ZLED LIGHTING
ZLEDLIGHTING.COM

LT-321 DMX CONTROLLER

1. Support setting the address and parameter of DMX512 Chip.
2. Easy to operate with LCD display.
3. Multiple power supply modes, charge 3 hours for using 6 hours.
4. A variety of test animations for use.
5. Support 0-255 grades grayscale.

TECHNICAL PARAMETERS:

- **Cover Material:** Aluminum alloy
- **Input Voltage:** Micro USB DC5V2A (power bank can be connected) / DC12V-24V1A
- **Output Port:** Single data output (RS-485/5V-TTL/12V-TTL)
- **Pixel Driven:** 1920 channels/port
- **Output Power:** <10W
- **Working Temperature:** 5°50°C
- **Relative Humidity:** ≤50% RH
- **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 isused, 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:** 500g
- **Accessories:** Binding post ×3 (Orange ×1 and green ×2)

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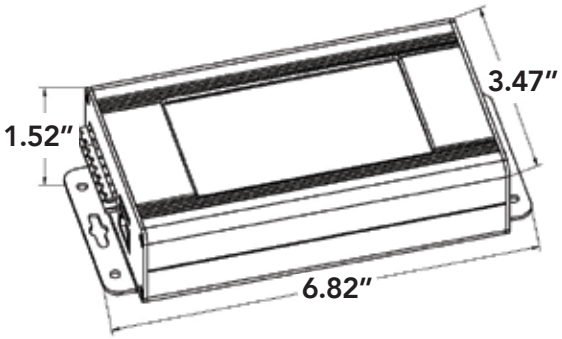
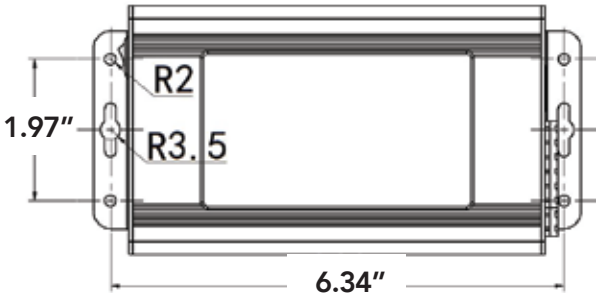
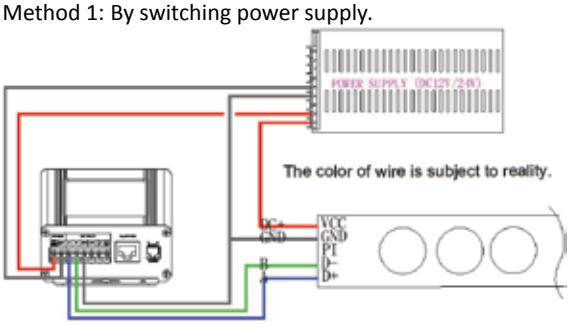
DIMENSIONS



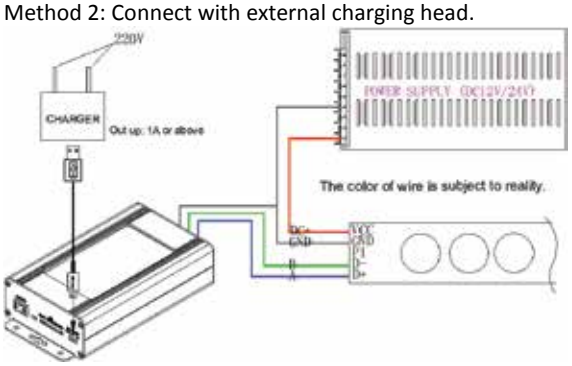


POWER SUPPLY

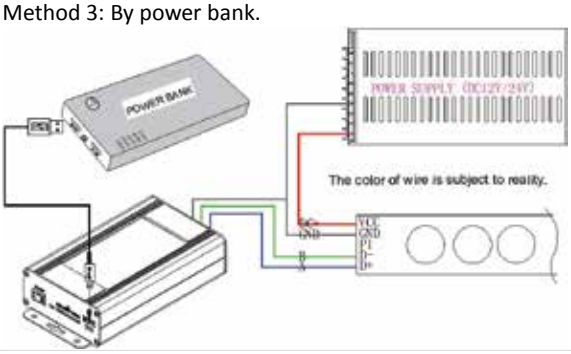
Method 1: By switching power supply.



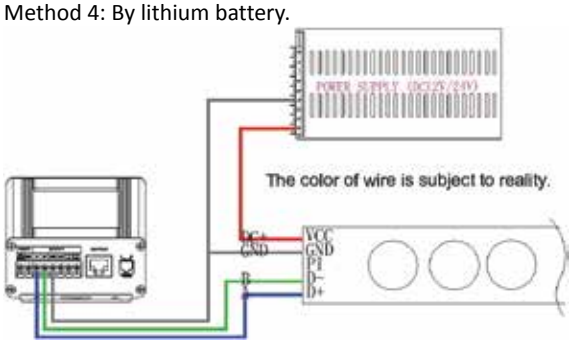
Method 2: Connect with external charging head.



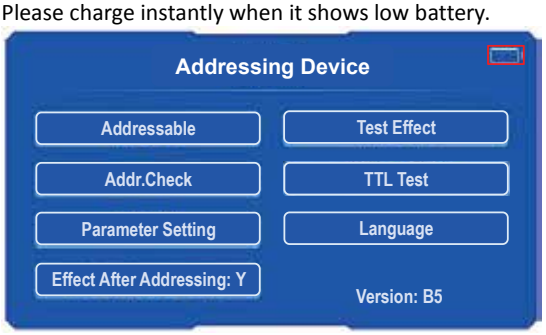
Method 3: By power bank.



Method 4: By lithium battery.



Please charge instantly when it shows low battery.



Note,

1. Do not overcharge or fully discharge in order to extend the lifetime of lithium batteries.
2. Please use regular DC5V2A adapter or stable DC12V/24V switching power supply.

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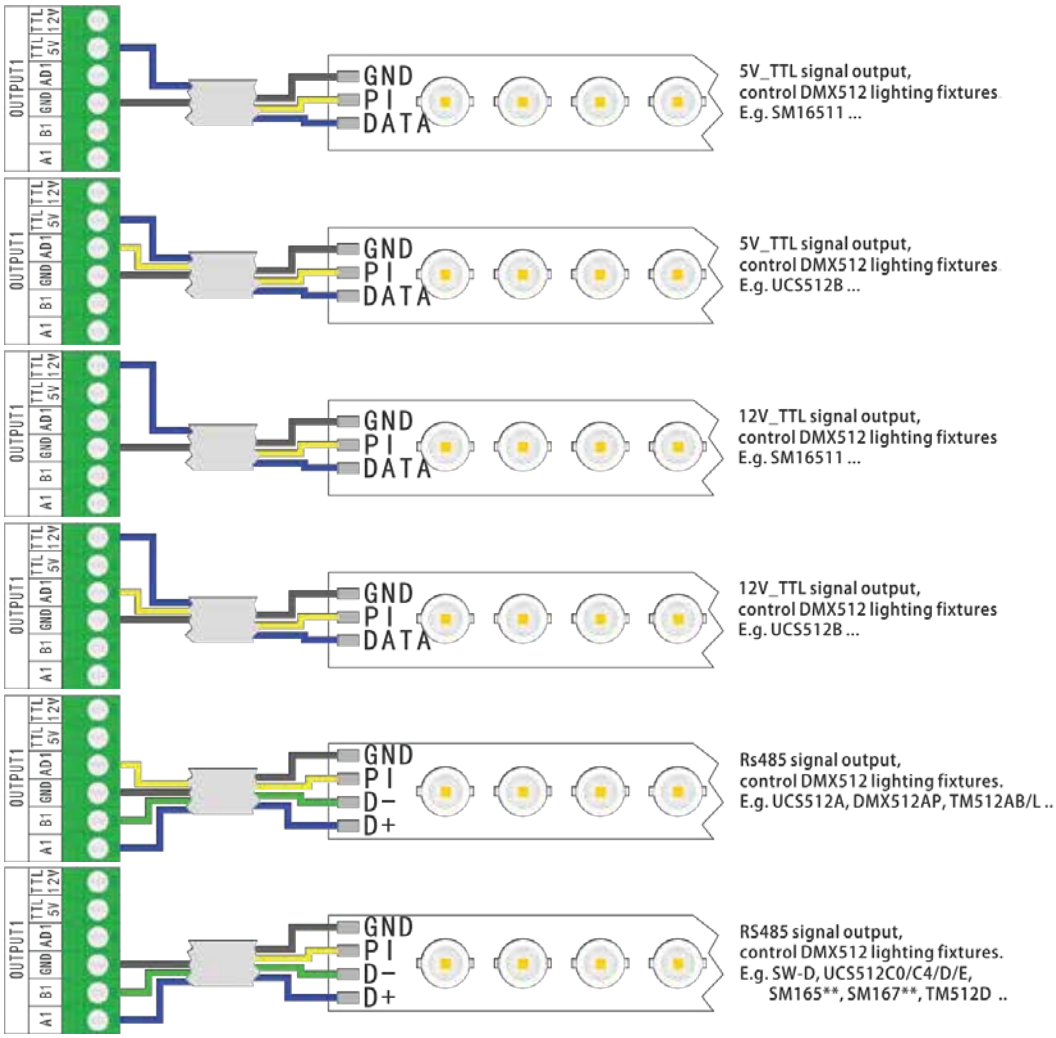
OUTPUT WIRING



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.
5. The address cable must be no more than 5m.

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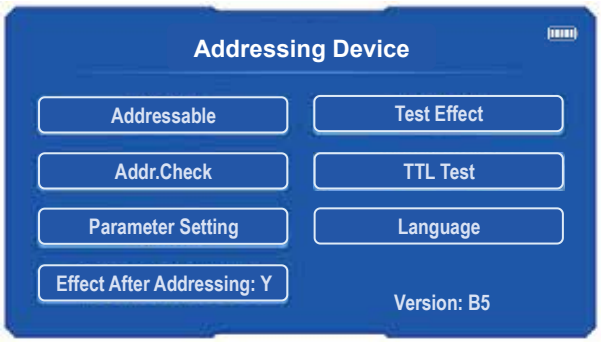
DISPLAY

Power on and show as below.



Addressable	Set the address of lighting fixture.
Addr. Check	Check the address of lighting fixture.
Parameter Setting	Set the parameter of lighting fixture.
Effect After Addressing	Set the light color after addressing.
Test Effect	Play the built-in animation.
TTL Test	Check the TTL data wiring of lighting fixture.
Language	Set the language.

OPERATION

6.1 CHIP SUPPORT

Chip	Addressing	Custom Channel	Set parameters			
			No Signal State	Power-on Setting	Current	Forward
UCS512A	√	×	×	×	×	×
UCS512B	√	×	×	×	×	×
UCS512C0	√	×	×	×	×	×
UCS512C4	√	×	×	√	×	×
UCS512D	√	×	√	√	√	×
UCS512E0	√	√	√	√	√	√
UCS512CN	√	×	√	√	×	×
DMX512AP	√	×	×	×	×	×
SM16512	√	×	×	×	×	×
SM16511	√	×	×	×	×	×
SM16520	√	×	×	×	×	×
SM16500	√	×	√	√	×	×
SM17500	√	√	√	√	×	×
SM17512	√	×	√	√	√	×
SM17522	√	×	√	√	√	×
SW-D	√	×	×	×	×	×
Hi512A4	√	×	√	√	×	×
Hi512A6	√	×	√	√	×	×
Hi512A0	√	√	×	×	×	×
Hi512D	√	×	√	√	√	×
Hi512E	√	×	√	√	√	×

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Chip	Addressing	Custom Channel	Set parameters			
			No Signal State	Power-on Setting	Current	Forward
TM512AB3	√	×	×	×	×	×
TM512AL1	√	×	×	×	×	×
TM512ACx	√	×	×	×	×	×
TM512AD	√	×	√	√	√	×
QED512P	√	×	√	×	√	×
GS8512	√	×	×	×	×	×

6.2 ADDRESS

Option	display	Introduction
Chip Type	Page 1 Chip Select SW-D DMX512AP UCS512A UCS512B UCS512C0 UCS512C4 UCS512D UCS512E-SELF Page 2 Chip Select SM16500 SM16511 SM16512 SM16520 SM17512 SM17522 SM17500-NOR SM17500-SELF Page 3 Chip Select HI512A0-NOR TM512AB3 H512A0-SELF TM512ACX HI512A4 TM512AD HI512A6 TM512AL1 Page 4 Chip Select QED512P Hi512D UCS512CN GS8512 Hi512E	Select the chip of lighting fixture.
Dots	Dots ◄ 1 ►	Set the pixel of each DMX512 chip. Select ◄ ► to set value.
Lamps	/	According to the lighting Settings, select monochrome, two-color, three-color or four-color.
Lights	Lights (MAX: ----) 0 0 0 1	Address the Nth lighting fixture. Select to set value.
Increment	/	It can be calculated automatically according to the number of lighting fixtures, dots and lights. Manual setting is not supported.
Start Add	Start Address (MAX: ----) 0 0 0 1	It can be calculated automatically according to the number of lighting fixtures, dots and lights. Manual setting is also supported. Select to set value.
Check	/	Select and enter the addressing check interface.
Start	/	Select to start addressing the lighting fixture.

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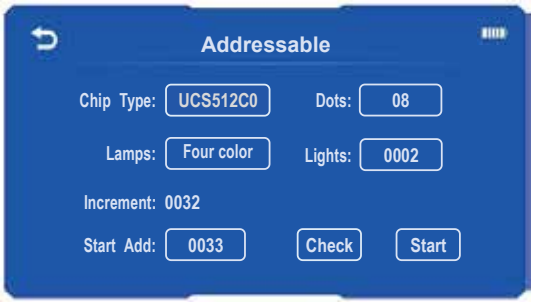
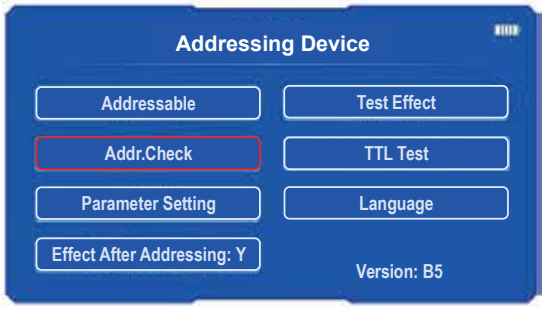
E.g. Address the second 8 pixels/meter lighting fixture with 4-channels UCS512C0 chip.

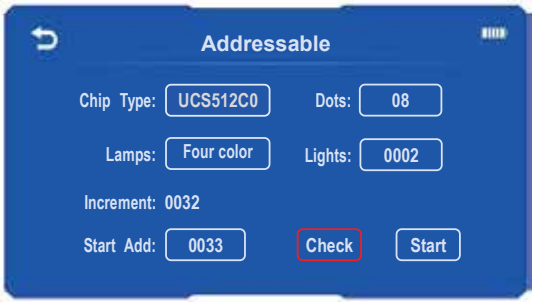


6.3 ADDRESSING CHECK

Way 1, select Addr. Check.

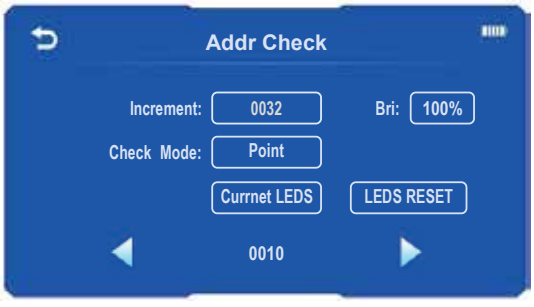


Way 2, select the Check of Addressable.



Option	Interface 3	Introduction
Increment	Increment 0 0 0 3	Set the total number of channels for each DMX512 chip. Select / to set value.
Bri.	/	Set the brightness of lighting fixture during checking. 6 sections: 100%, 50%, 25%, 12%,6%, 0%.
Check Mode	/	Point: Turn on designated lighting fixture. Pile up: Turn on designated lighting fixture and all the ones in front of it. .
Current LEDS	LED ADD 0 0 0 1	Select / to set the value of lighting fixture.
LEDS RESET	/	Reset the lighting fixture number.

E.g. Addressing the 10th 12 pixels/meter lighting fixture with 3-channels UCS512C0 chip.



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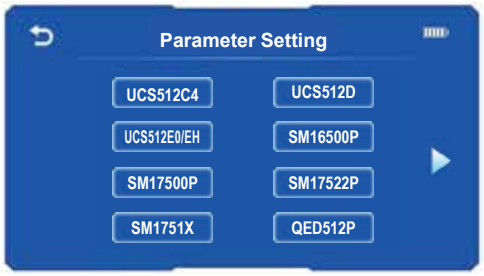
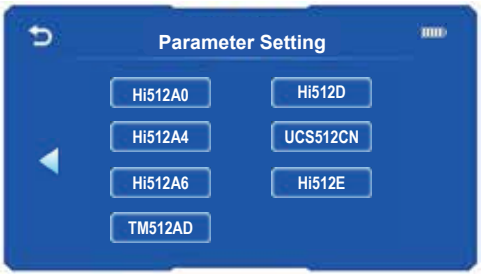
OPERATION

6.4 PARAMETER SETTING





The option is invalid if the chip does not support.

	Interface 4	Introduction
Page 1	Power on R: 255 Power on G: 255 Power on B: 255 Power on W: 255 Byte Select: 4 No Signal: Last Frame Write	Color RGBW: Select to set RGBW gray. Byte Select: Select to set channel of chip. No signal: Last Frame: The lighting fixture stays the last frame color. Power on effect: The lighting fixture stays the color power-on. All Bright: Light up all. Mutation: Colorful jump. Gradient: Colorful gradient. KTV shining: Colorful flickering. Effect Cycle: Play all in turn.
Page 2	Red: 15 mA Green: 15 mA Blue: 15 mA White: 15 mA Gain Mode: 4 Chip Type: Other Write	Current RGBW: Select to set the current of RGBW. Gain Mode: Select and select the current gain level. It is only for SM17500. Chip Type: Select and select the type of forward chip.
Page 3	Forward Time: - Protocol: Zero Code Auto Addressable: - Step: - Write Self-Chan Setting	Forward Times: Select and set forward time. Protocol: Select and set forward protocol (zero code / DMX). Auto addressing: Select and set whether to turn on the step setting. Step: Select and set the step value. It is only for SM17522P. Self-Chan Setting: Select to enter the Self-Channel setting interface. Write: Select to set parameter into the lighting fixture.
Page 4	Current-A: - Power on A: - Current-C: - Power on C: - Power On Self-Check: - Power On Blue: - Write	Current A/C: Set the current of channel A and channel C. Power on A/C: Set the power on color of channel A and channel C. Power on Self-Check: Set if play the built-in animation after power on the lighting fixture. Power on Blue: Set if blue is lighted up after power on the lighting fixture.
Page 5	Refresh Rate: - PWM Compensate: - GAMMA: - GAMMA Smooth: - Write	Refresh Rate: Set refresh rate of lighting fixture. PWM Compensate: Set PWM compensation of lighting fixture. GAMMA: Set GAMMA of lighting fixture. GAMMA Smooth: Set if open the GAMMA smoothness.

6.5 ANIMATIOIN BUILT-IN

Option	Interface 2	Introduction
Lamps	One / Two / Three / Four color	Select according to the channel of pixels.
Effect	Page 1 Effect Choice: Red, Green, Blue, Yellow, Indigo, Purple, Black, White Page 2 Effect Choice: Red Trailing, Green Trailing, Blue Trailing, White Trailing, Red Point, Green Point, Blue Point, White Point	Red/Green/Blue/Yellow/Indigo/Purple/Black/White: Select and light up the color. Trailing (Red/Green/Blue/White): Select and demonstrate water animation of the color. Point (Red/Green/Blue/White): Select and demonstrate chase animation of the color. All Bright: Light up the RGBW color. Rainbow Flow: Light up colorful gradient water. Trailing: Colorful trailing.

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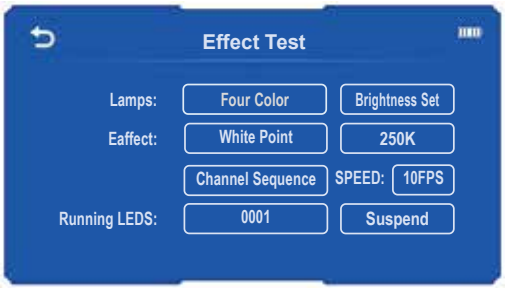
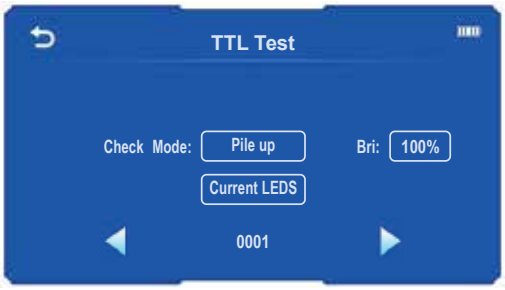
Option	Interface 2	Introduction
	Page 3 Effect Choice All Bright RGB Change Rainbow Flow Cross Trailing Black And White Change	Black And White Change: Black and white alternate. RGB Change: Change between red, green and blue..
Channel Sequence	Channel Sequence CH1 CH2 CH3 CH4 R G B W	Set the sequence of RGBW.
Brightness Set	Brightness Set Red-Bri ◄ 255 ► Green-Bri ◄ 255 ► Blue-Bri ◄ 255 ► White-Bri ◄ 255 ► Color-All ◄ 255 ► 0% 25% 50% 100%	Set the brightness of RGBW.
SPEED	25FPS/20FPS/15FPS/10FPS/5FPS/1FPS	Set the change speed of animations. When it is 250K, only 10FPS, 5FPS, 1FPS can be set.

E.g. Set the animation of white chase as below.



6.6 TTL LIGHTING FIXTURE TEST

It is used to check and confirm whether the lighting fixture signal cable is abnormal. Also suitable for counting LED.



Option	Introduction
Check Mode	Point: Turn on designated lighting fixture. Pile up: Turn on designated lighting fixture and all the ones in front of it. .
Current LEDS	Select / to set the value of lighting fixture.
Bri.	Set the brightness of lighting fixture during checking. 6 sections: 100%, 50%, 25%, 12%,6%, 0%.
SPEED	Set the change speed of animations.

Apply to below lighting fixtures.

Manufacturer	Type
Worldsemi	WS2811、WS2812、WS2818
Genesis	GS8205、GS8206
Leixin	LX1003
Szucs	UCS2912
Sunmoon	SM16703P、SM16704PB、SM16709P、SM16712P
Seekway	SW1207、SW1208
Titan	TM1804、TM1809、TM1812、TM1934D

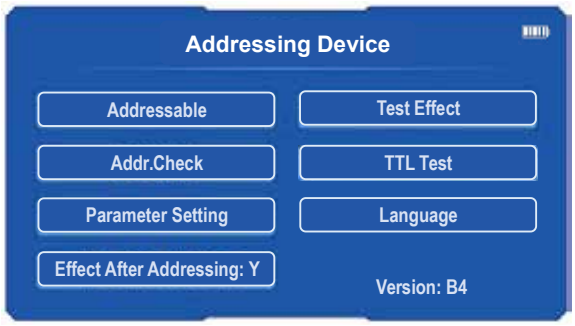
7. UCCESSFULLY ADDRESSED AND SET PARAMETERS

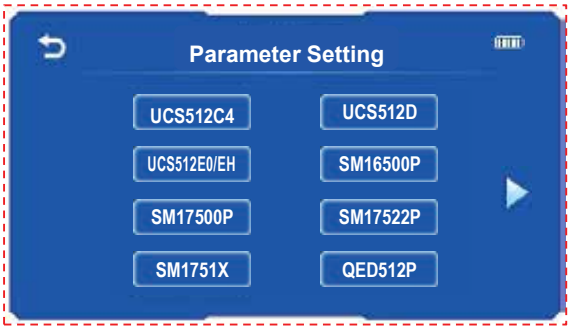
Chip	Lighting color after power on	Addressed		Byte + No signal + No signal		Current parameter		Self-Channel Setting	
		First chip	Other chip	First chip	Other chip	First chip	Other chip	First chip	Other chip
UCS512A	White	Blue	Blue	-	-	-	-	-	-
UCS512A1	White	Blue	Blue	-	-	-	-	-	-
UCS512A2	White	Blue	Blue	-	-	-	-	-	-
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
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	-	-	-	-
SM17522	-	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	-	White	Cyan	-	-	-	-	-	-

8. UPGRADE

The writer can be upgraded through program files. There are the DWIN_SET file in TF card and the BZQ.bin file in SD card. Refer to below operations.

1. Upgrade LCD interface. Insert TF card when the writer is power on, LCD begins to upgrade and quickly refresh the interface picture.





2. The LCD will automatically become black after finishing upgrade. At that time, please turn off the writer and take out the TF card.

3. Insert the SD card with upgrade program into writer when it is power off. Turn it on and select Upgrade Firmware.