User Manuel

TN-OF SERIES
User Manuel



1. Features

Chapter 1

Wellcome to Ava LED manual is helpful for you. This manual is intended to provide you with an installation instruction. If you encounter any problems during usage, or if you have any suggestions, please contact us according to the contact information in the manual, We will try our best to solve this problem. We sincerely appreciate your suggestions and improve as soon as possible. The data written in the catalog may different by + - 10%

Chapter 1 : TN-OF Series Product Brief

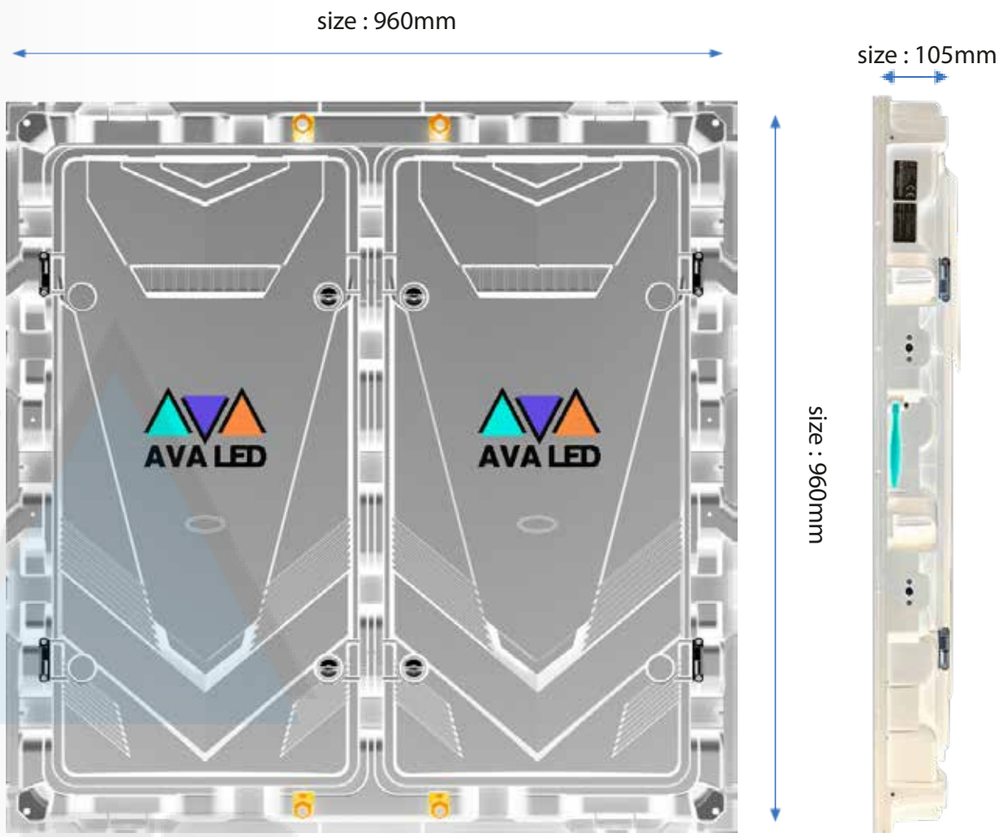
TN-OF series features P2,5 to P10 pitch. Ultra-thin high-precision die-cast aluminum panel, and a unique other design that makes the TN-PRO-OF series perfect for Front and Back maintenance.
High quality.



- **Super Slim & Lightweight Design TN-OF series has a panel depth of only 105 mm** and less than 25 kg/panel making it the lightest in its class and ideal for hanging applications.
- **Simple & Precise Installation Support**
Snap Locking system with Magnetism Locating System help one-person to install and disassemble within few seconds.
- **Supports Various Installation Form-Factor**
Hanging/Stacking/Floor Installation
- **Simple Product Structure**
Simple Cabinet Structure
- **Back Service**

Chapter 2

2. Dimension





Front View

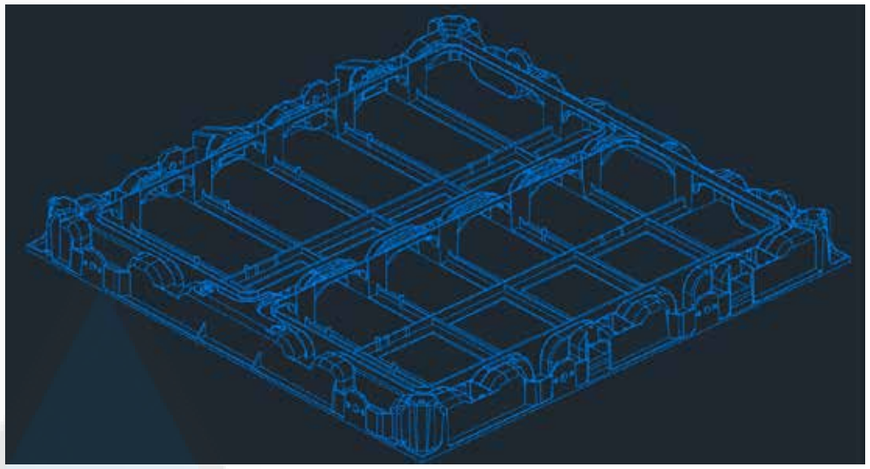


Back Panel

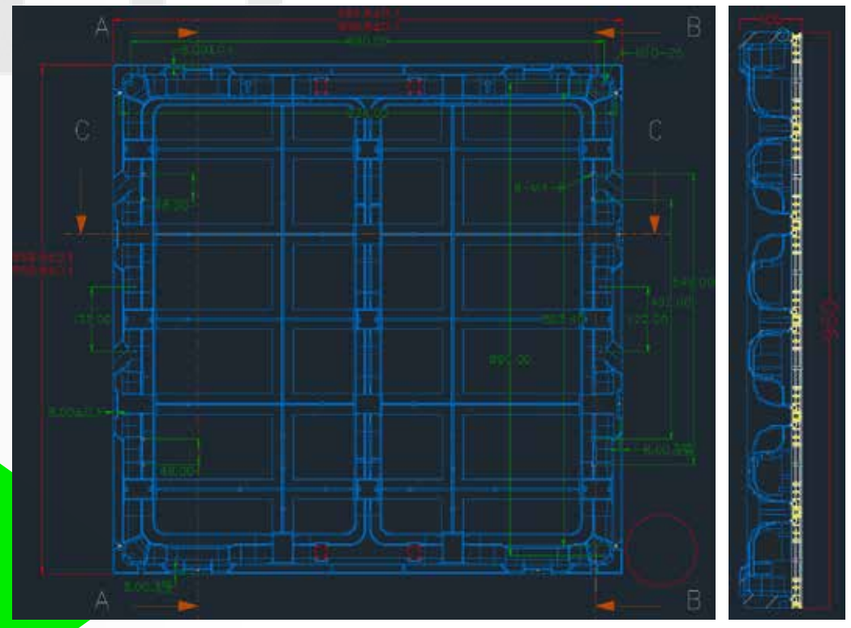


Chapter 3

3. Dimension







Chapter - 4

4.1 Safety Guidelines



This chapter contains information to prevent personal injury when installing the display and precautions to prevent damage to the display. Before installing the TN-OF Series, please ensure that you understand and follow the safety guidelines, safety instructions and warnings in this section.
In this manual, the "TN-OF Series" contains the following products from the company: for Outdoor Use: TN-OF-2 P2,5 to TN-OF-10 P10

4.1 Safety Guidelines

Personal Protection:

- Warning: Make sure that you understand and follow all safety guidelines, safety instructions, warnings and precautions in this manual.
- Warning: Pay attention to the hanging load of the flykits.
- Warning: When installing the cabinet, wear a helmet to avoid the risk of personal injury.
- Warning: Pay attention to your fingers when installing the cabinets.

For Installer:

- The display installer must be a trained, qualified, and experienced technician.
- The floor to be installed must be flat and smooth.
- Console should be used in the installation area

Security Tips:

- TN-OF series are in line with international safety standards and information technology equipment safety standards, certified with CE and its parts and components meet safety standards. Please pay attention to safety warning signs when using to avoid dangerous situations such as electric shock.

Warning:

- Please read the installation instruction carefully before installing the display to avoid the risk of injury to the user;
- Spare parts are used to replace broken parts, such as power lines, data lines, Sending boxes, etc. Parts for other manufacturer's products are not allowed to be used on the TN-OF Series;
- Please follow the assembly instructions when installing the cabinet. If you encounter any problems during the installation, please contact AVA LED in time.

Product Care

- The cabinet should be kept dry and clean. It is recommended that users conduct safety inspections and visual inspection on all products regularly; checking whether the cables and LED lamps are damaged or not. The damaged part needs to be repaired or replaced in time.

Chapter - 4

4.2 Safety Statement
4.3 Warning Statement



4.2 Safety Statement

- Please read the instruction carefully.
- Please pay attention to the warning signs of the various parts inside and outside the cabinet.
- Please follow the instructions of the product manual.
- While cleaning the cabinet, using neutral, make sure they are non-abrasive, non-corrosive, non-marking materials or reagents.
- To prevent the risk of electric shock, ensure that the cabinet is properly grounded when it is installed. Cabinet from falling.
- After the screen installation and connection is completed, do not step on the plug, socket, power/signal cable.
- Please use the accessories/accessories specified by our company.

4.3 Warning Statement

- Do not open the internal equipment of the cabinet to reduce the risk of electric shock. If modules has dead lamps, or the parts of the cabinet are damaged, professional maintenance personnel should be required for maintenance.
- If the power cord in the cabinet is damaged, do not try to repair the power cord. Please replace the power cord with professional maintenance personnel.
- Moisture-proof: The maximum relative humidity of the work should be less than 90% .
- Dustproof: Do not place the display in a dusty environment and clean the surface of the display regularly.
- Dehumidification: Do not adjust the screen directly to the maximum brightness, but gradually increase it.
- Temperature and humidity range:

Operating Temperature Range -20 – +60 (±10)
Operating Humidity Range -40+60,10%-90%RH

- Each main power cable can carry a maximum current of 16A. Note that the total current of the cabinets cascaded in one main power cable should not exceed 16A. Refer to chapter 5.5 for the specific quantity.
- Surge protection device of power should be added in the power distributor.
- After the display is idle for a period of time, please turn on the power and input the signal for the first time, and adjust the brightness of the display to the lowest level for about half an hour and gradually increase the brightness gradually, then use it normally.

- Please provide a good ventilation environment for the display to facilitate the heat dissipation of the display; and keep away from flammable and explosive materials.
- Since the display LED lamps of the TN-OF series are relatively fragile, do not collide the surface with hard and sharp objects to prevent damage to the lamp body.
- Hot swapping is not allowed. Damage to the connector pins caused by hot swapping is not covered by the warranty.

Chapter - 4

4.4 Instructions for Use



4.4 Instructions for Use

- Do not place the TN-OF series in an environment where moisture, dust, corrosion, extreme cold and heat (exceeding the temperature of the parts), as this environment can cause LED damage or discoloration on the module.
- TN-OF series products can not be used in the lampblack-abundant environment, because the use of such environment will cause a layer of greasy residue on the surface of the module, which is difficult to remove.
- TN-OF series products can not be placed in an environment with no ventilation and near the high heat source (such as laser irradiation environment, beside the stove).
- The voltage and power of the power supply equipment of the TN-OF series must meet the requirements.
- When the TN-OF series products are not used for a long time, please cut off the power supply to avoid a safety accident.
- When installing or disassembling the TN-OF series products, pay attention to the corners of the cabinet, do not be impacted, remove or install the protective angle of the cabinet in time, and place the anti-static carpet on the ground of the cabinet. Anti-damage module or lamp surface.
- The power cables and signal cables between the cabinets are not allowed to be hang with anything.
- TN-OF Series modules should not be used near any device other than CE certified.
- When reconnecting the power and signal cables, ensure that the cables are connected according to the installation manual to prevent damage to the cables or other components.
- The air suction tool is used to disassemble the module. The method of use must conform to the specifications.
- When using the rolling mask tool, the action should be light to avoid damage to the module.
- TN-OF series products are limited to vertical installation: hanging and stacking, 12 cabinets max to hang and 20 cabinets max to stack.
- For small-pitch products, it is easy to be damaged and easily damaged. process of using, you need to wear anti-static gloves and handle them with care.

Chapter - 5

5. Product Installation Requirements



5. Product Installation Requirements

This chapter introduces the basic requirements for the installation of the TN-OF series, including structural requirements, electrical requirements, and computer system requirements.

5.1 Structure Requirements

- Lifting structure requirements: The truss load-bearing design should be based on the actual display weight, and a safety coefficient of 5-7 times should be applied to prevent unsafe risk due to insufficient load-bearing capacity of the truss. The same safety coefficient shall be applied to other lifting devices.
- Note: Each TN-OF series cabinet weighs less than 25.0kg per cabinet.
- Ground requirements: The installation position of the display screen requires the ground surface is flat and hard without slope. The ground easily to sunken is not proper for installation.
- Stacking requirements: AVA LED Company provides customers with supporting floor stacking brackets to quickly install the display anytime, anywhere. The floor stand is set in units, and multiple sets can be quickly combined to form a large stacking frame.

5.2 Electrical Requirement

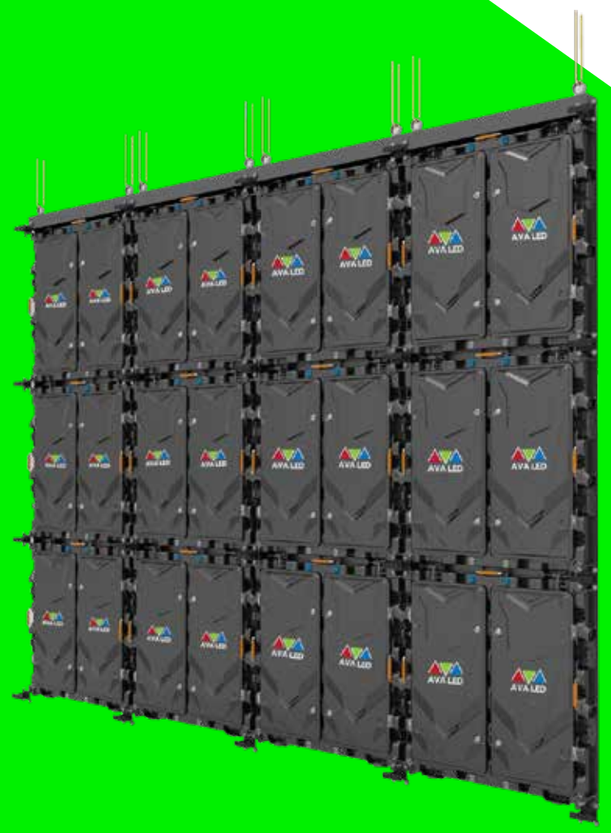
- Power supply: working voltage is 200-240VAC, 50-60Hz, main power cable size is $3\times2.5mm^2$, maximum safety current of cabinet power connector is 16A, and the number of cabinets one main power cable carry is as 4 pcs.
- Power distributor cabinet requirements: The power distributor cabinet has a surge protection switch. Each power output interface has a circuit breaker. The maximum current of the interface is 20A, and its total power consumption shall be over 1.5 times the total power consumption of the display.
- Grounding requirements: All parts of the power distribution system must be grounded to prevent static electricity from harming the human body and causing damage to the electronic components of the display itself.

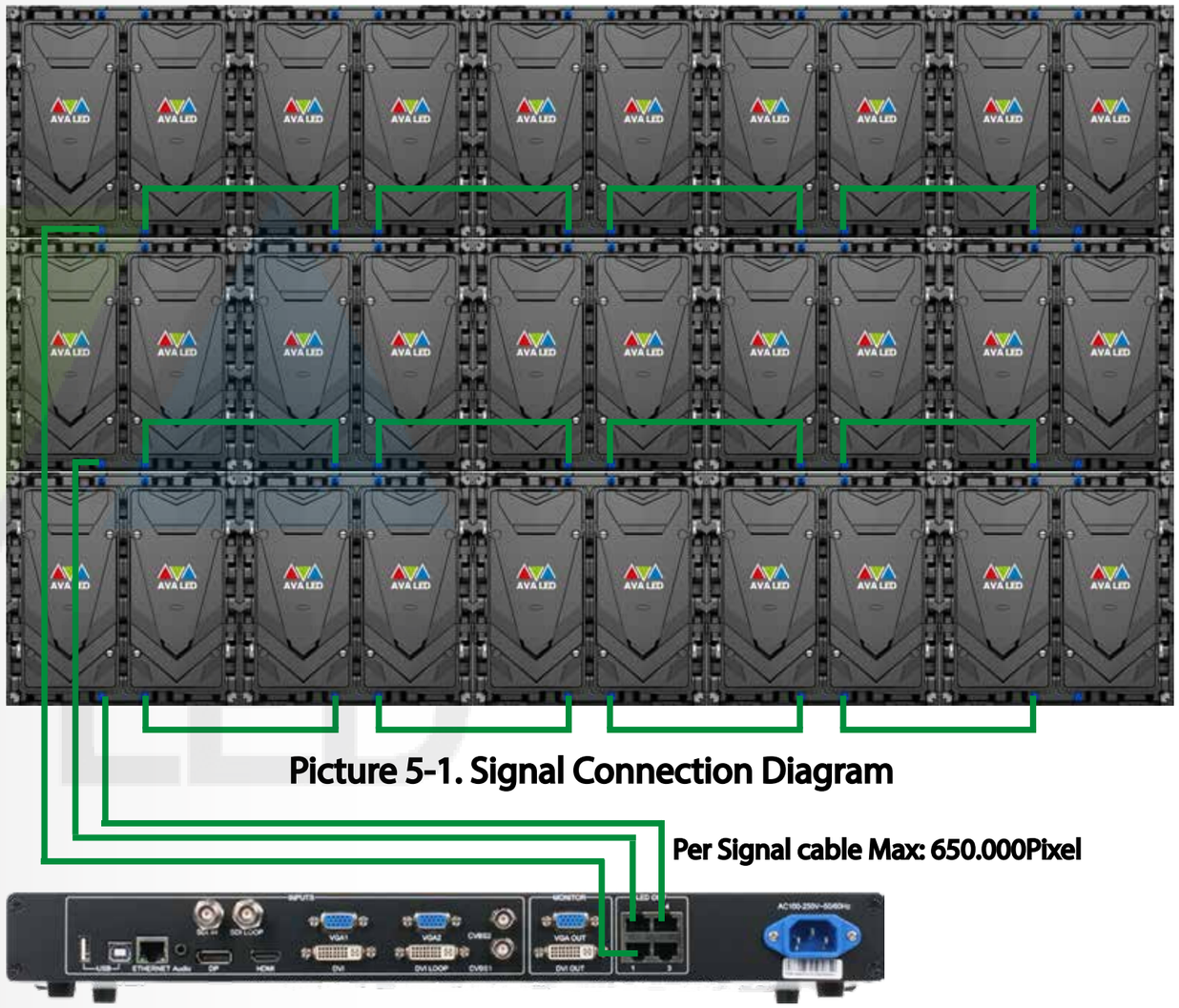
5.3 Computer & Control Software Requirements

- Computer configuration requirements: The computer must ensure smooth playback of high-definition video; CPU, graphics card, memory card and other accessories have medium-to-high performance requirements. The can display 1080P HD images, and the discrete graphics card has HDMI or DVI output interfaces.
- Computer system requirements: WindowsXP, Win7, Win8, WIN10; supporting software: Media Player (MediaPlayer), ultimate decoder (finalcodecs), office software.
- LED display setting software: the latest version of NovaLCT-Mars.

Chapter - 5

5.4 Product Signal Instalation





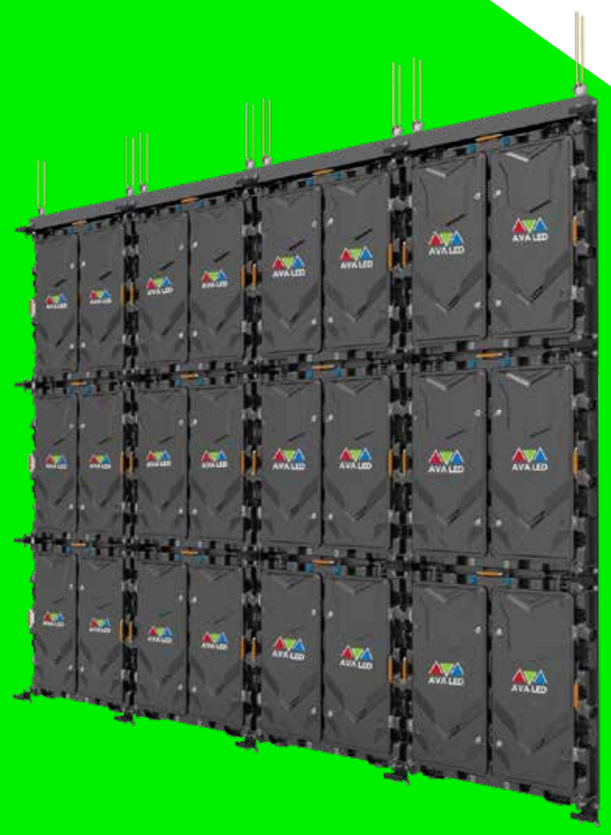
Picture 5-1. Signal Connection Diagram

Per Signal cable Max: 650.000Pixel

1.Sending box---send video data to the display;
2.Signal Output/Input
signal interface is the RJ45 interface. These two interfaces are independent of input and output. After the signal is connected, the system receiving card will automatically recognize the signal input or input, as shown in Picture 5-1.

Chapter - 5

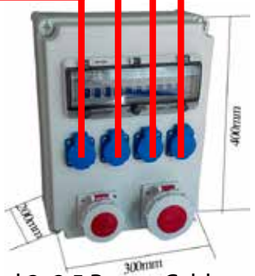
5.5 Product Power Instalation





Picture 5-2. Power Connection Diagram

Per Power cable Max: 4 Cabinet

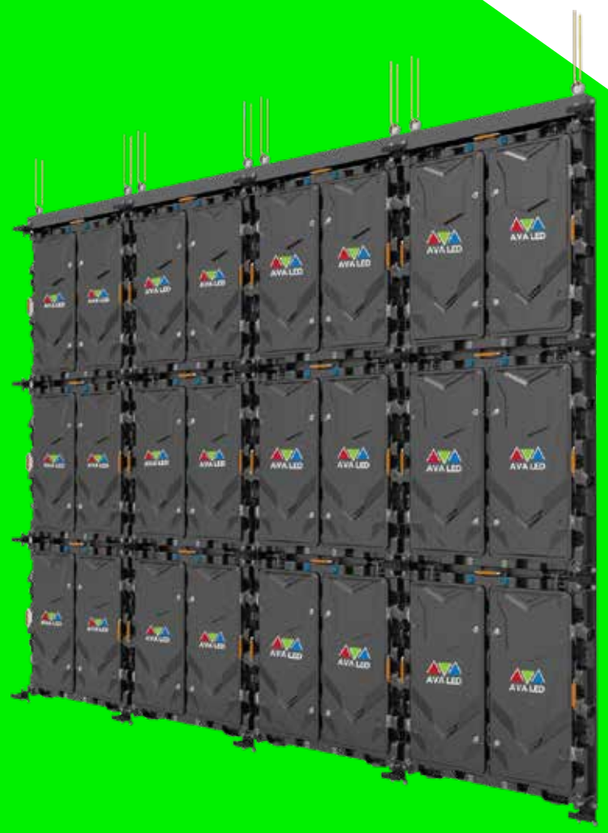


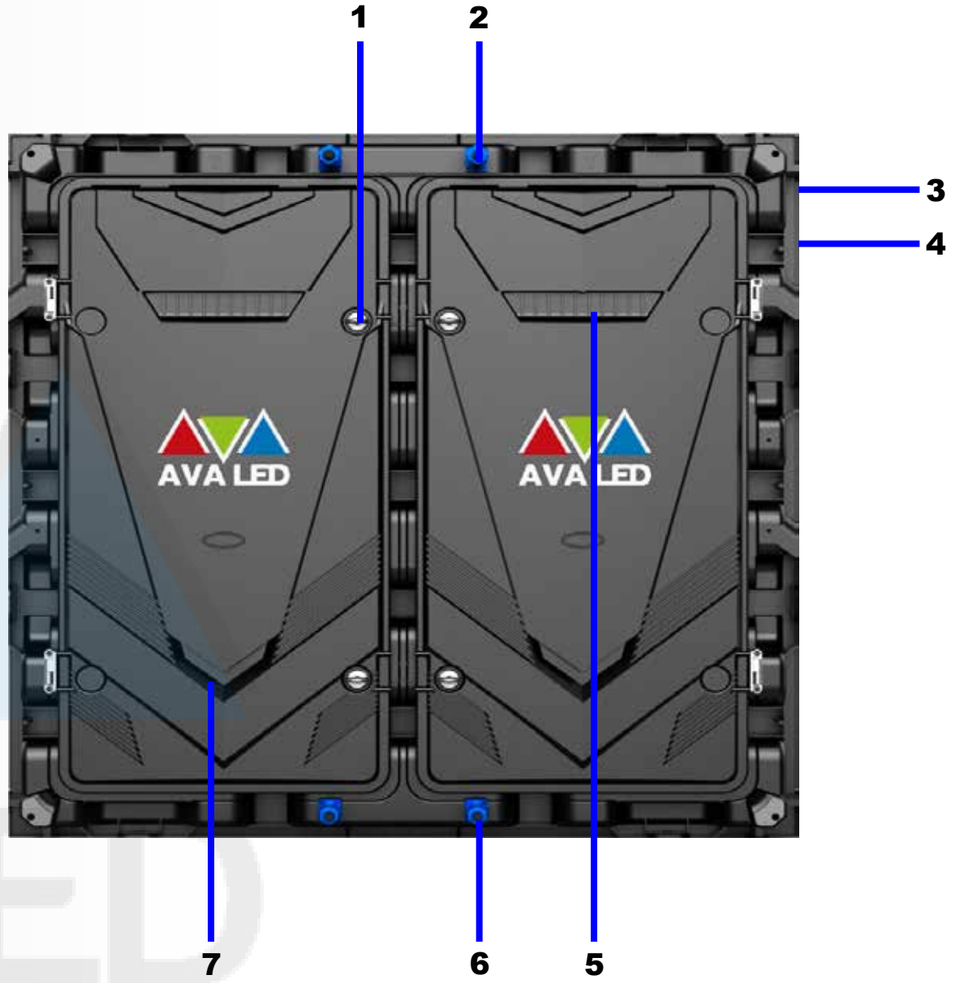
1.Power box---send 3x2,5 Power Cable connection
2.Power Output/input
3.power interfaces are strictly differentiated between input and output. When cascaded, the output interface of the cabinet is connected to the next cabinet input.
3.Per Main Cable Connection max. 4 cabinet
as shown in Picture 5-2.

Note: The Seetronic head is used for the Output/input. All electrical parameters refer to its specifications.

Chapter - 6

6.Main Components Accessories





Picture 6. 960x950mm Cabinet

This chapter illustrated the detailed spec and features of main components and accessories of TN-OF series products so that customers can understand the company's products more quickly and intuitively.

6.1 Cabinet and Cabling

Parts on the cabinet and the cabinet: As shown in upside Picture, the TN-OF series cabinet consists of eighteen modules. The cabinet size is 960*960mm.

Description of the accessories on the cabinet:

1. Door Lock.
2. Power in / out
3. Ball For best fixed cabinet.
4. Lock for Cabinet
5. Air in

6. Signal in / out7. Air in, as shown in Picture 6.

Chapter - 6

6.Main Components Accessories



Picture 6-1. Main Power Supply Cord





Picture 6-2. Main Signal Cable

Remark:

The module housing in the Picture is applicable to TN-OF Series

- **Main power cable:**

Power supply to the display, the wire diameter is 3*2.5mm^2, and the maximum load current is 16A, as shown in Picture 6-1. In the Picture, 1 is the aviation head connected to the cabinet, and 2 is the mains open. (We will provide different open according to different countries).

Main Signal Cable

Connect the sending box and the display screen. The super five types of network cables are usually 30m in length and 70m in length, as shown in Picture 6-2.

Chapter - 6

6.Mounting Accessories



Picture 6-5. Fly Bar



Picture 6-6. Plate

Fly Bar

Lift the display when lifting, as shown in Picture 6-5. For holding the truss

Plate - Screw

2 Cabinet combined. as shown in Picture 6-46

Chapter - 6

6.Cabinets Accessories



Picture 6-4. on the Cabinet Power Cable

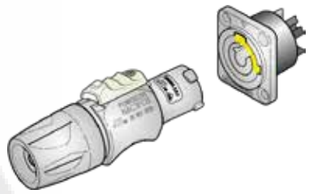


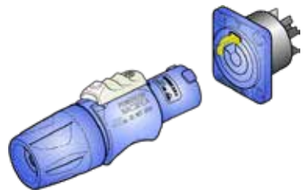
Picture 6-3. Cabinet Power Cable

Cabinet Power Cable

Connects the Power between the cabinet and the cabinet, and exceeds the Two types of power cables Picture 6-3, or One way on the cabinet Picture 6-4











Cabinet Signal Cable

Connects the signal between the cabinet and the cabinet, and exceeds the five types of network cables, as shown in Picture 6-4.





Picture 6-5. Cabinet Signal Cable

Chapter - 7

7.Control Systems

Processor

Receives and processes the DVI video signal, and sends the video data to the receiving card through the network cable. The front and back of the shown in Picture 7-1.

Multiplayer

Receivers and Multiplayer the DVI video signal, and sends the video data to the receiving card through the network cable. The front and back of the shown in Picture 7-2.



Picture 7-1. Processor



Picture 7-2. Multiplayer

install the system first, check the manual of the processor or sending box and then run the system.

Chapter - 7

7.Control Systems

Receving Card

The control software installed on the computer can set the display parameters, display brightness adjustment and other functions. The software interface,
is shown in Picture 7-3.



Control Systems : NOVA STAR



Picture 7-3.



Picture 7-4. Multiplayer

Chapter - 8

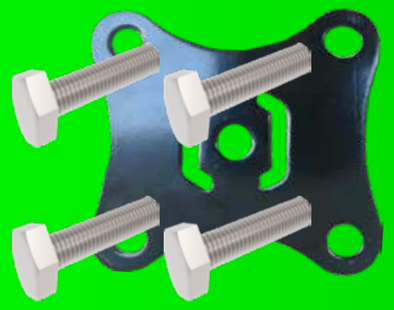
8. Fly Case
9. Cabinet Installation

Fly Case

According to the customer's requirements, the fly case with waterproof function is specially designed for convenient transportation and convenient loading and unloading 4 in 1 - 5 in 1 or 6 in 1; as shown in Picture 8-1.



Picture 8-1. Fly Case



Cabinet instalation

1. First, wear anti-static gloves and operate with more than one person.
2. Take off the cabinet from the flightcase in a slowly and gentle way, and unwrap the PE package and press the automatic protection angle. If the cabinet is not equipped with the automatic corner guard, the sheet metal corner can be removed with a screwdriver] And place the cabinet completely on the ground or on the desktop, as shown in Picture 9.1 - 9.4



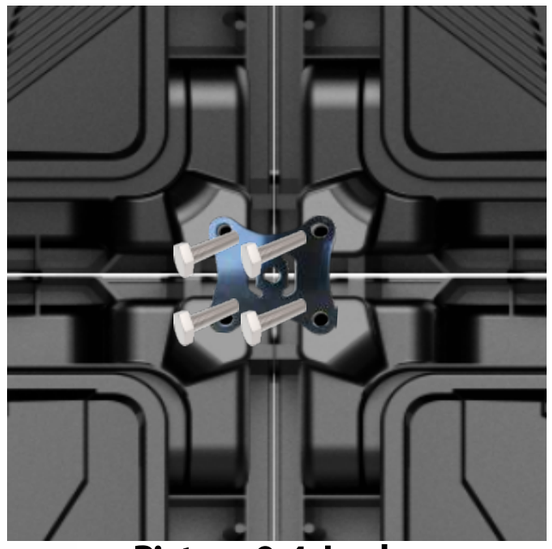
Picture 9-1. Lock Open



Picture 9-2. Lock



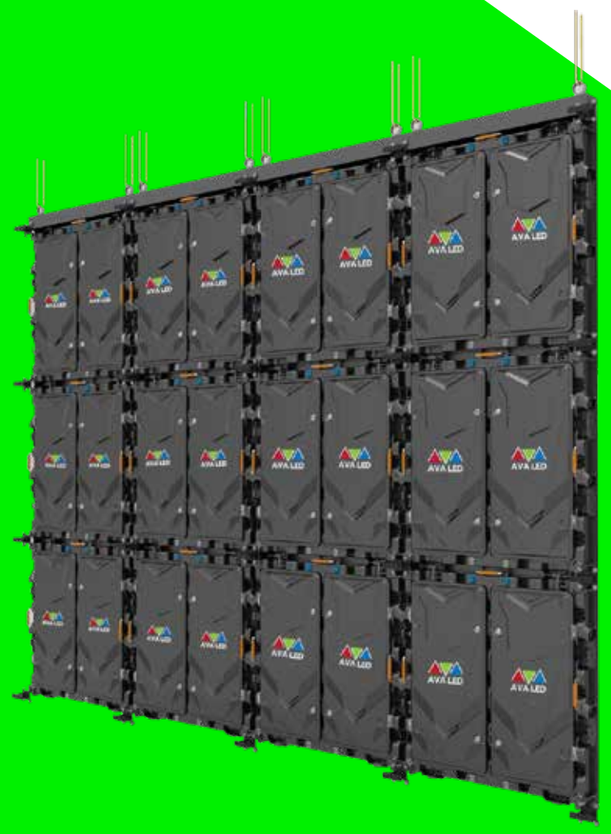
Picture 9-3. Lock Close



Picture 9-4. Lock

Chapter - 10

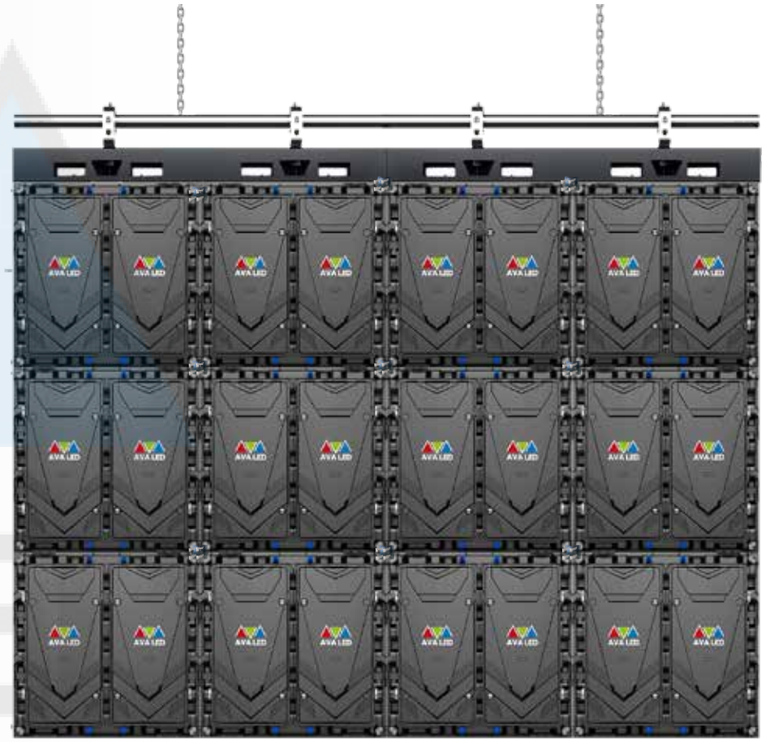
10. Hanging Systems Instalation



Picture 10-1. Fly Bar

Hanging

In the case of installation locations changing frequently, hanging is usually used, which is common in the rental market. For the TN-OF Series Series, AVA LED provides customers with a truss and FlyKit for quick haing installation. The following are detailed steps, as shown in Picture 10-1. , Picture 10-2.



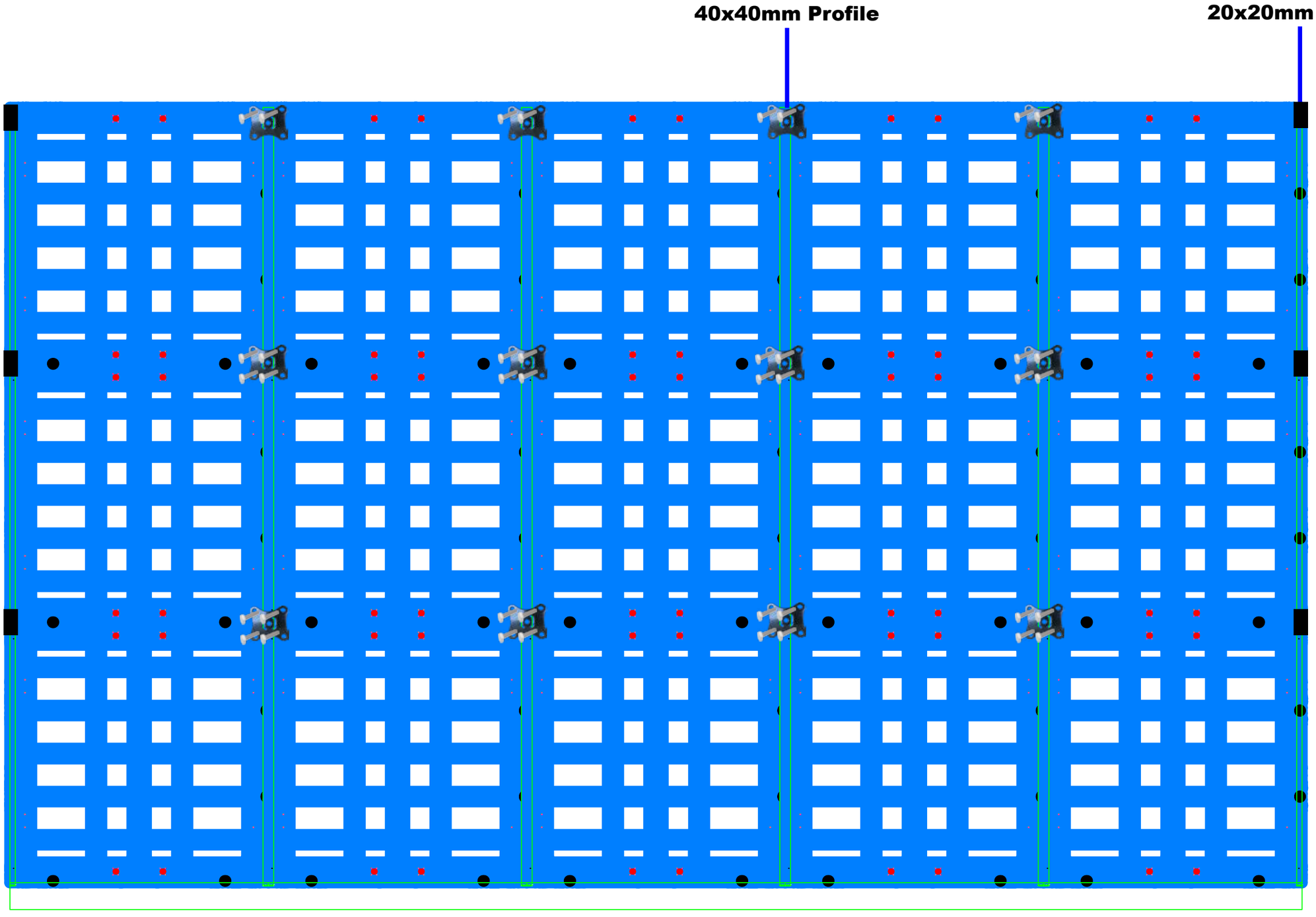
Picture 10-2. Hanging instalation

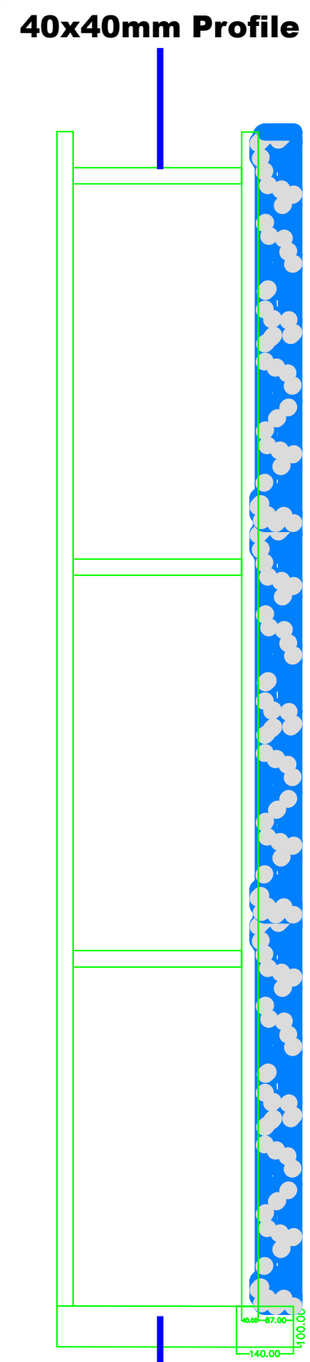
Preparatory Work

1. Select the installation area of the TN-OF Series display, and enclose it with a safety warning band. Non-workers should not enter without permission, keep the installation area clean, free from dirt and debris.
2. Ensure that you have read, understood and followed all of the security issues mentioned in Chapter 1 before installation.
3. Make sure that the installed LED cabinet, accessories, tools and other materials are in place to prevent the troubles.

Instalation : Wall and Floor

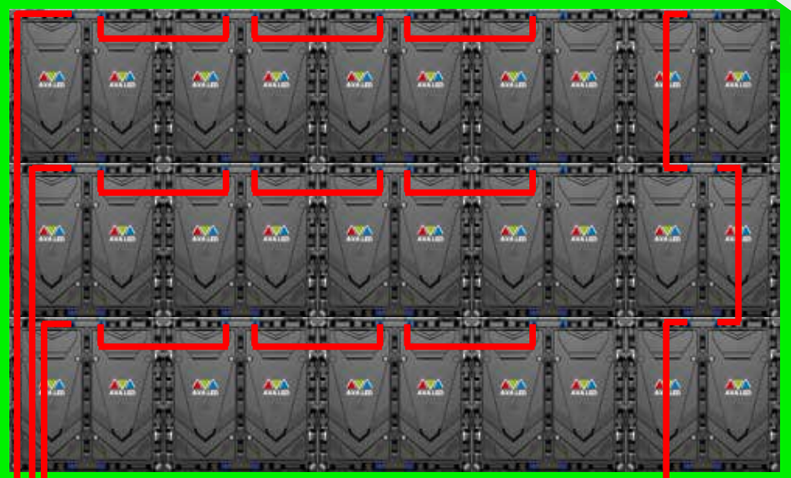
The floor where the products will be installed must be smooth and flat. if you want to diffrent frame designed , you can checking Accessories List.



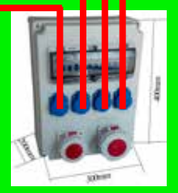


Chapter - 10

10.1.Screen Instalation
10.2 Power Distribution



Picture 5-2. Power Connection Diagram



Per Power cable Max: 4 Cabinet

10.1 Screen Installation

1. At the installation site, first set up the truss of the hanging screen (or similar structure that can be suspended), as shown in Picture 10-1.

2. Install the FLYKIT and install the FLYKIT according to the position of the upper and lower locking bars of the cabinet, as shown in Picture 10-1.

1. First, wear anti-static gloves and operate with more than one person.
2. The single unit of the cabinet is carefully taken out from the flightcase, and the PE tape and the protection angle are removed in turn. If the cabinet is not equipped with
3. Start installing the cabinet. After ensuring that the truss and flykits are flat, gently place and lock each cabinet. Each time a cabinet is erected, a cabinet is lit immediately to check if any dead lights and obvious bright lines. Plug in the power cable and signal cable into socket of the cabinet, a "crispy" sound after plugging indicates good connection. as shown in Picture 5-2.
4. Repeat step 3,

Until the entire screen is installed. Refer to Chapters 5-6-7 for the steps to debug the display.

10.1.2 Precautions:

1. During the installation process, pay attention to the protection of the cabinet to prevent the cabinet surface from being bumped and the cabinet from tipping over.
2. The maximum number of hanging cabinets 12.
3. Before installing each cabinet, you need to connect the power cord and conduct pre-testing to ensure that there is no abnormality before installing.

10.2.1 Power Distribution Cabinet:

Each TN-OF Series display requires a power distribution cabinet. AVALED provides customers with a variety of power distribution cabinets. It also customizes the matching power distribution cabinets for specific projects. And the connection can refer to the relevant manual.

10.2.2 Cabinet Power Cable:

The cable size is 3 x 2.5mm^2, one is the parent aviation head and the other is the male aviation head.

10.2.3 Main Power Cable:

Connect the power cable between the cabinet and the power distribution cabinet. The cable size is 3*2.5mm^2. One end is connected to the power input port of the cabinet and the other end is connected to the power distribution cabinet.
The maximum current of the aviation head used in the TN-OF series cabinet is 20A. To avoid the safety problems such as overheating and fire, the total current of the cabinets cascaded by one main power supply must be 4 pcs cabinet TN-OF series series display operating voltage range is 200 ~ 240V AC, outdoor single cabinet power consumption is about products Specification has watts, under different input voltage conditions, The number of cabinets on a main power cord is different. For the specific number, please refer to Chapter 5-2
200～240VAC, the outdoor single-cabinet power consumption is about 240W. Under different input voltage conditions, the number of cabinets carried by one main power cable is different. For the specific quantity, please refer to Chapter 5-2:

Chapter - 10

10.4.Power Cable Connection
10.5.Signal cable connection



Picture 5-1. Signal Connection Diagram

10.4 Display power cable connection

1. Install the power distribution cabinet and install it near the screen according to the site conditions to avoid the main power cable being too long.
2. Install the cabinet, refer to Chapter 10.
3. After the cabinet is installed, connect the power cord according to the design drawings.

Picture 5-2 shows the connection of the power cable of the TN-OF Series display.
Power Distribution Box Picture 5.2
Main power cord Picture 6.1
Cabinet power cable Picture 6.3

10.5 Signal cable connection

10.5.1 Sending box:

The sending box contains a sending card to send video data to the display.

10.5.2 Main Signal Cable:

Send the main signal cable between the cabinet and the display screen to transmit video data with a length of less than 70m.
Remarks: When the transmission distance is greater than 70m, it is possible to transmit data by optical fiber, and the longest distance is 20 kilometers.
Cabinet signal cable: used for signal transmission between cabinets.

10.5.3 Display Signal cable connection:

1. Install the sending box, arrange the main signal, and put it next to the display installation position.
2. Install the cabinet, refer to Chapter 10.
3. After the cabinet is installed, connect the signal wires according to the design drawings.

Picture 5-1. shows the signal cable connection of the TN-OF Series
Each main network cable carries maximum 650.000 pixels.
Sending box Picture 7.2
Main signal cable Picture 6.2
Cabinet signal cable Picture 6.4

Remarks:

The number of pixels carried on each main network cable of the sending box is limited, and the actual project should refer to the corresponding signal connection diagram.

Chapter - 11

11.Tool Kits

Adjustable Wrench (conventional)



Screwdriver (medium size)



Cutting pliers (conventional)





Allen key (M3 is used to open the power cabinet, M8 is used to fix the connecting piece)



Plastic hammer

Chapter - 12

12.1 Lock Cabinet



Lock

Stack one panel onto the other,
1. Push the lock lever up as shown below
2. The lock lever is pushed up into position and the lock bar lock lever is as shown below:



Move the handle to the inside according to the arrow of the cabinet, so that the handle is pressed against the cabinet, as shown below:



Locking status as shown below



Chapter - 12

12.2 Un Lock Cabinet



Un Lock

Locate the right to left locks and unlock them. Turn the lock lever handle according to the UNLOCK direction of the cabinet to the point where it cannot be:



Initial state: When the cabinet is installed, the position of the upper right lock lever is as shown below

