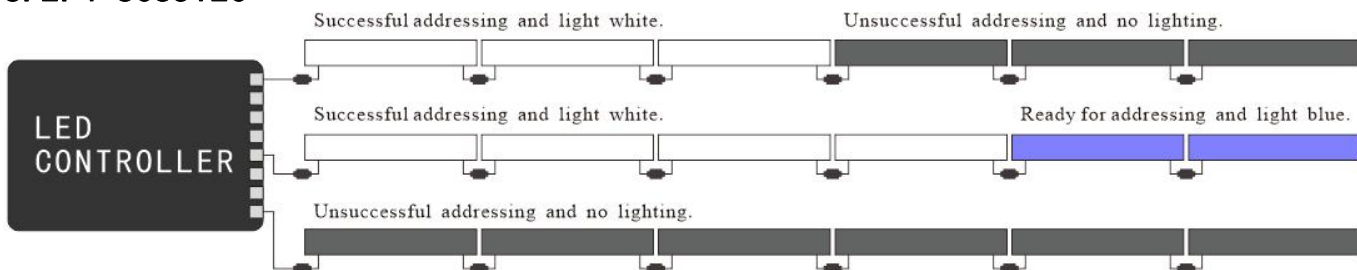
The addressing cable between the controller and the first lighting fixture must connect.

Otherwise controller can not send the addressing data to the DMX512 lighting fixture.

When the SW-U lighting fixture is addressed successfully, the lighting fixture will be blue light.

Or it means the connection is abnormal. Please check the cable again.

### 6.2.4 UCS512C\*

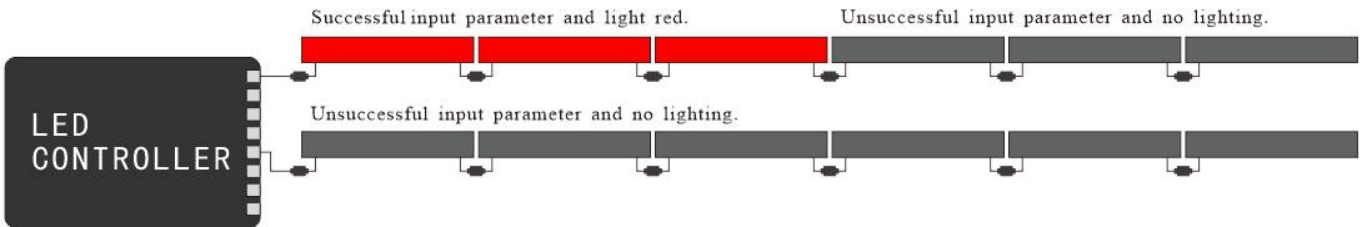


The addressing cable between the controller and the first lighting fixture can not connect.

The controller will send the addressing data by RS-485 signal.

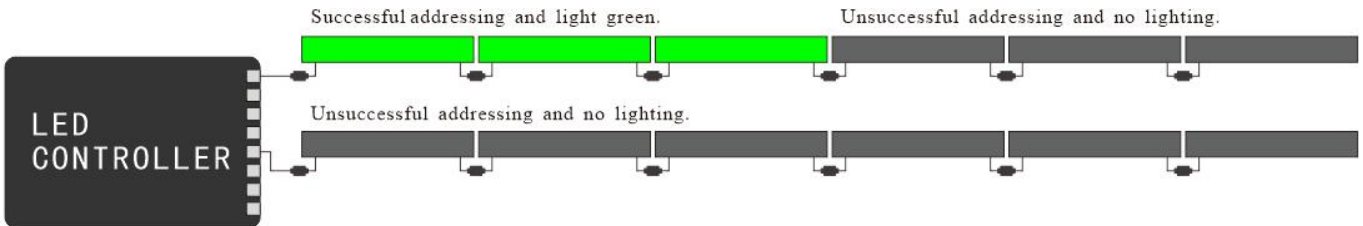
When the UCS512C\* lighting fixture is addressed successfully, the lighting fixture will be white light.

Or it means the connection is abnormal. Please check the cable again.

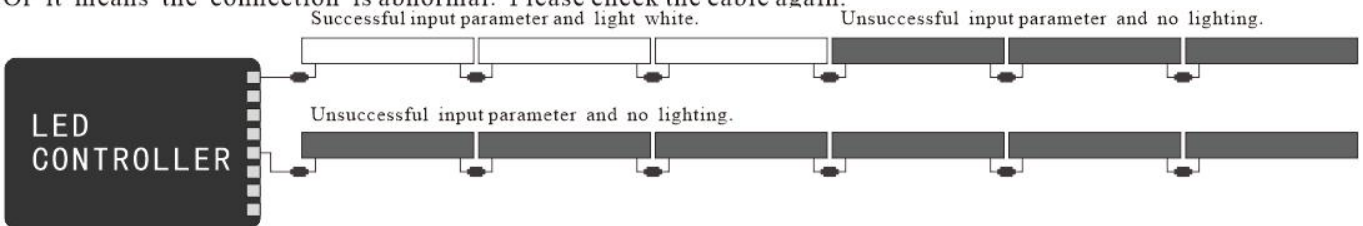


The addressing cable between the controller and the first lighting fixture can not connect.  
 The controller will send the parameter by RS-485 signal.  
 When the UCS512C4 lighting fixture is entered in parameter successfully,  
 the lighting fixture will be red light.  
 Or it means the connection is abnormal. Please check the cable again.

### 6.2.5 SM16512

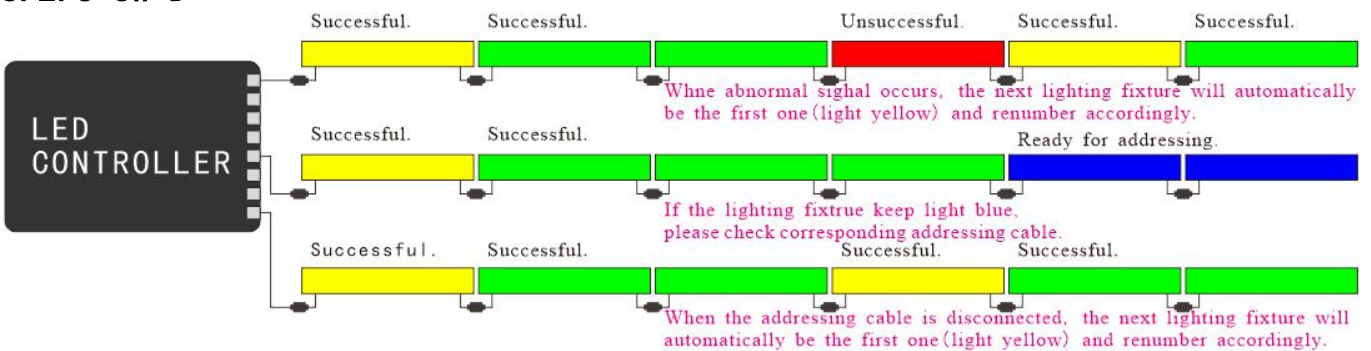


The addressing cable between the controller and the first lighting fixture can not connect.  
 The controller will send the addressing data by RS-485 signal.  
 When the SM16512AP lighting fixture is addressed successfully,  
 the lighting fixture will be green light.  
 Or it means the connection is abnormal. Please check the cable again.



The addressing cable between the controller and the first lighting fixture can not connect.  
 The controller will send the parameter by RS-485 signal.  
 When the SM16512AP lighting fixture is entered in parameter successfully,  
 the lighting fixture will be white light.  
 Or it means the connection is abnormal. Please check the cable again.

### 6.2.6 SW-D



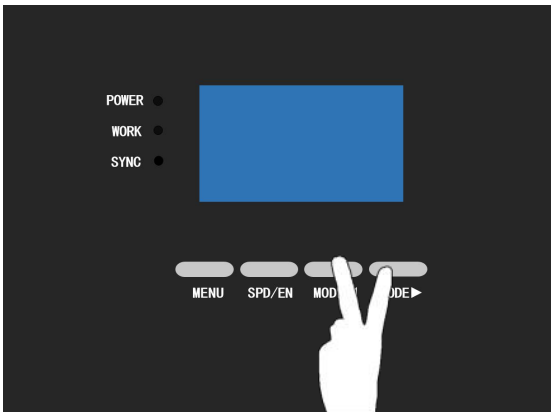
The addressing cable between the controller and the first lighting fixture can not connect.  
 The controller will send the addressing data by RS-485 signal.  
 When the SW-D lighting fixture is addressed successfully,  
 the first lighting fixture will be yellow light,  
 and it will be green light from the second.  
 Or it means the connection is abnormal. Please check the cable again.

## 6.3 ADDRESSING OPERATION

### 6.3.1 ADDRESSING OFF-LINE

For addressing operations please refer to following example. (The whole process should be conducted with plugging card.)

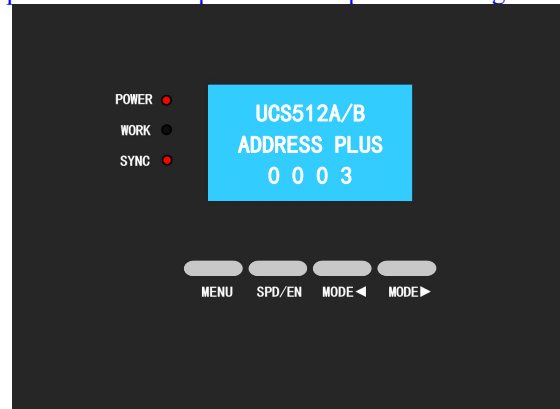
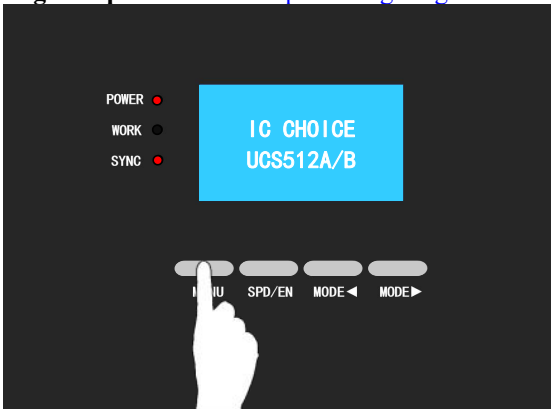
- 1) Long press “MODE◀” and “MODE▶” together, press power switch and don’t release the button until the screen shows IC CHOICE \*\*\*.



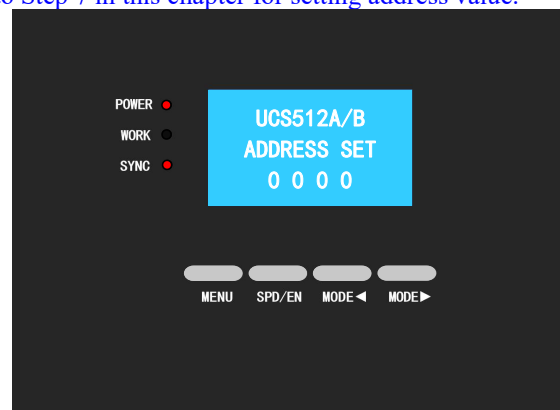
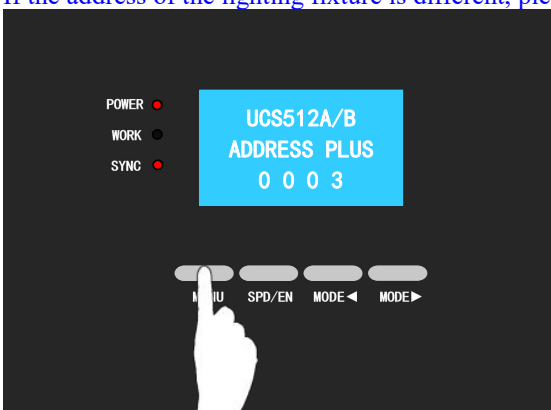
Addressing mode must be consistent with lighting fixture, otherwise the addressing will be invalid.

☺ Press “MODE◀” and “MODE▶” can change the type of chip.

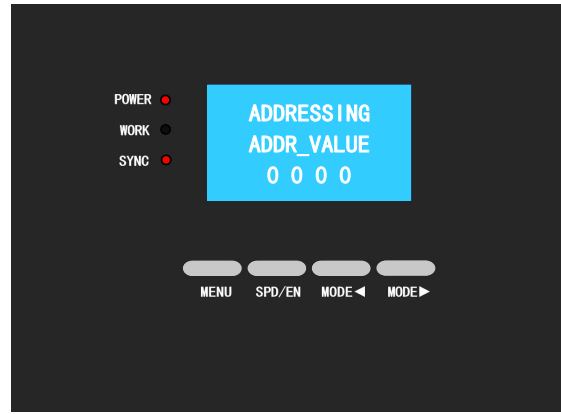
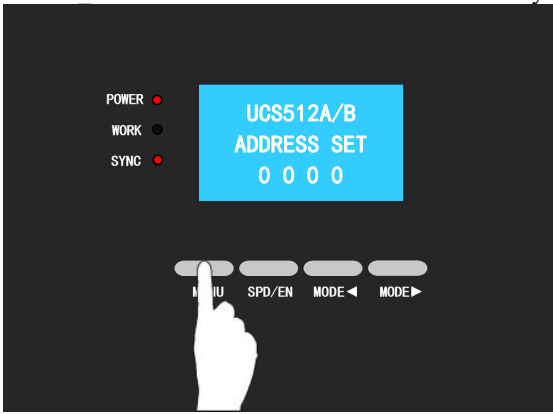
- 2) Long press “MENU” and don’t release the button until the screen shows \*\*\* ADDRESS PLUS 0003. It’s the status of entering address. (It will memorize previous address plus data.) “0003” means need to enter the number of channels in single chip. If the address plus of lighting fixture is different, please refer to Step 6 in this chapter for setting it.



- 3) Long press “MENU” and don’t release the button until the screen shows “\*\*\* ADDRESS SET 0 0 0 0”. It’s the status of entering address. (It will memorize previous address setting data.) “0000” means entering “Automatic” addressing mode. If the address of the lighting fixture is different, please refer to Step 7 in this chapter for setting address value.

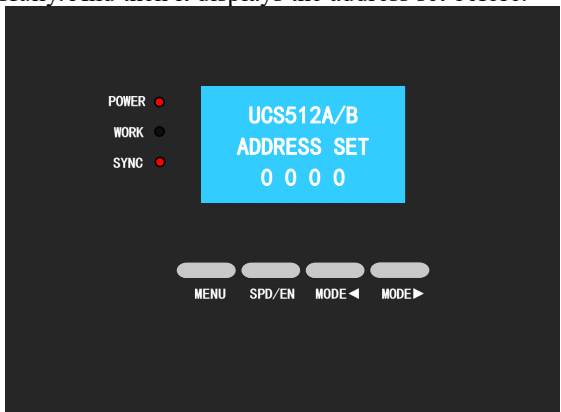
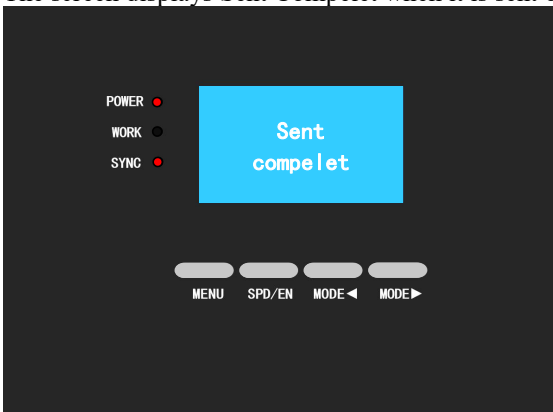


- 4) If the address is confirmed, please long press “MENU” and don’t release the button until the screen shows ADDRESSING ADDR\_VALUE 0000. Then the data is sent out by controller.



✘ The buttons are useless for sending the address.

- 5) The screen displays Sent Complete when it is sent out successfully. And then it displays the address set before.



When DMX lighting fixture is addressed successfully, the lighting fixture will be the particular light. When the other color occurs, that means this lighting fixture is addressed unsuccessfully.

UCS512C4 and SM16512 will input parent after addressing. UCS512C4 is lighting red and SM16512 is lighting 50% white.

✘ At this time (controller can be power on), directly connect to DMX lighting fixture with same specification and chip which need to be addressed. Then repeat Step 4 for addressing.

If the address is found to be wrong after sending out the data, please repeat Step 7 and Step 4 to re-address the lighting fixture.

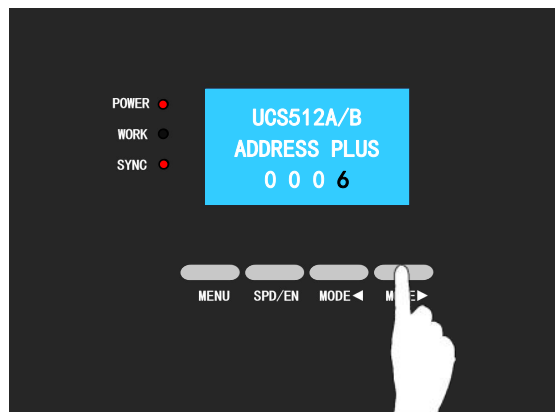
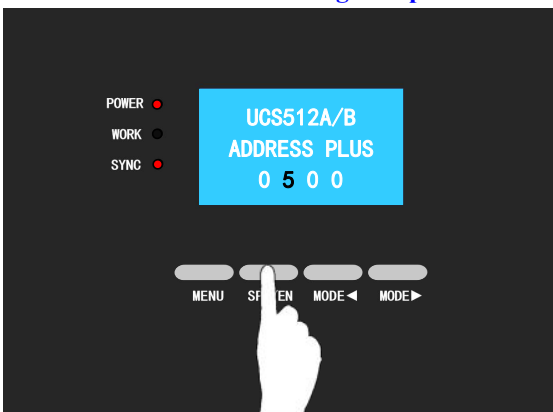
If fail to set the address, please check connection of the lighting fixture again. Please repeat Step 4 to send the data one more time.

- 6) Address Plus modification.

Press “MENU” to increase the 1<sup>st</sup> value. Press “SPD/EN” to increase the 2<sup>nd</sup> value.

Press “MODE◀” to increase the 3<sup>rd</sup> value. Press “MODE▶” to increase the 4<sup>th</sup> value.

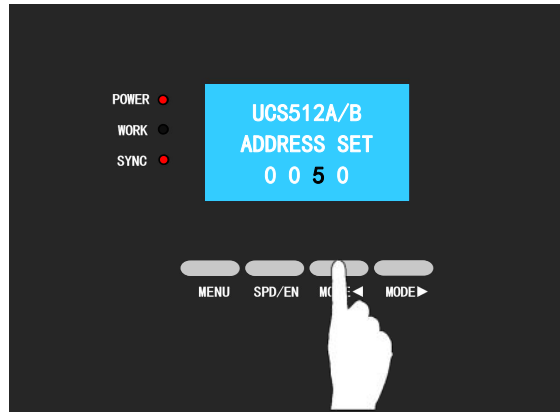
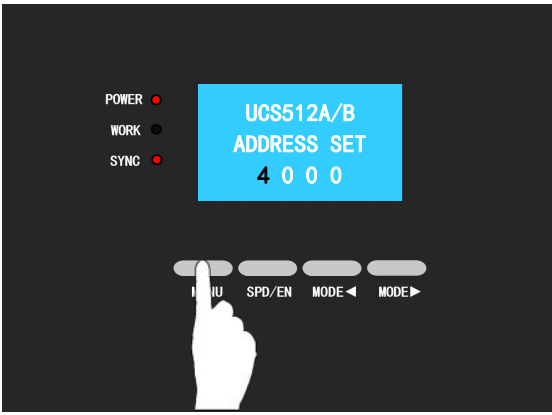
✘ Number of channels in single chip can be found in green column of reference table.



★ Address the lighting fixture directly after modifying address plus. Please restart the controller to enter addressing interface if user find address plus is wrong after sending out.

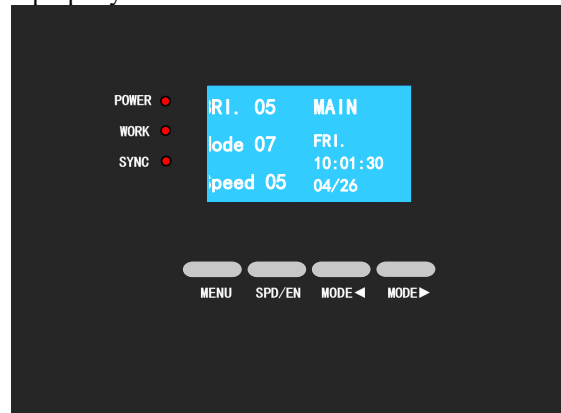
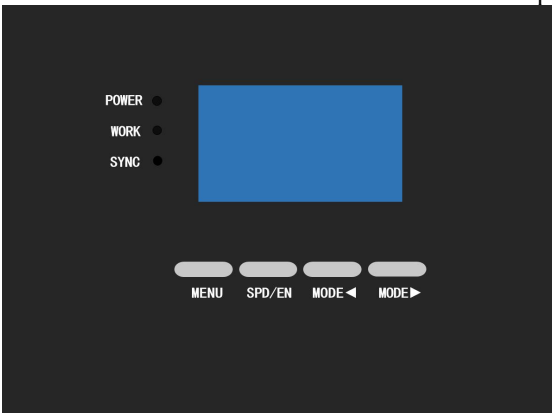


- 7) Address modification.  
 Press “MENU” to increase the 1<sup>st</sup> value. Press “SPD/EN” to increase the 2<sup>nd</sup> value.  
 Press “MODE◀” to increase the 3<sup>rd</sup> value. Press “MODE▶” to increase the 4<sup>th</sup> value.



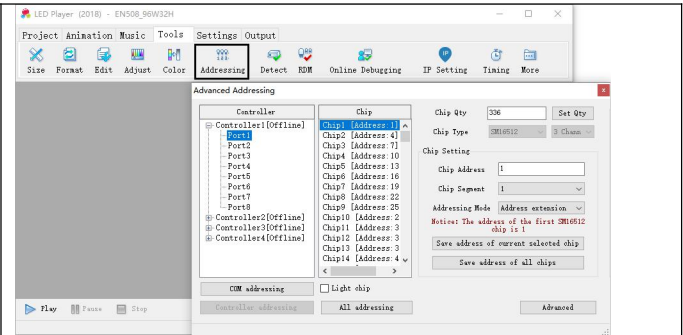
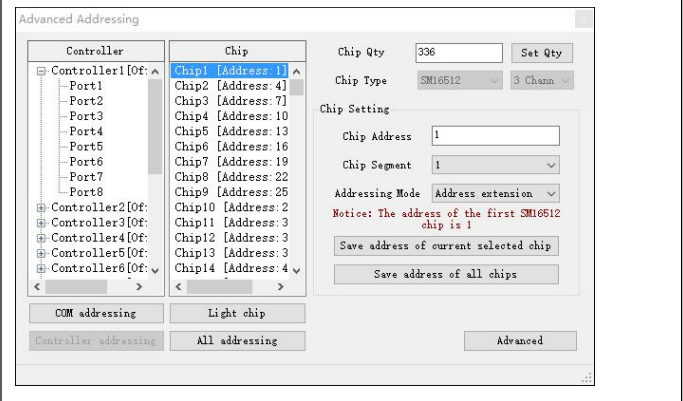
★ After modifying the address, please repeat Step 4 to send the data one more time.

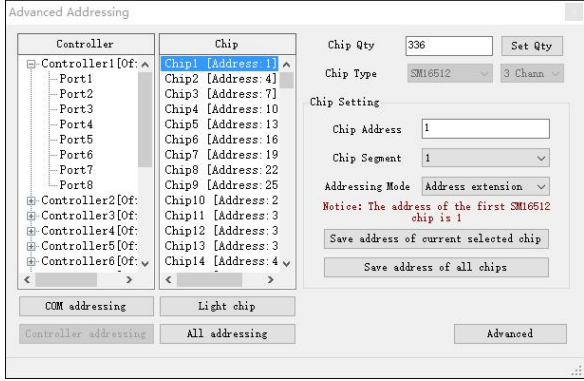
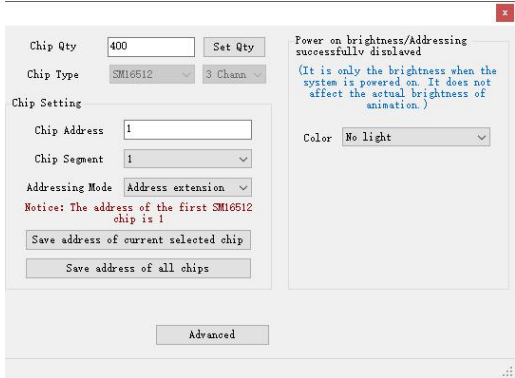
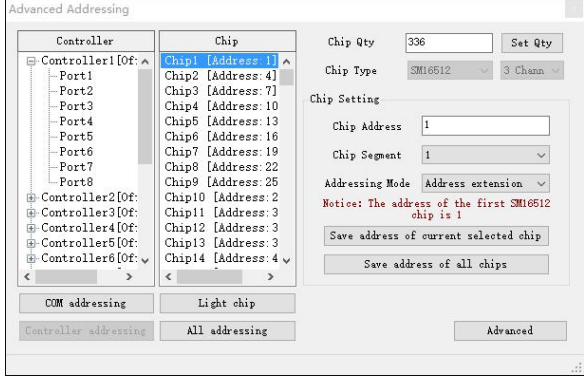
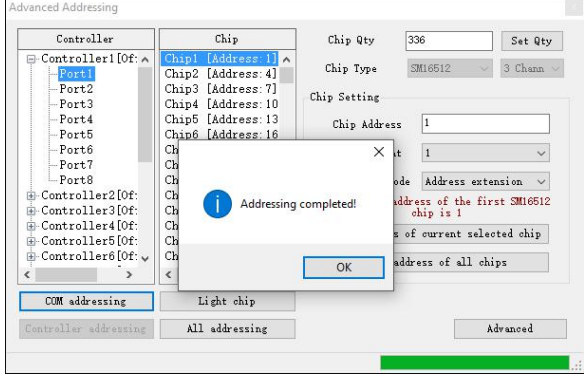
- 8) It has memory function that only needs to set the address once. When the controller and lamp are power on again, controller enters normal control mode and the lamp plays effect properly.



### 6.3.2 ADDRESSING ON-LINE

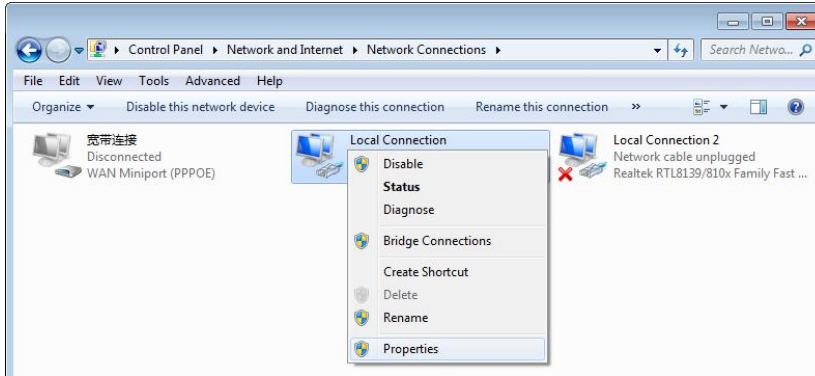
It can intelligently address the DMX lighting fixtures

ENTER-IN ADDRESSING	Click “Addressing” of “Tools” in  RGBPlayer.	
THE HARDWARE INFORMATION	<p><b>Controller:</b> It shows the number of controllers in the project automatically.          [Online] is that the controllers connection work.          [Offline] is that the controllers connection close. It cannot address the lighting fixture.          If the controller output control another lighting fixtures except DMX series, it shows taboo. It can be modified in SETUP.</p> <p><b>Chip:</b> It shows the number/address of ships.</p>	

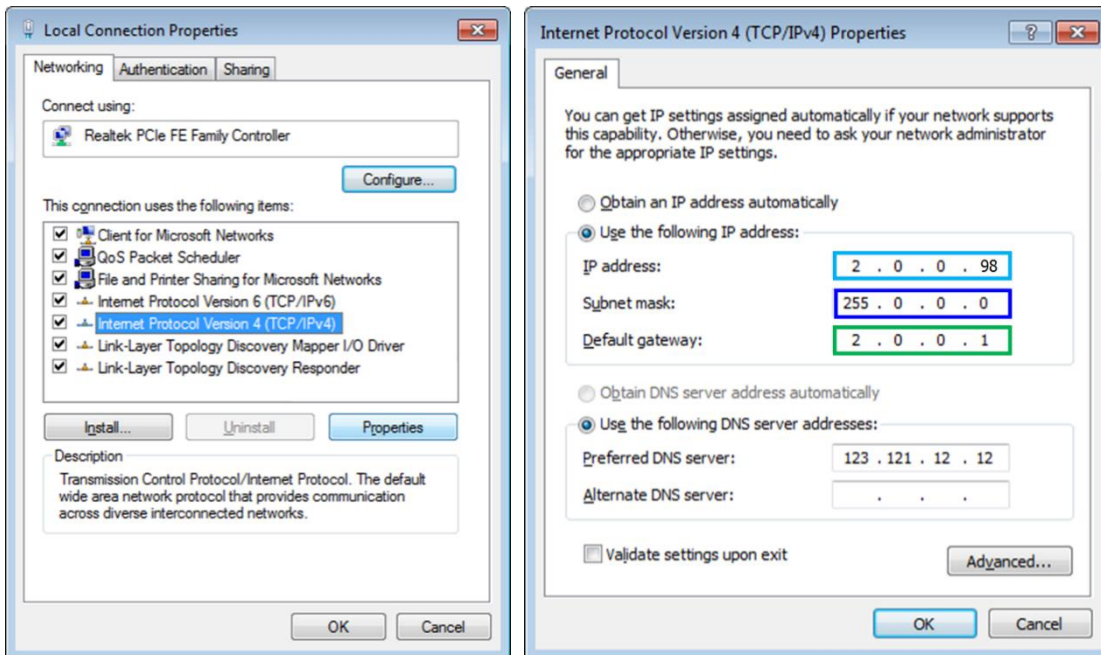
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">SETUP THE CHIPS' ADDRESSING</p>	<p><b>Chip Qty:</b> It reads the setup while first be used. It can be set manually and click Set Qty to save.</p> <p><b>Chip Type:</b> It reads the setup while first be used. It can be modified in SETUP.</p> <p><b>Chip Address:</b> It can be set the address of the select chip, and click Save.</p> <p><b>Chip Segment:</b> It can be set the pixel of the select chip, and click Save.</p> <p><b>Addressing Mode:</b> None, Address extension, Use the same address.</p> <p><b>None</b> It only saves the address of the selected chip. And the others will not be changed.</p> <p><b>Address Extension</b> It only saves the address of the selected chip. And the others will be extended.</p> <p><b>Use The Same Address</b> It saves the same address of all chips.</p> <p><b>Save Address of Current Selected Chip:</b> Click and save the address of the selected chip.</p> <p><b>Save Address of All Chips:</b> Click and save all chips. The each chips' address will change by the address setting and the segment setting.</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">SETUP THE CHIPS DATA</p>	<p><b>Advanced:</b> If the controller output control UCS512C4 or SM16512, It will be set up the Power-on brightness.</p>	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">ADDRESSING</p>	<p><b>Com Addressing:</b> It will be used by the selected port. Click it and the lighting fixtures in the selected port will be addressed.</p> <p><b>Controller Addressing:</b> It will be used by the selected controller. Click it and the lighting fixtures in the selected controller will be addressed.</p> <p><b>All Addressing:</b> Click it and the all lighting fixtures will be addressed. (The offline controller cannot address.)</p> <p><b>Light Chip:</b> Click it and light up the selected chip. Please make sure the address of chips in <b>RGBPlayer</b> are same with the lighting fixtures'.</p>	
	<p><b>RGBPlayer</b> shows the progress bar in the lower right corner. It shows "Addressing completed!" when all the EN-508 controller receive the addressing data. <b>It is not the lighting fixtures addressing correct. The addressing successful is according to the light corlor.</b> UCS512C4 and SM16512 shows the power-on light corlor after the addressing successful light corlor.</p>	

## 7. IP Address Setting (PC)

1. Open “Network Connection” on the PC, right click “Local Connection” and select “Properties”.



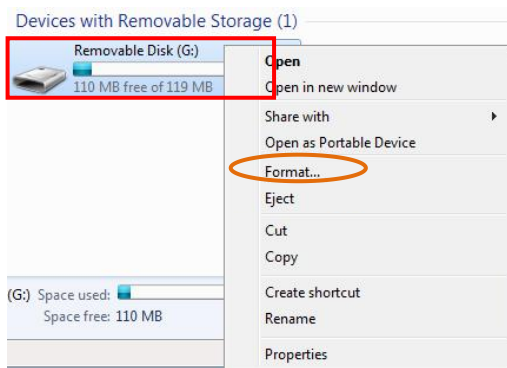
2. Select Internet Protocol (TCP/IP), then click “Properties”. Setting the IP address below.



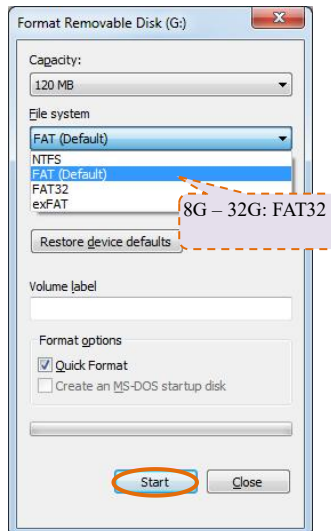
3. Click “OK” after the setting is finished.

## 8. SD CARD COPY

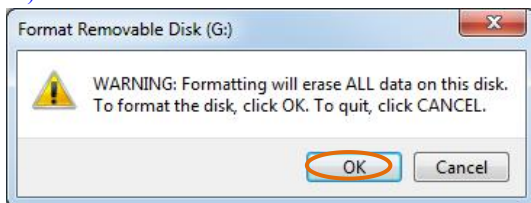
1) Right click the disk where the SD card locates.



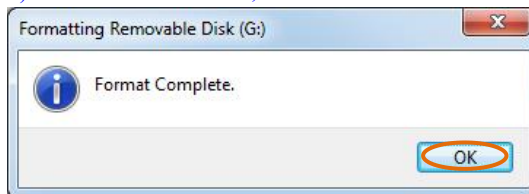
2) Select –FAT (Can tick off “Quick Format”) and click START.



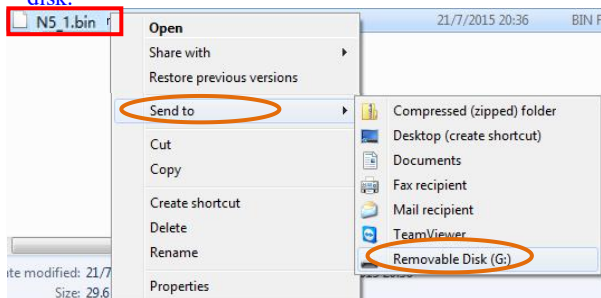
3) Confirm to format the Disk.



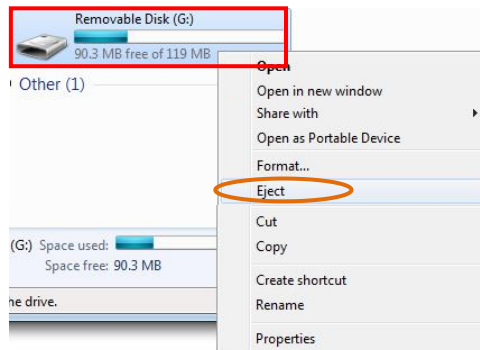
4) Finished the formatted, click confirm to exit.



5) Right click N5\_1.Bin file, send the file to removable disk.



6) Right click removable disk and select pop to pop the SD card.



7) Put the SD-card into controller. When start the equipment the SD- card can use. (There is only one bin file in the card.)