LED Introduction

Green
A. There is no heat, no radiation and absence of ultraviolet and infrared in the spectrum of LED light;
B. Non-toxic – no mercury and other toxic heavy metals;
C. Recyclable waste
Efficiency

LED converts electrical energy into light energy as high as 90% conversion rate and requires very little electricity supply, consumption and energy efficient than incandescent light with 80% reduction.
<table>
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<th>Long life</th>
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<td>LED life can be more than one hundred thousand hours, compared to incandescent light bulbs life span of only 1,000 hours.</td>
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Fast response

Response speed of LED is nanoseconds which is 1000 times than LCD TV's, that is also why the brake lights are using LED more and more than ever before.
Controllable LED lamps can achieve a variety of colors transformation and brightness change.
Security & stability & shockproof

LED is completely encapsulated inside of epoxy resin and there is no loose parts in light body. These features make the LED not easy to damage.
LED Display Project User Manual

一、Inspection of package

二、Test of LED display screen body & control system

三、Installation steps of the LED display screen body & control system

四、Hardware(LED display body' cabinet) connection introduction

五、Software（LED Studio）& "display connection"(CON) setting introduction

1. Introduction
2. How to load the "CON" file("CON" stands for LED display receiving card’s connection which is short for "Display connection")
3. How to set the "display connection"
4. How to send the data to the receiving card

六、Software（LED Studio）program making introduction:

1. Option→software setup→2. Set the size→3. Program making

七、RCG file setting

1. "RCG" Concept
2. What we can’t do on the "RCG"
3. When we need to reset the "RCG" file
4. Where we can get the correct "RCG" file & how to reset(load) the "RCG" file

八、Common failure(problem) & solutions
一、 Inspection of package:

1. Inspection of package when you receive the goods from the shipping company:
   The packing should be intact, unbroken like the following photos. If you find any damage, you need to take pictures and claim the compensation from the shipping & insurance company immediately. Any delay will make the claim be more difficult.

2. Inspection of package after you transport the goods from the shipping company to your warehouse:
unpacking the packing box and counting the quantity of the goods. The quantity of the goods should be the same as the contract quantity. The spare parts should be packed in one spare parts box or packed separately in each packing box. You should make sure you receive all the same items & correct quantity of the goods as you ordered. If you find any difference (less than the contract quantity). You need to take pictures and claim all the difference to our company. Please make sure not make any test or installation before you make sure all the goods’s quantity and items are correct.
二、 Test of LED display screen body & control system:

1. IPC test: preparing one set of the keyboard, mouse & monitor to connect with the IPC(LED6690/LED6698) → connect & turn on power the IPC → after the IPC working properly, then close the IPC. Please make sure the IPC were not connecting with the LED display during the this test period.

2. Sending card test: install the sending card into the IPC → connect the DVI cable between the IPC & the sending card → connect the data cable (CAT5 UTP) between the sending card’s 1st data port (one sending card have 2 data port which can control 2 separated LED display screen, but only the 1st data port can make the software setup; the 1st data port is the port which is besides the green & red lamp: the following photo shows the data cable connecting with the 1st data port) → turn on the power the LED display cabinet. If the sending card’s Green lamp is blinking & Red lamp is
constant light, then it means the sending card is in working in good condition.

IPC, Sending card & main related components
Explanation

1. Power cable is inserted into plug to provide power to IPC with sending card.
2. VGA cable connects IPC and computer monitor.
3. DVI cable connects IPC and sending card.
4. USB cable connects IPC and sending card.
5. Ethernet cable connects sending card and receiving card installed to the lower right corner of cabinet inside.
Power cable of IPC

VGA cable
<table>
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<tr>
<th>USB cable</th>
<th>DVI cable</th>
</tr>
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</table>

Address: SHEC Industry Park, Xincheng Road, Shajing town, Bao an District, Shenzhen, China. URL: shec.biz Email: sales@shec.biz Tel: 0086-755-36698583, 0086-755-36698582, 0086-755-36698581. Fax: 0086-755-36698580
Sending card is installed to IPC inside
Mouse Cable 5
Keyboard Cable 6
VGA Cable 7
Network Cable 8
3. Receiving card & cabinet test:
After installation it will be very hard to make checking and replacing or repairing; Normally, the LED display screen were composed by many cabinets, the best way to fix the problems is check every single cabinet separately before installation:

(1) Select the correct power supply voltage
According to different power voltage in different countries, choose the right Voltage mode, namely 220V or 110V. Normally the default voltage mode is 220V since this is the Chinese Voltage mode standard. If your country’s Voltage mode is same as China, then no need to change. If your country’s Voltage mode is 110V, you should switch the Voltage mode to 110V. (Notice: The power supply will burn out if the voltage needs 220V, but the power switch is on 110V side; inverse the display will be only half running, half dead.)
(2) After making sure the voltage mode is correct, then connect the power & data cable for one cabinet at one time and check if the receiving card and everything work well. If each cabinet work well, it means the receiving card is good. Then connect all the cabinets in the same sequence as the final installation sequence. If all cabinets connecting together and work normally, then the cabinet testing period is finished and we can start the final
三、 Installation steps of the LED display screen body & control system:

1. Assemble cabinets on the structure (it's better to test each row of the cabinets when one row of the cabinets assemble is finished).
2. Connect with data & power cable with the controlling box and cabinets.
3. Install Graphic Card and Sending Card (including the serial interface between PC and Sending Card). If using the IPC（LED6690/LED6698），then only need to install the sending card.
4. Power on control computer: When you open the IPC（LED6690/LED6698） we equipped for you, there’s 2 running model for you to choose: “safe mode” and “common mode”. We should choose running model as common model. However when the IPC
(LED6690/LED6698) is already connected with the LED display and we haven’t chosen "common model" in advance, then we cannot choose "common mode". So, when we test the IPC (LED6690/LED6698, we should disconnect the LED display with the IPC, then open the IPC (LED6690/LED6698) and choose “common model” in advance before connecting with the LED display. Otherwise, the IPC cannot work normally with the LED display together.

5. Connect data cable between Sending Card (from the controlling computer) and Receiving Card (the 1st cabinet’s "data in" port).

6. Power on LED display (Checking whether the display has short circuit, if your local voltage is 110V. You have to change each cabinet power supply’s voltage from 220V to 110V):
   (1) Connect the power cable. The 4 square millimeters power supply cable,
which is three core cables (Red, Green, and Yellow), the red cable connects L, the green one connects N, and the yellow one connects earth. After connecting the power supply cable, testing the circuit using ammeter, if there is no short circuit, then you can switch on the Electricity button. Then, in the normal circumstances, the display does not show anything, but the switching power supply is lighting, and the indicator red LED lamp of receiving card is on:
(2) If there is nothing wrong in previous steps, press TEST key on the receiving card.
combine them together

hub card

receiving card
The display will show slash, single red, single green, single blue, and pure white, gray test signal, etc. If it is normal, it certifies the test for the single cabinet is successful. Then you can test the rest cabinets one by one as above steps. If all of the cabinets prove to work well, then put all the cabinets together to combine a whole display, and connect all the power supply cables.
and data cables. The detailed connecting method is as following drawings. The main power supply cable is 4 square millimeters, each cable can be connected to 4 standard cabinets or less, the biggest power is 4KW, and it can be adjusted according to the actual quantities of cabinets. In order to protect the power cable and lifetime, normally each cable only support 3KW (we have equip one power cable per 3KW). When the power supply cables are connected, make sure the display body is not so heated and can make appropriate adjustment. RJ45 net wire is connected from the first one at the lower right corner to the last one at the upper left corner.
(3) Indication(symbol) of the normal working: there are two LED lamps indicators on the sending card, when the red LED lamp is on, the power supply works very well; if the green LED lamp is flashing frequently, it shows that the data transmission is normal. It is the same phenomenon on the receiving card. The contents on the screen is synchronized with that of the control computer.
7. Checking the DVI Mode of Display is on copy clone mode (Desktop→Property→Settings→Advanced→Display)

8. Remarks: If using your own home use PC, then the hardware accessories include graphics card, sending card or sending box, DVI line, com line, CD disk, user manual. The main board of PC should have a faucet for PCI-E graphics card, a PCI faucet, a RS232 COM, which is used to change the parameters of control system. DVI line is used to transmit data to the sending card from DVI graphics card. DVI graphics card in the computer configuration should set to be copy clone mode; the sending card will send data to the big screen when it receives the data processing.
四、 Hardware(LED display body' cabinet) connection introduction:

1. Wire Rod connection:

![Power Cable](image1.jpg)  ![Data Cable](image2.jpg)
Connection of Power Cable and Data Cable Between Cabinets
Name: Flat Ribbon with clip
Function: Signal Transmission
Location: Picture 1 and 2
Picture 1: Flat ribbon is distributed between modules

Picture 2: Flat ribbon is distributed between HUB card
and each line of the first module

2. Mechanical Connection:
3. Connection of Power Cable
4. Connection of Data Cable
5. Completed Connection
network cable connecting with PC
6. Different Installation Site (Steel Structure Shows)

Mounted on the wall

Hanging on the rental use stage structure
五、 Software（LED Studio）using introduction (only simplified practical manual, detailed software manual is in another separted manual book named "LED STUDIO USERS'S MANUAL"; hardware named "LED Control System Manual")
The following manual book is in the spare parts
1. Introduction: After install the Led Studio in the computer, and then open it, you will get a window as below:

Click “option — software setup”, and then will appear a dialogue box, as shown in below figure.
Then type “linsn” in the keyboard and you can find a Password dialogue box as below. (Computer screen shows nothing when inputting “linsn” by keyboard.)

The password is 168. Then click “OK”, and enters the following windows:
Following the above printscreen, and finish the “Sender” set click “Save on sender”; then Click “Display connection”, you can find a windows as below:
Click "Load from files", and load corresponding procedures—"P20.CON" see in the attached CD after finish that, click "Send to receiver" then click "Save on receiver".
2. How to load the "CON" file ("CON" stands for "Display connection"): 

(1) When the CON file’s display connection we prepared for you is in the same sequence as your actual display connection sequence. Then you only need to Click “Load from files”, and load corresponding procedures—”P20.CON” see in the attached CD after finish that, click”Send to receiver” then click “Save on receiver”.

(2) When the CON file’s display connection we prepared for you is not in the same sequence as your actual display connection sequence. Then you only need to set the display connection manually.

3. How to set the "display connection": Click "Load from files"  choose "Normal" of Set mode  input 1 in the "Display QTY"  click update display QTY  choose "real pixel display" of Type  input "the correct corresponding number" of horizontal card & the Vertical card  choose the corresponding 1st receiver(receiving card): the connecting serial number is
measured from the front of the screen → input the correct "Width" & "Height" pixel number: the width and length have to be the same with the real display. → click from the "order No.1" to the "order No.last(eg. Order No.24) ": we must click in the same sequence as your actual display connection sequence → click "Save to file" (we’d better save the file in E disk, never save in the default contents（目录） since it’s too hard find the file again in the default contents → click "Send to receiver" → Watching and checking if all the LED display were displaying one complet image or many separated image: if the all the LED display were displaying one complet image, then it means the display connection setting is correct; if each cabinet were displaying the same image separately, it means the "display connection" setting is not correct. Meanwhile all other settings should be the same. So in this case, we only need to set the "display connection" again. Please never to make other settings, since this may...
cause more problems for your LED display.
4. How to send the data to the receiving card: we can only use the sending card’s 1st data port to send data. Otherwise, you can not send the data. One sending card have 2 data port which can control 2 separated LED display screen, but only the 1st data port can make the software setup; the 1st data port is the port which is besides the green & red lamp(near the indicator green and red LED lamps).
六、Software（LED Studio）program making introduction:

1. Option→software setup:
SHEC Group Co., Ltd.

Address: SHEC Industry Park, Xincheng Road, Shajing town, Bao an District, Shenzhen, China.
URL: shec.biz
Email: sales@shec.biz
Fax: 0086-755-36698580.
2. Size setting: Eg. set the size to be:
   Start X: 0 Width(W): 144
   Start Y: 0 Height(H): 122
3. Program making: After the above size setting, then we can begin the program making like the following printscreen shows:

(1) Click “File” → “New” → “Add Step” or “Add Universal Display” → Click “File Window” or any other window you like. → Change the size to be (the size should be the same as your LED display’s resolution or less than your LED display’s resolution). Eg.

Start X: 0 Width(W): 80
Start Y: 0 Height(H): 64

(2) Click “Add File” → Choose the file you need to show

(3) After you make the above steps correctly like the following printscreen, then the display will show what you need to show:
Change the size to be:
0 80
0 64
Click add file (after choosing & adding the file you need to show; then the display will show what you need to show):
Address: SHEC Industry Park, Xincheng Road, Shajing town, Bao an District, Shenzhen, China. URL: shec.biz Email: sales@shec.biz Tel: 0086-755-36698583, 0086-755-3669858, 0086-755-36698581. Fax: 0086-755-36698580
七、 RCG file setting:

1. "RCG" Concept: "RCG" stand for "receiving card configuration", the original "RCG" file must be made together with one set of receiving card & a corresponding LED display module. It can only be made by our professional LED display technician.

2. What we can’t do on the "RCG ": the "RCG" file must be saved on each cabinet’s receiving card before making any kind of aging test. So, when the customers receive the LED display, the "RCG" file must be already saved on the receiving card. That’s why when our customers receive the LED display, the customer never need to do any of the following work(If you have done any of the following work, you may make very serious damage to your LED display & cannot use your
LED display normally. If so, we will be powerless to help you again):

1. make a new RCG file: "intelligent setup" function

2. load the RCG file from the CD: "load from files"

3. save the RCG file from the software: RCG file from the: "save on files"

4. send the RCG file to the receiving card: "send to receiver"

3. When we need to reset the "RCG" file

1. Loading the default "RCG" file carelessly before reading this manual. The default "RCG" file from the software will always
be a wrong "RCG" file since it's a test "RCG" file example. If we load this default "RCG" file and click "send to the receiver". Then all the receiving card’s orginal correct "RCG" file will be taken place by the wrong default "RCG" file. Then the whole LED display screen will be blinking and show the wrong image. You may think the LED display it’s broken. In this case, the only thing you need to do is load the correct "RCG" file from the CD we equiped for you. The CD have the correct original "RCG" file and "CON"(LED display receiving card’s connection) file.

(2) Some of the LED display cabinet’s receiving card is broken, then we need to replace a new receiving card(from the spare parts receiving card). All the new spare parts receiving cards haven’t saved the corresponding "RCG" file.
(3) Any other condition which make the LED display receiving card’s original RCG file lost or broken.

4. Where we can get the correct "RCG" file & how to reset(load) the "RCG" file

(1) Loading the "RCG" file from the CD we equipped for you. The CD is in the spare parts packing box, together with the LED studio user manual. If you couldn't find this CD any longer, then you need to try the next method.

(2) Firstly, we should find a good working LED display cabinet with a normal working receiving card. (When the customer receive the LED display, all the receiving card in each LED display cabinet has the correct original "RCG" file. If we haven’t load the RCG file from
the software’s default RCG file or click "intelligent setup" function to change the original "RCG" file, then the original "RCG" file in the LED display cabinet’s receiving card should always be correct.

(3) → Connect the 1st port of sending card (sending card should be in the controlling PC) with one of the good working LED display cabinet.

(4) → Open the LED stadio software (if we installed already, then just double click the software; if we haven’t installed, then install the Led Studio in the computer, and then open it).

(5) → Click "option"

(6) → Click "software setup", and then will appear a dialogue box
(7) → Type: “linsn” in the keyboard and you can find a Password dialogue box as below. (Computer screen shows nothing when inputting “linsn” by keyboard.)

(8) → Type the password: "168".

(9) → Then click “OK”, and enters the "setup hardware parameter" windows.

(10) → Click "Receiver", enters the RCG file making ("intelligent setup"), loading ("load from files"), saving ("save on files") and sending ("send to receiver") windows: please only click "save on file" button.

(11) → Click "save on file" button → save the file in your computer’s E disk.
(12) → Connect the new(or broken) receiving card with the sending card. Please only connect the new(or broken) receiving card with the sending card. Then repeat the above steps from No.(1) to No.(10).

(13) → Click "load from files" button → then choose the RCG file we have saved on the E disk.

(14) → Click "send to receiver"( send the RCG file to the receiving card)

(15) → Check if the the new(or broken) receiving card work well or not. If the LED display cabinet with the new(or broken) receiving card work well, then it means the new(or broken) receiving card work well.
(16) → Click "Save on receiver"

(17) If all the above steps were done successful, then it means the correct RCG file were loading, sending & saving correctly on the new or broken receiving card.

(18) Printscreen of the "RCG" file reset example:

a) After installation of the Led Studio in the computer, and then open it, you will get a window as below:

→ Click "option" → Click "software setup", and then will appear a dialogue box, as shown in below figure.
→ Type "linsn" in the keyboard and you can find a Password dialogue box as below. (Computer screen shows nothing when input "linsn" by keyboard.)

→ Type the password:168 → click "OK", and enters the following windows:
Following the above printscreen, and finish the "Sender" basic set
Click "Save on sender"
Click "Receiver", enters the following windows
→ Upload the CD into your PC
→ Click "Load from files", and load the corresponding RCG file (e.g. "P10. RCG"): The original RCG file is in the CD we equipped for you in the spare parts packing box.
Click "Send to receiver"
Click "Save on receiver". Then we finish all the Setting of the RCG file (loading, sending & saving) according to the above printscreen.
八、 Common failure(problem) & solutions of the software & hardware

1. Failure 1: Indicator lamps of sending card don’t work normally. (Normal working status: Green lamp is blinking, Red lamp is constant light)

Solution and Analysis: Check all cables related with sending card, such as DVI cable and USB cable. Signal can’t be transmitted or interrupted if the cables are loose.

(1) If the sending card & receiving card’s red LED lamps is off, it means the power supply is abnormal, check it. After the power supply becomes normal, then the red lamp indicator will always be on.

(2) If the sending card & receiving card’s green LED lamps is off, it means the data is abnormal. Please check if DVI mode is set CLONE & if the DVI line is connected or loosen, etc. After the data becomes normal,
then the green LED lamps will always be on.

2. Failure 2: Finish all connection of hardware and all indicator lamps work normally, but LED screen is still black (not work).

Solution and Analysis: Change new and short data (ethernet) cable connecting sending card and receiving card. The Ethernet cable's maximum communication distance is 100 meters. If it is too long (>100m) or folded together, then the signal is weakened and cannot show on the LED display normally.

3. Failure 3: Program can’t be edited and shown at the same time, for example: when you pull out VGA cable, LED screen is light, but when you connect VGA cable again, LED screen is black.

Solution and Analysis: Firstly close LED software. Secondly right click on desktop—choose Graphic options—output to—Internet (R) Dual Display Clone—choose Notebook Monitor. Pls see following picture:
4. Failure 4: Open the software, it is wrong, and cannot find the big screen. Solution and Analysis: check whether the COM line is connected or loosen, or whether the version of the software is correct.

5. Failure 5: Some cabinets cannot display normally. Solution and Analysis: check whether the power supply cable and data cable between the normal cabinets and abnormal cabinets are well connected.

6. Failure 6: One line of the modules does not display normally. Solution and Analysis: check whether the pin line between normal modules and abnormal modules is well connected.

7. Failure 7: Some of the LED lamps of the module are not light on. Solution and Analysis: maybe the LED lamps has burnout→ change a new
module (we always equip some spare parts modules for backup, please keep all the spare parts module & the broken modules for future replacement. The spare parts module should be packed in the spare parts packing box. After you use up (用光) all the spare parts modules, then you can send the broken modules back to our factory for repairing. If you have a skilled technician, then you can also repairing the broken modules locally (replacing the dead LED lampl). If the IC pins are not well connected, then rejoining them)

8. Failure 8: one color of the unit module does not work well.
Solution and Analysis: maybe there are something wrong with the data of that color, change another new spare parts module.

9. Failure 9: the content showing on the actual LED display screen is different from the computer monitor’s content showing.
Solution and Analysis: due to the wrong connection sequence of the LED
display cabinets, the content showing on the actual LED display screen may be different from the computer monitor’s content showing. If so, we need:

(1) Using the software to reset the correct "Display connection" (CON file setting) according to the actual LED display cabinets’ (receiving card) connection sequence.

(2) Reconnecting the LED display cabinets’ (receiving card) actual hardware connection.

(3) The following printscreen is an example: 6 cabinets (2 cabinets height and 3 cabinet length): the connecting serial number is measured from the front of the screen, and the width and length have to be the same with the real display. You should send data using the sending card’s 1st port which is near the red & green LED lamps’ indicator side; otherwise, you may not send the data. Normally, do not touch the intelligent setting functions, since the original data of the
corresponding screen has been matched, it never need to be reset if it’s not broken or lost. If you click the intelligent setting carelessly, the screen will show disorder, at this time you need the original RCG document to reset.