EN-508 MANUAL

Version: 3.

Model: EN-508-F10

2021-4

CONTENTS

1. FUNCTION OVERVIEW

1. Support access and control by Madrix software or LED Player software.
2. Unique data processing method for the display with complex shape, it's easy to make a solution.
3. It supports 1,000,000 channels or cascade connection of 400 pieces controllers.
4. Use Art-Net Tool software to set the IP address of the controller online (which can also be set by key of the controller), the self-check chip, the baud rate and the number of channels.
5. Support one-key addressing function, LED Player software search equipment and detection of packet loss rate.
6. Support our IAP-Loader software upgrade online.
7. 8-port data-independent signal output (with the isolation), control variety of regular chips in LED digital tube screen, LED pixel light screen, and etc.

SW Single chip:	D**S, D**J.
Single-wire:	TM180*-400K/800K, UCS19**, UCS29**, WS2811/12, TLS3001(1Mhz), SM167**.
DMX512:	SW-D, SW-U, UCS512A/B/C0/C4/D/E0/EH/G4/G6, DMX512AP/SM512, SM16500P/511/512, SM17500P/512P/522P, SM17512/522, SM18522P/PH, SM16823E/824E, Hi512A0/A4/A6, TM512AB3/AL1/ACx/AD/AE, QED512P, GS8512/513/515, standard DMX512 lighting fixture on the market. Please refer to the "CHIP SUPPORT" section for addressing.
Break-point resume:	UCS5603, WS2818, GS8206, P9883, TM1914, XT1506S.
65536 gray scale:	UCS8903, UCS8904, UCS9812, SM16813.

8. With professional LED Player software, user can make any effect by themselves.
9. Encryption function is available when use with customized controller.
10. The load capacity of different lighting fixtures is different. (If frame frequency is not required, load capacity of each channel can be increased independently, and must test it in the factory.)

2. TECHNICAL PARAMETERS

Cover material:	Iron
Input voltage:	AC100V - 240V
Input signal:	The RGB signal of Art-Net protocol, SW Ethernet Protocol
Output port:	TTL & RS-485 * 8 ports
Pixel driven:	Madrix software: Single chip: 4 universes × 512 channels × 8 ports Standard DMX512: 2 universes × 512 channels × 8 ports LED Player software: Single chip: 2880 channels ×8 ports, Single-wire: 3072 channels ×8 ports, Standard DMX512: 512 channels ×8 ports, Extensible DMX: 1024 channels ×8 ports, Break-point resume: 2160 channels ×8 ports, 65536 gray scale: 2160 channels ×8 ports.
Output power:	5W
Working temperature:	-15℃～60℃
Relative humidity:	≤50%
Connecting mode:	In parallel (address manually)
IP grade:	IP20 (Prevent people from touching the components inside electrical appliance, prevent object which diameter is more than 12.5mm from getting in, no special protection to water or moisture.)
Working environment:	1.Please do not install the controller in magnetic, high pressure, high temperature or seriously wet environment.

2.Please do connect the earth safely in order to reduce risks of fire and damage which cause by short circuit.

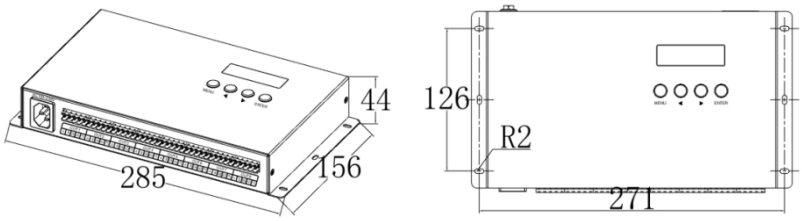
3.Please ensure AC100-240V power supply is used, and same polarity is connected between transformer and controller in order to guarantee the proper supply voltage.

4.No waterproof function in the control system, please pay attention on rainproof and waterproof during installing.

Net weight: 1.5kgs

Size: L285*W156*H44

Unit mm

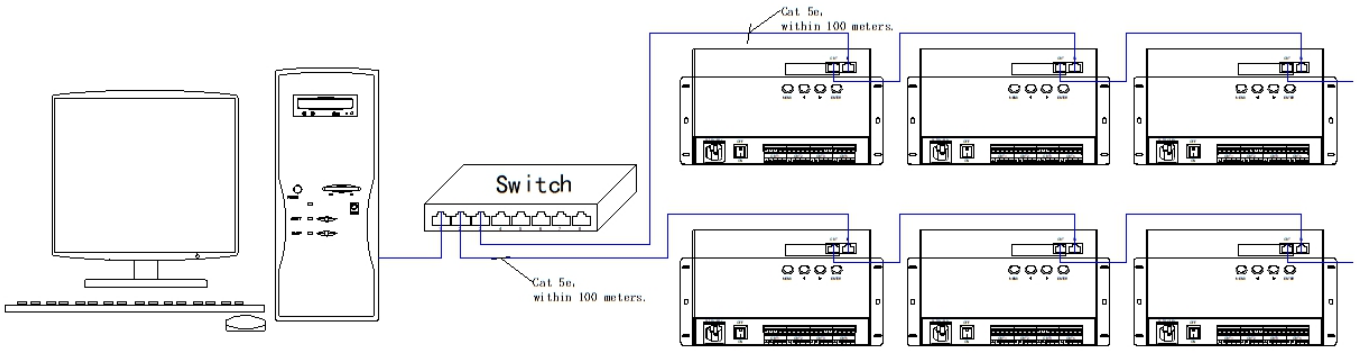


3. CONNECTION MODE

3.1. PORT INTRODUCTION

Port	Description	
IN	Connect with PC / SN controller / EN controller.	
	Top left light	Signal indicator, flicker when the 8 output port output the correct signal.
	Top right light	Nonuse.
OUT	Connect with EN controller.	
	Top left light	Receive data indicator, flicker when the control gain the data completely..
	Top right light	Nonuse.

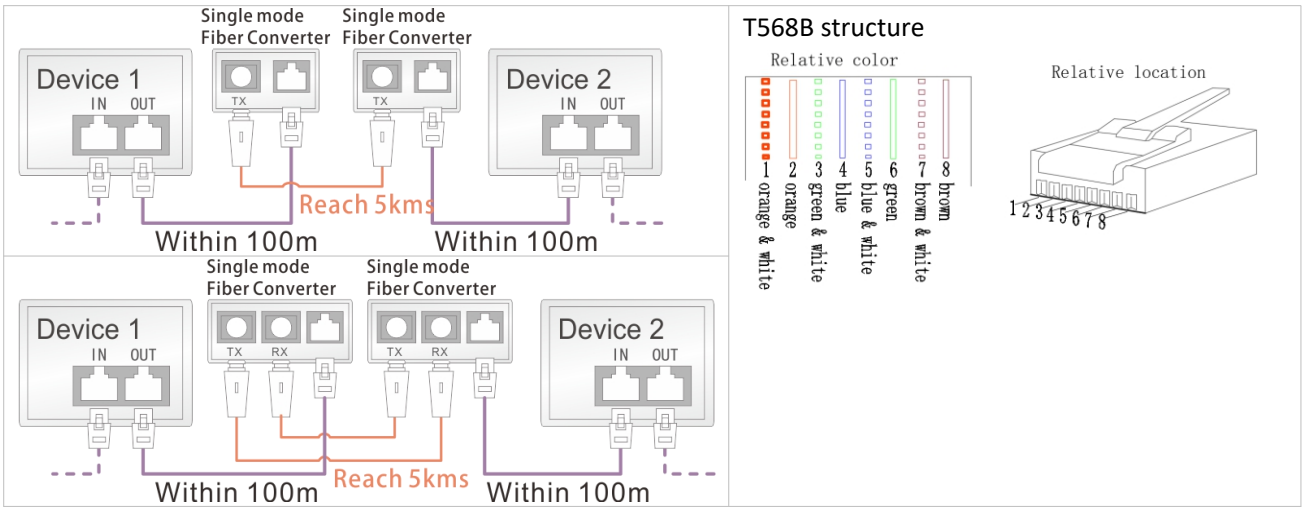
3.2. CONNECTION DIAGRAM OF CONTROLLER



★Connect with switch (gigabit) in order to improve the efficiency of data transmission.

3.3. OPTICAL FIBER COMMUNICATION

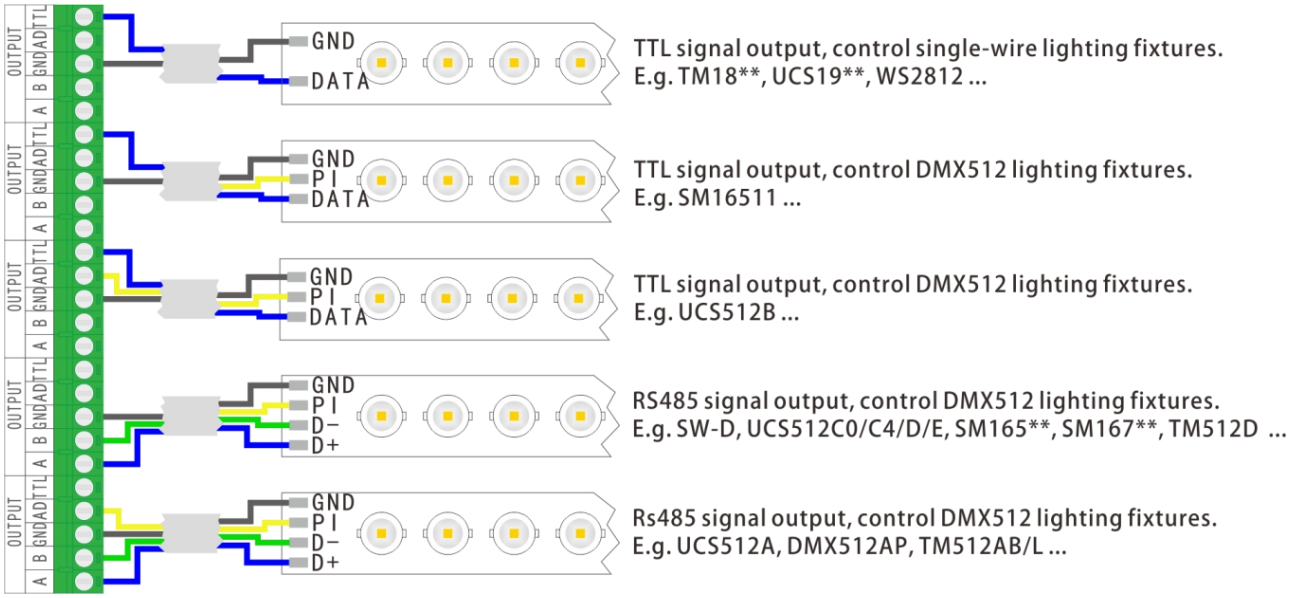
Must use single mode transceivers. User can use single fiber or double fiber (alternative) according to on-site condition. The double fiber transceiver must be connected with two optical fibers. **It cannot use in EN controller when ID is 00 and the connecting position of EN controller and lighting fixture.**



Use UTP, distance between the controllers can be 100m. It can be 5km if use the optical fiber.

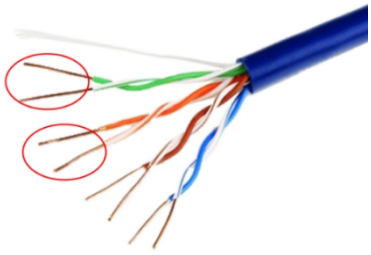
3.4. CONNECT WITH LIGHTING FIXTURE

Please connect the cables in accordance with silk print on lighting fixture.



★ Signal cables connection cautions:

1. Use UTP—Unshielded Twisted Pair (resistance per 100M<10Ω), low quality Ethernet cables, telephone cables and copper wires are unavailable.
2. Use one group twisted pair, suggest green + green white or orange + orange white. The quality and color of the cable are very important. Blue and brown wires greatly influence the signal transmission. Please don't use several groups of twisted pairs together.
3. Controller signal output GND must connect directly with input GND of lighting fixture. ***Cannot connect with lighting fixture through power supply***.
4. Switch on the controller after all hardware signal and power cables are connected. Please *don't CONNECT / DISCONNECT* the signal cables while the controller is power on;avoid back-flow current burning circuit and components of output port.

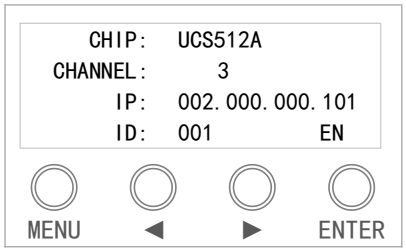


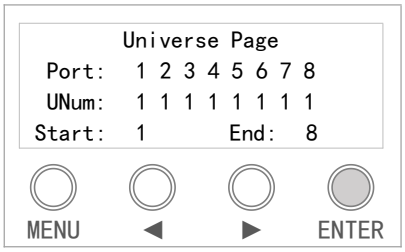
3.5. TRANSMISSION DISTANCE

Transmission Type	Signals	Medium	Distance (M)	Remark
MP / PC → EN controller EN controller → EN controller	100M Ethernet	UTP CAT5e	50-80	
EN controller→DMX lighting DMX lighting→DMX lighting	RS-485	UTP CAT5e	30-50	The address wire must be within 5m. Controllable pixels reduce if wire is over 5m.
		Three core wire	1-20	
		Four core wire	1-20	
EN controller→Single-wire lighting DMX lighting→DMX lighting	TTL	UTP CAT5e	5-20	
		Two core wire	1-5	
		Three core wire	1-5	
Single-wire lighting→Single-wire lighting	TTL	UTP CAT5e	1-2	Pixels controlled less if over 1m.
		Two core wire	0.1-1	

4. BASIC OPERATION

4.1. MENU INTRODUCTIION



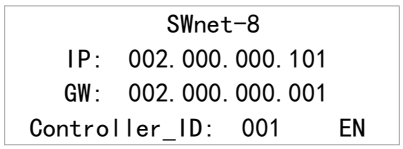


Menu	Button	Description
/	MENU	Function list: ID Setting, IP Setting, Configurate Addressing, Test Effect, Chip, Channel, Baud Rate Setting, Language Setting, Restore factory Setting.
/	ENTER	Enter in setting interface. Confirm and save after modification.
ID Setting	◄	Decrease value.
	►	Increase value.
IP Setting	◄	Increase value.
	►	Move the cursor to the right.
Configurate Addressing	ENTER	Long press, start addressing.
Test Effect	◄	Press to toggle the previous effect.
	►	Press to toggle the next effect.
Chip	◄	Press to toggle the previous chip.
	►	Press to toggle the next chip.
Channel	◄	Move the cursor to the left.
	►	Move the cursor to the right.
Baud Rate Setting	◄	Press to toggle the previous baud rate.
	►	Press to toggle the next baud rate.
语言设置	◄	Move the cursor to the left.
	►	Move the cursor to the right.
Restore Factory Setting	◄	Move the cursor to the left.
	►	Move the cursor to the right.

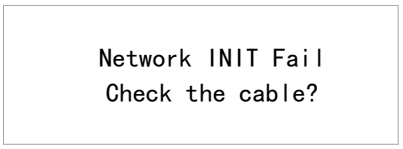
4.2. PARAMETERS SETTINGS

4.2.1. STARTING UP DISPLAY

1. PC connects with controller by network cable, switch on the power. Controller screen will display “Network INIT...”. After few seconds, it becomes “Network INIT OK” and jump to the page of IP address information. In this case, the network of the controller is accessible.

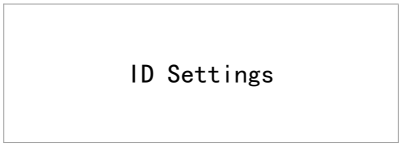


2. When the network of the controller is unavailable, the controller will show “Network INIT Fail Check the cable?” after the power switches on for a while. In this case, press “MENU” button to enter different options and conduct the setting.



4.2.2. ID SETTINGS

1. Press “MENU” button and select *ID Setting*, press “ENTER” button to enter it and set the ID.



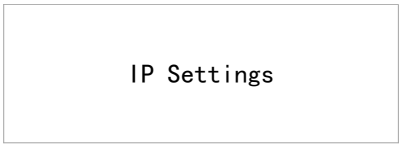
2. Press“►” and “◄” button to decrease/increase the value.

Note: Please don't open the LED Player when you are setting ID, and restart the controller to confirm the address after the setting is completed.

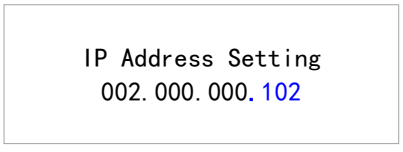
3. Press “ENTER” button to save ID if it is confirmed.

4.2.3. IP SETTINGS (ONLY FOR MADRIX SOFTWARE)

1. Press “MENU” button and select *IP Setting*, press “ENTER” button to enter it and set the IP.



2. Press“►” and “◄” button to decrease/increase the value.



Note: All controller must be set different IP. In the meantime, Set the first controller to 101, set the second to 102, the third is 103, and so on. The IP segment of the controller should correspond to computer. If the IP of the controller is 192.168.1.101, and computer can be set to 192.168.1.98.

3. Press “ENTER” button to save IP if it is confirmed.

4.2.4. CONFIGURE ADDRESSING

1. Press “MENU” button and select *Configurate Addressing*, long press “ENTER” button to start addressing.

2. When the interface returns "Configurate Addressing", the address operation is completed.
   Note, the feature requires LED Player to send address parameters to the controller by the addressing function.
   Whether the light-fixture amp is successfully addressed actually depends on the display color of the light-fixture, refer to "UCCESSFULLY ADDRESSED AND SET PARAMETERS".
   The controller without signal can also use this function by press “MENU”.

4.2.5. TEST EFFECT

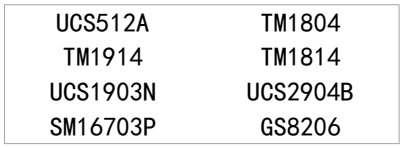
1. Press “MENU” button and select *Test Effect*, press “ENTER” button to start playing the test effects.

2. Press“►” and “◄” button to toggle the next effect. Support: Red, Green, Blue, White(RGB), White(W), Color Hopping, Pixel Pile-up, Single Port Pile-up, Port Check.

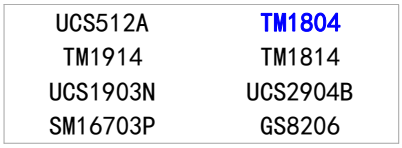
   Note, The chips and channels should be set first.
   The controller without signal can also use this function by press “MENU”.

4.2.6. CHIP SETTINGS (FOR TEST FUNCTION AND MADRIX SOFTWARE)

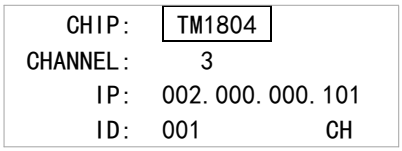
1. Press “MENU” button and select *Chip*, press “ENTER” button to set the chip.



2. Press“►” and “◄” button to toggle the chip. The chips can be set via our Art-net tool software. The maximum number of chips is 32. Default: UCS512A, TM1804, TM1914, TM1814, UCS1903N, UCS2904B, SM16703P, GS8206, LX1003, P9883.



3. Press “ENTER” button to save chip if it is confirmed. The corresponding chip can be viewed on the first line of the main interface.

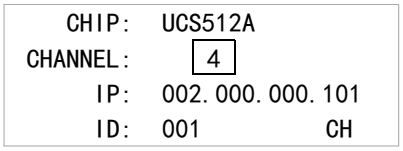


4.2.7. CHANNEL OF CHIP (FOR TEST FUNCTION AND MADRIX SOFTWARE)

1. Press “MENU” button and select *Channel*, press “ENTER” button to set the channel of chip.

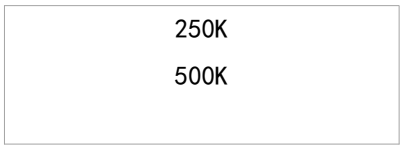
2. Press“►” and “◄” button to toggle the channel. The text flashed is selected or editable.

3. Press “ENTER” button to save channel if it is confirmed.

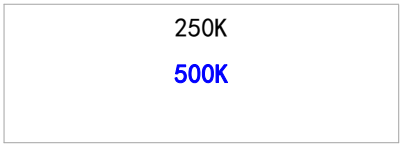


4.2.8. BAUD RATE SETTINGS (FOR TEST FUNCTION AND MADRIX SOFTWARE)

1. Press “MENU” button and select *Baud Rate Setting*, press “ENTER” button to set the baud rate.



2. Press“►” and “◄” button to toggle the baud rate. The text flashed is selected or editable.
   DMX512 lighting fixture supports 250k and 500k, and TTL lighting fixture supports 650k, 700k, 800k.



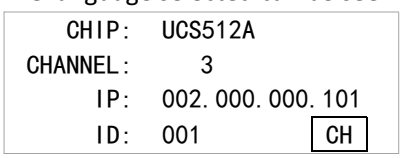
3. Press “ENTER” button to save baud rate if it is confirmed.

4.2.9. LANGUAGE SETTINGS

1. Press “MENU” button and select *Language Setting*; press “ENTER” button to enter it. Set the display language of the controller.

2. Flickering content is the one can be modified (cursor location). Press “◄” and “►” buttons to move the cursor to the left and right.

3. Press “ENTER” button to confirm the language selected, then it returns to the page of parameters.
   The language selected can be seen on the bottom right corner: CH is Chinese and EN is English.



4.2.10.RESTORE FACTORY SETTING

1. Press “MENU” button and select *Restore Factory Setting*; press “ENTER” button to enter it.

Restore Factory Setting	Restore: YES NO

2. Flickering content is the one can be modified (cursor location). Press “◄” and “►” buttons to move the cursor to the left and right.

Restore: YES NO

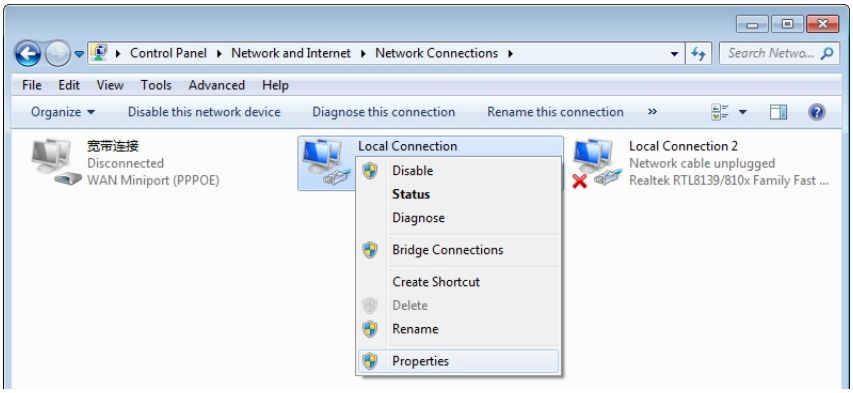
3. Press “ENTER” button to save modification if it is confirmed, then it returns to the page of parameters and all parameters become factory defaults.

CHIP: UCS512A CHANNEL: 3 IP: 002.000.000.101 ID: 001 CH

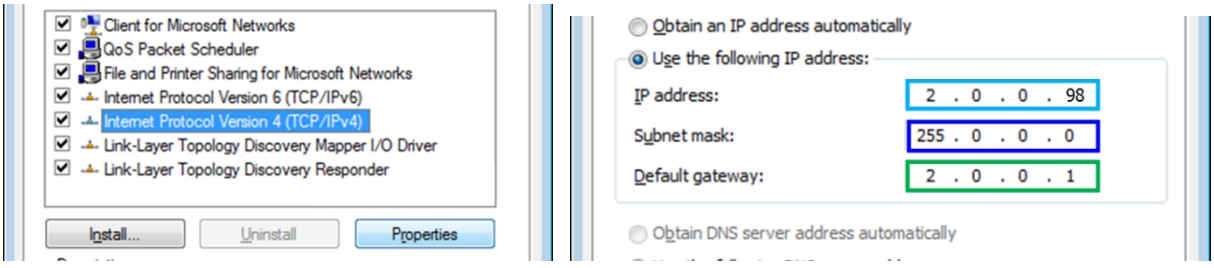
Note, parameters restored to factory state include: Chip, Channel, IP address, ID, chip list, baud rate and language.

5. IP ADDRESS SETTINGS (PC)

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



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



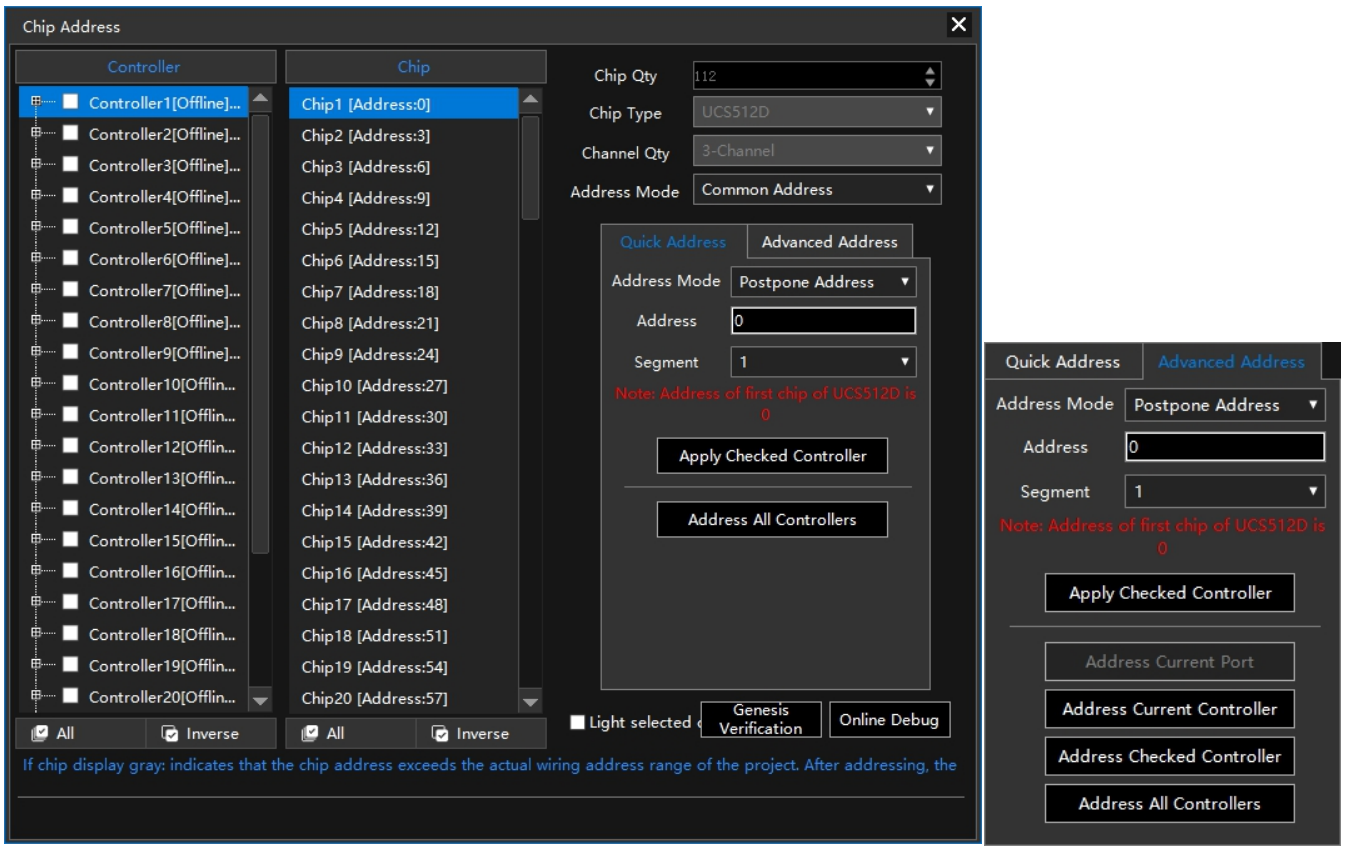
3. Click “OK” after the setting is finished.

6. ADDRESSING BY LED PLAYER

Access the controller correctly and open LED Player. Click Address of Debug to open the interface.

After setting the chip address drove by the controller, click "Address All Controllers" to save address data into controllers.

Note, If the controller is offline, there is a probability that the address data cannot be saved to the controller normally if it is offline.



Hardware	Controller	Shows the number of controllers in the project. [Online] Indicates that the controller is connected properly. [Offline] Indicates that the controller will not be able to address the lighting fixtures. [Forbidden] Indicates that the driven chip is not DMX. It can be set at “Hardware” of “Settings”.
	Chip	Shows the number of chips and address information. Maximum 960 chips per port. If the chip address is beyond the actual wiring of project, the selected chip will not "light up".
	Online Debug	Click and jump into the One Debug interface.
Chip Address Settings	Chip Oty.	The number of single drive points set by Hardware Settings.
	Chip Type	The chip set by Hardware Settings.
	Channel Qty.	The channel set by Hardware Settings.
	Address Mode	“Common Address” and “Auto-Increment”
	Address Mode	“Unselect”, “Postpone Address”, “Use Same Address”. Unselect: When saving the current chip address parameter, the address of others will not change accordingly. Postpone Address: When saving the current chip address parameter, the subsequent will automatically change according to the original channel value.

Address Application		Use Same Address: When saving the current chip address parameter, all chips are set the same address.
	Address	Set the selected chip address. The chip list will be updated automatically after it is fill in the address. Note, Please do not fill in the value exceeding total chips to avoid abnormal output.
	Segment	Sets the number of pixels driven by the selected chip. The chip list is automatically updated after it be selected the number of segments.
	Address All Controllers	Send the address parameters to all controllers.
	Advanced Address	Apply Checked Controller: Click to save the address parameter of the checked controllers. Address Current Port: Click to address the lighting fixture of current port. Address Current Controller: Click to address the lighting fixture of current controllers. Address Checked Controller: Click to address the lighting fixture of the checked controllers. Address All Controllers: Click to address the lighting fixture of all controllers. It would be addressed correctly if the controller is offline.
Light-up	Check it and click the chip under a port. The chip will light up RGB (of RGBW). And the location of this chip can be seen in the LED Player preview area. Please ensure that the data of LED Player is consistent with the address of the actual lighting fixture. (It is recommended that the luminaire be addressed once before lighting up.)	

7. APPENDIX (CHIPS ADDRESSING)

7.1. CHIP SUPPORT

Chip	Addressing	Custom Channel	Set parameters					
			No signal State	Power-on Setting	Current	Forward	Serial	GAMMA
UCS512A	√	×	×	×	×	×	×	×
UCS512B	√	×	×	×	×	×	×	×
UCS512C0	√	×	×	×	×	×	×	×
UCS512C4	√	×	×	√	×	×	×	×
UCS512CN	√	×	√	√	×	×	×	×
UCS512D	√	×	√	√	√	×	×	×
UCS512E0	√	√	√	√	√	√	×	×
UCS512EH	√	√	√	√	√	√	×	×
UCS512G4	√	×	×	×	×	×	×	×
UCS512G6	√	×	×	×	×	×	×	×
DMX512AP	√	×	×	×	×	×	×	×
SM16511	√	×	×	×	×	×	×	×
SM16512	√	×	×	×	×	×	×	×
SM16520	√	×	×	×	×	×	×	×
SM16500	√	×	√	√	×	×	×	×
SM17500	√	√	√	√	√	×	×	×
SM17512	√	×	√	√	√	×	×	×
SM17522	√	×	√	√	√	×	×	×

Chip	Addressing	Custom Channel	Set parameters					
			No signal State	Power-on Setting	Current	Forward	Serial	GAMMA
SM18522P	√	×	√	√	√	×	×	√
SM18522PH	√	×	√	√	√	×	×	√
SW-D	√	×	×	×	×	×	×	×
Hi512A0	√	√	×	×	×	×	×	×
Hi512A4	√	×	√	√	×	×	×	×
Hi512A6	√	×	√	√	×	×	×	×
Hi512D	√	×	×	×	×	×	×	×
TM512AB3	√	×	×	×	×	×	×	×
TM512AL1	√	×	×	×	×	×	×	×
TM512ACx	√	×	×	×	×	×	×	×
TM512AD	√	×	√	√	√	×	×	×
QED512P	√	×	√	√	√	×	×	×
GS8512	√	×	×	×	×	×	√	√
GS8513	√	×	×	×	√	×	√	√
GS8515	√	×	×	×	√	×	√	√

7.2. UCCESSFULLY ADDRESSED AND SET PARAMETERS

Chip	Lighting color after power on	Addressed		Byte + No signal + No signal		Current parameter		Self-Channel Setting	
		First chip	Other chip	First chip	Other chip	First chip	Other chip	First chip	Other chip
UCS512A	White	Blue	Blue	-	-	-	-	-	-
UCS512A1	White	Blue	Blue	-	-	-	-	-	-
UCS512A2	White	Blue	Blue	-	-	-	-	-	-
UCS512B3	White	Blue	Blue	-	-	-	-	-	-
UCS512C	Custom	White	White	-	-	-	-	-	-
UCS512C0	-	White	White	-	-	-	-	-	-
UCS512C3	Custom	White	White	Red	Red	-	-	-	-
UCS512C4	Custom	White	White	Red	Red	-	-	-	-
UCS512CN	Custom	Yellow	White	Yellow	Power on	-	-	-	-
UCS512D	Custom	Yellow	White	Yellow	Power on	Yellow	Red	-	-
UCS512E0	Custom	Yellow	White	Yellow	Power on	-	-	Yellow	Green
UCS512EH	Custom	Yellow	White	Yellow	Power on	Yellow	Red	Yellow	Green
UCS512G4	Custom	Yellow	White	White (Or custom)	White (Or custom)	White	White	-	-
UCS512G6	Custom	Yellow (Or custom)	White (Or custom)	White (Or custom)	White (Or custom)	White	White	-	-
DMX512AP	-	White	White	-	-	-	-	-	-
SM16512	-	Green	Green	-	-	-	-	-	-
SM16511	-	Green	Green	-	-	-	-	-	-
SM16520	-	Green	Green	-	-	-	-	-	-
SM16500	Custom	Red	Green	Red	Power on	-	-	-	-
SM17500	Custom	Red	Green	Red	Power on	Red	Yellow	Red	Purple
SM17512	Custom	Red	Green	Blue	Blue	-	-	-	-

Chip	Lighting color after power on	Addressed		Byte + No signal + No signal		Current parameter		Self-Channel Setting	
		First chip	Other chip	First chip	Other chip	First chip	Other chip	First chip	Other chip
SM17522	-	Red	Green	Red	Blue	Red	Yellow	-	-
SM18522P	-	Red	Green	Red	Blue	Red	Yellow	-	-
SM18522PH	-	Red	Green	Red	Blue	Red	Yellow	-	-
SW-D	-	Yellow	Green	-	-	-	-	-	-
Hi512A4	Custom	Red	Green	Red_	Green	-	-	-	-
Hi512A6	Custom	Red	Green	Red	Green	-	-	-	-
Hi512A0	-	White	White	White	White	-	-	-	-
Hi512D	-	Red	Green	Green	Green	Green	Green	-	-
Hi512E	-	Red	Green	Green	Green	Green	Green	-	-
TM512AB3	White	Blue	Blue	-	-	-	-	-	-
TM512AL1	White	Blue	Blue	-	-	-	-	-	-
TM512AC0	-	White	White	-	-	-	-	-	-
TM512AC2	Custom	White	White	-	-	-	-	-	-
TM512AC3	Blue	White	White	-	-	-	-	-	-
TM512AC4	Blue	White	White	-	-	-	-	-	-
TM512AD	Blue	Yellow	White	Yellow	Power on	Yellow	Red	-	-
GS8512	Custom	Red	Cyan	-	-	-	-	-	-
GS8513	Red+Cyan	Red	Cyan	-	-	-	-	-	-
GS8515	Red+Cyan	Red	Cyan	-	-	-	-	-	-

8. PARTS LIST

Picture	Model	Number	Remark
	1.5m power cord	1	
	5P Female terminal stud	9	Spare part * 1
	2meter Cat 5e (T568B)	1	