EN-402W MANUAL

Model: EN-402W-A1

2018-2

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1.FUNCTION OVERVIEW

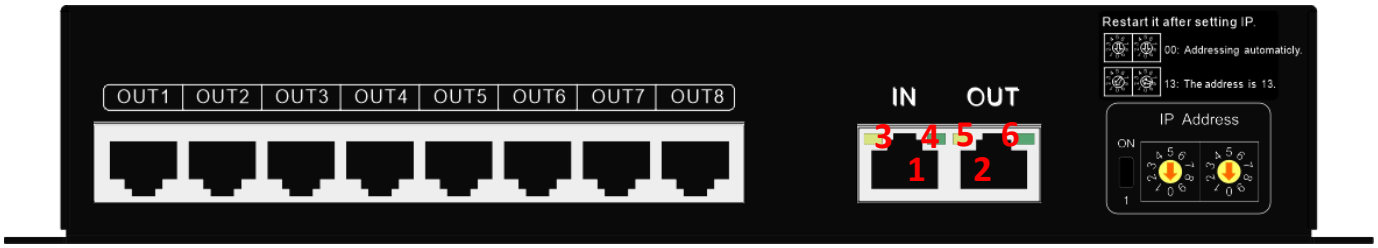
1. PC online used, controllers can be multi-connected. It support 100,000 pixels(include the useless pixels) in 128 controllers.
2. Power on the controllers, it will address auto when the RGBPlayer play the effects.
3. 2-channel output signal (data-independent), applicable for small, medium and large engineering projects and remote transmission.
4. Control the LED digital tube screen and LED pixel light screen those with variety of regular chips.
   Single chip: D**S series, D**J series.
   Single-wire: TM180*-400K/800K, UCS19**, UCS29**, TLS3001, SM167**.
   DMX512 lighting fixture: SW-D,SW-U, UCS512A/B/C0/C4, DMX512AP/SM512, SM16512, standard DMX512 lighting fixture on the market.
   Netants: UCS5603, WS2818, GS8206, P9883, TM1914, XT1506S.
5. It can address the DMX512 lighting fixture.
6. Specialized software of making animation is included, users can make their own effects.

2.TECHNICAL PARAMETERS

Size:	220L×142W×43.6H (mm)
Input voltage:	AC100V - 240V
Input signal:	SW Ethernet Protocol
Output port:	TTL & RS-485 * 2 channels(the other copy the 2 channels.)
Pixel quantity drove:	Single chip: 960 points ×2 channels, Single-wire: 1024 points ×2 channels, standard DMX512: 168 points ×2 channels, extensible DMX: 336 points ×2 channels, Netants: 960 points ×2 channels.
Output power:	5W
Working temperature:	-15℃～60℃
Relative humidity:	≤50%
Connecting mode:	Address auto in “00” (support 128 controllers). Address manual except in “00” (support 99 controllers).
Transmission distance:	Use UTP—unshielded twisted pair cable, distance between the controllers can be 80m. It can be 5km if use the optical fiber if the distance. It only use between PC and the first controller.
IP grade:	IP0 (not dustproof and not waterproof)
Working environment:	Please install under dry indoor condition, avoid any dust, moist and rain.
Weight:	1000g (N.W. 850g)
Accessories attached:	×1、 ×5

3.CONNECTION MODE

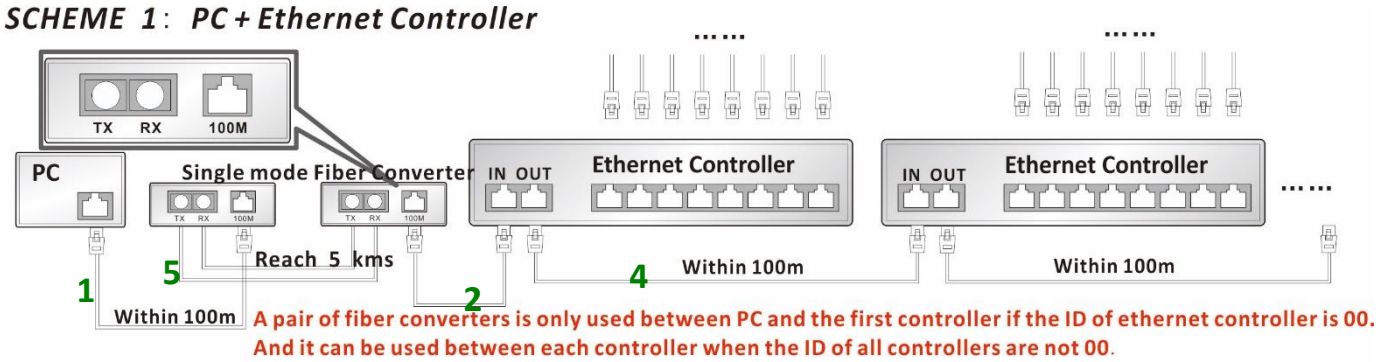
3.1 PORT INTRODUCTION



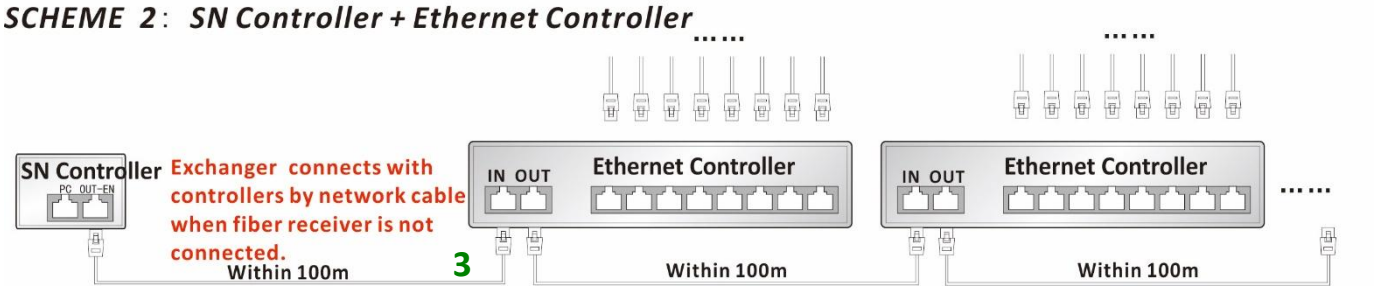
	Port/Indicator light	Function description
1	Cascade signal input port	Insert network cable, signal input, connect with previous controller as a series
2	Cascade signal output port	Insert network cable, signal output, connect with next controller as a series or no need.
3	IN top left yellow light	Indicator light of output connect with lighting fixtures (flicker when output signal correct)
4	IN top right green light	Indicator light of input signal (flicker when input signal occurs)
5	OUT top left yellow light	Indicator light of collecting data (filcker when the data correct)
6	OUT top right green light	Indicator light of output signal (flicker when output signal occurs)

3.2CONNECTION DIAGRAM OF CONTROLLER

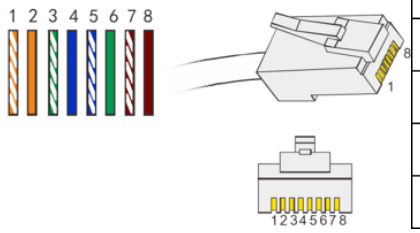
SCHEME 1: PC + Ethernet Controller



SCHEME 2: SN Controller + Ethernet Controller



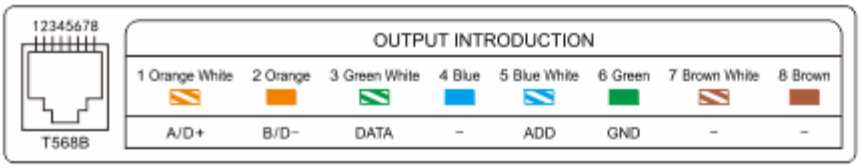
R J 45 cable plug use T568B line sequence

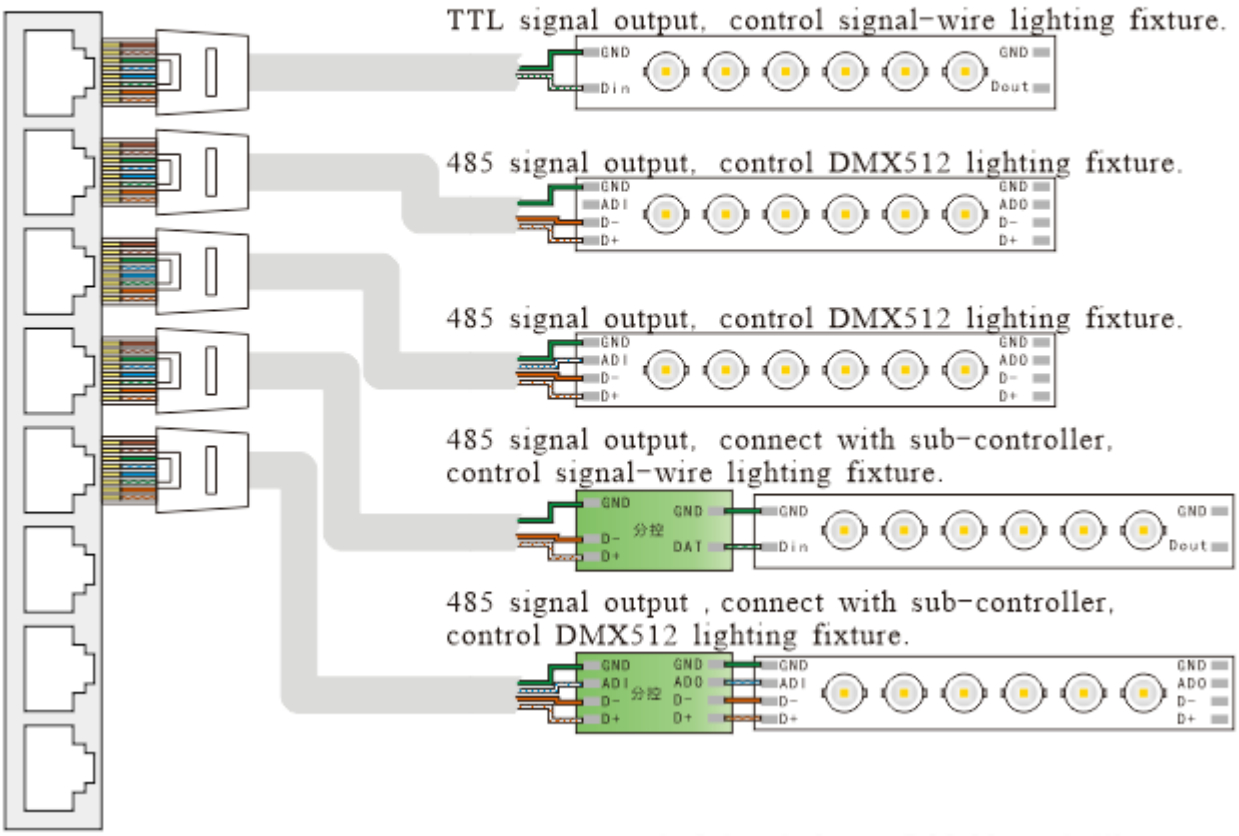


N0.	Material	Standard	Connection Port	Transmission Distance	Connecting Device
1	Network cable	Unshielded Twisted Paired	RJ45 network cable plug (crystal head) (T568B line sequence)	Within 100m	PC and optical fiber converter
2					Optical fiber converter and ethernet controller
3					PC/SN controller and ethernet controller
4					EN controller and ethernet controller
5	Optical fiber	Fiber converter (one pair)	Optical fiber patch cable (LC-SC single mode)	Within 5km	Optical fiber converter and optical fiber converte

3.3 METHOD OF CONNECTING WITH LIGHTING FIXTURES

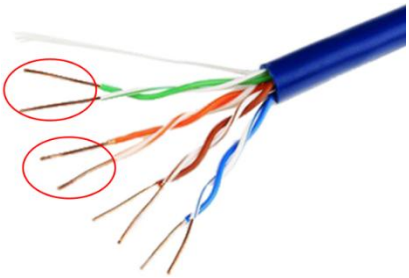
The circuit should be adjusted in different applications. It is well set in accordance with actual project before delivery. User cannot change the application optionally. Please connect the cables in accordance with silk print on lighting fixture.





★ Signal cables connection notes:

1. Use UTP—Unshielded Twisted Pair(resistance per 100M<10Ω), low quality Ethernet cables and telephone cable 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 switch***.
4. Switch on the controller after all hardware signal cables and wires are connected. Please *don't CONNECT / DISCONNECT* the signal cables while the controller is power on; avoid bad output by reverse current and protect the circuit and components.



★ Transmission distance:

transmission type	Transmission Signals	transmission media	transmission distance	Notes
Master control-> slave control	RS-485	UTP-Unshielded Twisted pair	50 ~ 100	
Master control/slave control->SW Lighting Fixtures	TTL	UTP-Unshielded Twisted pair	30 ~ 50	
		two core copper wire	5 ~ 30	
Master control/slave control->Other Lighting Fixtures	TTL	UTP-Unshielded Twisted pair	5 ~ 20	
		two core wire	1 ~ 5	
Master control/slave control->DMX Lighting Fixtures	RS-485	UTP-Unshielded Twisted pair	30 ~ 50	The addr wire must be within 5 meter.
		three core wire	1 ~ 20	
		four core wire	1 ~ 20	
SW Lighting Fixtures->SW Lighting Fixtures DMX Lighting Fixtures->DMXLighting Fixtures	TTL	UTP-Unshielded Twisted pair	5 ~ 20	meters controlled less if over 5 meter
		two core wire	1 ~ 5	
		three core wire	1 ~ 5	
Other Lighting Fixtures->Other Lighting Fixtures	TTL	UTP-Unshielded Twisted pair	1 ~ 2	meters controlled less if over 1 meter
		two core wire	0.1 ~ 1	

4. SETTING IP OF THE CONTROLLER

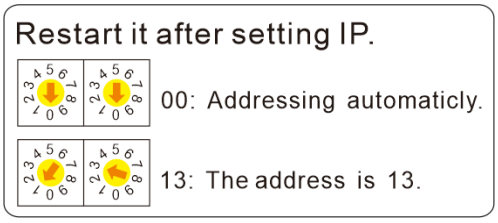
It is not only addressing automaticly, but also addressing manually.

1. It can address automaticly when the needles point to “00”. The controllers are 1,2,3 in turn.

2. Its IP address is 01 when the needles point to “01”.

NOTE: each controller must set the different IP to avoid the data conflict.

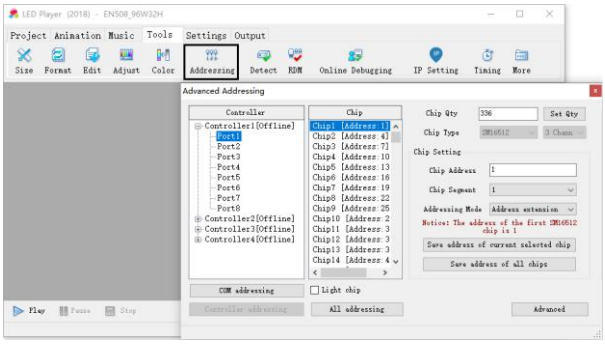
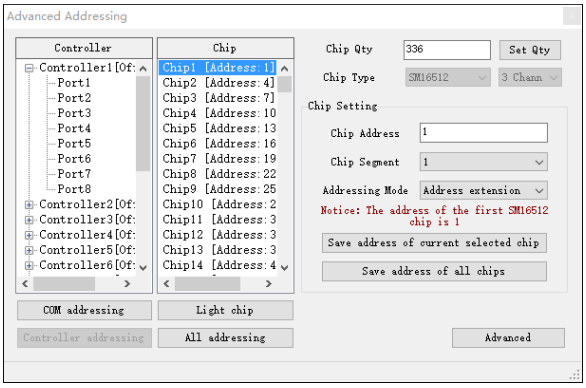
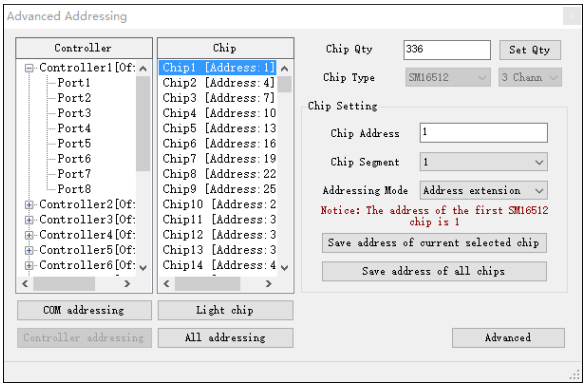
Please restart the controllers after the IP be set.

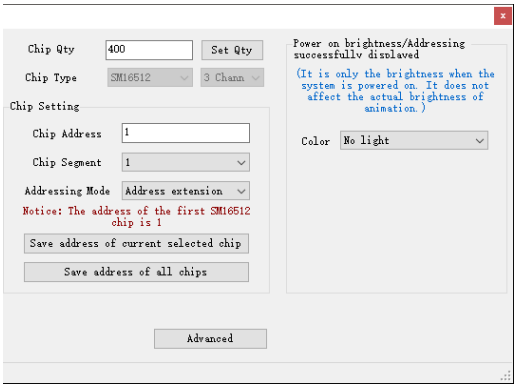
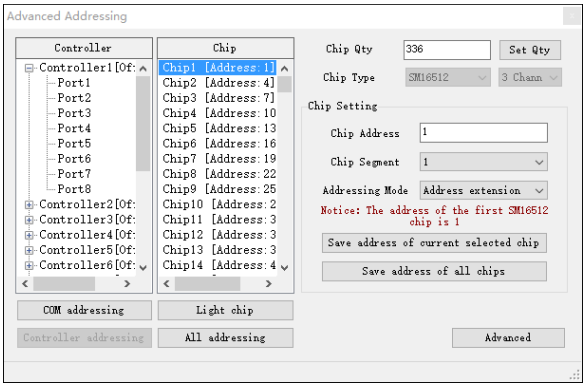
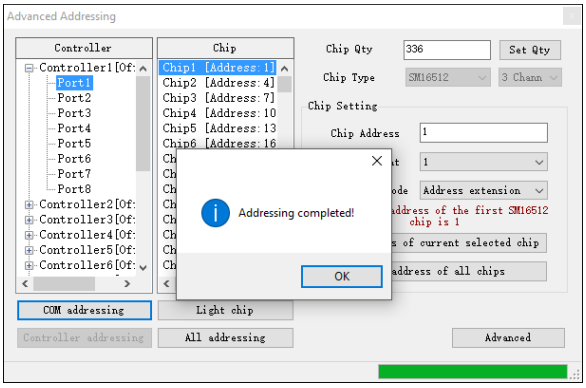


5. LIGHTING FIXTURE ADDRESSING

5.1 ADDRESSING

It can intelligent address the DMX lighting fixtures

ENTER-IN ADDRESSING	Click “Addressing” of “Tools” in RGBPlayer.	
THEHARDWARE INFORMATION	**Controller:** 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. **Chip**: It shows the number/address of ships.	
SETUP THE CHIPS’ADDRESSING	**Chip Qty**: It reads the settingup while first be used. It can be set manually and click Set Qty to save. **Chip Type**: It reads the settingup while first be used. It can be modified in SETUP. **Chip Adress**:It can be set the adress of the select chip,and click Save. **Chip Segment**: It can be set the pixel of the select chip,and click Save. **Addressing Mode**: None, Address extension, Use the same address. NoneIt only saves the address ofthe selected chip. And the anothers will not changed. Address Extension It only saves the address ofthe selected chip. And the anothers will be extended. Use The Same Address It saves the same addreess ofall chips. **Save Address of Current Selected Chip**:Click and save the address of the selected chip. **Save Address of All Chips**: Click and save all chips. The each chips’address will change by the address setting and the segment setting.	

SETTUP THE CHIPS DATA	**Advanced**: If the controller output control UCS512C4 orSM16512, It will be set up the Power-on brightness.	
ADDRESSING	**Com Addressing**: It will be used by the selected port. Click it and the lighting fixtrures in the selected port will be addressed. **Controller Adressing**: It will be used by the selected controller. Click it and the lighting fixtrures in the selected controller will be addressed. **All Addressing**: Click it and the all lighting fixtrures will be addressed. (The offline controller cannot address.) **Light Chip**: Click it and light up the selected chip. Please make sure the address of chips in RGBPlayer are same with the lighting fixtures'.	
	RGBPlayer shows the progress bar in the lower right corner. It shows "Addressing completed!" when all the EN-508 controller recive the addressing data. It is not the lighting fixtures addressing correct. The addressing successful is according to the light corlor. UCS512C4 and SM16512 shows the power-on light corlor after the addressing successful light corlor.	
NOTES	**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.** **If fail to set the address, please check connection of the lighting fixture again. Please send the data one more time.**	

5.2 ADDRESS SETTING

5.2.1 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 Nth 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	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		
UCS512 UCS512A UCS512A2	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		
UCS512B UCS512B3	3	1	1	3	0	3	6	9	12	TTL single-wire signal	
		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		
UCS512B4	1	1	1	1	0	1	2	3	4		
	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		

5.2.2 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 Nth 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		
DMX512AP-N	3	1	1	3	1	4	7	10	13	TTL single-wire signal	White
DMX512AP-NE	3	1	1	3	1	4	7	10	13		Green
SM512-4	4	1	1	4	1	5	9	13	17		
SM512-9	9	1	1	9	1	10	19	28	37		
SM512-12	12	1	1	12	1	13	25	37	49		

5.2.3 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 Nth 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		
D01U	3	1	1	3	0	3	6	9	12	485 differential signal / TTL single-wire signal	Blue
D12U		12	1	36	0	36	72	108	144		
D16U		16	1	48	0	48	96	144	192		
D01U	4	1	1	4	0	4	8	12	16		
D12U		12	1	48	0	48	96	144	192		
D16U		16	1	64	0	64	128	192	256		

5.2.4 UCS512C*

※ "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 Nth 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	0	8	16	24	32		
		12	1	12	0	12	24	36	48		
			12	1	0	12	24	36	48		
		16	1	16	0	16	32	48	64		
			16	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		

5.2.5 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 Nth 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 ighting 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		

5.2.6 SW-D

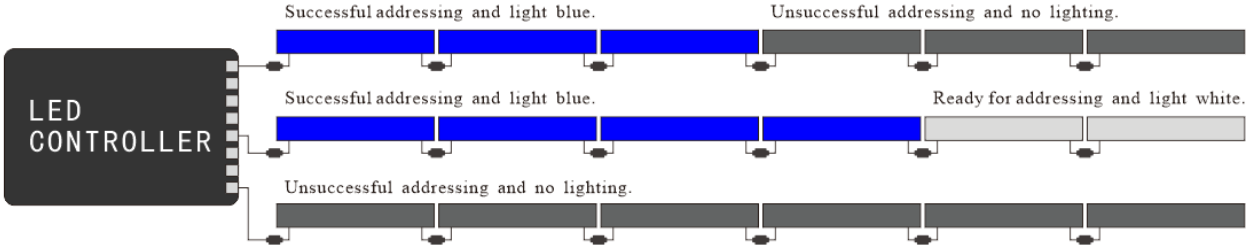
※ Led screen displays “0000”, it means entering “Automatic” addressing mode (e.g. #1, #2, #3……#999).

The first address of Nth 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		

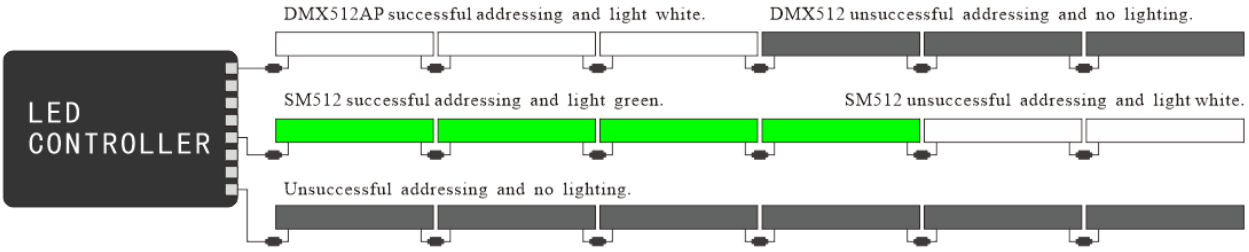
5.3 UNSUCCESSFUL ADDRESSING

5.3.1 UCS512A/UCS512B



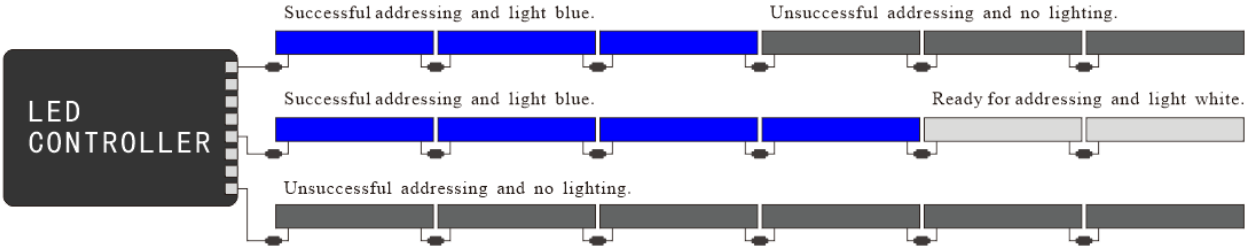
The addressing cable between the controller and the first lighting fixture must connect.
Otherwise controller can not send the addressing data to the DMX512 lighting fixture.
When the UCS512A/B lighting fixture is addressed successfully,
the lighting fixture will be blue light.
Or it means the connection is abnormal. Please check the cable again.

5.3.2 DMX512AP/SM512



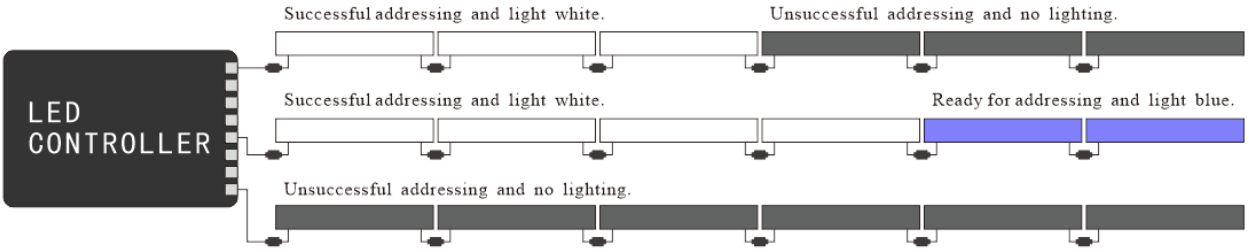
The addressing cable between the controller and the first lighting fixture must connect.
Otherwise controller can not send the addressing data to the DMX512 lighting fixture.
When the DMX512AP/SM512 lighting fixture is addressed successfully,
the lighting fixture will be white(or green) light.
Or it means the connection is abnormal. Please check the cable again.

5.3.3 SW-U

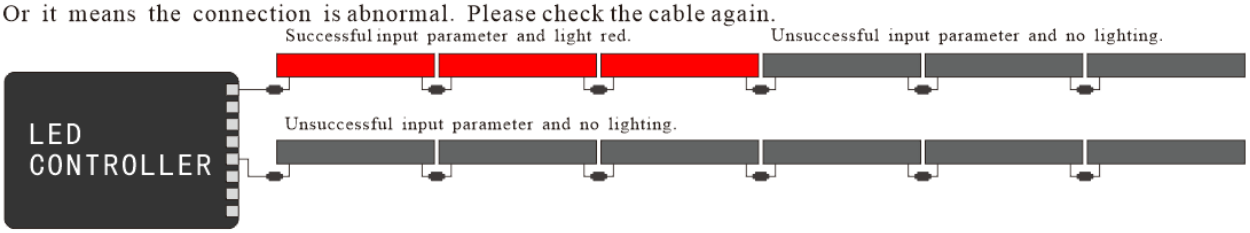


The addressing cable between the controller and the first lighting fixture must connect.
Otherwise controller can not send the addressing data to the DMX512 lighting fixture.
When the SW-U lighting fixture is addressed successfully,
the lighting fixture will be blue light.
Or it means the connection is abnormal. Please check the cable again.

5.3.4 UCS512C*

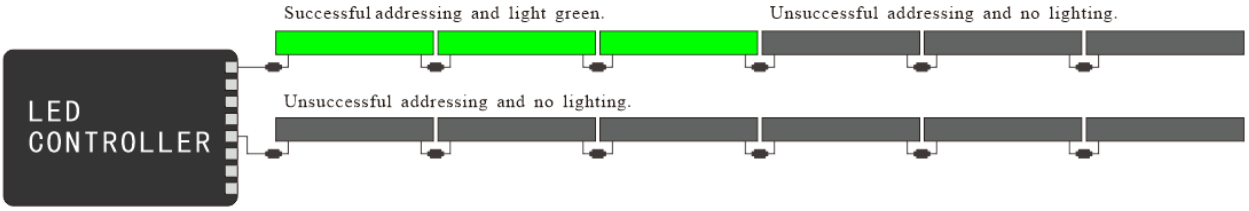


The addressing cable between the controller and the first lighting fixture can not connect.
The controller will send the addressing data by RS-485 signal.
When the UCS512C* lighting fixture is addressed successfully,
the lighting fixture will be white light.
Or it means the connection is abnormal. Please check the cable again.

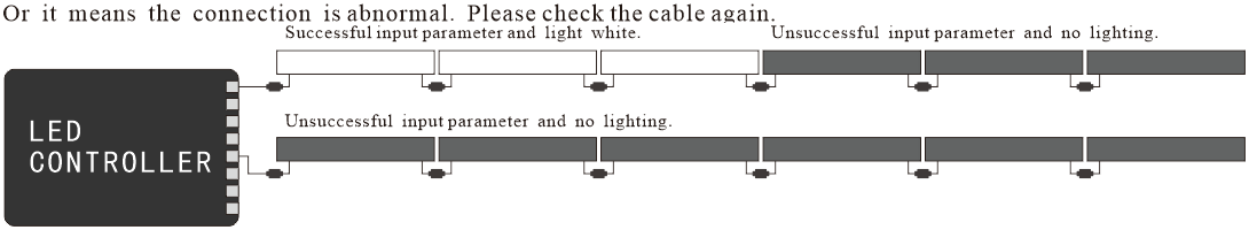


The addressing cable between the controller and the first lighting fixture can not connect.
The controller will send the paremeter by RS-485 signal.
When the UCS512C4 lighting fixture is entered in parameter successfully,
the lighting fixture will be red light.
Or it means the connection is abnormal.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

5.3.5 SM16512

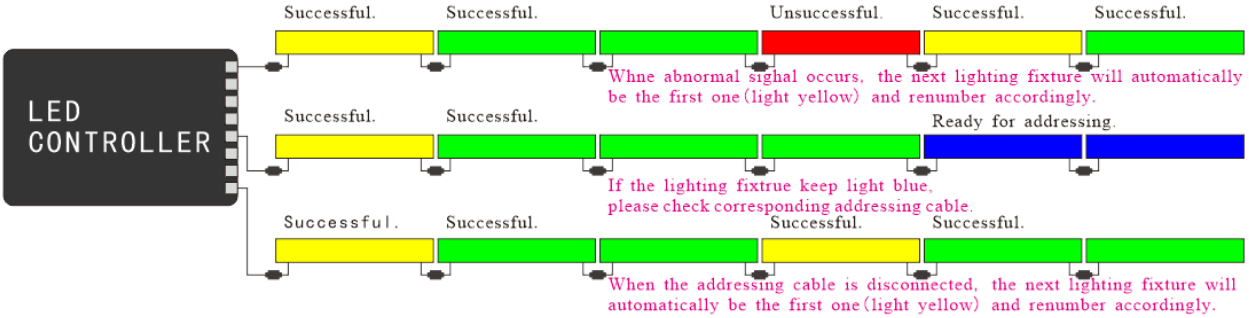


The addressing cable between the controller and the first lighting fixture can not connect.
The controller will send the addressing data by RS-485 signal.
When the SM16512AP lighting fixture is addressed successfully,
the lighting fixture will be green light.
Or it means the connection is abnormal. Please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



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

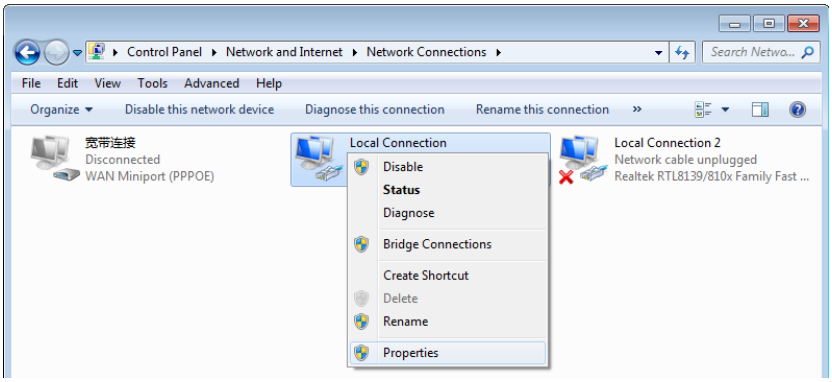
5.3.6 SW-D



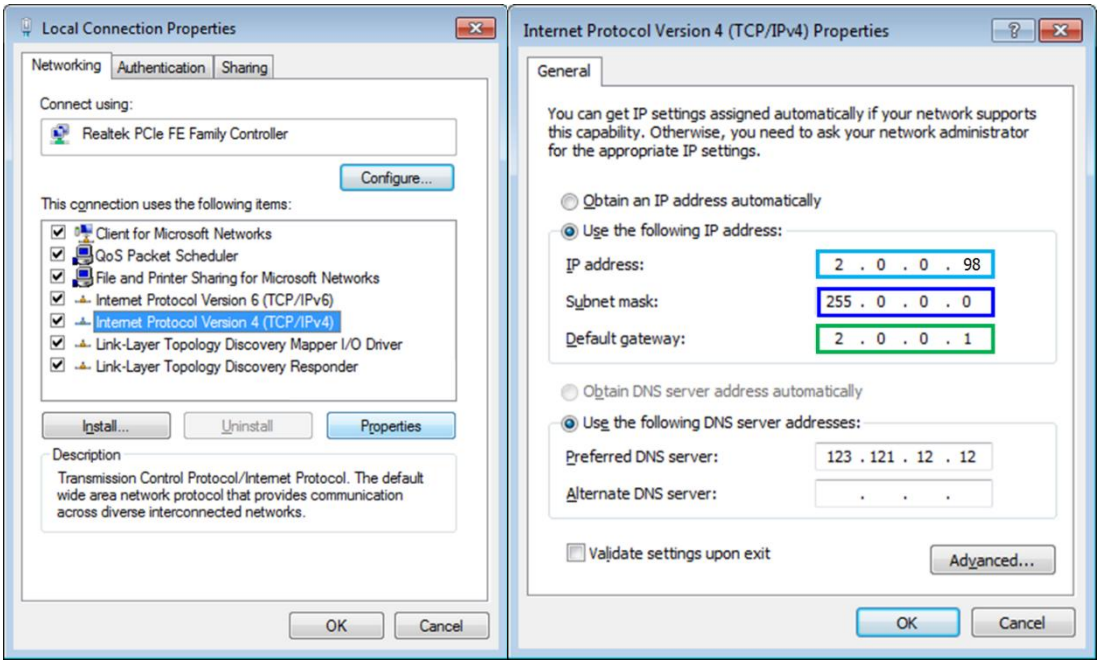
The addressing cable between the controller and the first lighting fixture can not connect.
The controller will send the addressing data by RS-485 signal.
When the SW-D lighting fixture is addressed successfully,
the first lighting fixture will be yellow light,
and it will be green light from the second.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

6. IP ADDRESS SETTING (PC)

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



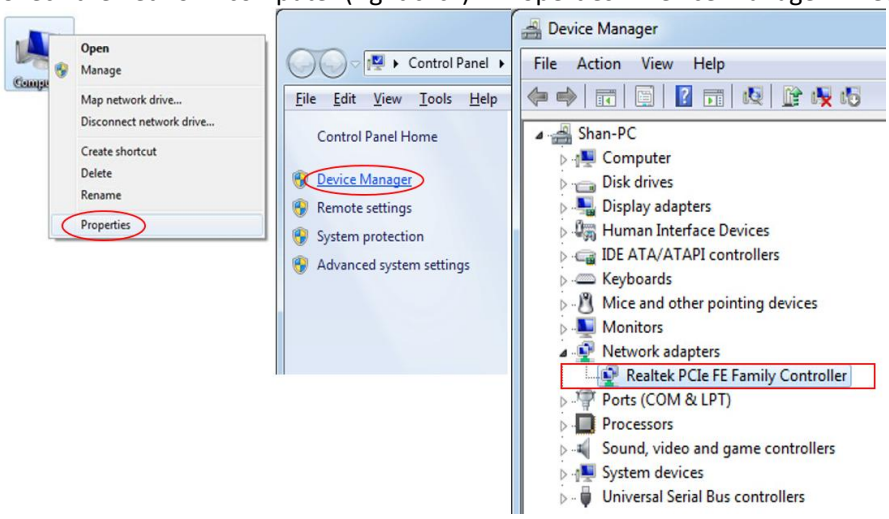
2. Select Internet Protocol (TCP/IP), then click “Properties”. Setting the IP address below.



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

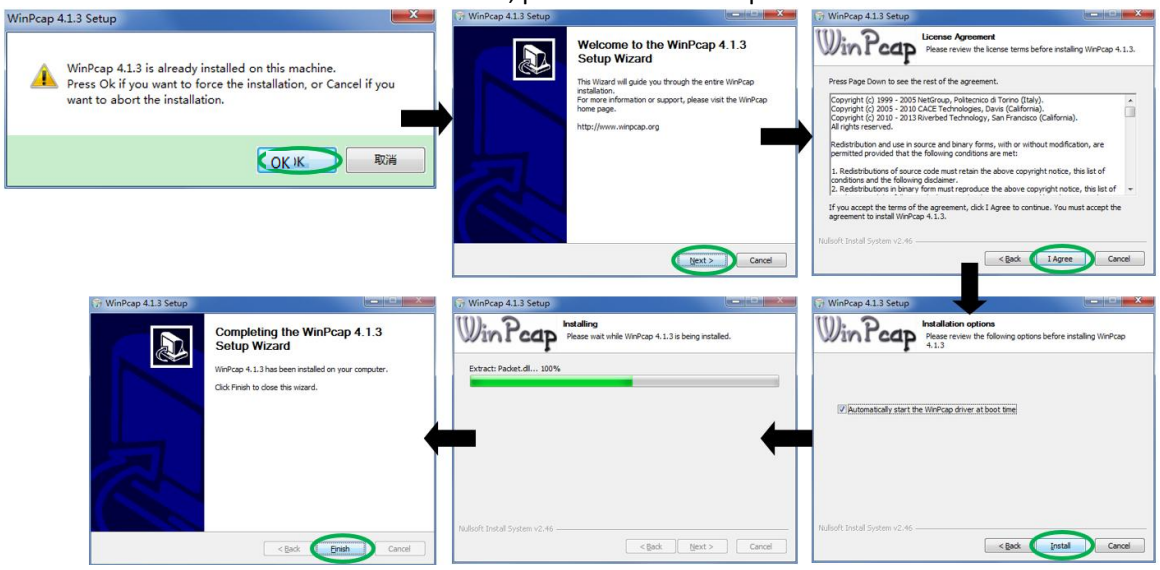
7. ETHERNET SETTING

1. Make sure the computer with network card with cable sort. Connect computer to controller via cables. Check the network: computer (right click) – Properties – Device Manager – Network adapters.

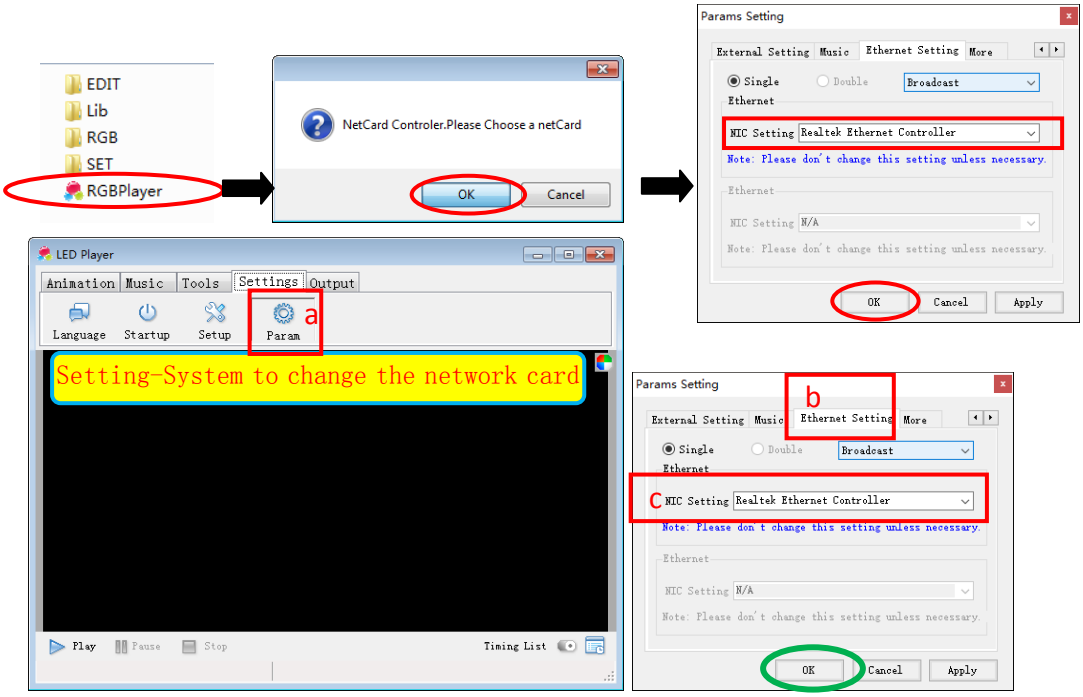


2. Install driver:

If it is the first time to use Ethernet controller, please install driver process WinPcap_4_1_3_32_64.exe



3. Select network card.
   Software - Remind frame (if the software doesn't get the network card, this frame will pop.) – Confirm - Ethernet Setting - Single network card (network card set as "Realtek RTL8139/810x Family Fast Ethernet NIC") - Confirm to close.



4. Normal using the software. Screen controlled will show effect at any playing mode.

Note:
Right of revising this specification reserved.
(Please understand there will be no extra notice when change is occurred.)
The information in the manual is for reference only,
please don't regard it as guarantee of the product.