DP Series User Manual

SHENZHEN DICOLOR OPTOOELECTRONICS CO.,LTD

To Users

Dear Dicolor Users:

Thank you for choosing to use Dicolor LED Video Display.

Dicolor LED Video Display has the advantages with its excellent quality and excellent performance characteristics. For your convenience, please read the instructions carefully, and follow the instructions described. Throughout, Dicolor's Seven Days per week and 24H per day's service will be accompanied with you. Whatever problems you meet, please follow the warranty assurance to contact us, we always are there for you.

Dicolor - Your most sincere friend.

Due to the products' improvement, Dicolor LED video display you bought may not introduce entirely consistent with the description, we apologize for it.

Implementation Of Standards

National and industry standards in the implementation of this series product include:
➢ GB / T 191-2008 Packaging Pictorial signs
➢ GB / T 2423.1-2001 Electric and electronic products environmental testing procedures Test A: Low Temperature Test Method
➢ GB / T 2423.2-2001 Electric and electronic products environmental testing procedures Test B: High temperature test method
➢ GB / T 2423.3-2006 Electric and electronic products environmental testing procedures test Ca Constant Heat test method
➢ GB4208-2008 Enclosure rating
➢ GB4943-2001 Safety of information technology equipment
➢ GB / T 6388-1986 Transport package shipping sign
➢ GB / T 6587.4-1986 Electronic measuring instrument vibration test
➢ GB / T 6587.6-1986 Electronic measuring instruments test transport
➢ GB / T 6593-1996 quality inspection rules for electronic measuring instruments
➢ GB9254-1998 The radio disturbance limits and measurement methods of information technology equipment (IEC / CISPR 22: 1997, IDT)
➢ GB / T 9813-2000 General specification for microcomputer
➢ GB11463-1989 The reliability tests for electronic measuring instruments

- SJ / T10463-1993 Electronic measuring instruments packaging, labeling, storage requirements
- GB / T 17618-1998 Information technology equipment immunity limits and methods of measurement (IEC / CISPR 22: 1997, IDT)
- SJ / T 11141-2012LED Display's general specification
- SJ / T 11281-2007 LED display's testing methods

Company Profile

Shenzhen Dicolor Ltd. is specialized in LED display R & D, production, sales as one of the best solutions to global suppliers, the company has a professional R & D team, with the highest degree automation and the most complete full automated production lines. Our products mainly include the series as below

1. the Smurfs series (U-Smart);
2. color cube series (I-Magic);
3. N series;
4. M series;
5. M1 series;
6. M2 series;
7. M-Plus series;
8. M-Pro series;
9. S series;
10. X series;
11. X-Plus series;
12. The household NaShang show Mural Series;
13. Traffic guidance screen Series(T Series);
14. LED special shaped screen series;
15. AF Series；
16. D Series；
17. C Series；
18. HP Series；
19. HM Series；
20. HT Series；
21. AU Series；
22. UC Series；
23. DP Series。

We follow the moral standards and values of "Integrity, pursuing excellence,develope together and serve the society" to provide customers with the most fitting market quality's products and services, to become a global leader in the field of LED display.

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Chapter 1   Safety In Use

Before the installation, power, operation or maintenance of this product, please read the chapter safety precautions warning seriously.

1.1 Safety Specifications

If used improperly, will cause harm to persons, property will suffer.

When installing a job, you must wear a helmet to reduce the risk of injuries.

When hanging the Netherlands, we need to be careful.

When the heavy work, should pay attention to not hurt your fingers.

1.2 Installation And Maintenance Personnel Requirements

Display installation and maintenance personnel must go through the necessary technical training and safe operation, strictly in accordance with the installation specifications and safety procedures for assembly, connection, usage, dismantling and transporting.Also make reasonable suggestions which are in unnormal circumstances.

1.3 Important Safety Instructions

1.3.1 Environmental Considerations

1. Conventional products Operating ambient temperature range -20 ℃ ≤t≤50 ℃, the working environment humidity 10% and Zhi 90% RH;

2. Avoid using or storing at a high acid / base / salt and other environmental;

3. Away from flammable materials, gases, dust and other usage;

4. During transportation to avoid strong collision and avoid sharp objects collision;

5. The ambient temperature is too high or a bad cooling conditions, should be careful not to open the screen for a long time usage;

6. LED display exceeds a predetermined humidity under power of circumstances, lead to corrosion of parts, or even short-circuit and cause permanent damage;

7. The screen body is strictly prohibited water, iron and other easy-to-conductive metal objects. LED display as far as possible be placed in low-dust environment, large dust will affect the shown result, while excessive dust will cause damage to the circuit. If there are water inside whatever reasons, please immediately power off until the screen's components dried.

1.3.2 Switching Screen's Considerations

1.Power on the screen: firstly open the control computer to ensure it works properly before turning on the LED display;

2. Power off the screen: Firstly turn off LED screen power, turn off the control software, and then turn off the computer rightly; (If you power off the computer firstly ,it will cause the high-bright emergence of the led screen and burning lamps in serious consequences)

3. In the usage of LED display , it is forbidden to constantly open and shut off the power. There should be separated at least 1 minute between the two operations;

4. Avoid opening screen when the screen is in all white, because it is in the maximum power status, which is inrush current is maximum to the entire distribution system.

1.3.3 Power Supply Considerations

1.LED module is DC + 5V power supply (operating voltage: 4.2 ~ 5.2V), prohibit the use of AC power; power terminals positive and negative non-reverse (Note: Once reversed product will burn even lead to serious fires) ;

2. The conventional LED display Power supply voltage: 220V ± 10%, Frequency: 50Hz ± 5%; can be configured to adapt to the local voltage supply voltage according to different countries or regions;

3. Phase power supply line for an isolated use is strictly prohibited short, ground needs to be grounded, access to power away from the high-power electrical equipment;

4. If you find there are short-circuits, tripping, burning lines, smoke and other anomalies, the power on test should be stopped and find the problem in time.

5. Maintaining a stable power supply, it is recommended to install lightning protection equipment, and well grounded protected from lightning, do not use in particularly strong lightning storms harsh natural conditions

6. You must power the big screen one by one which because the maximum   power to the whole screen will inrush the entire distribution system.

7.LED display is not allowed to play the maximum brightness of the white screen more than half an hour to avoid excessive current, power line fever, LED light damage which will affect the life of the display, it is recommended to play motion video mainly;

8.LED display's internal circuits which is forbidding non-professionals to prohibit touching, to avoid electric shock or cause damage to the line. If problems occurred, please ask professional staffs to do maintenance.

1.3.4 Cleaning Considerations

1. Regular cleaning and maintenance: Outdoor LED display's are in long-term outdoor environment with windy, sunny, rainy,   which will accumulates more dust and rain erosion marks on the screen. And also the dust which caused by long term usage of indoor display. You should do   regular and timely cleanings to prevent affect the viewing experience.

2.① Cleaning the surface of the module , please use a soft brush gently . DO NOT use any liquid substance to clean the surface of LED modules, LED lamp beads otherwise which will be possible damaged;

② If the outdoor screen or the indoor screen are wet in rainy, you can use electric fans to dry it;

3. Wipe rightly:The surface of the LED large screen can be wiped by alcohol or using brushes or removing the dust by vacuum cleaners. Please do not clean it with a wet cloth directly.

1.3.5 Moisture And Storage Requirements

1. Storage temperature requirements: Ambient temperature -40 ℃ ≤t≤60 ℃, after opening the package, LED products shall be kept at a temperature <30 ℃ and humidity <60% environment;

2.The display body, the control section the environment, avoid insect bites, when necessary, place the anti-rat poison.

3.LED display can not be closed for long, under high humidity environment, if the screen body is not used more than three days, you need preheating lighting mode every time you light up the screen body: 30% -50% brightness preheated 4-8 hours, and then adjusted to normal brightness (80% -100%) lights up the screen body, so as to exclude

moisture, so when using the no exception; as if the screen body is not used more than seven days, you need preheating lighting mode every time you light up the screen body: 30% -50% brightness to preheat for more than 12 hours, and then adjusted to normal brightness (80% -100%) lit screen body, so that the exclusion of moisture, so that when you use no exception.

Chapter 2　Basic Overview Of DP Series Products

2.1 Outline

DP series products are mainly for the majority of customer groups carefully developed new cost-effective new products, mainly to solve the problem of one screen multi-purpose HD display. Its main features are as follows::

(1) multi-purpose screen:

a　conventional straight and hypotenuse leasing application;

b　application of outdoor floor tiles;

c　matching application of upper and lower different size cabinet;

d　Left and right dislocation splicing of cabines of the same size (500mm span), and right and left dislocation splicing of cabines of different sizes (500mm span);

e　Support the right Angle 90 ° splicing model application;

f　Both fixed and leased;

(2) HD display: outdoor high brush standard (3840HZ);

(3) Multiple knock resistant design: knock resistant design for bottom steps of the cabines and safety design for four-corner adhesive bag, knock resistant design for concave and convex table on the side of the cabines, and reinforcement design for the periphery of PCB welding pad;

(4) Quick maintenance: the power cabines is fixed by hinge + buckle, and the module is maintained before and after. Convenient for users to do product maintenance and replacement and display management.

2.2 Cabinet Structure

Industry leader one screen multi-purpose HD indoor and outdoor rental display screen,The cabine size is divided into 500X500mm(as shown in figure 2.1) and 500X1000(as shown in figure 2.2). The two cabines sizes are made of die-cast aluminum with high precision, good heat dissipation and non-deformation.

500X500mm size products indoor single cabine weight 6.7kg /PCS, outdoor single cabine weight 7KG/PCS; 500 1000mm size products indoor single cabine weight 11.9KG/PCS, outdoor single cabine weight 12.8KG/PCS. Before and after the module maintenance design, quick maintenance (as shown in figure 2.3).
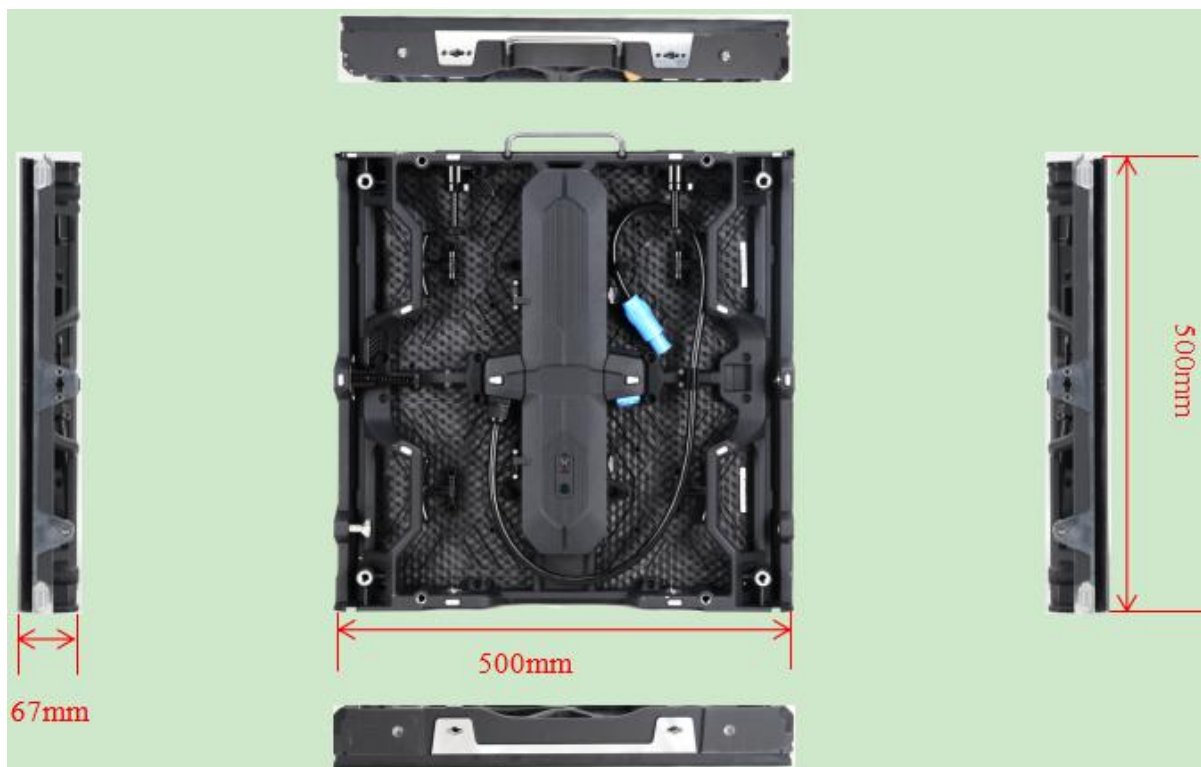

Figure 2-1 DP series (500x500mm) product prototype

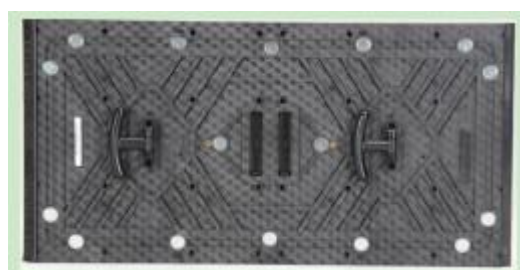Figure 2-2 DP series (500x1000mm) product prototype

Figure 2-3 DP series modules

Note: There is no upper, lower, or left or right division of the DP series modules.
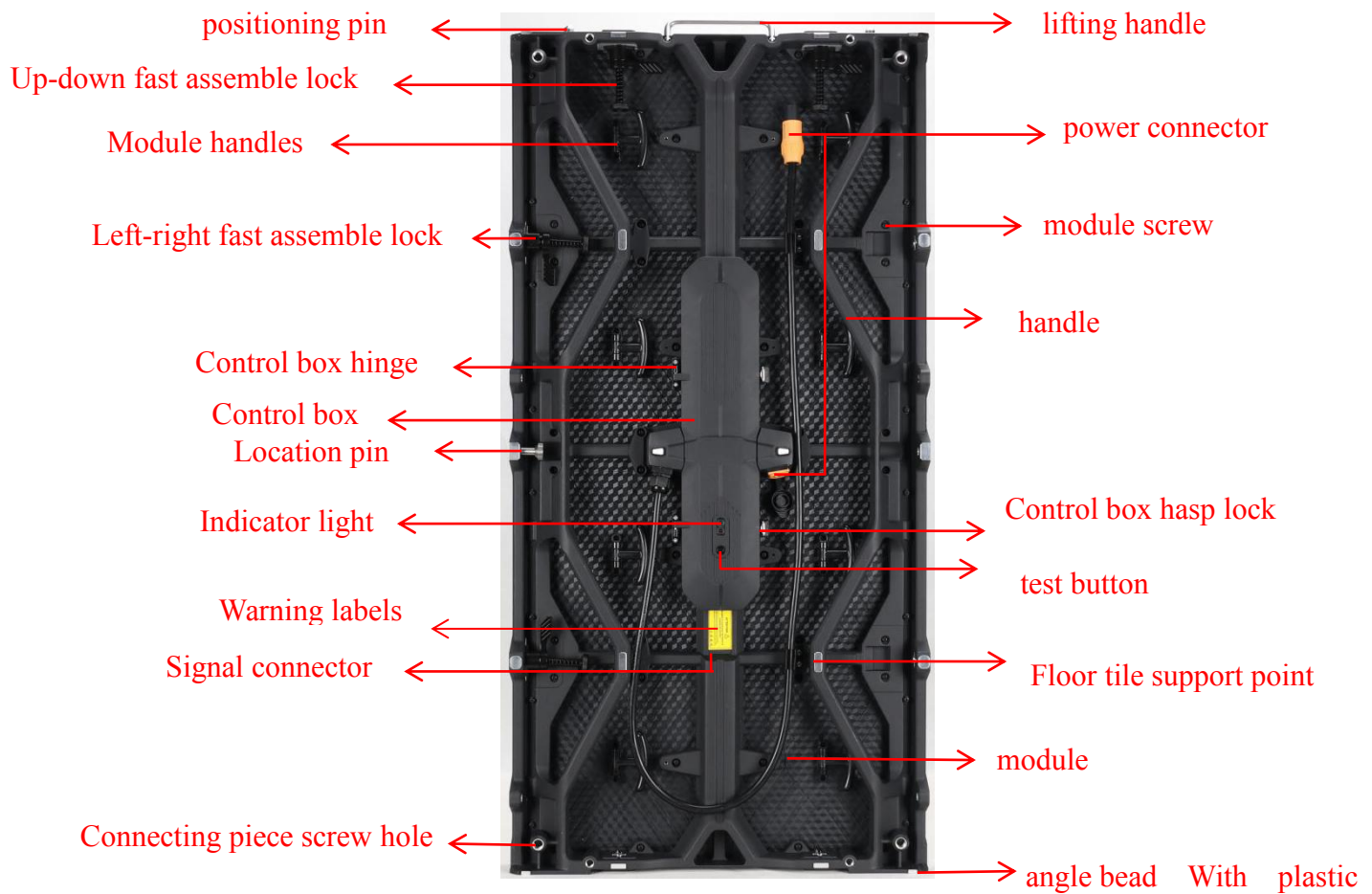
2.2.1 Components Introduction

positioning pin → ← lifting handle

Up-down fast assemble lock →

Module handles → ← power connector

Left-right fast assemble lock → ← module screw

← handle

Control box hinge →

Control box
Location pin →

Indicator light → ← Control box hasp lock

← test button

Warning labels →
Signal connector → ← Floor tile support point

← module

Connecting piece screw hole →

← angle bead　With　plastic

Figure 2-4 DP series (500x1000mm) Components

2.2.2 Components Function

Table 2-1 DP series (500x1000mm) Components function table

Component Name	Function	Qty	Unit
positioning pin	Connect up and down cabinets, to avoid malposition	2	PCS/Cabinet
location hole	Cabinet is positioned during rapid installation and fits with the positioning column	2	PCS/Cabinet
Up-down fast assemble lock	Assemble left-right cabinets	2	PCS/Cabinet
Left-right fast assemble lock	Assemble left-right cabinets	2	PCS/Cabinet
Curve lock (optional)	Used for cabinet left and right splicing, can achieve radian splicing	2	PCS/Cabinet

Connecting piece screw hole	used to fix the connecting piece when connecting the screen	4	PCS/Cabinet
lifting handle	used for taking and handling, and hoisting is operated by a single person	1	PCS/Cabinet
Control box hasp lock	For fixed the control box	2	PCS/Cabinet
Cabinet handle	Lift and assemble the cabinets	2	PCS/Cabinet
Test button	Test the electrical property of the Cabinet	1	PCS/Cabinet
Power connector	Cabinet power input and output	2	PCS/Cabinet
Signal connector	Connect cabinet signal	2	PCS/Cabinet
LED status indicator of Power/signal	Show power and signal working status(red and green	2	PCS/Cabinet
Mount mounting hole	it stacker shall be used in conjunction with the stacker during installation	4	PCS/Cabinet
Control box	Including power supply, receiving card, HUB, etc, Cabinet control center	1	PCS/Cabinet
Module	Cabinet display unit	4	PCS/Cabinet
Module handle	Prevented the module from falling off when maintenance	8	PCS/Cabinet
Rectangular block(optional)	Bevelled Cabinet is used for splicing straight screen	2	PCS/Cabinet
Angle bead With plastic	corners of the Cabine are free from scratch	4	PCS/Cabinet
Side bump	Prevent bump when it is installed and positioned with the Cabine quickly	3	PCS/Cabinet
Floor tile support point(optional)	Support point for connection when installing floor tiles	24	PCS/Cabinet

2.2.3 Product Parameters

Table 2-2 product parameters table

Product model	DP-291	DP-391	DP-390	DP-480	DP-590
Type	Indoor	Indoor	Outdoor	Outdoor	Outdoor
Pixel pitch(mm)	2.97	3.91	3.91	4.81	5.95
Cabinet dimension (mm)	500*500	500*500 500*1000	500*500 500*1000	500*500 500*1000	500*500 500*1000
Resolution of Cabinet	168*168	128*128 128*256	128*128 128*256	104*104 104*208	84*84 84*168
Brightness（nit）	800	800	2500nit（black） 3500nit（white）	2500nit（black） 3500nit（white）	2500nit（black） 3500nit（white）

Refresh Rate（Hz）	1920	1920	3840	3840	3840
Color Depth（bit）	14	14	14	14	14
Viewing Angle(H/V)	140°/140°	140°/140°	140°/140°	140°/140°	140°/140°
Max.Power Consumption（ W/㎡）	440	456	640	608	608
Ave.Power Consumption（ W/㎡）	146	152	214	203	203

2.3 Product Accessories

Table 2-3 accessories list

name	Usage	Note
computer	Control screen play scheme	
Send card/box	Send video signal to the screen	
Video processor	Process video source signals	
Video splicer	Multi-screen　play, screen splicing	
electric　closet	Used for screen body power output control	
Connection piece	For connection between Cabinet	
90 ° Connection piece	The box body is connected when the right Angle is spelt	
Hanging beam	Use　for　hoisting, stacking program	
stacking　frame	Using in stacking schemes	
Power connection cable	Using for power transmission between Cabinet	
Signal connection	Using　for signal transmission between Cabinet	

Note: accessories are configured according to the actual situation according to the requirements of the order, and the quantity is configured according to the actual order.

Chapter 3　Product Assembly And Installation

3.1 Introduction To Curve lock

The curve lock is used to connect the left and right cable,offering ±15°、±10°、± 5°、0°, 7 file can choose，The weight of a single set is 0.4kg，High precision，Long service life，Convenient operation， As　shown　in figure 3.1.
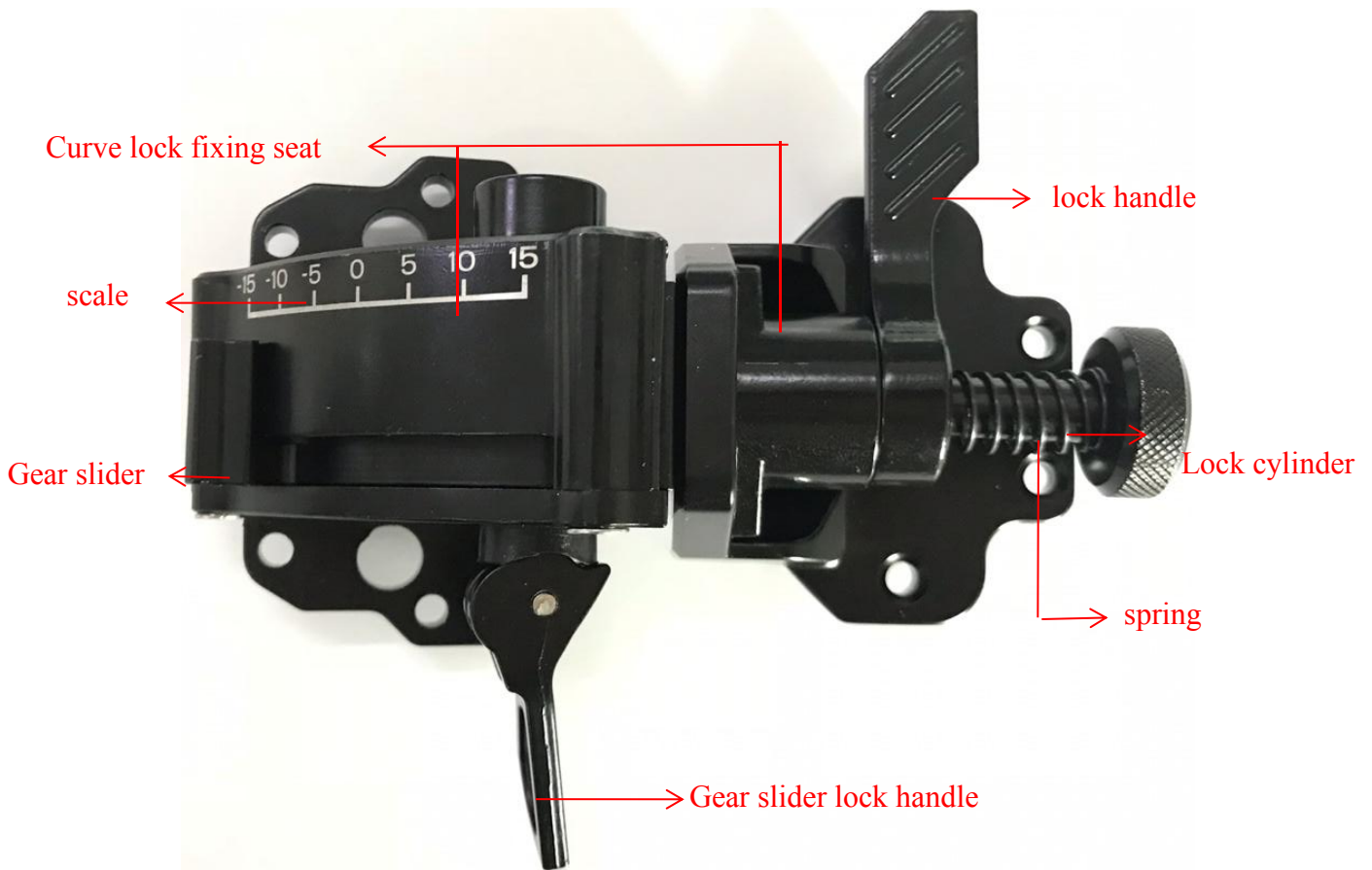

Figure 3.1 curve lock schematic diagram

3.2 Cabinet Left and Right Splicing

curve lock is used for left and right splicing.Four simple steps to achieve

radian splicing，The steps are as follows：

    (1) move the Gear slider of the curve lock ，Choose the radian you want to use，As shown in figure 3.2:

Figure 3.2 select radian

    (2) lock and fix the selected radian, as shown in figure 3.3:
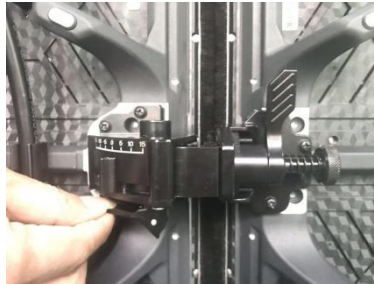
Figure 3.3 lock the selected radian

    (3) press the lock cylinder inward and tighten it, as shown in figure 3.4：

Figure 3.4 lock cylinder fixation

    (4) press down the handle of the lock handle to tighten and complete the radian splicing, as shown in figure 3-5：

Figure 3.5 curve lock is tightened to complete radian splicing

Spell arc scheme,as shown in figure 3-6：

Figure 3.6　Spell arc scheme

3.3 Cabinet Up And Down Splicing

Up-down fast assemble lock is used for up and down splicing, after direct alignment, you can lock and tighten, the steps are as follows:

（1） fix the positions of up and down Cabinet according to the positioning pin, as shown in figure 3.6.

Figure 3.6 up and down Cabinet are aligned according to the positioning pin

(2) lock and tighten the Up-down fast assemble lock,Complete the splice of up and down Cabinet, as shown in figure 3.7:

Figure 3.7 lock and tighten the Up-down fast assemble lock

3.4 Splicing Of The Malposition

Use fixing pin and Left-right fast assemble lock for malposition splicing,Complete the following steps

(1) First, aim at the Cabinet hole position, as shown in figure 3.8:

Figure 3.8 alignment hole position

(2)Secondly, Tighten fixing pin, as shown in Figure 3.9:
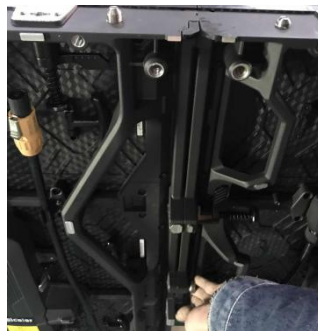
Figure 3.9 locking fixing pin

（3）Finally, tighten the lock cylinder and pull down Left-right fast assemble lock handles, as shown in Figure. 3.10:
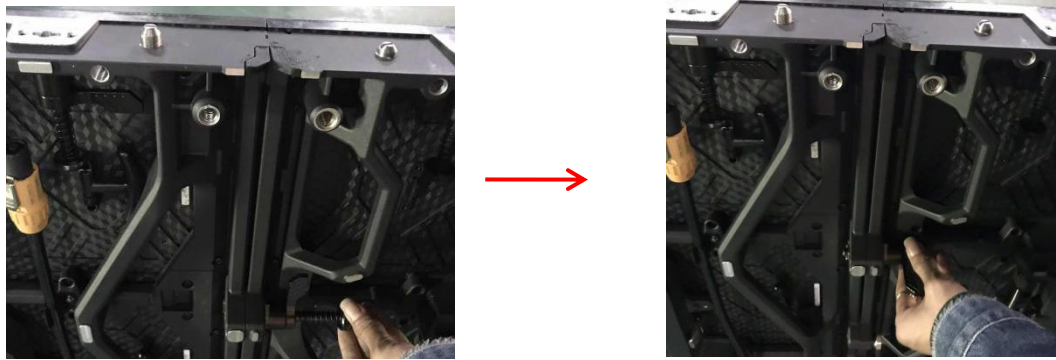
Figure 3.10 Left-right fast assemble lock

(4) Complete malposition splicing，as shown in Figure. 3.11:

Figure 3.11malposition splicing

3.5 Pillar Splicing

(1) take 500X500, 2 square indoor products as an example. First, splice the cabinet up and down, as shown in figure 3.12:
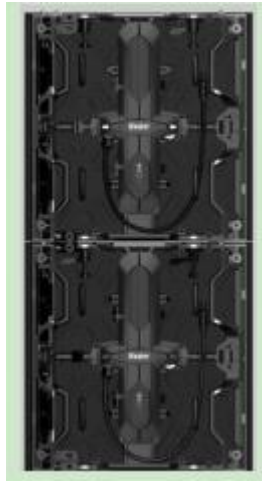
Figure 3.12 up and down splicing of 500X500 cabinet

(2) secondly, the cabinet assembled from up and down is assembled at right angles, as shown in figure 3.13:

Figure 3.13   cabinet with right Angle

(3) similarly, another right Angle is spliced, as shown in figure. 3.14:

Figure 3.14 cabinet with right Angle

(4) combine the assembled two right-angle cabinet into tetrahedron , as shown in figure 3.15:

Figure 3.15 two right-angle cabinet are assembled to form a tetrahedron

(5) the 500x500 cabinet is assembled into a 2-square-meter tetrahedron, as shown in figure 3.16:

Figure. 3.16 tetrahedron

3.6 Simple Floor Tile Application

Figure 3.18 Simple floor tile

Note: simple floor tile application is only suitable for outdoor products.

3.7 Installation Scheme

3.7.1 Straight Side Cabinet Stacking Scheme

(1) the stacking scheme of straight-side cabinet is completed through a stacking frame, as shown in Figure. 3.19:

Figure . 3.19 schematic diagram of stacking frame

(2) the first cabinet is installed on the stacking frame, as shown in figure 3.20:
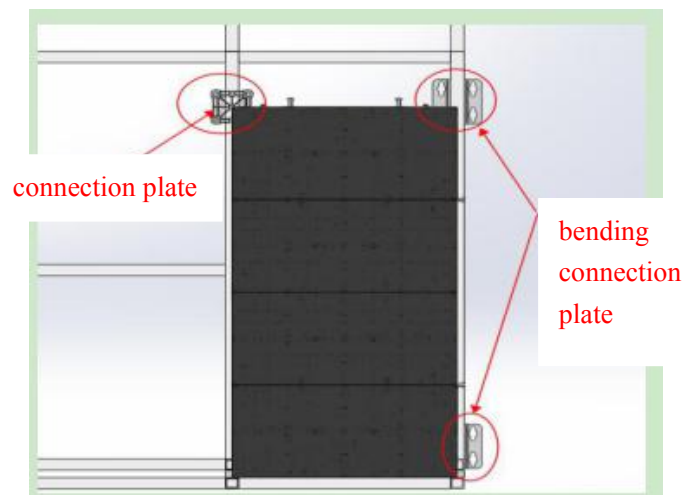
Figure . 3.20 schematic diagram of single cabinet installation

(3) install the first layer cabinets successively and lock Left-right fast assemble lock and connecting pieces between the cabines, as shown in 3.21:

Figure .3.21 schematic diagram of the first row cabines installation

(4) similarly, install the second and third layer cabines, lock up the Up-down fast assemble lock between the upper and lower cabines, lock up the Left-right fast assemble lock between the left and right cabines, and lock up the connecting piece and the stacking frame, as shown in figure 3.22:
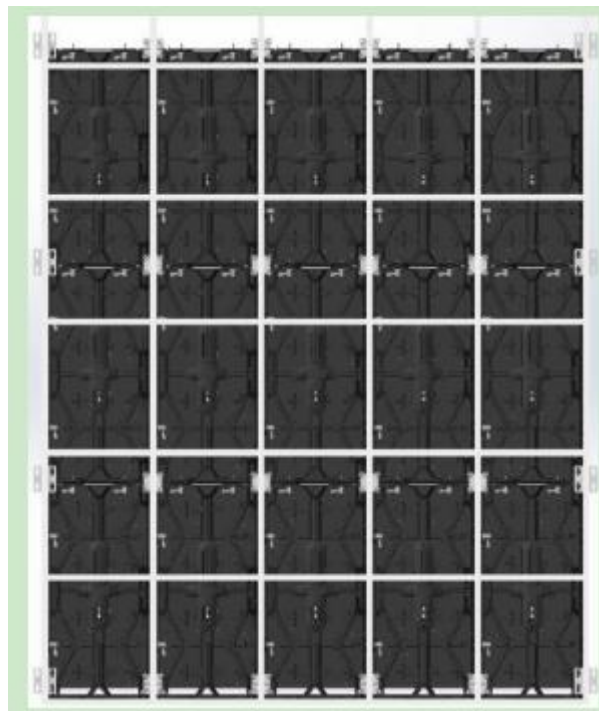

Figure 3.22 completes the stacking installation

3.7.2 Straight Side Cabine Hoisting Scheme

(1) connect the straight side hanging beams, and use positioning column to position between the hanging beams, as shown in Figure. 3.23:

Positioning post between hanging beam
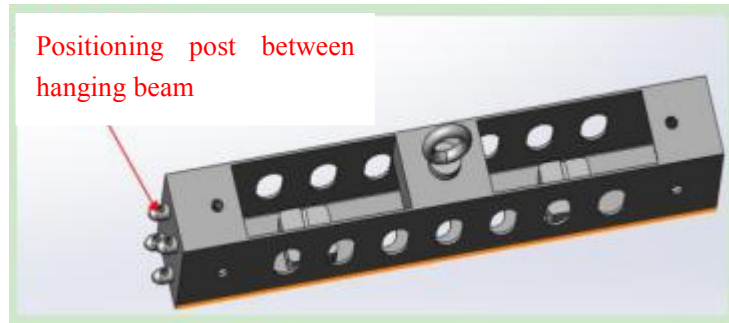
Figure . 3.23 schematic diagram of single   hanging beam

(2) connection diagram of two hanging beams, as shown in figure 3.24:
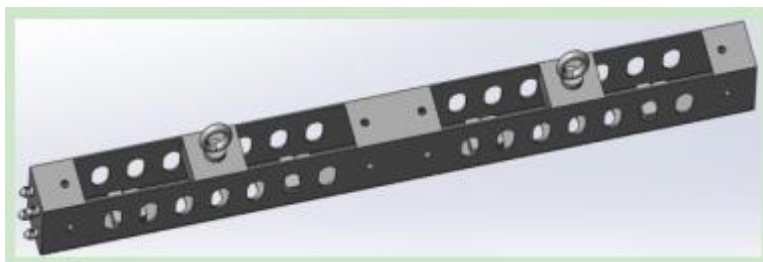

Figure .3.24 schematic diagram of hanging beams connection

(3)install the first cabine on the first layer and lock the upper and lower connection locks between the hanging beams and the cabine, as shown in figure 3.25 :
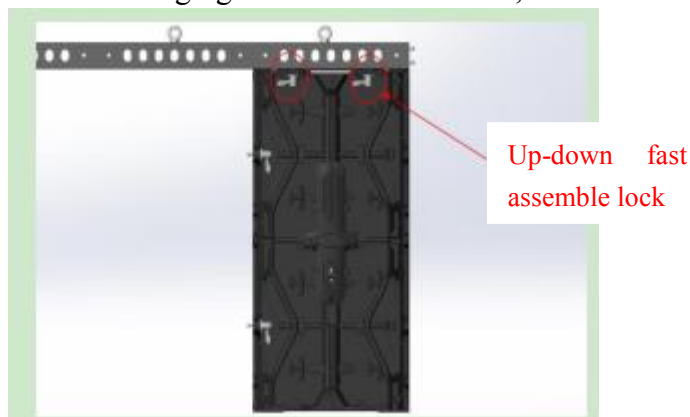

Up-down fast assemble lock

Figure 3.25 schematic diagram of hanging   installation of the first cabine

(4) install the cabines of the first layer in sequence, lock the Left-right fast assemble lock between the cabines, and lock the Up-down fast assemble lock between the cabines and the hanging beams, as shown in figure 3.26:
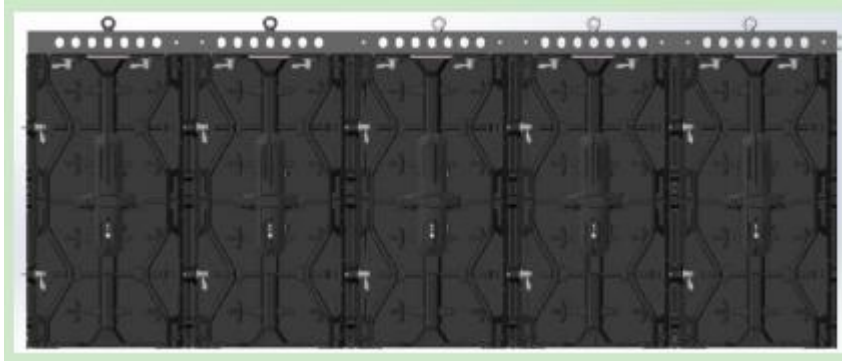
Figure 3.26 schematic diagram of the first layer of hanging installation

(5) install the rest cabines by analogy and complete the screen installation, as shown in figure 3.27:
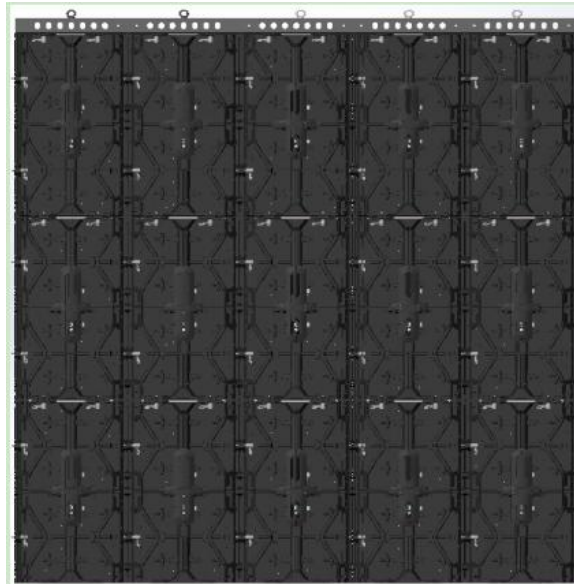

Figure 3.27 complete hanging installation

3.7.3 Arc-Shaped Hanging Scheme

The arc-shaped connection scheme is currently targeted at the optional cabine with Curve lock. DP-391＋15 °, for example。

(1) Adjust the gear slider and select radian according to site requirements, as shown in Figure 3.28:
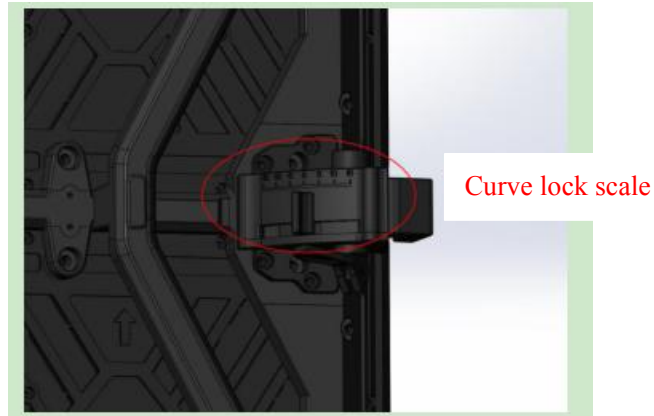
Figure 3.28 Choose radian
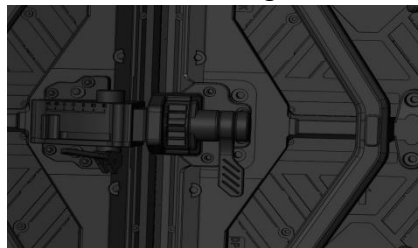
(2) tighten the curve　lock, as shown in figure. 3.29;

Figure 3.29 curve　lock locking

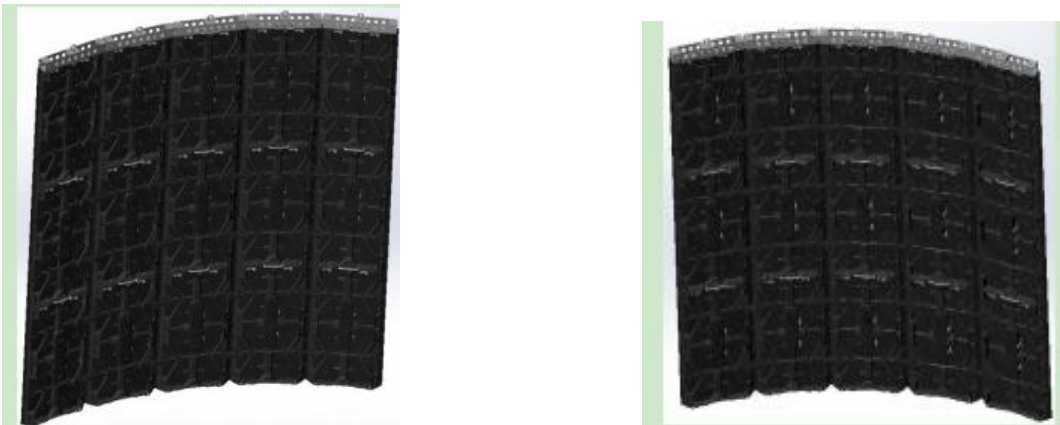(3) complete arc hanging installation, as shown in figure 3.30:

Figure 3.30 arc hanging installation is completed

3.8 Module Before And Back Maintenance

3.8.1 Module Post-Maintenance Instructions

(1) remove the fixing screws at the back of the module, as shown in figure 3.31:

module screws

Figure 3.31 product module removal(1)

(2) on the premise that the cabinet is fixed and stable, hold the handle of the module with both hands, push the module outward with force and push the module out, as shown in Figure. 3.32:

Figure 3.32 product module removal(2)

(3) Turn the module sideways and remove it from the gap, as shown in Figure. 3.33:

Figure 3.33 product module removal(3)

3.8.2 Air Suction Tool And Module Front Maintenance Instructions

DP series indoor products are module front maintenance products, which are

maintained by air suction tools. The operation of the air suction tool is simple and fast, and portable, making the maintenance process of the screen easier.

Put the air suction tool on the center of the module, and then press the switch button to make the module adsorbed   by air suction tool, and then pull it out by force. After the module is removed from the cabinet, press the button again to remove the module. The air suction tool is shown in figure 3.34, and the diagram of front maintenance is shown in figure 3.35.

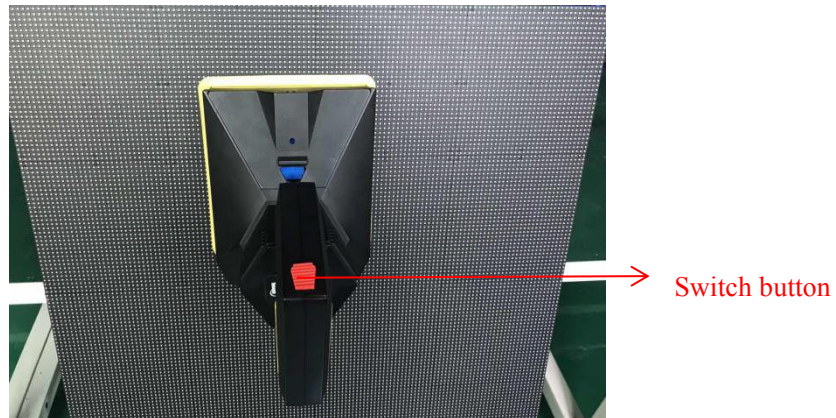Figure. 3.34 air suction tool

Figure 3.35   schematic diagram of front   maintenance

Note: before maintenance only modules can be before maintenance, The power supply and receiving card and HUB are back maintenance.

Chapter 4　Product Packaging

4.1 System Topology

4.1.1 System Connection Diagram

(1) general system connection diagram: (control computer + sending card + receiving card +LED display), as shown in figure 4.1:
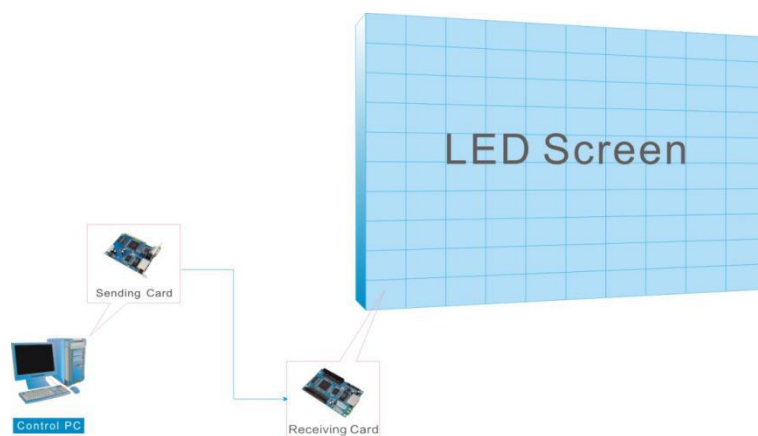

Figure 4.1 general system connection diagram

（2）system connection diagram with video processor: (all kinds of audio and video equipment + control computer + video processor + sending card + receiving card +LED display screen + distribution box), as shown in figure 4.2:
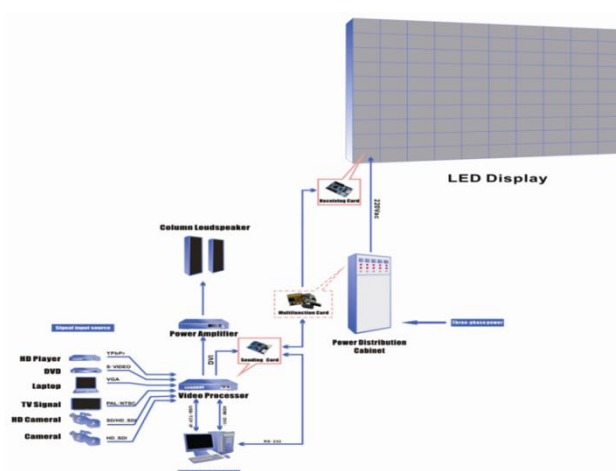

Figure 4.2 system connection diagram with video processor

4.1.2 Schematic Diagram Of Connecting Screen Through The Computer

(1) desktop computer with screen connection, as shown in figure 4.3:
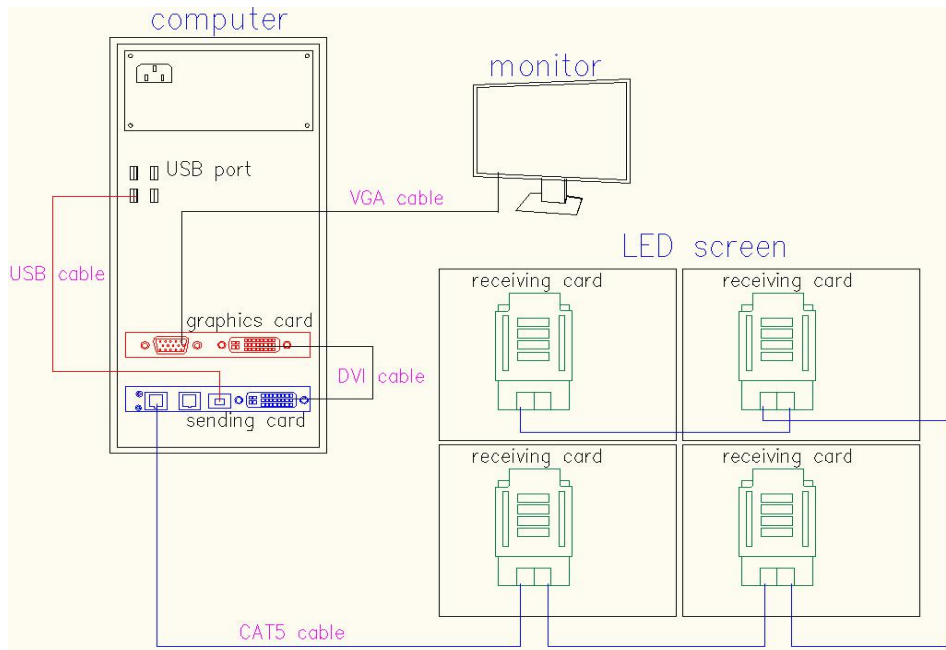

Figure. 4.3 Schematic diagram of Connecting the screen through the desktop computer

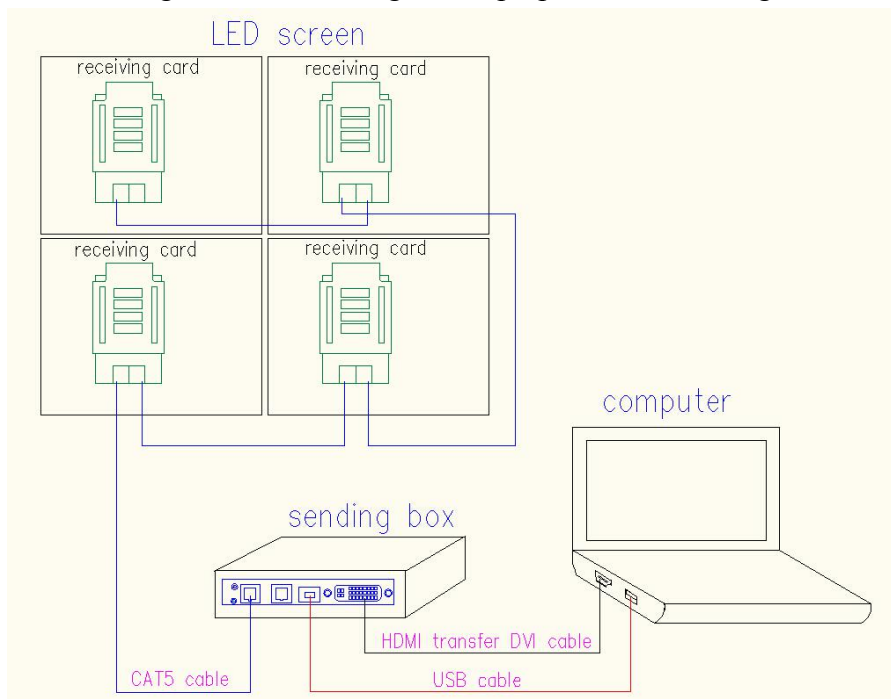(2)　Connecting the screen through the laptop , as shown in figure 4.4:

Figure 4.4 Connecting the screen through the laptop

4.2 Computer Configuration (Recommended)

The operating system： Windows XP/ Windows 7

The main board：1 个 PCI –E slot（Install discrete graphics cards），3 个 PCI slots （installation sending card，video capture card）

CPU： Intel core i5; Dual-core above；frequency ≧ 3.0G

The hard disk： ≧500G

memory： ≧4G

Discrete graphics：Nvidia GEForce；video memory≧2G

display： minimum 19 inch LCD ；For Full HD: 24 inch

drive：DVD drive（recordable CD/DVD）

PC Computer accessories：The power cord（bring your own），keyboard（Another purchase）， Mouse（Another purchase）

4.3 LED Control System Configuration

Sending card/box: sending card/box

CD: a CD that comes with the product

Sending card/box with: power cord, DVI data cable, USB data cable, drive CD.

4.4 Distribution Box Configuration

Figure 4.5 distribution box

Distribution box is one of the most frequently used devices in display peripheral devices. The company is equipped with two types of distribution boxes: PLC distribution box (intelligent distribution box) and conventional distribution box. PLC distribution box contains a function card, can achieve the screen, air conditioning,

other equipment, such as remote switch.

The composition of the distribution box generally has a few core devices, the main power switch, AC contactor, Independent switch, timer, lightning protection.

At present, the configuration of distribution box has been basically standardized, which can be divided into ordinary distribution box and intelligent distribution box:

A general distribution box: the distribution box is equipped with timer, which can switch the power supply of the display screen.

B intelligent distribution box: the intelligent distribution box can display the real-time temperature and humidity and brightness intelligent control on the screen, and the power of the display screen can be switched on and off at any time with software.

Main switch

Timer

Lightning protection device

Zero terminal

Current transformer

One-way air switch
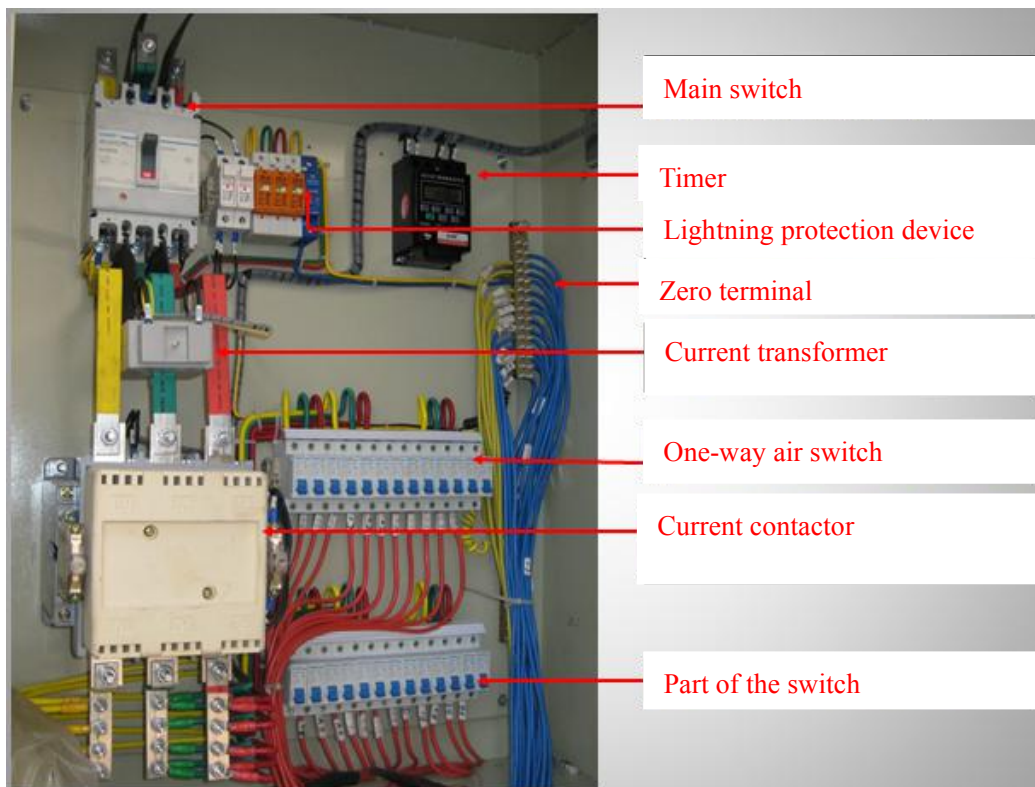
Current contactor

Part of the switch

Figure 2.5 main components of distribution box

The distribution box of our company is divided into portable type and fixed type: portable type is divided into two specifications of 20KW and 40KW; The fixed type is divided into four specifications: 20KW, 40KW, 80KW and 150KW. Its multifunctional card and arrester can be selected according to the demand. If the customer has special needs, please specify in the order. We can generally calculate the input power of the screen body according to the size of the screen body, and then choose the appropriate distribution box capacity according to the power. Points to note when selecting the

distribution box:

1. Whether the number of air heads of the distribution box meets the actual demand;

2. Whether the size of the distribution box can meet the dimensional placement requirements of the maintenance channel (the larger the capacity of the distribution box, the larger the size);

3. To consider the location of distribution box, need to consider waterproof, lightning protection, remote control of the upper and lower power, etc.

4. To consider the choice of capacity, the capacity of the general distribution box should be greater than the input power consumption (non-maximum power consumption).

When to use the equipment: it is generally required to use the equipment (according to the specific situation) in a certain area with the total power consumption exceeding 10KW.

4.5 Product Packaging

There are two ways to pack the products in the flight case: the first way is to pack 6 and the second way is to pack 8. The packaging steps are as follows:

(1) check whether the product quantity is complete, whether the box is damaged, and whether the accessories are complete.

(2) after confirming the complete set of accessories, open the flight case and take out the corresponding LED cabinet, wire and other relevant parts, as shown in figure 4.5 .
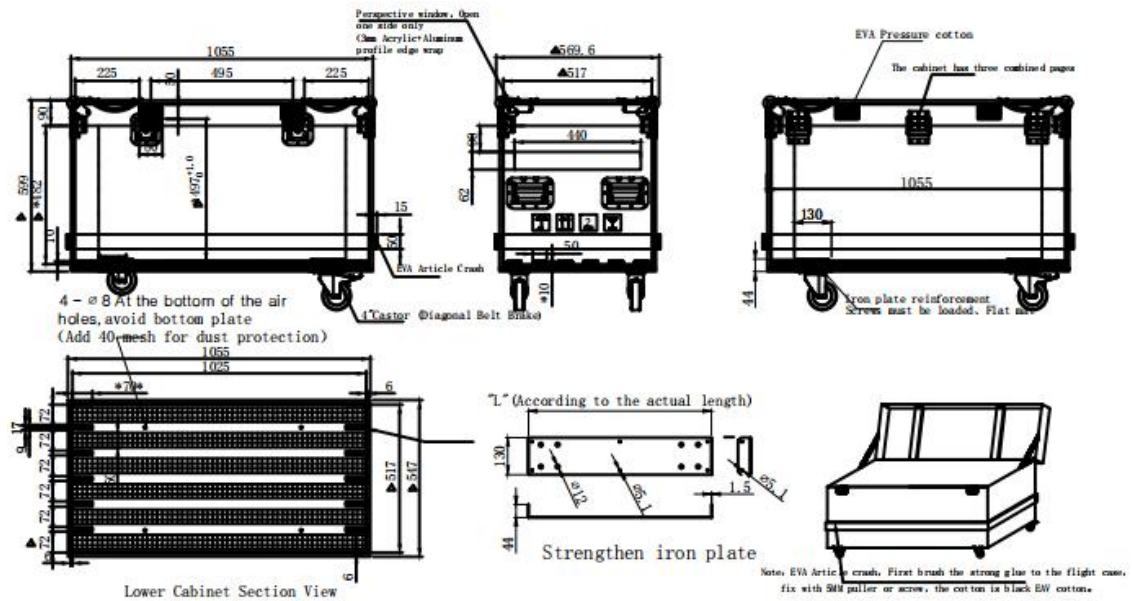
Packing information:

Figure 4.5 schematic diagram of 500X1000 packaging (one pack of 6)

Table 4-1 packing specification table

The packing way	Flight case	Flight case
Packing size	1055(L)*599(W)	747.6(L)*601(W)
Gross weight	-	-
note	Applicable to 500*500　cabinet	Applicable to 500*1000　cabinet

Note: the flight case is configured with 1 pack N, and customers can customize the specifications of the flight case according to their requirements.

Chapter 5   Routine Maintenance Of LED Display Screen

5.1 Usage And Maintenance Of the Display Screen

5.1.1 Usage Of Switching Machine And Hardware:

Open screen: A .power on for each device (ensure input voltage meets product requirements, and L/N/G corresponds correctly);

B. When the computer is turned on, make sure that the video card is set correctly (otherwise, the screen will not be displayed);

C. Open the control software and conduct basic pixel size and display area Settings (this setting will not affect the normal display of LED screen);

D. Power on the large screen one by one according to the connection sequence of the network cable. After the signal is received in the front screen, continue to power on the next step. If there is no signal after the screen is powered on, please find out the reason before the next step of power on.

A. turn off LED screen power;

B. Turn off the control software;

C. Turn off the computer properly.

(2) the time between switch screens should be more than 5 minutes;

(3) the screen cannot be opened under the following circumstances that may cause the display screen not under the control of the control system:

A. The computer does not enter the control software and other programs;

B. The power supply of the control part is not turned on.

(4) in case of display failure, the display shall be shut down in time and relevant causes shall be checked (for specific reasons, please refer to the trouble excluding some);

(5) When the display screen is in use, the power switch often appears trip, please timely check the screen or replace the power switch;

(6) the luminescent surface of the display screen shall not be impacted or

squeezed by hard objects.

5.1.2 Usage Of Control System

(1) computer power supply zero line and the power supply live wire cannot be reversed, neither can the control part of the power supply zero line and the power supply live wire,shall be inserted in strict accordance with the original position. If there are peripherals, test whether the chassis is electrified after installation;

(2) the control computer can only be used for the operation of the display screen, not for other purposes, in the case of no need for remote control, try not to connect to the Internet;

(3) if it is necessary to move the computer and other control equipment, the connection line and control board shall be checked for looseness before power on. If short circuit, tripping, wire burning, smoke and other abnormal phenomena are found after moving, the power should be turned off and problems should be found in time;

(4) the control computer shall be installed with virus protection software and garbage file cleaning software to prevent viruses from interfering with the control software of the display screen and causing the display screen to fail to work properly.

5.1.3 Usage Of Control Software

(1) organize full-time personnel to operate and control the computer, and prevent non-full-time personnel from operating by setting the system password. Full-time personnel must master installation method, original data recovery, backup. Master the setting of control parameters and the modification of basic data presetting,Proficient in program, operation and editing.;

(2) if conditions permit, the control computer should be backed up by software, such as Windows operating system, applications, software installer, database, etc.;

(3) the control computer must install the relevant driver program (especially the graphics card driver program) before it can be used normally after reinstalling the system;

(4) the specific control software operation process of each system can be referred to the relevant chapters of each operating system in this manual.

5.1.4 Routine Maintenance

(1) Dicolor suggests that each customer should carry out periodic maintenance and annual inspection of the control computer, peripheral equipment and screen body, with the periodic maintenance cycle of about one month;

(2) the maintenance and inspection of computer and peripheral equipment shall include:

A. Check the integrity of the computer and peripheral hardware;

B. Regularly clean up the computer's garbage files, check and kill viruses, and backup the system;

C. Clean the peripheral equipment and computer, including dust and sundries. (never clean your computer while it is working)

(3) the contents of screen maintenance and inspection shall include:

A. Whether there is any out-of-control point or module exception;

B. If possible, check the hardware of the display screen, including whether the steel structure is loose, whether the wiring connection is loose, whether the socket is intact, whether there is abnormal noise, whether the cooling fan works normally, whether the filter screen of the air inlet has dust backlog, etc.; (it is recommended to clean the filter screen and cooling fan every 2 months. Please do not dust clean or wire plug when the screen is working.)

C. Screen body system function test, including whether the screen body consistency is good, screen body picture whether there is flicker or color anomalies (including color bias, uneven brightness, etc.), etc.

(4) timely troubleshooting shall be carried out after faults are found in the process of periodic maintenance and annual inspection. For specific troubleshooting methods, Please refer to the screen troubleshooting section of this manual.

5.1.5 Saving The Display Screen

1. Saving the uninstalled display screen and spare modules

(1) the storage place shall be well moisture-proof, and the humidity requirement is: the relative humidity is lower than 90%;

(2) Storage should be appropriate temperature, the temperature requirement is: the environment temperature - 40 °C≤t≤ 60 ° C ;

(3) the storage place should avoid pest and rodent damage, anti-rodent medicine should be placed when necessary, and the installed screen should also pay attention to this point;

(4) avoid rainwater or other liquid entering the screen or contact module during storage;

(5) during storage, clean the storage area to prevent dust and debris accumulation.

2. Usage and saving the display screen under special circumstances

(1) the outdoor display screen shall take appropriate lightning protection measures to ensure the timely release of strong electricity and strong magnetism caused by lightning. In extreme lightning weather, the display screen shall be temporarily closed and the computer shall be controlled;

(2) the installation site of the display screen should try to avoid water accumulation. In case of extreme severe convective weather, including typhoon, rainstorm, blizzard and hail, the display screen should be temporarily closed;

(3) in coastal areas, the display screen should pay attention to the corrosion of the exposed metal parts of the display screen caused by the salt in the air.

(4) some countries and regions may fail to start the display properly due to the excessively low temperature in winter. Therefore, low-temperature power supply and low-temperature resistance cabinet should be used. If necessary, hot air curtain can be installed.

(5) when the ambient temperature is too high or the heat dissipation condition is not good, please pay attention not to open the screen for a long time, and install heat dissipation equipment such as exhaust fan, air conditioner, etc.;
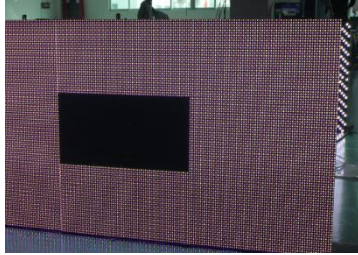
Chapter 6   Common Problems And Solutions

6.1 Common Screen Body Faults And Solutions

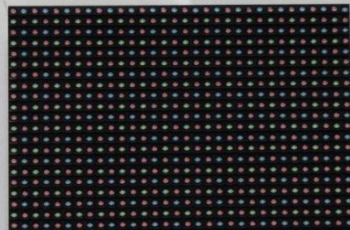| Description of adverse phenomena	Picture shows	The cause of the problem	solutions
No display in the whole large screen (black screen)		No AC power input.	Check whether the power supply of the large screen is normal, Switch on the distribution box, and the power indicator is on.
		Computer turned off.	Open the computer, start the LED driver software or enter the LED demonstration software, and check whether the sending card works normally. The sending card is flashing green light ,and Long bright red light.
		Communication line connection (network cable).	Check whether the cable connecting the sending card to the large screen is damaged. Reconnect it correctly until the indicator light of the receiving card is flashing normally.
		Bad control system (sending card).	The sending card is normally green flashing, if the card is broken or there is no signal input, the green light is normally on or off, the occurrence rate of the bad sending card is low, please do not easily misbehave,It's a real card fault,Please replace the control system.
		Receiving card power supply.	Whether the input voltage is DC5V , whether the first card of signal input is damaged.
		The DVI wire is not connected.	Close the computer and connect the DVI cable.
		Graphics Settings.	Check if the video card is set to copy mode.

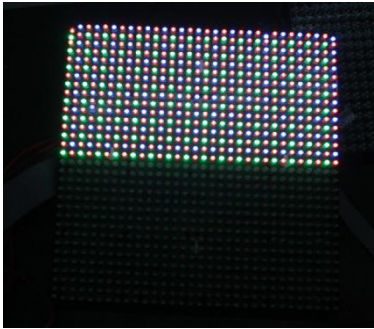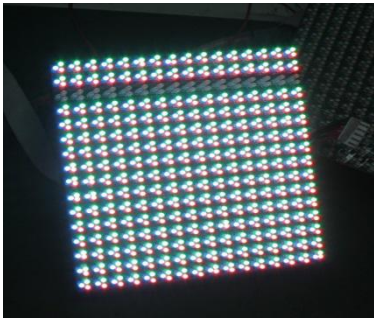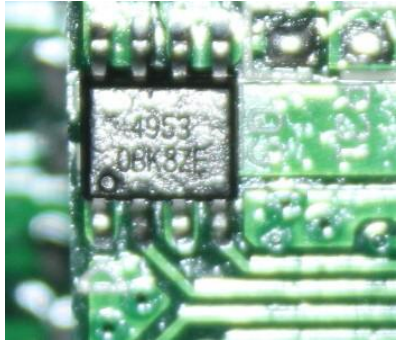| Domestic garbage | | Bad control system (send/receive card) | The parameters of the large screen are not set correctly. Please follow the operation steps of the control system to change the Settings and connect the signal line. Please refer to the operation steps of the attached control system,DVI line loose. |
		Bad control system (send/receive card)	Send the card to normal for a green light flashing, such as card is bad or no signal input green light is normally on or not, There is less chance that the sending card is broken , Please do not miscalculation the receiving card is bad: Normal for the red light, green light flashing, such as card is bad or no signal input ,red light is not bright (note: because there was no power input is likely to cause), the green light is normally on or not. It's a real card fault, please replace the control system
The full screen shows misalignment and overlap		Display screen connection setting error and module flat signal line connection dislocation.	Follow the operation steps of the control system to change the Settings and properly connect the signal line. Refer to the operation steps of the attached control system.
The whole screen flashing		Ground wire is broken	Check the ground connection between the screen body and the interior
		Bad control system	Change the sending card and receiving card (especially signal input card). Send a card to normal for a green light flashing, such as card is bad or no signal input green light is normally on or not, There is less chance that the sending card is broken , Please do not miscalculation the receiving card is bad. If the receiver card is out of order, the red light will always be on and the green light will flash, such as card is bad or no signal input, red light is not bright (note: because there was no power input is likely to cause), green light is normally on or not
		The control system voltage is abnormal	The voltage is DC 5V

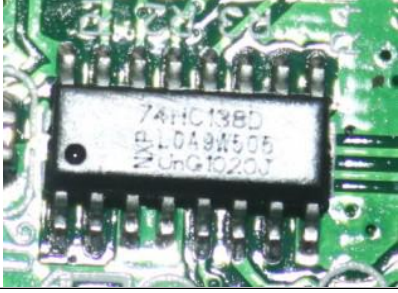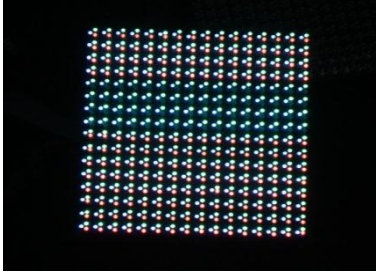|		A communication line (network line) is missing a signal	Check the communication lines (network lines) and reconnect to make the correct connection
		System software setup error	Please refer to the operation steps of the attached control system
		Video card property setting error	Refer to the operation steps of the attached control system for correct setting
Large part of the screen is not bright		Power input in the dark part	Check whether the power supply of the unlit part is normal
		Receive card signal input	Check whether the signal of the receiving card is normal (whether the green light is flashing)
		Receiving card is bad	If the reception card is out of order, the red light will be normally on, and the green light will be flashing. If the card is out of order or no signal input, the red light will be not on (note: it may be caused by no power input), and the green light will be normally on or not
The large screen display is out of sync with the computer		Computer graphics card Settings	Check to see if it is set to copy mode

6.2 Common Single Cabinet Failure And Solution

Description of adverse phenomena	Picture shows	The cause of the problem	solution
Single cabinet is not bright		The power supply is damaged	Check whether the power supply is normal
		If the last cabinet is not bright,it may be a bad receiving card	If the receiving card is out of order, the red light will be normally on, and the green light will be flashing. If the card is out of order or no signal input, the red light will be not on (note: it may be caused by no power input), and the green light will be normally on or not.
		The last box of the big screen is not bright	Check the cable and reconnect to make the correct connection

6.3 Common Module Faults And Solutions

Description of adverse phenomena	Picture shows	The cause of the problem	solution
Unit board is not bright		Panel voltage	The voltage of the cell plate is 5V
		Cascade input signal line loose (row line)	Reconnect the signal lines between the stages

		74 HC245 IC bad	Replace the 74 HC245 IC
Half of the unit board is not bright		74HC245 IC broken (short circuit)	Replace 74HC245 IC(clear short circuit point)
		)Bad position corresponding to the first drive IC(such as MBI5024) bad (short circuit)	Replace drive IC(e.g. MBI5024) (clear short circuit point)
		Bad inside display block	Replace display block
Missing line (limited scan mode screen)		74HC245 IC broken (short circuit)	Replace 74HC245 IC(clear short circuit point)
		Field tubes 4953 and 74HC138	View the field tubes 4953 and 74HC138 corresponding to the row

Missing column (limited scan mode screen)		Resistance line of bad	Replace the Resistance line
A small piece of unlit (static screen only)	This photo is a scan module that should be replaced	Corresponding drive IC(e.g. MBI5024) bad (short circuit)	Replace drive IC(e.g. MBI5024) (clear short circuit point)
		Bad external resistance	Replace the resistance
Single point no light, slight light, shiny (only static screen		Bad inside module (bad light)	Replacement of modules (LED lights)
		Corresponding drive IC(e.g. MBI5024)pin is bad(short circuit)	Replace drive IC(e.g. MBI5024) (clear short circuit point)
Some modules are not bright		One row of modules is not bright	Check if the wiring is loose, and if not, check if it is caused by the power supply of the first module in the line.
		One corner of one cabinet (1/4) is not bright	Check whether the power supply of the not bright module is working normally

Lack of color		One row module is missing color	Check whether the alignment is loose, and not, Check again to see if the first module in this line is caused.
		Single module lacks color	The module is damaged, replace the module
		A part of a line lacks color	Module damage and wiring problems, replacement of modules and wiring