LianTronics

Display All You Want !

T Series Displays Product

User Manual

This manual is only for operating instructions and does not serve as repairing service.

Changes

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Contents

1. SAFETY

This chapter contains important information to prevent personal injury and product damage when you install the display. Read this chapter and keep it properly. Ensure that you understand and follow all the safety instructions and warnings in this chapter before installing.

Personal Protection

	**Warning:** Ensure that you understand and follow all the safety instructions, warnings mentioned in this manual.
	**Warning:** Pay attention to electric shock.
	**Warning:** Wear a hard hat to reduce the risk of personal injury.
	**Warning:** Be aware of suspended loads.
	**Warning:** Mind your fingers while dealing with heavy loads.

Personnel of installation and maintenance

The installation and maintenance of this product must be performed by authorized and qualified technical personnel only. The manufacture dose not take responsibility for the results caused by incorrect, improper, irresponsible and unsafe actions.

GND and Lightning protection

Do not underestimate the safety protection of grounding plug/socket. If the supplied plug/socket is defective, replace the defective parts. Ground the product correctly to avoid electric shock caused by large electricity leakage.

Disconnect the power in the time of lightning, or provide other suitable lightning protection device. Disconnect the power plug when the product is not used in a long period.

Ambience of installation and use

•The ambient temperature for LED display: max 40°C, min 0°C.

•Ensure that the ventilation is good. Do not jam or drop metal particles and cable pieces into ventilation opening. Keep the ventilation surface clear without foreign matters like wrapping materials. False actions may lead to poor ventilation and cause fire, malfunction and error.

•Install LED display far away from radiator, heater, furnace and other equipments hindering ventilation and heat dissipation (including but not limited to amplifier, laser, ultrasonic vibration devices), flammable materials (like curtains) and other unsafe devices.

•I/O signal cables should be shielded to restrain the high-frequency interference.

•LED display can not contact with any corrosive and abrasive matter. Do not use LED display in ambience containing airborne contaminant, moisture, dust, oily fume, corrosive gas and flammable gas, and in ambience with vibration and shock.

ESD and LED:

LED components are ESD (Electro-static Discharge) sensitive. Do not touch LED components when the display is in operation or switched off.

Disconnect device:

When the appliance inlets of the individual tiles are not accessible, the socket outlets supplying the rack shall be installed near the equipment and be easily accessible, or a readily accessible general disconnect device shall be incorporated in the fixed wiring.

Mounting parts:

The mounting parts are only used to install LED display. Do not repair or copy. Only use parts appointed by the manufacturer. Contact LIANTRONICS if you want customized application.

Product care:

Inspect all installations on a routine basis to check security, wear, deformation, corrosion or any other situation that reduces load-carrying capability. Increase inspection frequency for key parts. Keep structural and mounting parts dry, clean, lubricated (only if recommended), coated properly, and maintain complying with part design. Defective parts must be removed or replaced at once.

Installation and wiring:

Install the display and connect cables following the manual instructions. The installation and wiring must be secure. Poor connection may lead to malfunction. Do not step on power/data cable or squeeze plug, socket and power/data cable. Do not suspend any items on cables or the back of LED display. Connect or disconnect the cables of data communication, extension module or control unit after the power is off to prevent product damage or malfunction.

Risk of electric shock:

•To avoid electric shock and damage , do not dismantle the inside electrical parts.

•Do not hot plugging the cables to prevent electric shock or circuit damage.

•Keep clean after installing and cabling. Be ensure all the devices and terminals are covered before tune on the power.

•Do not touch the terminals when power is on. Clean and screw the terminals when power is off.

Moving or transporting product:

Do not hit the corners of LED tiles when installing or dismantling LED tiles. Be careful when moving or transporting the product to prevent any damage.

LED tiles can not be transported in containers other than LIANTRONICS flight cases or packaging. Even the use of LIANTRONICS packaging does not guarantee the LED tiles against damage due to excessive force of impacts. All warranty claims regarding damaged modules due to incorrect packing will be rendered invalid.

2. INSTALLATION REQUIREMENTS

This chapter specifies the requirements for safety, mechanism, electricity and control software of fixed LED display.

2.1 Mechanical Requirements

Warning: Do not underestimate the steel frame structure. Be sure that the frame structure and the square steel tube truss installation on which LED display has to be installed is capable of handling five (5) times the complete load of the display.

For fixed installation, we must consider the wind load and magnitude of earthquake, too.

Horizontal surface

For fixed installation, the bottom of frame structure on which the LED display is installed must be horizontal. Never install LED display on a slant surface.

Ballast

Depending on the height of the display and the position of the LED display upon the foot beams (somewhere between the front and middle), additional weight (ballast) will be required. Consult professionals of LIANTRONICS to calculate the minimum ballast you require for safe installation of the LED display.

Truss square steel tube

The truss square steel tube has to be provided and installed by the customer. Pay attention to following points for installation design and preparation. Calculate precisely for on individual basis.

Weight tolerances: Ensure that the truss square steel tube has to be installed is able to handle the complete weight of LED display.

Installation ambience

Environmental conditions: humidity, ventilation, temperature, etc.

Location: Altitude, etc.

Front clearances: For optimal effect, ensure that enough free space is supplied in front of the LED display and respect the minimum viewing distance.

Comply with local regulations regarding such installations.

2.2 Electrical Requirements

Power requirements

T series display tiles have different pixel densities (see Appendix A – technical specifications). For different pixel densities, one outdoor display tile may need power supply of 0.6 amps to 1.5 amps at 220 VAC, 200-240 VAC, 50-60 Hz. Each outdoor display tile has one input and one output socket of AC power. The power is distributed to display tiles by power split cables from power distributor. However, one power split cable can be connected with 25 – 30modules in parallel. So one power split cable has to be provided for every 25 – 30modules.

Protect every power cable by a circuit breaker or fuses rated 16 A / 250 VAC (15 A / 110 VAC in the USA and Canada). LIANTRONICS provides a range of power distributor to satisfy the demands of your LED display. See more details for power distributor of LED display in Power Distribution Section. Contact LIANTRONICS for more information.

Power system

It is recommended to use power distribution system with a separate neutral and grounding conductor to avoid large current loops due to voltage differences in the neutral conductor.

•Protect the electrical installation by switch, circuit breaker, over-voltage protector, defective-grounding circuit breaker with proper rated power.

•Install the display in accordance with local electrical installation standards. In Europe, comply with EN 60364, the standard for electrical installation of buildings. In Germany, comply with EN 60364. In America, comply with National Electrical Code ANSI/NFPA 70.

Protective grounding

To prevent against the risk of electric shock, the installation should be properly grounded. Defeating the purpose of grounding will expose you to the risk of electric shock.

2.3 System Requirements

Before you begin, it is assumed that you are familiar with the Windows operating software. The CD-ROM in your package contains a Windows 7-based installation program. You can install the software from the CD-ROM.

System requirements

Minimum specifications:

- Hardware
  - PC Pentium IV 2.0 GHz or equivalent
  - 1 GB RAM
  - Free hard disk space: 10GB
  - XGA resolution (1024 x 768)
  - Serial communication port
  - Ethernet connection
- Software
  - Windows 7 Professional

Recommended specifications:

- Hardware
  - PC Intel i5 processor or above
  - 4GB RAM
  - Free hard disk space: 500 GB
  - SXGA resolution (1280 x 1024), with 512MB video memory
  - Serial communication port
  - Ethernet connection
- Software
  - Windows 7 Professional

3. SYSTEM INTRODUCTION

3.1 Brief Introduction

T series are the outdoor LED display products of LIANTRONICS that use die-casting aluminum frames of high accuracy. With its compact, light and handy exterior, the display tile is easy to install and disassemble. As the tile dimension is of high precision, so the whole display keeps in good flatness and seamless.

3.1.1 Product Features

●Special Design Concept

5×5-panel &subframe size：2880mm×1920mm

5×6-panel &subframe size：2880mm×2304mm

●Exceptional Slimness and Lightness

The weight of display unit and subframe is about 55kg/m² with a thickness of only 600mm.

●Low Cost but High Efficiency

Due to convenient on-site set-up，installtion and display test could all be finished in just one day .

●Standard Integrated Panel&Subframe Product

It includes LED display，subframe，power supply，system，trunking，maintenance platform，and maintenance lighting facility.

●Stable Operation

Hot backup power supply and system loop backup all ensure a stable and reliable use.

●High Protection Grade

Front：IP65; Rear；IP54.

●safe maintenance

The maximum voltage on screen side is only DC 48V, which is safe for maintenance.

3.1.2 Applications

Bill board & commercial advertising displays which are installed at the outdoor places, such as along the highway, in front of shopping mall, or on the top of the building.

3.2 System Components

Outdoor LED display system includes the following basic components:

•**LED Display:** T series LED display tiles, power supply cables, signal cables, connectors

•**Control System:** control computer, LED display controller, distributor, control system software

•**Power Distribution System:** power distribution box, power cables

•**Peripheral Devices:** video processor, optical fiber transmitter

LED Display Components List

Number	Name	Function /Explanation
LED Display Components		
1	T series display system	Size: 14400mm(w)×4224mm(h), Weight:3344kg
2	Power cord plug and socket	Used for power supply loop between tiles; the plug is for output, and the socket is for input.
3	RJ45 data cord plug and socket	Used for data link between tiles; the plug is for output, and the socket is for input.
Control System Components		
1	LED display control computer	Industrial control computer
2	Controller	Convert and send video signal
3	Distributor	Distribute the data signal to different tiles
4	DVI output graphics card	Support the output of multiple screens
5	Light sensor	Adjust brightness automatically according to the environment brightness
6	Receiver card	One card for one tile
7	Power management board	Support remote power supply
8	LED control system software	1.Control, set and play video list on LED display 2.Support calibration on-site 3.Support manual and automatic brightness adjustment 4.Support turning on/off LED display through remote network
Power Distribution System Components		
1	Power distribution cabinet	Support remote control power supply
2	Power distribution box	Support remote control power supply
3	Lightning arrester	International brand, to avoid lightning
4	Power cable	Comply with international standards
Peripheral Devices		
1	Video processor	Different models of Voao or Magnimage are available.
2	Optical fiber transmitter	Both single mode and multiple modes optical fiber transmitter can be used; multiple modes transmitter for 500M, and single mode transmitter for 20KM.
3	Optical fiber	8 cores optical fiber with premium brand
4	Heat sink devices	Axial flow fan can be chosen according to the heat dissipation space and the environment temperature.

Warning: LED display modules can be easily damaged, so the original packing materials are needed for the maintenance of the display modules. All the warranty claims are invalid for the damage caused by wrong package.

3.3 LED Display Components

Introduction Fixed Installation Tile

T series display is built with fixed tiles. A tile consists of iron frames in high accuracy, display modules, switching power supply, receiver cards, and some other mechanical and electrical connection parts. T series display has two kinds of tiles and pixel pitches

The introduction of the main components of fixed tile is shown as below with related images. The following introduction will take PH16mm tile as example, other tiles are similar.

3.3.1 Fixed Installation Tile

T series LED display is composed of ten sets of tiles. Each tile could either be configured by 30 modules or 25 modules. And LED receiving card and power supply are incorporated at the backside of tile below.

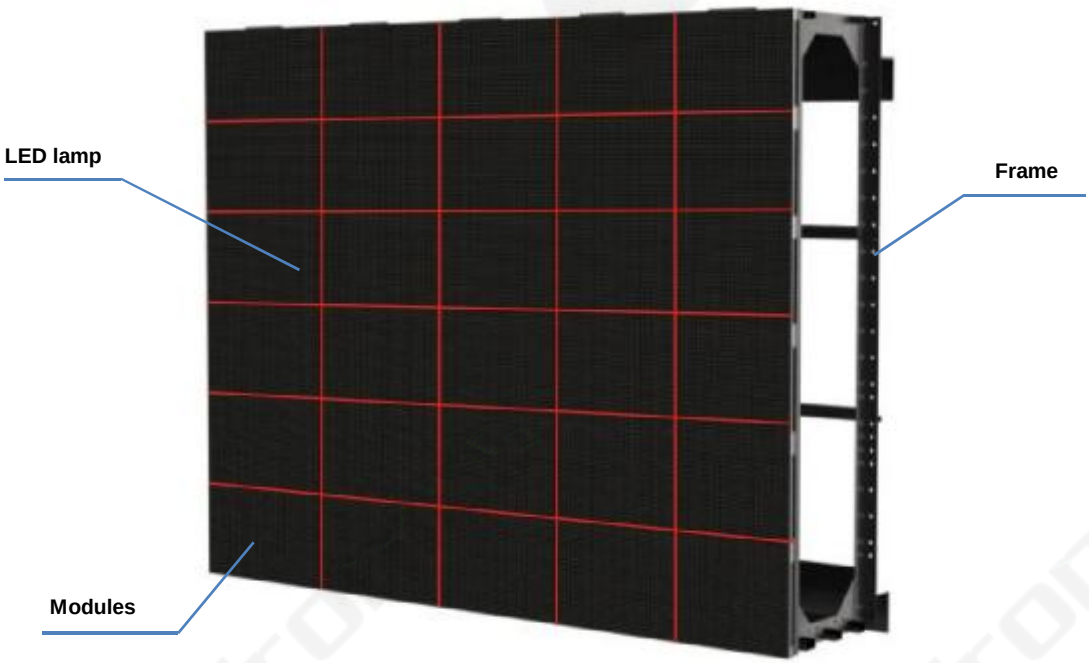


Image 3-1 The front face of fixed installation PH16 display tile

1. Each tile has 5 grids for 30 modules or 25 modules to be fixed in. The precise positioning of the screw holes ensures the precise positioning of all modules. Keep screw holes clean to achieve smooth installation of the modules and avoid seams between tiles and uneven pixel pitches. There are also materials for eliminating the seam between tiles to ensure the smooth and uniformity of the whole display.
2. There is a power distributor at the back of each tile.

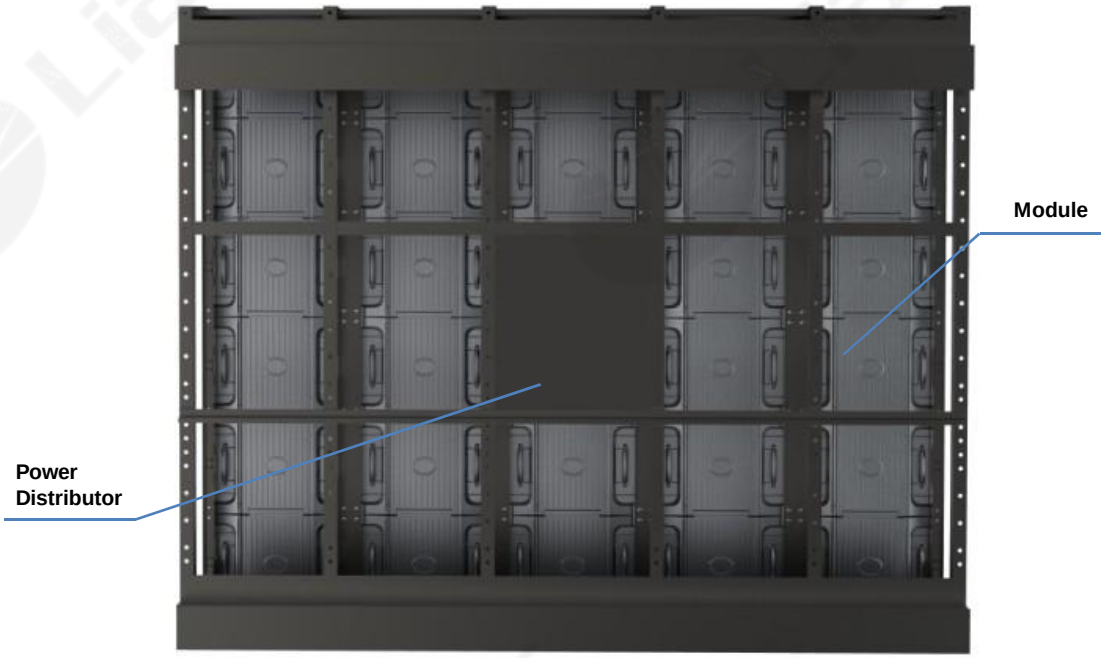


Image 3-2 The back face of fixed installation PH16 display tile.

3.3.2 Fixed Tile's Module

PH16 module includes plastic base frame, PCBA, plastic mask, etc. At the back of the die-casting aluminum base frame， the pixel array lies in front of PCBA. Over the lamps, replaceable masks are equipped to protect the LED lamps and PCB and increase the light efficiency of the display. The use of black organic silicone and diffuser improves the contrast of the display significantly. Each of the four corners at the back of the sheet iron frame has one fixed screw hole to support the installation.

Warning: Only the two kinds of specified modules could be installed to the die-casting aluminum frame.

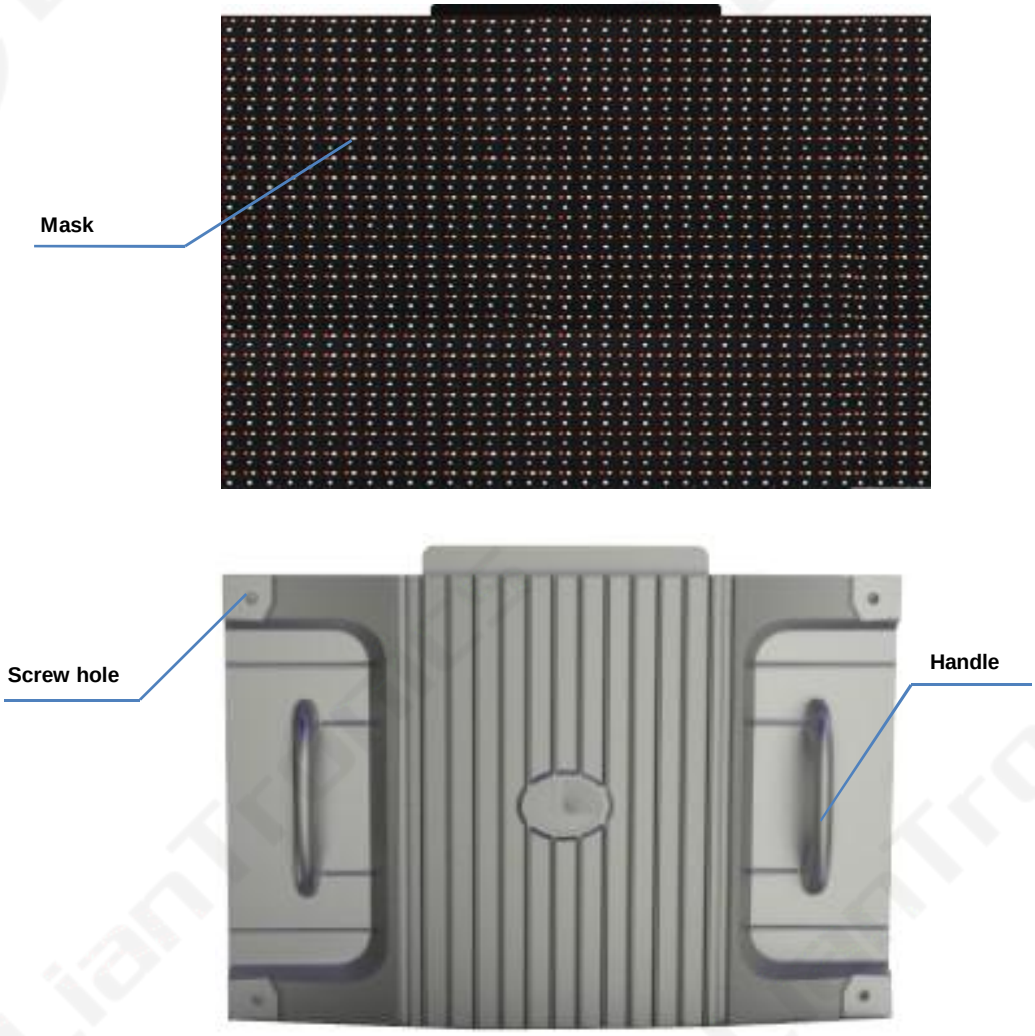


Image 3-3 The module of fixed installation PH16 display

3.3.3 Socket and Plug for Power and Data Connection

The following cable are respectively used for the power and data connection between moudles.

Image 3-4 Power cable

Image 3-5 Data cable

3.3.4 LED Receiver Card

Each tile has one receiver card for receiving and transmitting the data of LED display. The functions of the MRV300 receiver card are shown as below:

- Power supply: 3.3 - 5.0V
- Temperature monitoring (standard feature)
- Power supply voltage monitoring (standard feature)
- Working status monitoring (standard feature)
- 16 RGB data groups output (it can be extended to 32 groups.)
- Load capacity of single receiver card up to 256×128
- Support pixel level brightness/color calibration

Image 3-6 MRV220 receiver card

3.4 LED Control System

This chapter introduces the control system and software of T series display.

3.4.1 MCTRL300 Controller

MCTRL300 is LED controller with autonomous power supply. The main functions are shown as below:

- DVI interface for video input
- USB interface for instruction communication
- Resolutions supported: 1024×1200,1280×1024,1600×848,1920×712,2048×668

1. Two serial interfaces
2. Light sensor interface integrated
3. Audio input interface integrated

Image 3-7 MCTRL300 controller

3.4.2 MSD300 Transmitter Card

•DVI interface for video input

•USB interface for instruction communication

•Audio input interface

•Resolutions supported:1024*1200, 1280*1024, 1600*848, 1920*712, 2048*640

Caution: A multifunction card is required for outputting the audio.

Image 3-8 MSD300 transmitter card

3.4.3 MCTRL500 Controller

•Two DVI interfaces for cascade (video input and output)

•Audio input interface

•Optional data output interfaces (4 RJ45 Ethernet ports or 4 optical fiber ports) to scan boards (receiver cards)

•RS232 serial ports for cascading instruction communication

•Maximum load capacity: 1920×1200

Image 3-9 MCTRL500 controller

3.4.4 MFN300 Multifunctional Card

•RJ45 ports for connection with receiver cards

•serial ports for connection with the control computer

•Support 8 power supply control

•Support light sensors

•Support temperature and humidity monitoring

•Audio input interface

Caution: For audio output, the multifunctional card needs to be connected between receiver cards or at the end of the cascading chain.

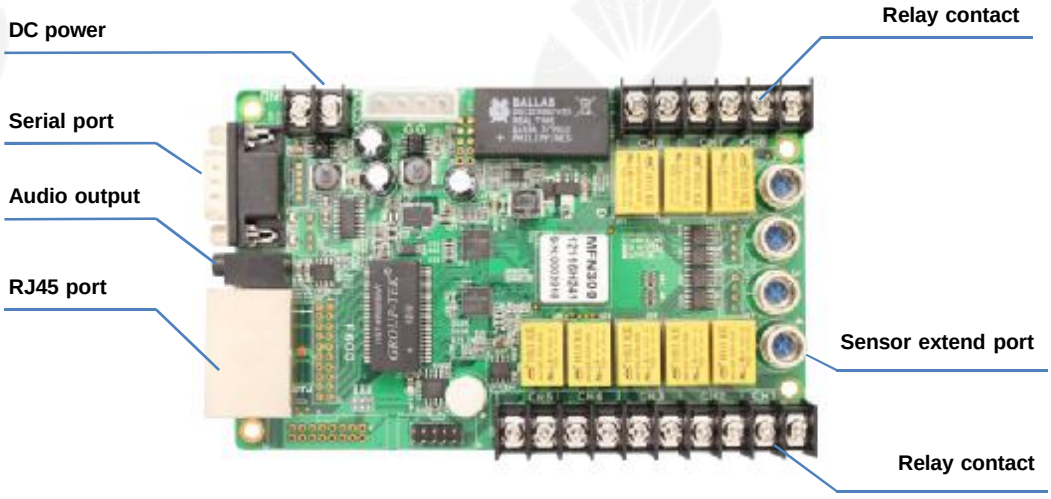


Image 3-10 MFN300 multifunctional card

3.4.5 NS048C Light Sensor

•For environment brightness monitoring

•Connect to receiver cards (MSD300, MCTRL300) or multifunctional cards (MFN300)

•The cable of standard configuration is 5 meters. With a special ordered cable, the working distance can be extended up to 100 meters.

Image 3-11 NS048C light sensor

Note: Consult the controller manual for more information about installation and usage guidelines.

3.5 LED System Control Software

NovaLCT-Mars control software is used to configure and control LED display through PC in Graphics User Interface.

Image 3-12 NovaLCT-Mars control software interface

Note: For more information about installation and instruction of control software, consult *Nova LED Display Control System –Mars 3 User Manual.*

3.6 Peripheral Device

M3 CVT310/CVT320 (EO converter)

When the distance between LED display and the controller is beyond 100 meters, optical converter is needed to ensure the stable signal transmit and high quality. LianTronics offers two complete solutions of optical fiber transmission including transmitter, receiver and optical fiber. Your choice depends on the required cable length.

Main Features:

•Use optical fiber of multimode, double cores and LC interface. Transmission distance up to 300m.

•One RJ45 Ethernet port for data input

•Power supply: 100 - 240V AC

•Use in pair.

Image 3-13 LC-LC fiber cable

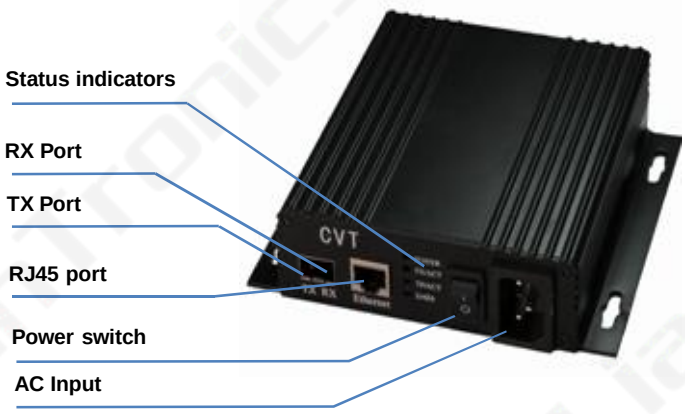


Image 3-14 CVT 310 transmitter, receiver and optical fiber

Note: Consult control system manual for more information about installation and usage guidelines.

Video Processor

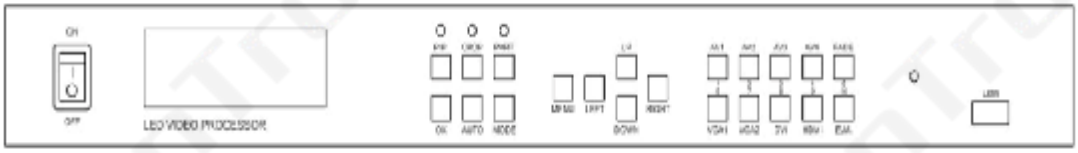


Image 3-15 Video processor front view

Menu Key Functions			
PIP	Picture in picture function key	1/AV1	Numerical1/select AV1
CROP	Picture cropping key	2/AV2	Numerical2/select AV2
PART	Partial/Full display switch	3/AV3	Numerical3/select AV3
OK	Confirmation key	4/AV4	Numerical4/select AV4
AUTO	Automatic pixel location alignment key	5/FADE	Numerical5/fading transition
MODE	Preset mode call-out	6/VGA1	Numerical6/select VGA1
MENU	Main menu key, or up to previous key	7/VGA2	Numerical7/selectVGA2
LEFT	Moving cursor to left	8/DVI	Numerical8/select DVI
UP	Moving cursor to top	9/HDMI	Numerical9/select HDMI
DOWM	Moving cursor to bottom	10/E.M.	Numerical10
RIGHT	Moving cursor to right		

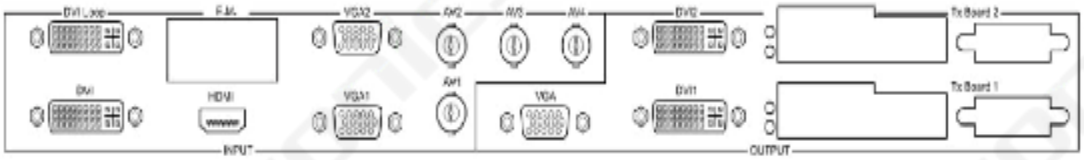


Image 3-16 Video processor rear side

Video Inputs		Video Outputs	
AV1~AV4	4 video inputs	DVI1~DVI2	2 DVI outputs (DVI-D single link)
VGA1~VGA2	2 VGA inputs	VGA	1 VGA output
DVI	1DVI input (DVI-D single link)	DVI Loop	1DVI loop output
HDMI	1 HDMI input	Tx Board1/ Tx Board2	Slots for 2 Tx Boards
E.M.	Extension module		

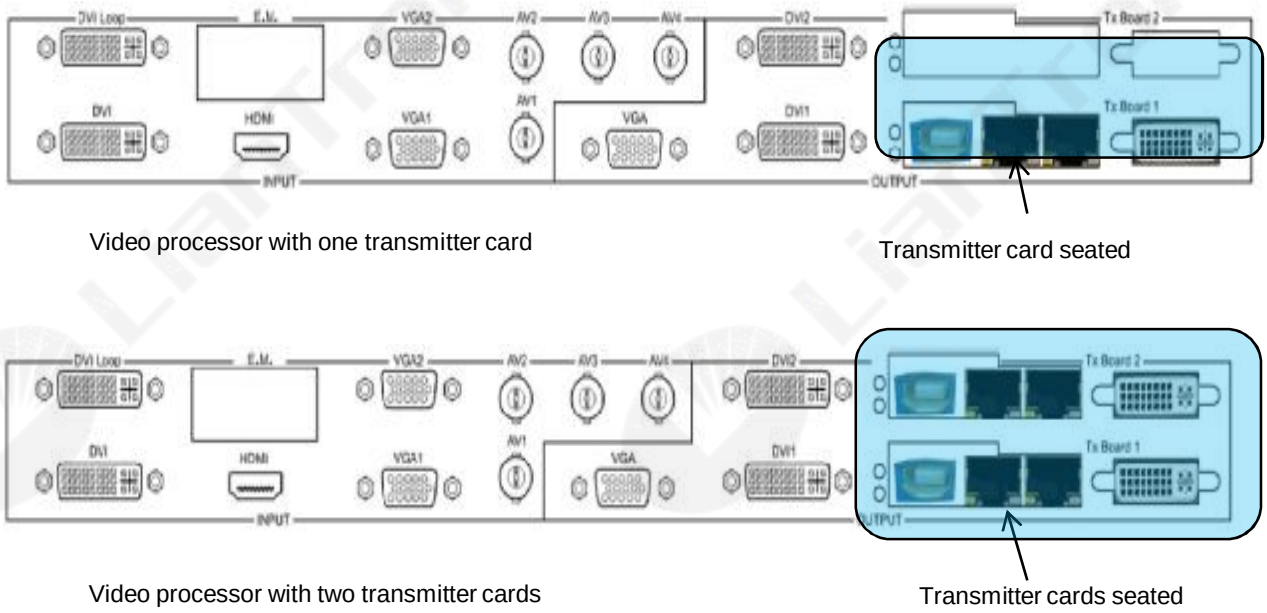


Image 3-17 Video processor with sending card installed

Image 3-18 Video processor with sending card installed

3.7 Power Distribution System

Power Distribution Tile

The use of proper AC distribution system is necessary to make sure the safe operation to outdoor LED display. Although the third party solution is available, LIANTRONICS offers power distribution solutions with various sizes and types. As for the small system, “single-phase power box” can be used, while for the medium system, each of the custom power boxes solutions can be used.

Image 3-19 Single-phase power box

Image 3-20 Three-phase power cabinet

Note: Consult the power box manual for more information about installation and usage guidelines.

Power Supply Location

Install power distribution cabinet in the control room outside of the display structure. Install a control box inside the display structure, which can control the display power supply independently, and control the maintenance of sockets and the lighting equipment. If it is 3-phase power supply, each phase should bear equally.

Power Distribution System

The power distribution cabinet has air switch, leakage protection switch, fuses, AC contactors, power lightning arrester. The door of the cabinet is also equipped with current-voltage testing meters, knob switches and signal lights. The distribution cabinet has protection of lightning, overvoltage, overcurrent, undervoltage, short circuit, open circuit and leakage. The main switches in the power distribution cabinet are made of the Schneider devices and all other accessories and wires has "CCC" certification.

3-Phase 5-Wire Power Line

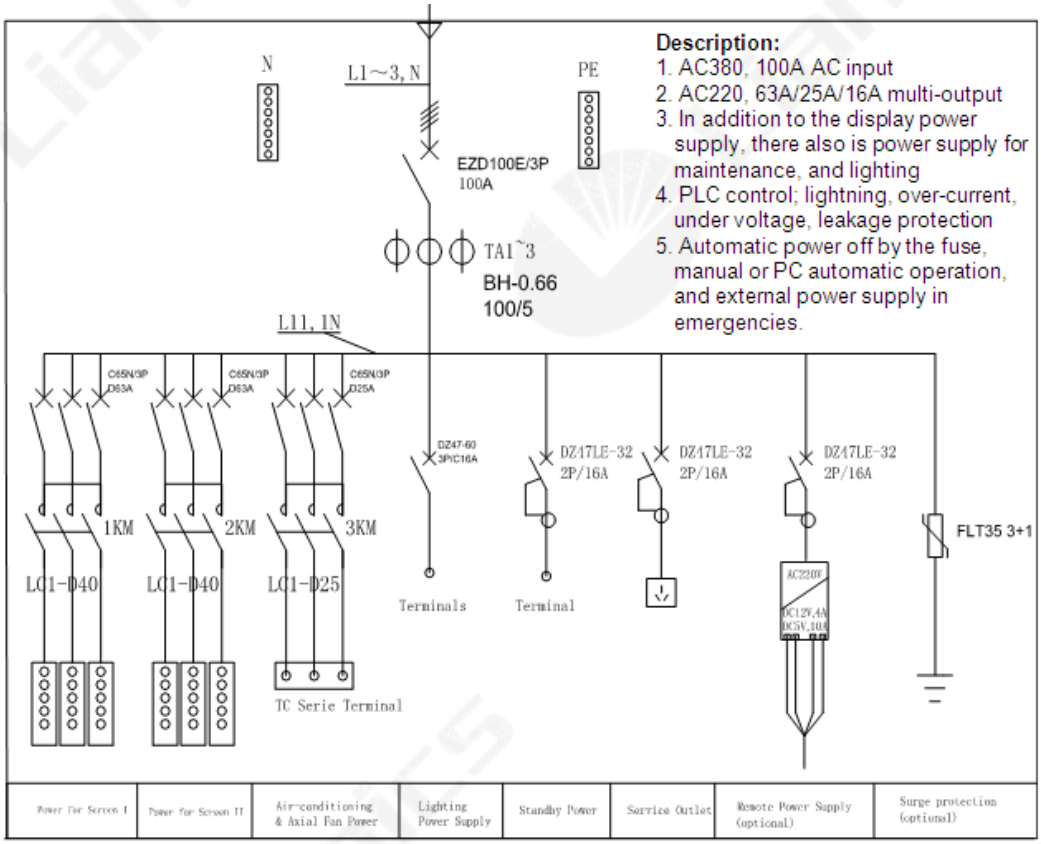


Image 3-21 Typical power supply system diagram

Selecting and layout of the power line

- LED display is supplied with AC220V power with good grounding and requires that the grid voltage fluctuation is less than 10%.
- Determine the diameter of the power cord according to the power of the display (Unit: mm^2, the cross-sectional area of the power cord).
- Power lines: set aside 5-10m between the power distribution box and the display. Cable: set aside 5-10m between the control room and the display.

The power supply has three-wire system (live, neutral and earth) or five-wire system (3 live wires, neutral and earth). When the maximum power consumption of the LED large-display is less than 10 KW, generally use single-phase three-wire power supply , and vice versa use the three-phase five-wire power supply.

4. SETUP PROCESS

This chapter describes the process of suspended installation and standing installation of outdoor LED display.

Warning: Safety first. Fence off the installation area before starting to install. Ensure you read, understand and follow the safety instructions mentioned in the chapter “Safety” of this installation manual. Furthermore, make sure that all the installation requirements are fulfilled.

The truss and level system used in this chapter are only instructive, and it is assumed the truss beam and level system have been installed and answer to the flatness requirements. You are free to install your own truss and level system according to your own needs but in accordance with the mechanical requirements mentioned in this installation manual.

4.1 Installation Preparation

Package Check

•Product Item Number —— Confirmed
•Package —— Perfect
•Complete Screen Appearance —— No Scrape

Tile Off-line Test

The outdoor LED display tile supports off-line test. Users can test each tile without connecting with LED control system. The test steps are as below:

•Make sure that the receiving cards are connected with each of the LED modules but not connected with CAT5 data cable.

•Turn on the LED screen, the tiles show nothing.

•Press the black switch on the receiver card seven times. Then the display contents on the LED tile will be changed to Diagonal, Grey, Red, Green, Blue, White and Black in order.

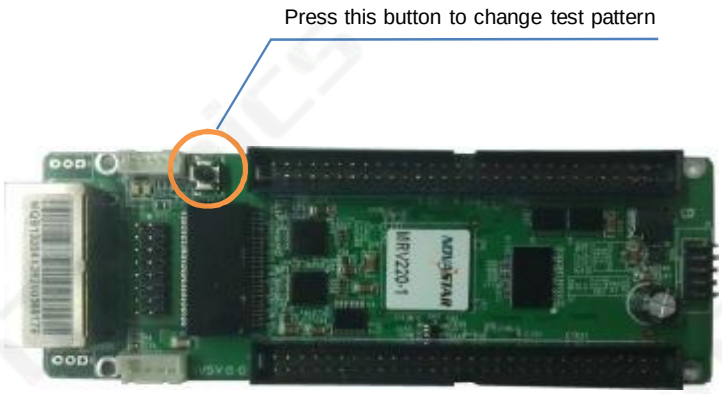


Image 4-1 Off-line test button on receiver card

Installation Preparation

Good viewing angle and good sight for the surroundings

•Favorable ventilation conditions
•Safe and stable rating input voltage
•Suitable size, firm and stable installation table-board
•Rear maintenance space is more than 800mm from front to back.

Tools list for installation (choice depends on the practical jobsite)

1. Diagonal cutting plier  Cut the wire	**2. Combination plier**  Cut the steel wire rope	**3. Screw drivers**  Install tiles and power supply
4. L shape spanners  Tighten or loosen the screw	**5. End wrench tool set**  Tighten or loosen the screw	**6. Adjustable wrench**  Install tiles
7. Socket wrench  Assemble the screen	**8. Digital multi-meter**  Measure voltage or current	**9. Rubber hammer**  Adjust the gap between tiles

Other tools for installation (choice depends on the practical work)

Tools	Quantity	Function
Electric drill	1pc	Drill holes on the wall or frame
Rivet drill	1pc	Fix the tile in place
Electric adhesive plaster	Several	Isolate electricity after wire connected
Tape measure	1pc	
High-brightness flashlight	1pc	Used in the dark area
Safety rope	Ref.	Personal safety, very important
220V power outlet board	1pc	Power supply
Level & vertical ruler	1pc	Test the level of the frame

4.2 Setup of Fixed Installation

Warning: Tiles and the display surface has to obtain the flatness within a tolerance zone of +/-0.3 mm and keep perpendicular to the reference surface.

Note: We need at least two persons when installing a tile. The person who stands inside the frame should pay attention to the safety and wear safety rope.

Setup Process

1.Clean the bottom of the steel structure to make sure there is no gap between the tile and steel structure .

2.Use tape measure to measure width and height. The tolerance should be within the scheduled field.

3.Use bubble level to measure the level degree of the frame in order to make sure the frame structure can be used to install the tiles normally.

Image 4-2 Fix the tiles from midlle to sides

6. Fix the corners of two adjacent tiles with connecting plates and corresponding screws, and make the appropriate adjustments if necessary to ensure the smooth and seamless surface of the display.

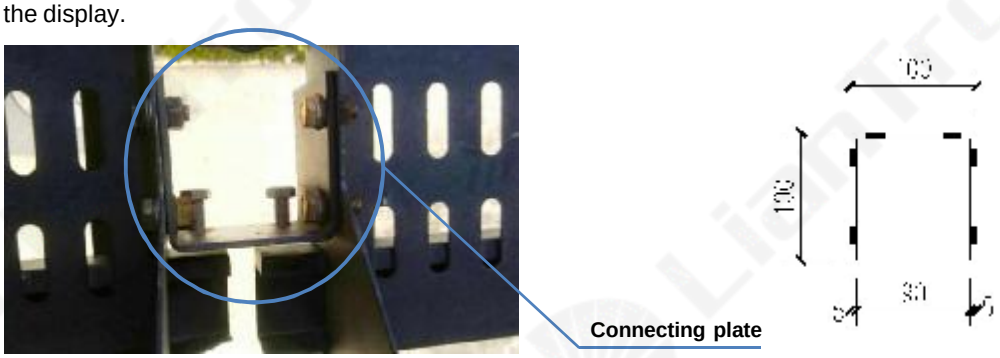


Image 4-3 Fix the corners of four adjacent tiles with connecting plates

Continue to assemble PH16 tiles. Use the spanner to tighten the connect plate. Connect the tiles one by one.

Caution: Before assembling the next tile, make sure there are no seams and gaps between thetiles.

Image 4-4 Assemble the tiles from left to right and bottom to up

1. Fix all the corners of outdoor tiles at the bottom and flanks with connecting plates; use the bubble level to measure the level of the first layer. If it is within a tolerance zone of +/-0.3 mm between the tile, weld the screen and the steel structure together. And then we can install the second layer.

Image 4-5 Example of fixed installation with 50mm steel square tube (5 X 2 tiles)

Image 4-6 The installation process of T series LED display

4.3 Data Cabling

Warning: Pay attention to the cabling direction in the following image.

The image below shows data cabling seen from the rear of outdoor display of 5 tiles wide and 2 tiles high. The data cable goes vertically and starts from the lower left corner (seen from the rear). The settings in the control software refer to the display seen from the front. So, the first tile in the data path indicates the lower right tile of the display.and back up the data.

4.4 Power Cabling

Before distributing the power cable, see the “Display Tile” for detailed information of the power cord’s socket and plug and their locations in display tile.

Warning: Pay attention to the direction of the alignment in the following image.

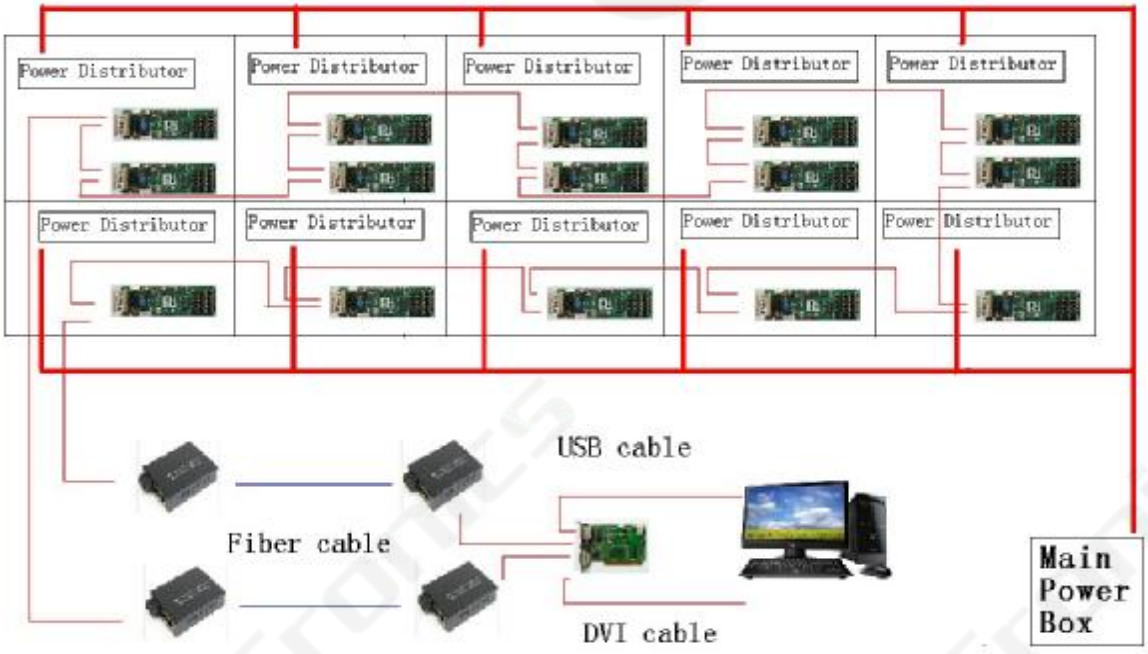


Image 4-6 Example of data cabling and power cabling

5. START-UP OF THE SYSTEM

5.1 Software Installation

Before you run the software, please make sure all connection are ready (From PC to sending card, from sending card to LED screen). Put the LED system installation CD into CD-ROM.

1.Double click 

to start LED control software installation.

2.Follow the installation instruction until the installation procedure has finished.

5.2 System Operation

First, power on the control system computer, and switch on the power of LED display. follow the procedures and instructions as below :

1.Start Nova LCT control software

Install "**Nova LCT control software**", double click the icon (image 5-1) to open Nova LCT Mars control software, and the computer will enter to the interface as image 5-2. "**Local system info**" shows the real system connection information. when it shows "**Control System: 1**", it means the USB serial port connection is ready for communication between PC and controller . If not it shows "**Control System: 0**"for the connection is not good with no communication. If there is no image on LED screen (green indicator of sending card not flicking), please check DVI cable from graphic card to sending card, then check multi-display mode from control computer. Keep display mode under duplicate mode.

Image 5-1

Image 5-2

2. User Login

User login—This menu is for user to login. It is necessary for the configuration of the LED screen. Click "**User**",--"**Advanced Log-in**", enter password"**666**"or"**admin**".

Image 5-3 Login interface

Select "**Config Screen**" directly to follow the next step:

Image 5-4 Configuration interface

3.Go to sending board configuration : As is Shown in image 5-5, select proper resolution for sending card, and it should be close to graphic card. Click "**Save**" to save parameter on HW.

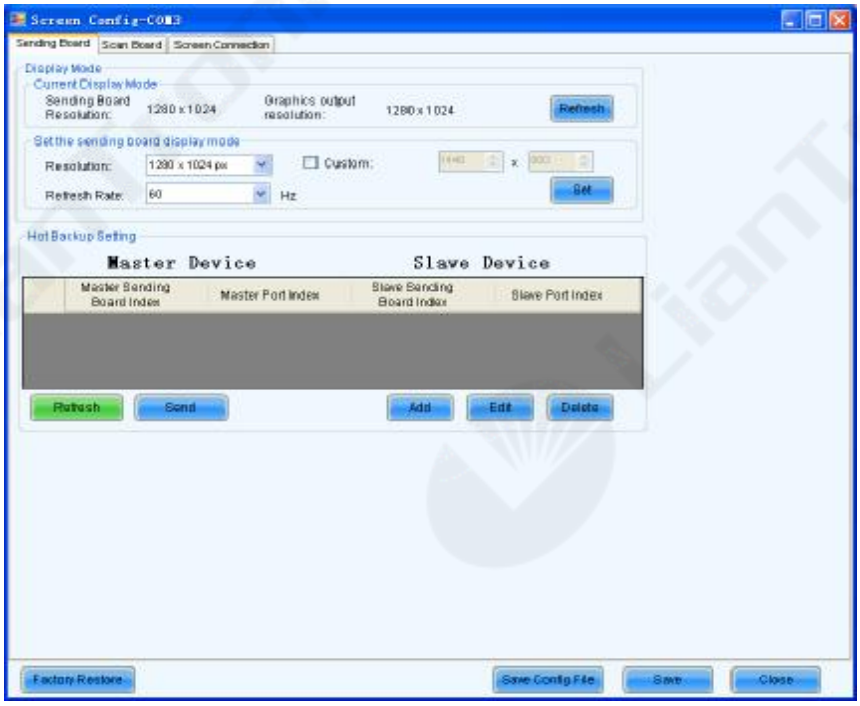


Image 5-5 Sending board configuration interface

4.Go to scan board configuration： As is shown in image 5-6, select "**Load File**", down load "*.**rcfg**" file from delivered CD. Click "**Send To HW** ", and then the file will be send to each scan board (receiving card). Click "**Save**" and save all files in hardware, when restart power ,files is no need to send again. **If tiles shows correct images before loading file, skip this step and directly jump to step 5.**

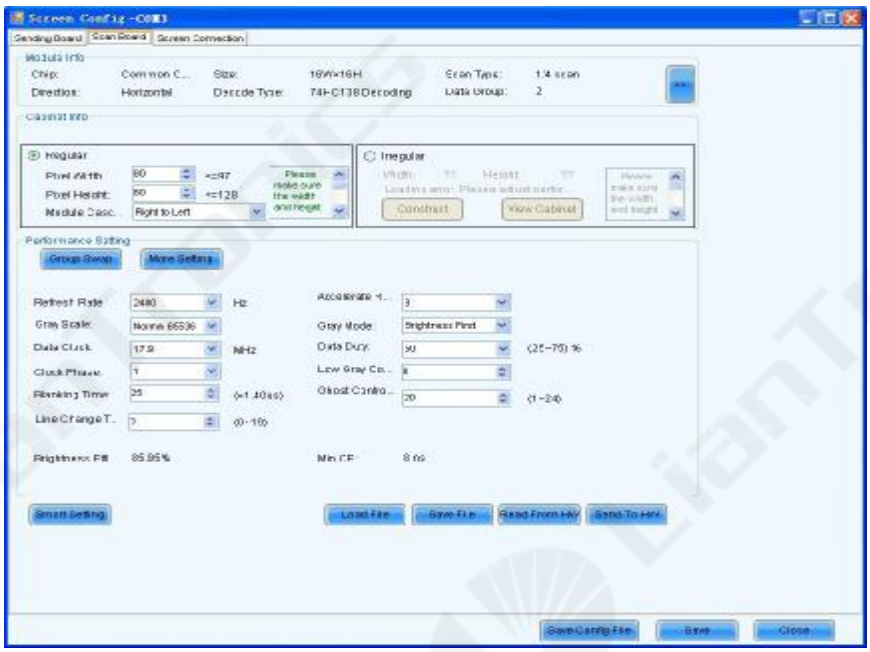


Image 5-6 Scan board configuration interface

5. Screen connection

According to the data cabling of your LED Display**,** fill in the actual value of columns and rows. Choose right ports and fill right scan board size as below. Select correct direction of signal cable cascading. Image 5-7 shows the front view of screen. “S” for the first tile and “E” for the last one. Choose “**Send to HW**” and “**Save**”.

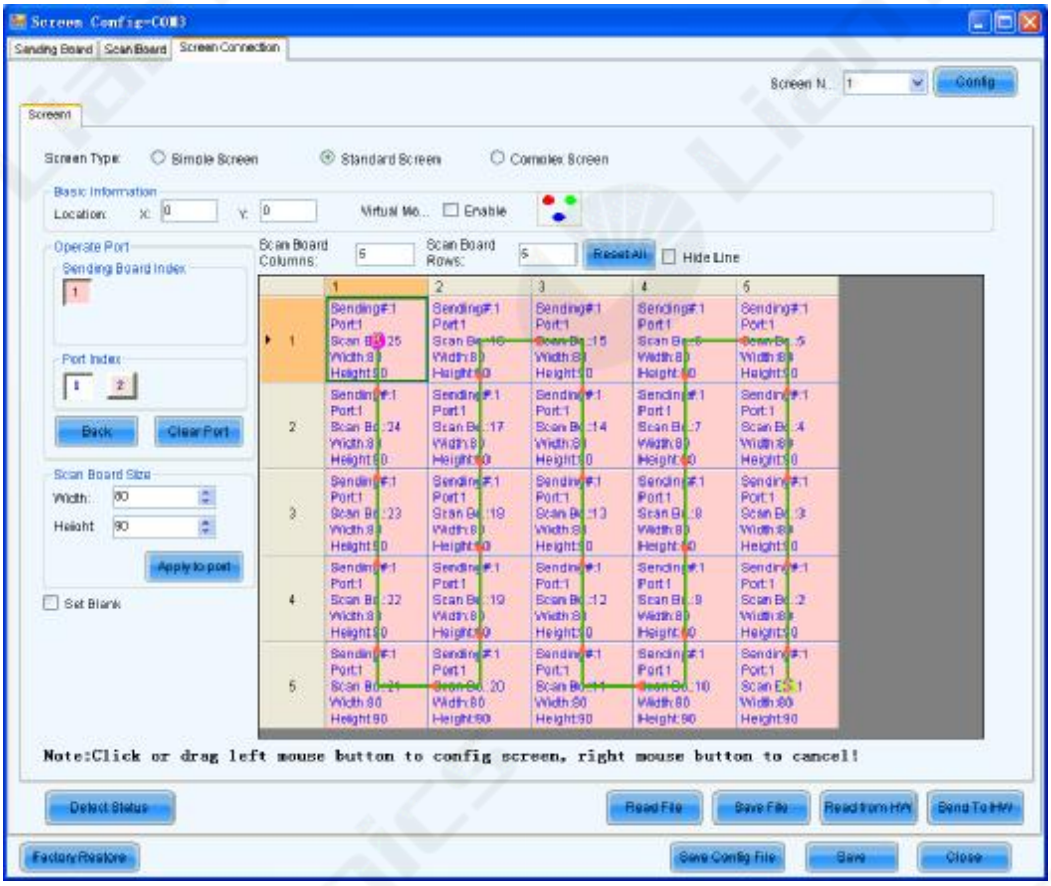


Image 5-7 Screen connection interface

6. TROUBLE SHOOTING

6.1 Software Trouble

Problem type	Problem description	Solution	Reason	Analysis
Nova LCT	Unable to open NovaLCT	Replace LCT software	Software problem	
	System notice: NovaLCT.exe-error	Install Microsoft .NET Framework 2.0	Computer is not installed with .NET Framework software	1.Computer is not installed with .NET Framework 2. Already installed, but may be damaged
	LCT system connection fails	Check the RS-232 connection and communication	The RS-232 communication is not connected or not get through	
		Replace LCT	LCT communication is not stable	Nova LCT version may be changed, confirm that you use the right version.
	display brightness is not uniform	Set values of R, G, B brightness on the all controllers as the same	Controller's R,G,B brightness values are not the same	1. Brightness values not the same. 2. Data is not saved successfully after setting.
		The calibration mode of controllers did not set to “On”.	The brightness is different before and after calibration	1. Calibration mode is not “On”. 2.All the calibration modes are “On”, but not successfully saved after setting
		Change the brightness adjusting mode	Brightness adjusting modes are different between different controllers	1. Brightness adjusting modes are not set as the same 2.The setting is not saved successfully
		Check Gamma value of different controllers and resend the database	Gamma values are different for different controllers	
		If brightness adjusting is in auto modes and controlled by sensor, new update need to wait for 30 seconds	Brightness sensor action need to wait for 30 seconds.	
	LCT software monitor shows wrong status	Change and re-install LCT software	Software problem	
	One area of receiver card is black	Check the row and column setting in LCT	Map setting in the LCT is wrong	
Nova Studio	The whole display is black	Close the play time schedule	Time schedule setting is wrong	
		Check the media source	Media source is lost or stopped	

6.2 System Hardware Trouble

Problem type	Problem description	Solution	Reason	Analysis
Controller	Black screen	No DVI signal output from the graphics card in PC	No DVI signal to the controller	
		Check the power of the controller	No power for the controller	
		Re-start the controller		
Divider	Divider driving area is black	Check **RUN** status on the divider. If it blinks 2 seconds once, it means no data from the fiber cable.	There is no data from the controller or the fiber cable is not well connected	Divider is working when **RUN** lamp blinks 2 times per second. The lamp blinking 2 seconds per time means no data is output from controller or the fiber is broken
		Check the power of the divider	No power for the divider	
Receiver card	Receiver card problem causes black display on single tile	Check data input from upper receiver card(**RUN** lamp blinks 2 times per second). If the data in is ok but problem still exists, replace the receiver card	Hardware problem	
		If there is no data input from the cat5, check the cat5 connection or no data output from the upper receiver card	Poor Cat5 connection or output data problem of the upper receiver card	
	One row of the module in the tile is black or messed up	Check the hub card connection with the scan card, or the ribbon cable connection between the hub card and module. If connection is no problem, replace the hub card	Connection problem or hardware problem	

6.3 Module Problems

Problem type	Problem description	Reason	Solution
LED lamp	Blind lamps	The lamp is dead or soldering is not good	Replace the module
LED pixel	The pixel is black or loses color	The driving IC/resistor is bad soldered or out of work	Replace the module
LED module	One or several whole LED modules in the same row are black or defective	Cable is not connected or not well connected	Check the ribbon cable and power cable connection on the module

6.4 Power Problems

Problem type	Problem description	Reason	Solution
Tile power	The whole tile is black	Power to the tile is not good or the breaker is turned off	Check power connection with the tile and the breaker in the tile
Power supply	The whole tile is black	The power supply feeding the receiver card is defective	Replace the defective power supply
Power supply	Several nearby module areas are black	The power supply feeding the module area is defective	Replace the defective power supply

6.5 Data Transfer Problems

Problem type	Problem description	Reason	Solution
Fiber	The display is black	The fiber cable is broken or the data I/O order is wrong	Check the fiber connection and the data I/O order
Cat 5	The whole column of the display is black	The connection is not good or the cat5 is defective	Check the data connection between the divider and the first scan card
Cat 5	One or several tiles in column are black	The connection is not good or the cat5 is defective	Check the cat5 connection between the tiles
Cat 5	All the display lights up but the columns are not in right order	The connection order is wrong	Check and correct the Cat5 connection order in the divider

7 MAINTENANCE

Routine maintenance

Make sure the LED display is well ventilated, dry and running in suitable temperature.

Regularly check the internal cables inside the LED display are in stable connection, the power supplies are working well, the ground wires are connected well, and the lightning arrester is running well.

Regularly wipe out the dust on the surface of the LED tile with a soft cloth, and keep the LED display surface clean to avoid brightness differences between clean and unclean LED tiles.

Cautions for use

Before powering on the LED display, start your computer first, and then turn on the power of LED display.

Before turning off the display system, first turn off the power of LED display, and then turn off the computer.

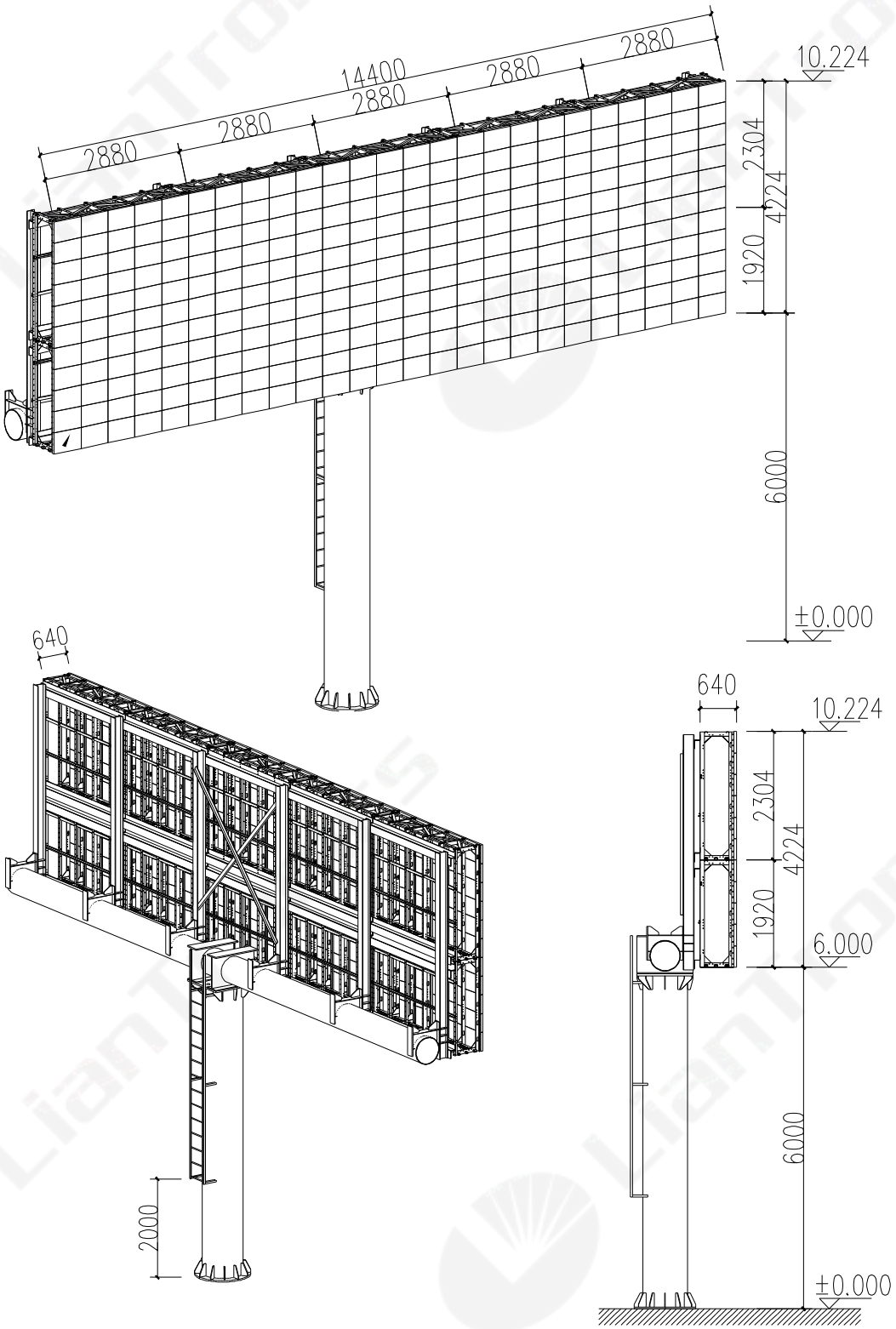
When you are editing video playlist, you had better to keep the LED display closed.

When failure appears, first turn off the power of LED display, and then contact with service department of LIANTRONICS for technical support.

Appendix A: Technical Specification

Item	T series	
Pixel pitch (mm)	12	16
Scan mode	1/2 scan	Static
LED type	DIP 1R1G1B	DIP 1R1G1B
Brightness (nit)	≥ 6,500	≥ 6,500
Pixel density (pixel/m²)	6944	3906
Module (mm)	576(W)x384(H)x70(D)	576(W)x384(H)x70(D)
Module resolution (pixel)	48x32	36x24
Tile size (mm) 5×5,5×6	2880×1920,2880×2304	2880×1920,2880×2304
Tile resolution (pixel) 5×5,5×6	240×160,240×192	180×120,180×144
Viewing angle	120(Horizontal), 60(Vertical)	120(Horizontal), 60(Vertical)
Gray Scale(bits)	16	16
Refresh Rate(Hz)	≥ 1,920	≥ 1,920
Average power consumption (W/m²)	150	190
Max power consumption (W/m²)	470	580
Brightness Adjustment	256 levels Manual /8 levels Auto	256 levels Manual /8 levels Auto
Module Weight (kg)	30	30
Calibration	Support	Support
T series	1440×4224	1440×4224
T series resolution	1200×352	900×264
Serviceability	Rear	Rear
Protection grade	IP65/IP54	IP65/IP54
Operation/storage temperature and humidity	-20℃-50℃，-40℃-60 ℃；10～90，10～85	-20℃-50℃，-40℃-60 ℃；10～90，10～85
Life span (hrs)	≥50000 (Normal Temp)	≥50000 (Normal Temp)
MTBF (hrs)	≥ 3000	≥ 3000
Notes: Specifications are for reference only. Please contact our salesperson for details. All rights are reserved to LianTronics		

Appendix B: T series Dimensions



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