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## 1. System Functionality

- **Gigabit Technology**

Gigabit technology, all-directional video solution, large bandwidth buffer design, and large storage devices.

- **Support Multi-resolution**

Support for multiple resolutions of video input .1024\*768 / 1280\*1024 / 1440\*900、1680\*1050 / 1920\*1080 / 1920\*1200 / 2560\*1600; Realize point to point video display.

- **Super Loading Capacity**

Single main controller C3.0 supports max 1280\*1024\*60Hz, inputs and outputs. For the super large display screen, clients can use multiple main controller to realize P2P seamless splicing.

- **Pixel by Pixel Correction**

Support Radiant Imaging and Cas Vu modes of pixel by pixel correction, support luminance and chromaticity correction which makes displaying even better; the receiving cards supports max 128\*128 pixel correction.

- **USB Communication Interface**

Support USB 2.0 interfaces; work together with USB wires and computer's USB interfaces to perform control; system configuration parameters can be set via software; all parameters won't be lost even after power failure and are resumed once the power supply is back again.

- **Real-time Transmission**

The system supports updating the module data in real time; not necessary to resend parameters or addresses even the display module is replaced.

- **Online Upgrade**

Support updating system programs; get the system power supply and upgrade the main controller or all receiving cards programs via software; easy operation, flexible expansion, easy upgrading and maintenance of displays.

- **Customized Gray Level & Refresh Frequency**

The gray level from 0 to 65536 level (64K) are available for customers; refresh rate can be manually adjusted to increase, so the image will be perfect.

- **Support Multiple Scan Modes**

Support 1 to 16 scan and other mode.

- **Intelligent Setting of Module Display Address, no Toggle Switch**

Customers can make intelligent settings in general multiple connection modes according to the display splice.

- **Supporting LED Fault Return & Diagnosis**

Support fault detection; work together with MBI5030\MBI5039\MBI5036 drive chips to dynamically detect display flaws in order to keep a more stable and reliable system

- **Supporting PWM Driver Chip**

Work together with MBI5042, MBI5030 and MBI6030 drive chips.

- **Support Redundancy & Hot Backup**

The A and B port of the receiving cards can be both used as input and output port. Users can adapt two computers to control one display screen at the same time, so when one computer is out of order, the other will automatically replace it, or Users can use one computer with double network cables to control one display, so when one is out of order, the other will automatically replace it. In this way, the displays won't stop working.

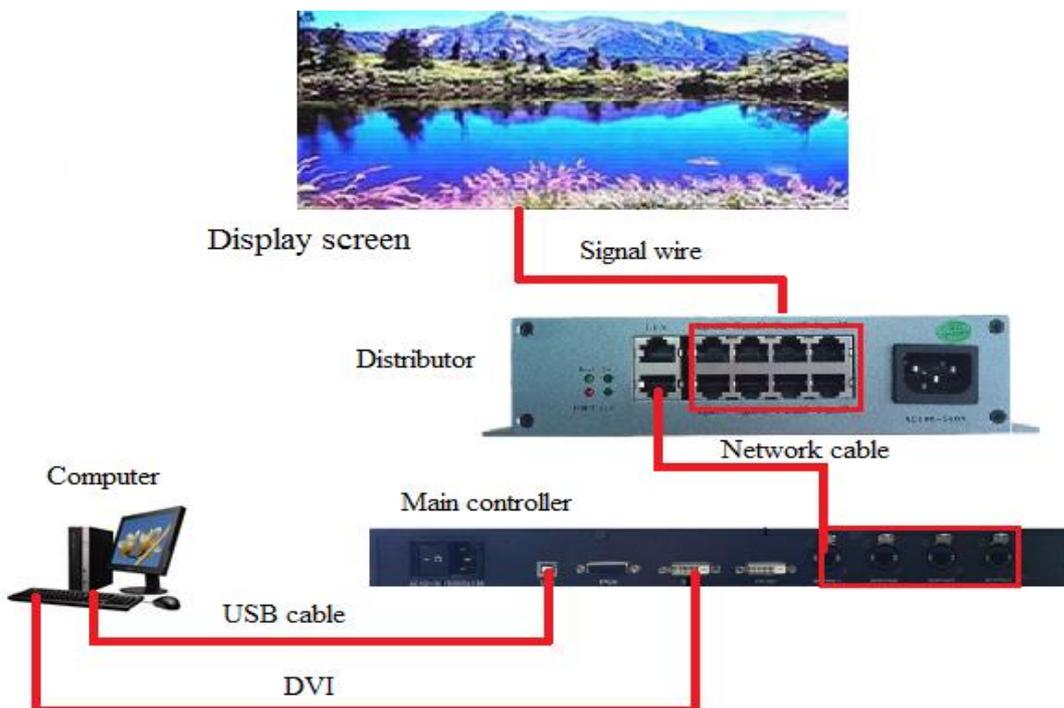
- **Long-distant Transmission**

Max transmission distance of Ethernet wires: 160m (actual metering), reliable transmission distance of Ethernet wires: 100m.

## 2. System Hardware

### 2.1 System Connection

#### 1) Connection Diagram



## 2) Operation Instructions

**Step 1:** Turn off the System power sources

**Step 2:** DVI input interface: Connecting controller DVI interface with Graphics card DVI interface with DVI wire.

**Step 3:** Distributor connection: the main controller's signal output network port is connected to the signal input port of the distributor.

**Step 4:** Display connection: signal output port of the distributor is connected to the display screen.

**Step 5:** USB interface. USB interface used to connect with computer to perform control.

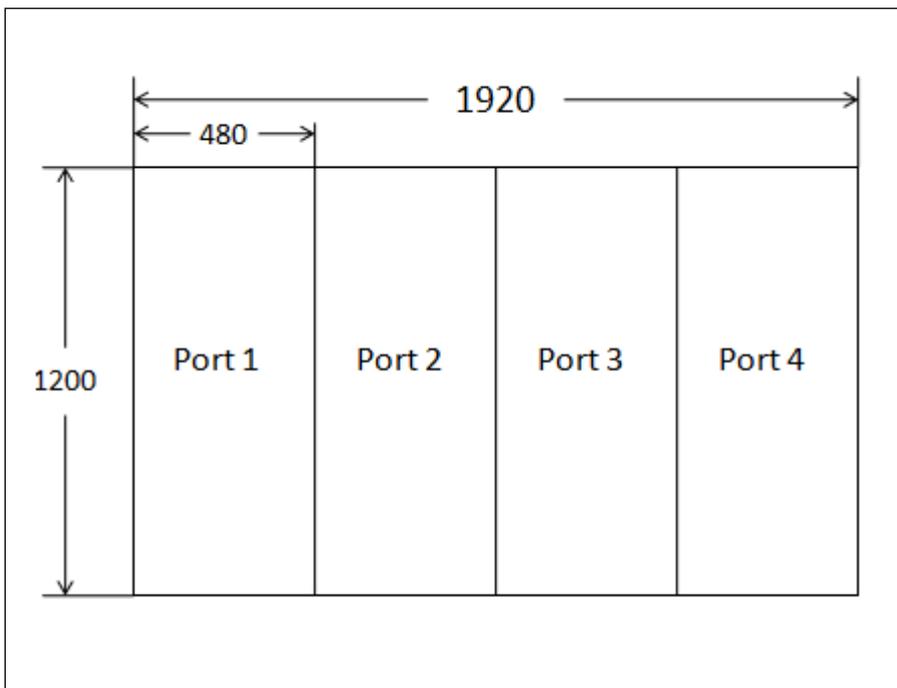
**Step 6:** Turn on the power, wait for the system initialization is complete.

**Step 7:** Set the Graphics card mode of computer as copy, after the system is working properly, working status indicator light will be Flashing。

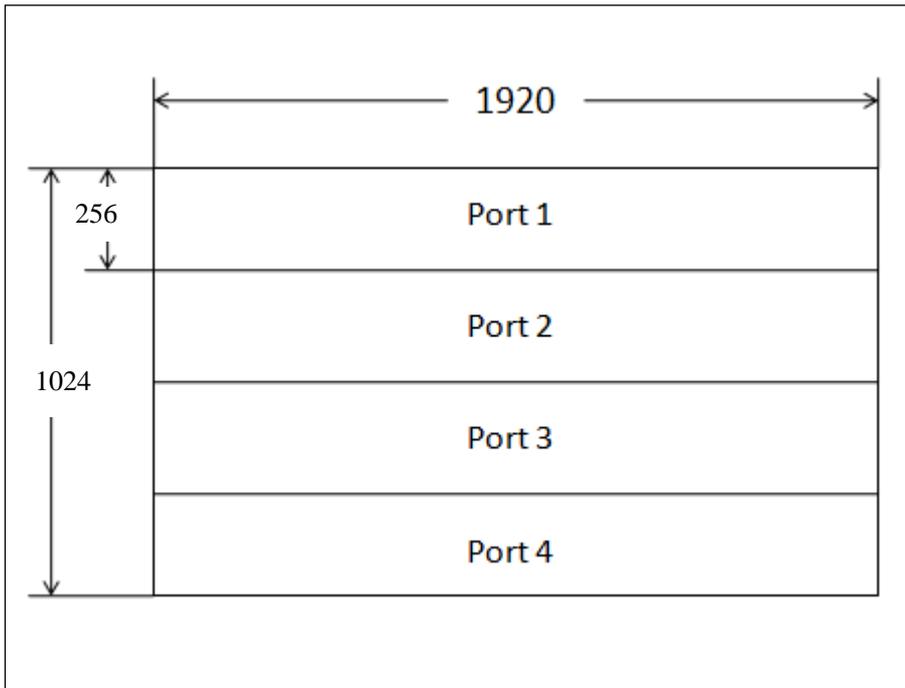
**Step 8:** .Open the control software, set the corresponding parameters.

## 2.2 System's Load

1) Horizontal segmentation



## 2) Vertical segmentation



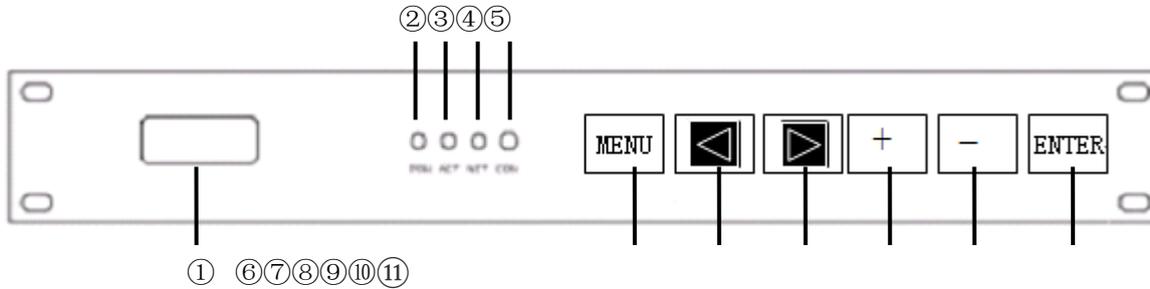
## 2.3 Technical Index

Electrical parameters	
Power supply & interface	AC100-240V 50Hz/60Hz
Operating temperature	0°C-60°C
Operating humidity	5%-95%
Operating Current	2000mA

Performance parameters	
Video Input	DVI interface
Video output	DVI interface
Communication Interface	USB interface
Signal Interface	Output Ethernet port 4*RJ45
Online Upgrade	support
Resolution	Supports multiple resolutions
Communication distance	<= 100 m (UTP twisted pair without relay), multimode fiber 500m, 20km single mode fiber

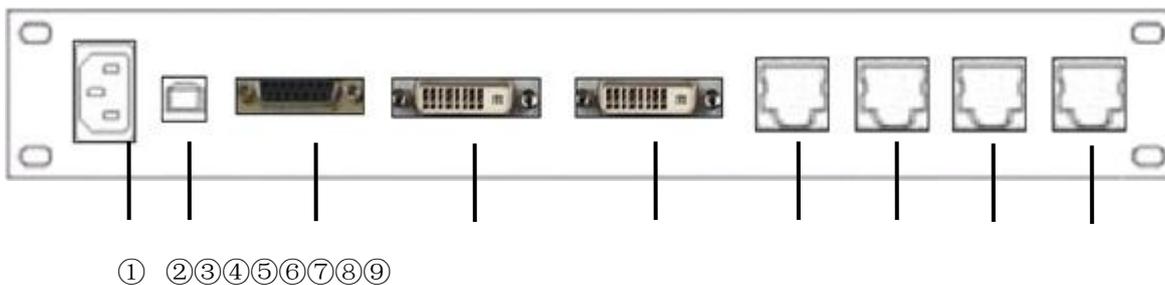
### 3. Operation Panel Description

#### 3.1 The Front Panel Description



- |                          |                        |
|--------------------------|------------------------|
| ①LCD                     | ②Power indicator light |
| ③Working indicator light | ④DVI indicator light   |
| ⑤Done indicator light    | ⑥Menu key              |
| ⑦Menu plus key           | ⑧Menu reduce key       |
| ⑨Value plus key          | ⑩Value reduce key      |
| ⑪Enter key               |                        |

#### 3.2 The Back Panel Description



- |                        |                 |
|------------------------|-----------------|
| ①POWER interface       | ②USB interface  |
| ③Programming interface | ④DVI input      |
| ⑤DVI output            | ⑥Signal output1 |
| ⑦Signal output2        | ⑧Signal output3 |
| ⑨Signal output4        |                 |

### 3.3 Interface Specification

**[Power interface]:** AC100-240V 50Hz/60Hz.

**[USB interface]:** Work together with USB wires and computer's USB interfaces to perform control.

**[DVI image input]:** Connecting controller DVI interface with Graphics card DVI interface with DVI wire.

**[DVI image output]:** By supporting DVI cable to connect to the next level of the master image input interface or DVI monitor.

**[Signal output port 1,2,3,4]:** All used as the master output port, Which near the DVI output interface for the first output port, followed by the second, three, four output port.

**[Indicator light]:** Power Indicator: lit, which means that the normal power supply; lights out, that is not the normal power supply; work lights: flashing, which means that sending card is working properly; lit, indicates that the sending card is not working properly, please confirm whether the computer graphics card is set to clone mode.

### 3.4 Describes Operation

Open the main menu	In the Non menu state press "Menu" button
Select the item	Press "◀" or "▶" button, Switch to the previous or next adjustment item
Adjust parameter value	When at the right end of the item appears as Digital parameter or options parameter, Press "+" or "-" button
Enter the next menu	When at the right end of the project appears as ">>" symbol, Press "Enter" button
Perform specific functions	When at the right end of the project appears as ">>" symbol, Press "Enter" button
Return to previous menu	Press "Menu" button

### 3.5 The Menu

#### 3.5.1 Main Menu

**[LOGO]:** Used to display the company LOGO.

**[Screen Parameter]:** Used to set variety of display parameters including brightness adjustment, position adjustment, etc.

**[Feature set]:** Used to set the display parameters, including the screen switches, color temperature adjustment, etc.

**[Screen Connection]:** Used to set the display address.

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**[Factory settings]:** Used to restore the system default factory Settings in the case of incorrect operation.

**[Language Selection]:** Used to select system display language, Chinese or English.

**[Software Version]:** Use to view the system software version information.

### 3.5.2 Second Level of Menus

#### (1) Screen parameter

**[Brightness adjustment]:** Used to adjust the display brightness.

**[Image Rotation]:** Used to set the display on the display content of the LED screen rotation, only for special screen.

**[Horizontal start]:** Large screen display area start X-axis position settings, by default starting position is 0.

**[Vertical start]:** Large screen display area start Y-axis position settings, by default starting position is 0.

**[Horizontal width]:** Set the master the actual width of the load, the default is 1920.

**[Vertical height]:** Set the master the actual height of the load, the default is 1920.

**[Step]:** Value adjustment step value, can be switched to 1, 16 or 128 three modes.

**[Network interface backup]:** Used to set the replication relationship between host ports.

**[Network port height]:** Used to set the master first maximum height of the output image data output.

#### (2) Feature Set

**[Screen Switch]:** Off, black screen, no display; open the screen to normal playback. The default setting is on.

**[Static Image]:** Open, Static currently active window screen image; Off, screen play correctly. The default setting is Off.

**[Usage Patterns]:** Used to select the display type, there are four modes selected, the default mode is full-color real pixel.

**[Clock Phase]:** used to set the master of DVI clock timing, adjust video playback can be solved in this flash point situation.

**[Frame Frequency Selection]:** Used to set the LED display screen information update frequency, 50 Hz or 60 Hz two kinds of mode switches.

**[Color temperature Adjustment]:** used to set the color temperature of the display, respectively to red, green, and blue adjusted.

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**[Calibration Switch]:** OFF, the display before the treatment; open, the display after the treatment.  
The default setting is off.

### (3) Screen Connection

**[Port]:** Used to select main control signal output port.

**[Arrangement]:** Used to select the cascade arrangement of display board.

**[Vertical Cards]:** Used to set the horizontal screen number.

**[Vertical Cards]:** Used to set the Vertical screen number.

**[Distributor]:** Used to set the screen connection transmission mode of distributor scheme.

**[send]:** Send display address data.

## 4. Software Control Instructions

### 4.1 Software Install & Uninstall

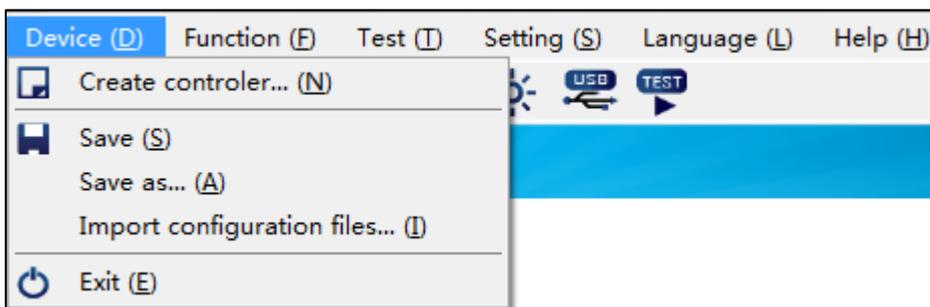
(Specific reference to the Software Installation Instructions)

### 4.2 Software Interface Windows

#### 4.2.1 Menu Bar

Device (D)   Function (F)   Test (T)   Setting (S)   Language (L)   Help (H)

#### (1) Device Menu



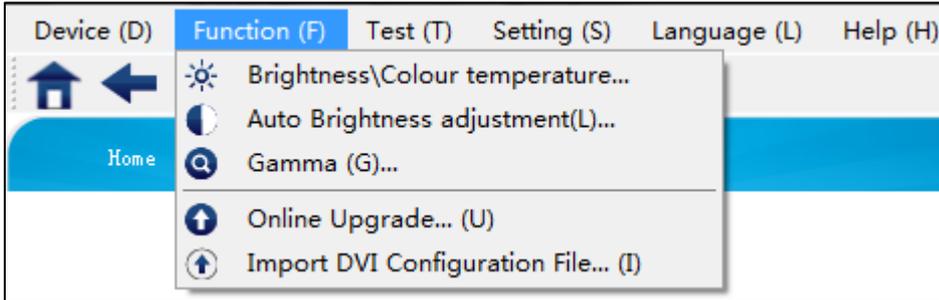
**[Create controller]:** Create a New controller file.

**[Save]:** Save the present setting as a file for future load.

**[Save as]:** Save the present program file as another file.

**[Exit]:** Exit LED ShowBox control software

## (2)Function Menu



**[Brightness]:** To adjust the LED display brightness; there are 256 grades are available; drag the icon to change brightness grade.The default value is up to 256 grades.

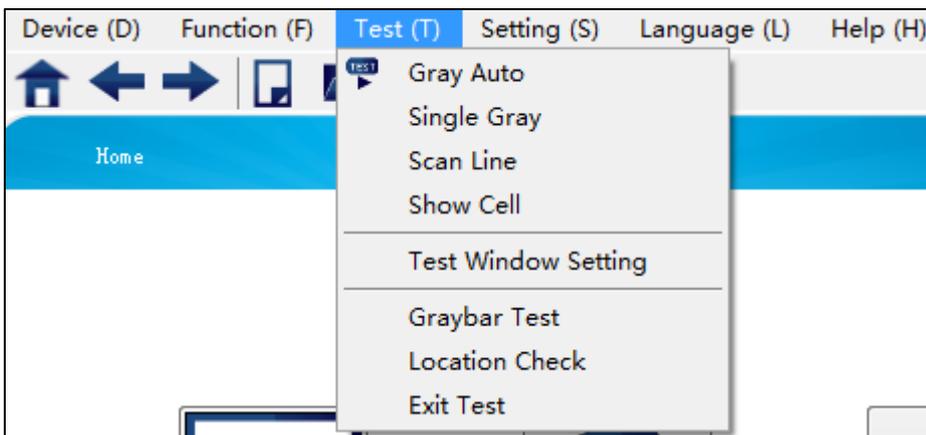
**[Color Temperature]:** Adjust the color values of red, green or blue to control the brightness; 256 grades are available

**[Gamma]:** Adjust Gamma factors (1.0~4.0) to adjust its value of the display. The default value is 2.8.

**[Online upgrade]:** Upgrade the control system programs

**[Dvi Config]:** Update the Dvi configuration files of the system

## (3) Test Menu



**[Gray Auto]:** Make Auto gray test on the displays

**[Single Gray]:** Make Single gray test on the display

**[Scan Line]:** Make scan test on the display videos.

**[Show Cell]:** Make Cell test on the display videos.

**[Test Window Setting]:**Set the size of the Test Window.

**[Exit Test]:** Exit the test mode to enter the normal interface.Various display modes provided by the software for production test

#### (4)Setting Menu



**[Serial Port Setting]:**Configure the serial ports connecting the control system and computer

#### (5)Language Menu



**[Language]:**This software language.

#### (6) Help Interface



**[About]:**To check software version, copyright , User's Manual,and other information

### 4.2.2 Tool Bar

Toolbar as shown below, the toolbar is a menu function rapid operation. From left to right for the home, back, forward, new, open, save, brightness, serial port settings. Specific features, please refer to the menu.



## 4.3 Led Display Settings

### 4.3.1 Open the control software

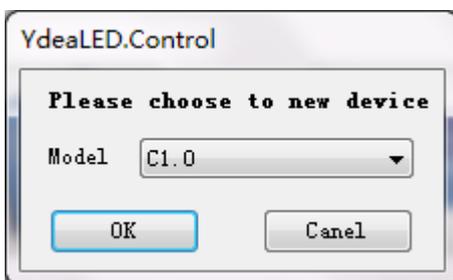
(1) Double-click the ShowBox icon, open the control software



(2) Enter the password 888



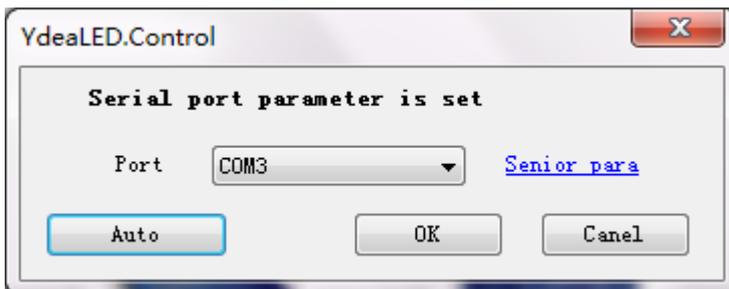
(3) Select “Micro System” Or Click **Device(D)** -> **Create controller**



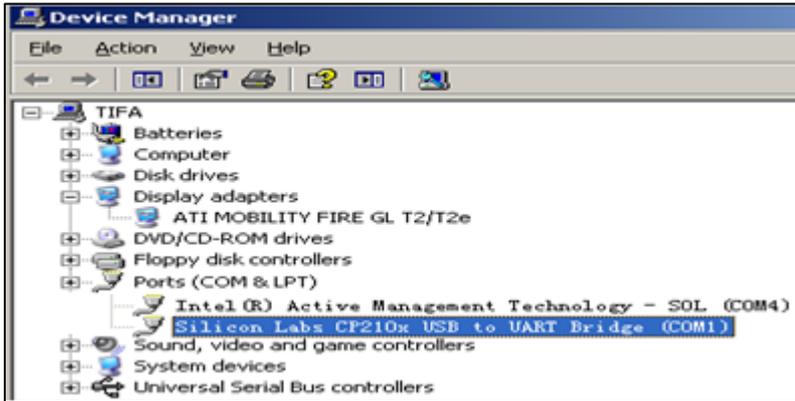
### 4.3.2 Communication

(1) Connect system power supply and USB wire, Click **Tool(T)** —>**Serial Port Setting**

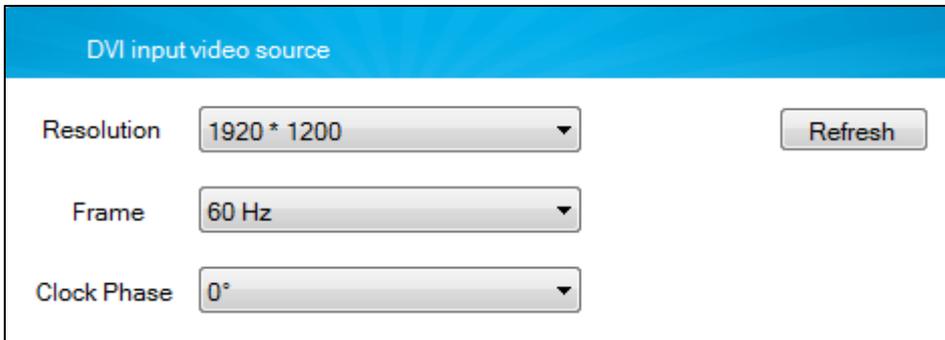
(2) Click“**Auto**”to find the corresponding Serial port,click“**OK**”.



(3)Ifcommunication failure,check port of the control software shall be consist with the port configured in pc device manager.



### 4.3.3 DVI input video source



**[Resolution]:** Support the multi-resolution of standard video source format, the default mode is 1920x1200.

**[Frame]:** Frame frequency of the display is 50Hz/60Hz, The default Mode is 60Hz

**[Clock phase]:** Adjust the time sequence of main controller DVI clock; select the most optimized option according to actual situations to avoid flash points in playing videos.

When all settings are finished, click “Send”.

#### 4.3.4 Send Card

**Set parameters**

VS size    1920 \*    1200    [Default](#)

Start X   

Start Y   

Width     

Height    

Port Height     [Help](#)

Split Mode     [Help](#)

**[Start X]:** The initial place of coordinate X in the display; the top left corner of the display is the initial place, which symbolizes the horizontal starting point. **The default value is 0.**

**[Start Y]:** The initial place of coordinate Y in the display; the top left corner of the display is the initial place, which symbolizes the vertical starting point. **The default value is 0.**

**[Width]:** Set the width of main controller pixels. **The default value is 1920.**

**[Height]:** Set the height of main controller pixels. **The default value is 1200.**

**[Port Height]:** Set the max height of output video from the first data output of the main controller. In horizontal split mode. **The default value is 256;**in vertical split mode. **The default value is 480.**

**[Load Split]:** Control the split mode of output videos; it has Horizontal and vertical split mode.

**Other setting**

Port Backup:     Image Freeze:  ON

Screen mode:     Screen switch:  OFF

Power Off:  1  2  3  4  5  6     ALL

**[Screen switch]:** OFF: the whole display is blank; ON (default): the video is played

**[Screen mode]:** Set the specific types of display screens, the function is used for extension. Retained.

**[Image Freeze]:** ON: lock some frame; OFF: unlock (default), the video is fluently played

**[Port Backup]:** To set the copy relations among main controller ports.

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### 4.3.5 Distributor

Distributor Parameter

**Basic Setting**

Port: Port 1 ①

Load mode: 64\*960 ②

**Complex Setting**

Port Num: 8 ③

Single Size: 32 ④

Quantity: 2 ⑤

⑥

**Distributor Parameter**

	Port1	Port2	Port3	Port4	Port5	Port6	Port7	Port8
▶ ID1	1 [0,0]	2 [32,0]	3 [64,0]	4 [96,0]	5 [128,0]	6 [160,0]	7 [192,0]	8 [224,0]
ID2	1 [256,0]	2 [288,0]	3 [320,0]	4 [352,0]	5 [384,0]	6 [416,0]	7 [448,0]	8 [480,0]

Coordinate X:  Y:   Linked

Step:

- ① Signal output port selection: It is used for setting the main controller signal output port.
- ② Distributor load mode selection: It is used to set the load mode of distributor each network interface.
- ③ Set the number of distributor signal output network port: It is used to set the distributor will use several signal output port.
- ④ Set up distributor's Single Size: It is used to set the actual load area of distributor each network interface.
- ⑤ Set the number of distributor: It is used to set the number of main controller's single network port load distributor.
- ⑥ Click the Setup button: The software will automatically set the distributor each signal output port's address.
- ⑦ Distributor Parameter: It is used to view the distributor signal output port's address.
- ⑧ Click the Send button.

### 4.3.6 Led Panle Connect

Step:

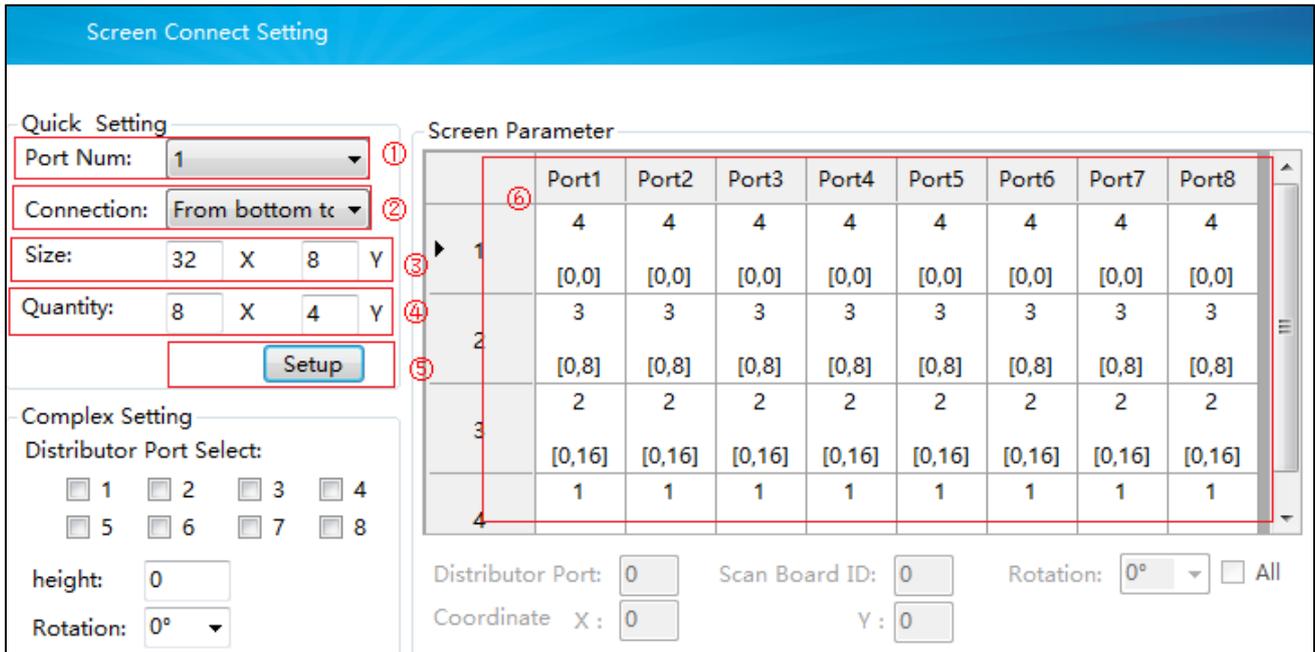
- ① Set the distributor ID. It is used to set the parameters on which distributor, each distributor must be set individually
- ② Set signal connection mode: According to the actual screen body connection settings. The signal connection mode of vertical segmentation is from top to bottom and from bottom to top. The signal connection mode of Horizontal segmentation is from left to right and from right to left.
- ③ Input the card size, X(width), Y(height): Set the size of a single scan card load screen (width and height)

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height).

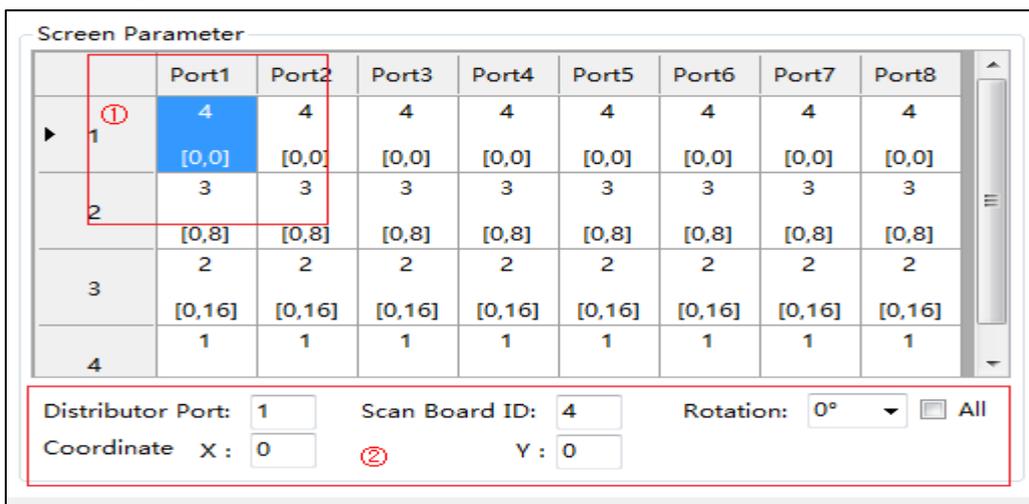
- ④ Input the card quantity, X(width), Y(height).Horizontal (width) direction how many cards, vertical (height) direction of how many cards.
- ⑤ Click the Setup button. The software will automatically set the starting address of each scan card.
- ⑥ Screen Parameter. Scan Card Address parameter table, generally no need to change.
- ⑦ Click the Send button.

As shown below:



### Attention:

Manual adjustment of scan card address



- ① Select the Scan Board, the window displays blue when selected (One small box stands for a Scan Board)

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② Input the data to modify the selected Scan Board parameter.

Distributor ID: <input type="text" value="1"/>	Distributor Port: <input type="text" value="1"/>	Scan Board ID: <input type="text" value="1"/>
Coordinate X: <input type="text" value="0"/>	Y: <input type="text" value="0"/>	Rotation: <input type="text" value="0°"/> <input type="checkbox"/> All

[Distributor ID]: Select which distributor.

[Distributor Port]: Select distributor port.

[Scan Board ID]: Set the Scan board order, The Scan Board that first get signal from send card is address No 1, The Scan Board connected with the first Scan Board is address No 2, and the rest may be deduced by analogy.

[Coordinate X]: The initial place of coordinate X in the Single card

[Coordinate Y]: The initial place of coordinate Y in the Single card

[Rotation ]: Set the single card display content rotation, rotation angles 0°C, 90°C, 180°C, 270°C. If you need all of the LED screen to rotate, then hook on the right

③ Click the Send button.

### 4.3.7 Brightness and Gamma Adjust

1) Brightness Adjust

Click “Function” >> “Brightness/Color temperature body”.

**Settings screen brightness and color temperature body**

Brightness  256 Level  16 Level

65

Current gain  1

Color temperature

Custom 
  2800 K 
  3200 K 
  4400 K 
  5000 K 
  5600 K 
  6000 K 
  6500 K 
  9300 K

RED  255

GREEN  255

BLUE  255

Automatic adjustment did not start...

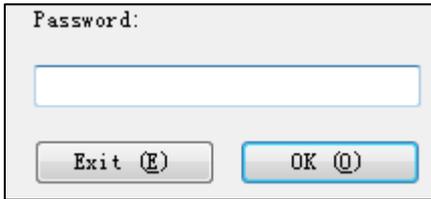
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## 2) Gamma Adjust

(1) Click “Function” >> “Gamma”

(2) Enter the password 168



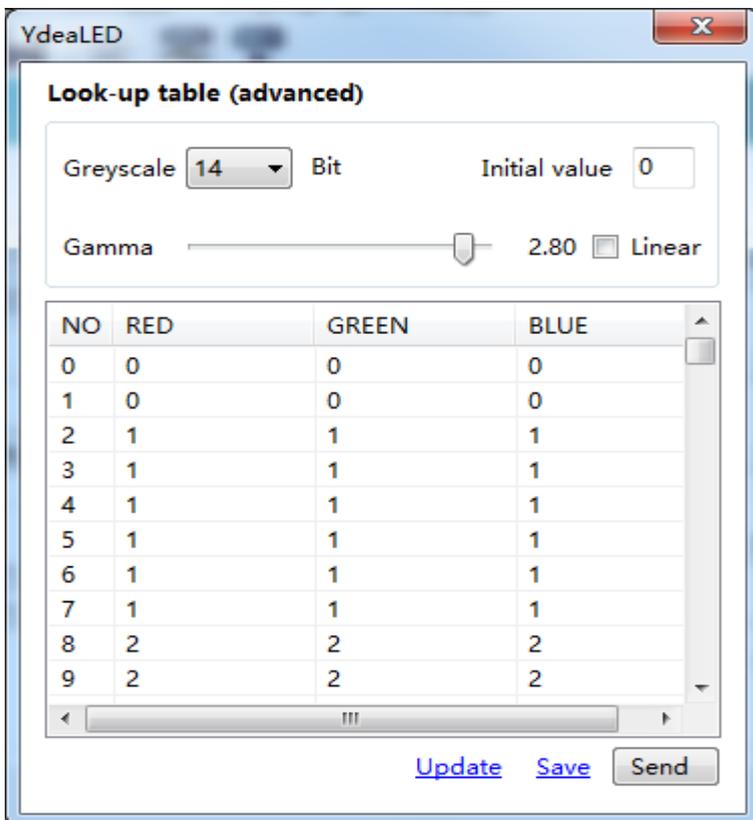
Dialog box titled "Password:" with a text input field and two buttons: "Exit (E)" and "OK (O)".

(3) Select Greyscale



Dialog box titled "YdealLED.Control" with a "Lookup table" section and a "Send (S)" button. The "Lookup table" section has a "Greyscale" label, a dropdown menu set to "8", and the text "Bit". A link "Advanced mode" is visible in the top right.

(4) Click “Advanced mode” icon



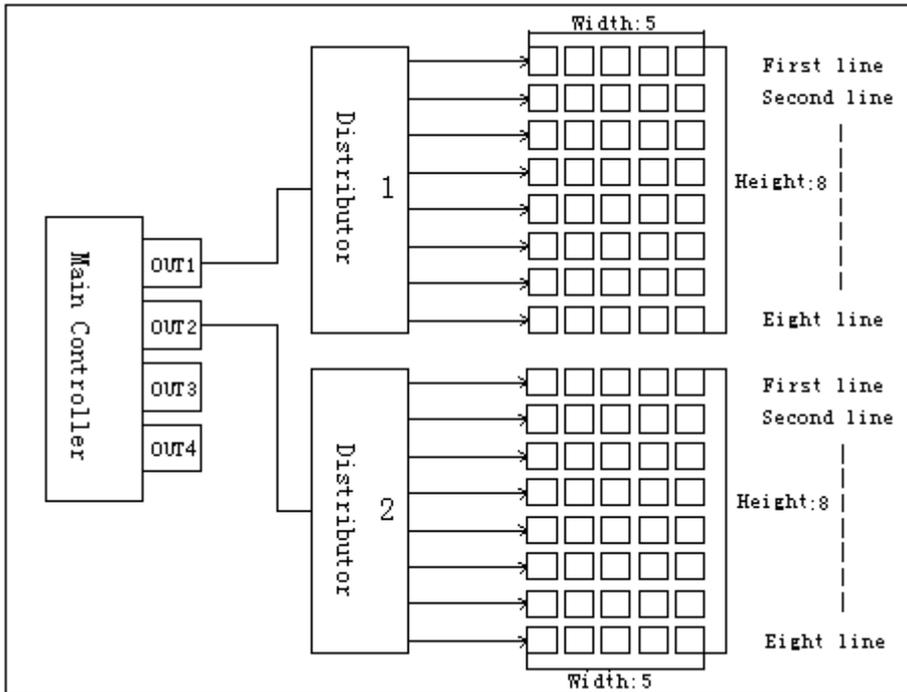
Advanced dialog box titled "YdealLED" with a "Look-up table (advanced)" section. It includes a "Greyscale" dropdown set to "14", an "Initial value" field set to "0", a "Gamma" slider set to "2.80", and a "Linear" checkbox. Below is a table with 10 rows and 4 columns: NO, RED, GREEN, BLUE.

NO	RED	GREEN	BLUE
0	0	0	0
1	0	0	0
2	1	1	1
3	1	1	1
4	1	1	1
5	1	1	1
6	1	1	1
7	1	1	1
8	2	2	2
9	2	2	2

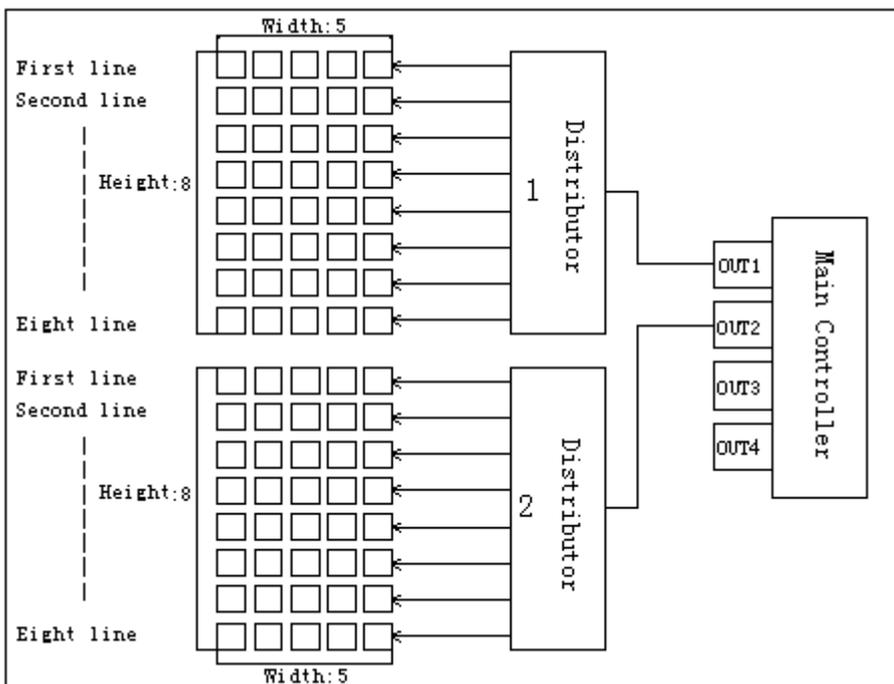
Buttons: "Update", "Save", "Send".

## 5 Led Screen connection topology Picture

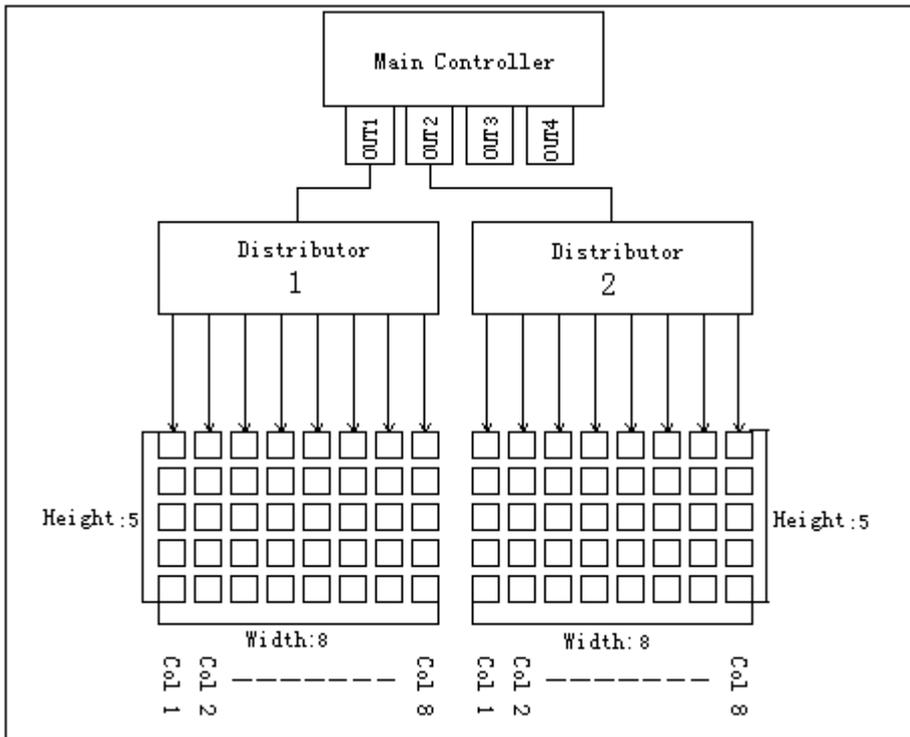
From left to right



From right to left



### From top to bottom



### From bottom to top

