



NT V2 Series User manual



Shenzhen Absen Optoelectronic Co.,Ltd.

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Safety Information



WARNING!

Please read the safety measures listed in this section carefully before installing, powering on, operating, or doing maintenance on this product.

The following marks on the product and in this manual indicate important safety measures.



WARNING!

Safety risk! Might cause equipment damage or safety



WARNING!

Please read the manual before operating.



WARNING!

Dangerous voltage! Might cause equipment damage



WARNING!

Hot surface! Do not touch.



WARNING!

Flammable!



WARNING!

Possible damage to eyes.



WARNING: Be sure to understand and follow all safety guidelines, safety instructions, warnings and precautions listed in this manual.

This product is for professional use only!

This product may result in serious injury or death due to fire hazard, electric shock, and crushing hazard.



Please read this manual carefully before installing, powering up, operating and maintenance of this product.

Follow safety instructions in this manual and on the product. If you have any questions, please seek help from Absen.



Beware of Electric Shock!

- To prevent electric shock the device must be properly grounded during installation, Do not ignore using the grounding plug, or else there is a risk of electric shock.
- During a lightning storm, please disconnect the device' s power supply, or provide other suitable lightning protection. If the equipment is not in use for a long time, please unplug the power cord.
- When performing any installation or maintenance work (e.g. removing the fuses, etc.,) make sure to turn off the master switch.
- Disconnect AC power when the product is not in use, or before

disassembling, or installing the product.

- The AC power used in this product must comply with local building and electric codes, and should be equipped with overload and ground fault protection.
- The main power switch should be installed at a location near the product and should be clearly visible and easily reached. This way in case of any failure the power can be promptly disconnected.
- Before using this product check all electrical distribution equipment, cables and all connected devices, and make sure all meet current requirements.
- Use appropriate power cords. Please select the appropriate power cord according to the required power and current capacity, and ensure the power cord is not damaged, aged or wet. If any overheating occurs, replace power cord immediately.
- For any other questions, please consult a professional.



Beware of Fire!

- Use a circuit breaker or fuse protection to avoid fire caused by power supply cables overloading.
- Maintain good ventilation around the display screen, controller, power supply and other devices, and keep a minimum 0.1 meter gap with other objects.
- Do not stick or hang anything on the screen.
- Do not modify the product, do not add or remove parts.
- Do not use the product in case ambient temperature is over 55 °C.



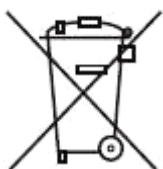
Beware of Injury!

- Warning: Wear a helmet to avoid injury.
- Ensure any structures used to support, fix and connect the equipment can withstand at least 10 times the weight of all the equipment.
- When stacking products, please hold products firmly to prevent tipping or falling.
- Ensure all components and steel frames are securely installed.
- When installing, repairing, or moving the product, ensure the working area is free of obstacles, and ensure the working



platform is securely and stably fixed.

- In the absence of proper eye protection, please do not look directly at the lit screen from within a 1 meter distance.
- Do not use any optical devices that have converging functions to look at the screen to avoid burning the eyes.



Product Disposal

- Any component that has a recycling bin label can be recycled.
- For more information on collecting, reusing and recycling, please contact the local or regional waste management unit.
- Please contact us directly for detailed environmental performance information.



WARNING: Beware of suspended loads.



WARNING: LED lamps used in the module are sensitive and can be damaged by ESD (electrostatic discharge). To prevent damage to LED lamps, do not touch when the device is running or switched off.



WARNING: The manufacturer shall not bear any responsibility for any incorrect, inappropriate, irresponsible or unsafe system installation.

Warning : Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note : This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1. Product Introduction

The NT V2 series is a lightweight, high-performance rental product, which is specially designed for stage rental use. It is mainly used in rental applications for large concerts, shows, auto shows, business activities, etc., as a medium for video broadcast, information release, and so on.

1.1 Product Information

The NT V2 series have a full range of pixel pitch for stage display including indoor P1.9mm & P2.6mm & P2.9mm. Curve cabinet as the standard version.

The NT V2 full panels are using die-casting Magnesium alloy materials, and the NT V2 half panels are using die-casting aluminum alloy materials, featuring excellent flatness, high quality cabinet and module finish, and high structural strength.



Figure 1-1 Curved Version 500*500mm
Indoor: **NT1.9 V2**/NT2.6 V2/NT2.9 V2



Figure 1-2 Curved Version 500*1000mm
Indoor: NT2.6 V2/NT2.9 V2

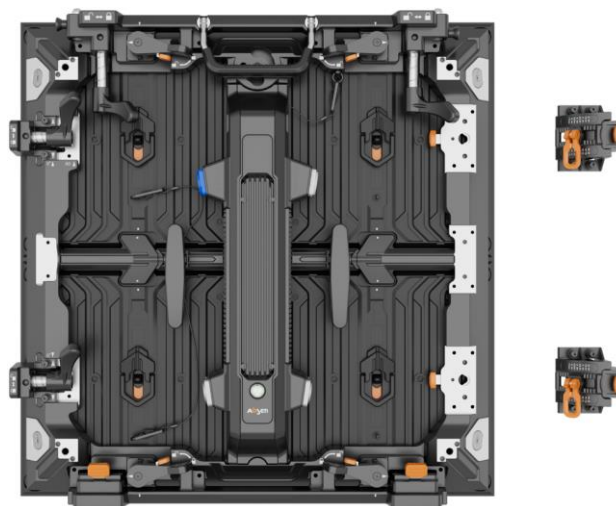


Figure 1-3 Cube Products

1.2 Product Main Features

- (1) Lightweight design: the full panel (500*1000) is 9.7Kg/pcs.
- (2) 2 in 1 LED protect the LED much better than before.
- (3) NT V2 series standard cabinet is curve version, which can provide an excellent effect of screen splicing.
- (4) The brightness of NT V2 series could reach at 1000nit, HDR 10+ performance.
- (5) The whole NT V2 series supports up to 7680Hz refresh rate, bringing outstanding effect on camera, which significantly improves customer' s satisfaction.
- (6) The contrast ratio of NT2.6 V2 is up to 6000:1, the contrast ration of NT1.9 V2 and NT2.9 V2 is up to 5000:1, Ultra-high contrast and distinct color layers ensure excellent visual outdoor effects.
- (7) The curved cabinet supports any increment of curve from 7.5° convex to 10 ° concave, more curve-able, more creative.
- (8) Advanced pre-holding handle and locking system with safety mechanism enables one-man installation.
- (9) Modular design supports modules and power boxes fast front and rear maintenance.

*Note:

- (1) Modules may be pushed forward when power box is maintaining from rear side, to keep the screen in a good flatness, operator need pull the module backward after maintained or replaced power box.
- (2) The NT1.9/2.6 V2 IMD2 in 1 LED modules are 250*250mm. The NT2.9 V2 modules are 500*250mm.

1.3 Product Specifications

1.3.1 NT V2 Series Indoor Products

Parameters	NT1.9 V2		NT 2.6 V2		NT2.9 V2	
Control system	NovaStar					
LED type	IMD 2 in 1	SMD1212 (optional)	IMD 2 in 1(SMD1515 optional)		SMD2020	
Pixel pitch (mm)	1.95		2.604		2.976	
Panel dimensions (WxHxD, mm)	500x500x75		500x500x75	500x1000x75	500x500x75	500x1000x75
Panel resolution	256x256		192x192	192x384	168x168	168x336
Panel weight (kg)	7.1		6.8	9.7	6.8	9.7
Panel material	Die casting aluminum		Die casting aluminum	Die casting magnesium	Die casting aluminum	Die casting magnesium
Module size (WxH, mm)	250x250		250x250 (IMD version) 500x250 (SMD version)		500x250	
Brightness (nit)	1000		1000		1000	
Refresh rate (Hz)	7680					
Grayscale (bit)	16	16	16			
Contrast ratio	5000:1		5500:1		5000:1	
Curve-able installation	Convex 7.5°~ Concave 10°					
Viewing angle (H/V, °)	160/160					
Drive mode	1/16	1/32	1/24		1/28	
AC operating voltage(V)	100~240					
Power consumption (max./avg., W/m²)	645/215		600/200		540/180	
Storage temperature (°C)	-40~+60					
Operating temperature (°C)	-10~+50					
Storage humidity (RH)	10 % ~90%					
Operating humidity (RH)	10 % ~90%					
IP rating	IP40/IP21					
Certification	ETL,FCC,CE, BIS,UKCA					

Remark:

- (1) Power consumption tolerance: $\pm 15\%$, according to the actual situation.
- (2) The cube version is only one 500mm*500mm size available and one cube panel weighs 7.8kg.

1.4 Product Dimension Figure

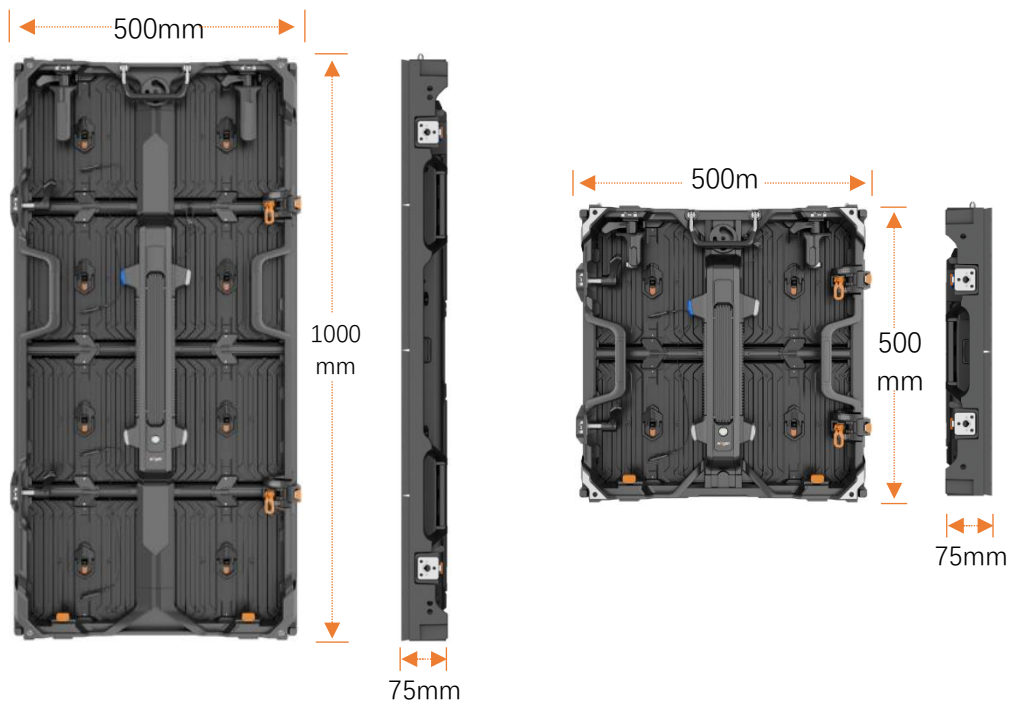


Figure 1-4 NT V2 Panel Dimensions (Unit: mm)

2. Product Components

2.1 Panel Overview

Each part of the NT V2 indoor 500*500mm cabinet is as follows:

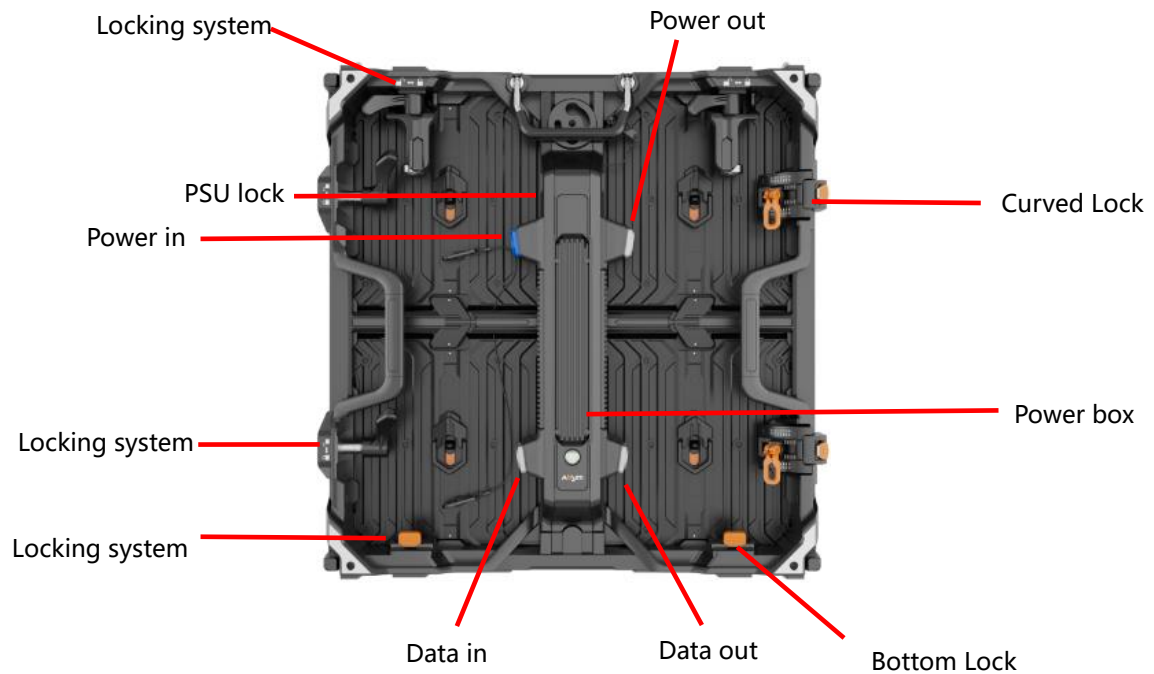


Figure 2-1 NT V2 Series Cabinet 500*500mm

Each part of the indoor 500*1000mm cabinet is as follows:

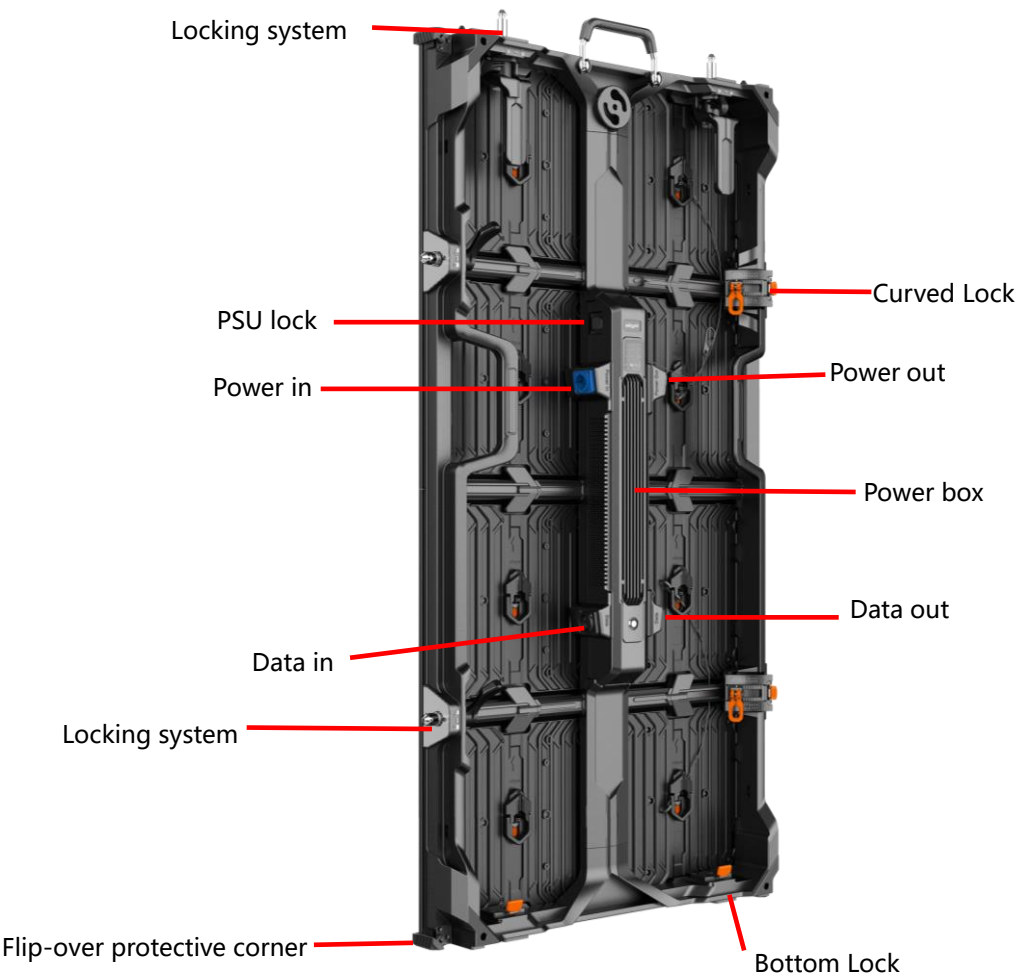


Figure 2-2 NT V2 Series Indoor Cabinet 500*1000mm

2.2 Cabinet Components

The panel consists of modules, panel frame and power box.

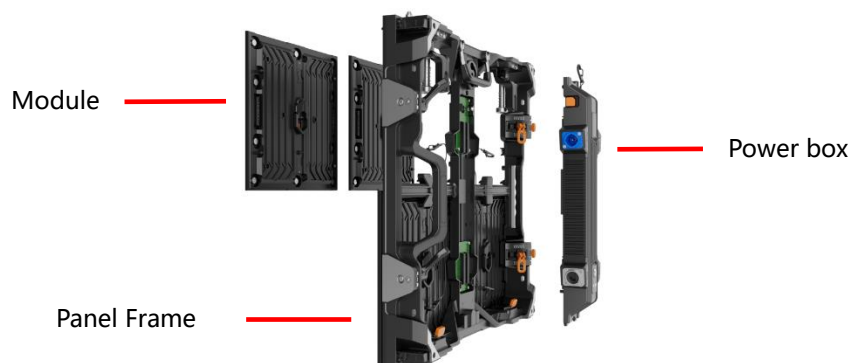


Figure 2-3 NT V2 500*500 Series Components

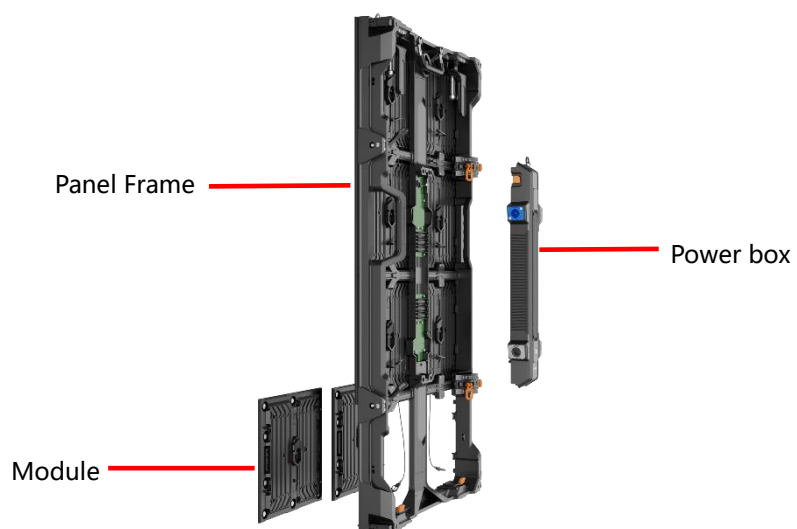


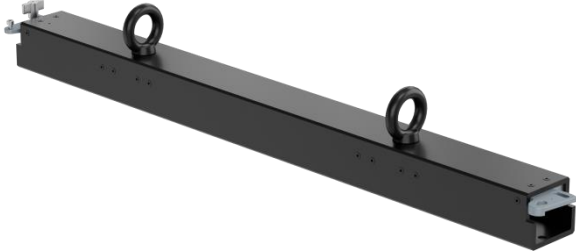
Figure 2-4 NT V2 500*1000 Series Components

Accessories

NT V2 series support both hanging and stacking installation.

2.3 Hanging system

The hanging bar is used for rigging installation, including single and double hanging bar.

	0.5m Single Hanging bar Dimensions: 500x83x72mm
	1m Double Hanging bar Dimensions: 1000x83x72mm
	0.5m Single Hanging and stacking bar
	1m Double Hanging and stacking bar

2.4 Stacking systems

For stacking installation, the stacking support frame or square tube truss need be used.



Figure 2-2 NT V2 Series Stacking Support Frame

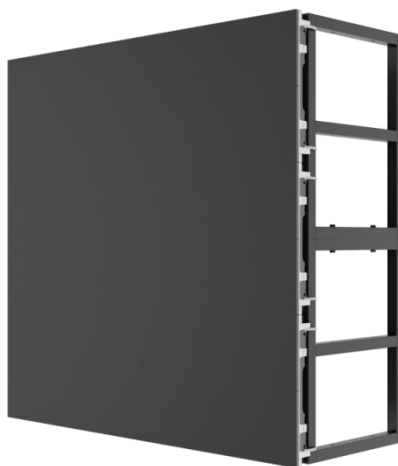
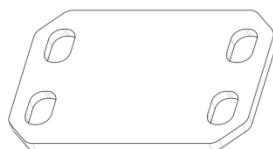


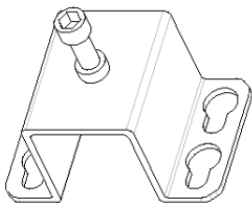
Figure 2-3 NT V2 Series Square Tube Truss



(a) General flat plate connector



(b) Butterfly-shaped flat plate connector



(c) U-shaped connector

Figure 2-4 NT V2 Series Connector (Assist Square Tube Truss Installation)

*Note:

- ①The square truss can be used only when the cable tie is inserted through the reserved holes on the cabinet for quick & easy installation.
- ②If the installation environment is complex, it will affect the flatness of the LED screen splicing during the landing installation, we suggest that you could use the general flat plate connector , butterfly-shaped flat plate connector or U-type connector for auxiliary installation.

2.5 Cables

2.5.1 Type of Power Cable

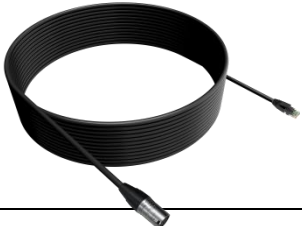
Power cables of all series are connected by aviation connector.

	Power cable, 10m, 16A,U-connector - SG3FRYS-01 Weight: 1.7kg±3% kg U-connector _ Seetronic Connectors Connect the power source and panels. For NT V2 series
	Power cable, 1m/1.5m, 16A, SG3FRYS-01 - SG9FCYS-07 Weight: 0.26kg±3% kg Seetronic _ Seetronic Connectors Connect neighboring panels vertically. For NT V2 indoor product: NT1.9/2.6/2.9 V2

*Note: The cables configuration may vary depending on the country or region. The diagram is provided for reference purposes only. Please select the corresponding wire according to the actual compatible products.

2.5.2 Type of Data Cable

Network cables of all series are connected by aviation connector.

	Data cable, 20m, SE8MC-1 - RJ45 Weight: 0.87kg±3% kg RJ45 _ Seetronic Connectors Connect the processor and panels. For NT indoor product: NT1.9/2.6/2.9 V2
	Data cable, 1m/1.5m, SE8MC-1 - SE8MC-1 Weight: 0.12kg±3% kg Seetronic _ Seetronic Connectors Connect panels in neighboring columns. For NT indoor product: NT1.9/2.6/2.9 V2

*Note: The cables configuration may vary depending on the country or region. The diagram is provided for reference purposes only. Please select the corresponding wire according to the actual compatible products.

2.6 Package

2.6.1 Flight Case

When the Flight case of NT V2 series is in use, please place the LEDs panel vertically in each compartment of the flight case to avoid damage to the LED module.

The flight case is optimized to fit in vehicles for low cost transport, and also fully stackable to save space.

PP materials flight case: 8-in-1 type for 500*500mm cabinet and 4-in-1 type for 500*1000mm cabinet.

Wooden materials flight case: 10-in-1 type for 500*500mm cabinet and 5-in-1 type for 500*1000mm cabinet.

8-in-1/ 10-in-1 for 500x500mm cabinet package: NT1.9/2.6/2.9 V2,

4-in-1/ 5-in-1 for 500x1000mm cabinet package: NT2.6/2.9 ,

PP Flight case dimensions: 1150*610*746 mm (8-in-1), 1150*610*746 mm (4-in-1),

Wooden Flight case dimensions: 1192X596X780mm (10-in-1), 1192X596X780mm (5-in-1),

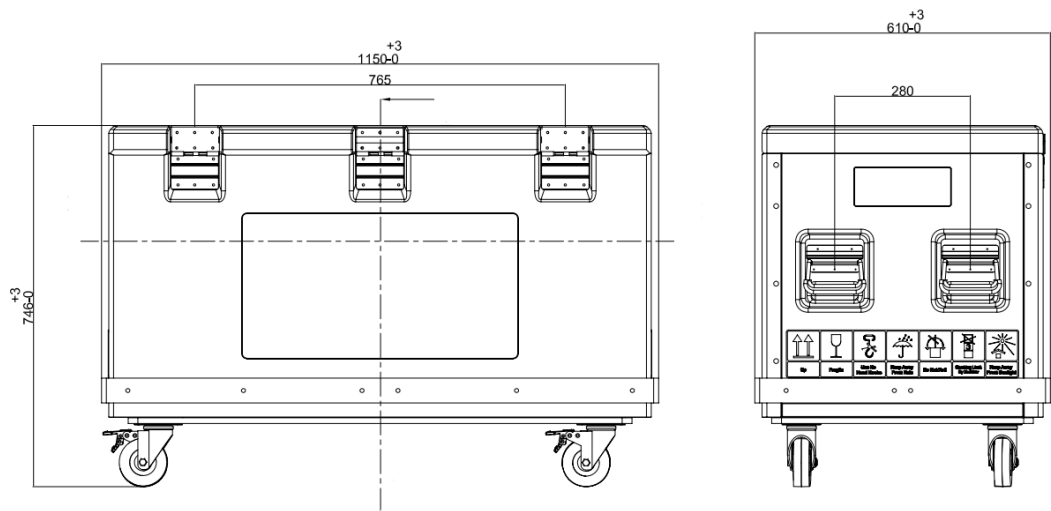


Figure 2-5 NT V2 Panel 8-in-1&4-in-1 Flight Case (Unit: mm)

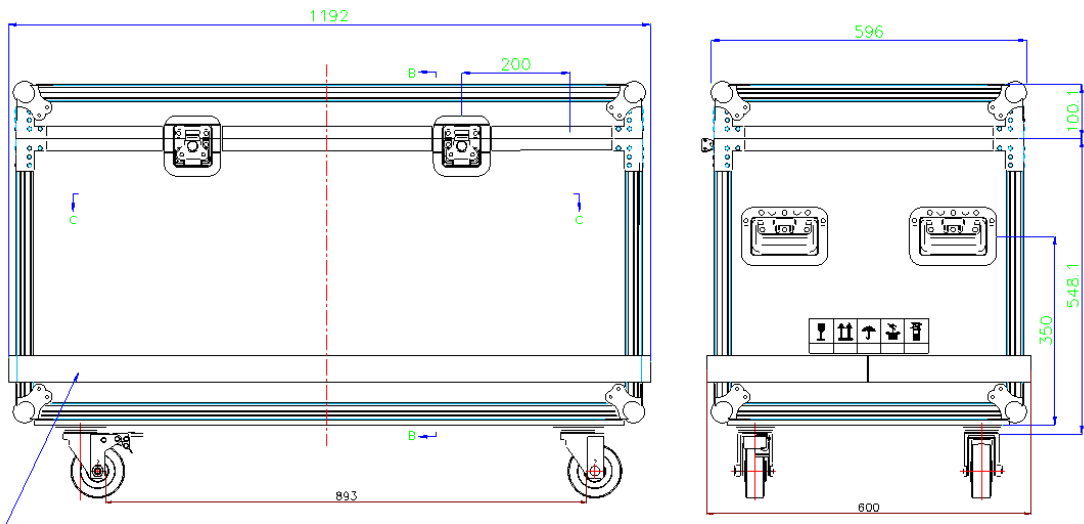


Figure 2-6 NT V2 Panel 5-in-1& 10-in-1 wooden Flight Case (Unit: mm)

3. Installation

The product is suitable for various forms of installation, including rigging and stacking installation. Use the locking system to lock the cabinets during installation. The curved lock can support radian connection from -7.5° to $+10^{\circ}$.

3.1 Cabinets splicing

(1) Standard cabinets splicing

NT V2 series support upper, lower, left and right splicing.



Figure 3-1 NT V2 Series Upper and Lower Splicing

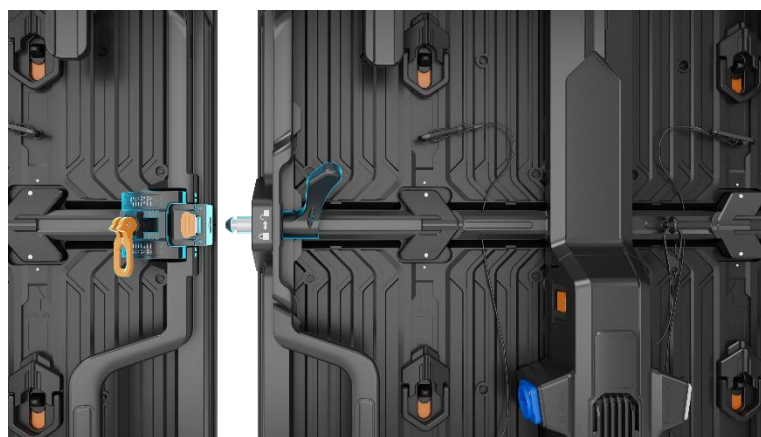


Figure 3-2 NT V2 Series Left and Right Splicing

(2) NT V2 series cube installation

Installation accessories: right-angle connection piece, M8 screws

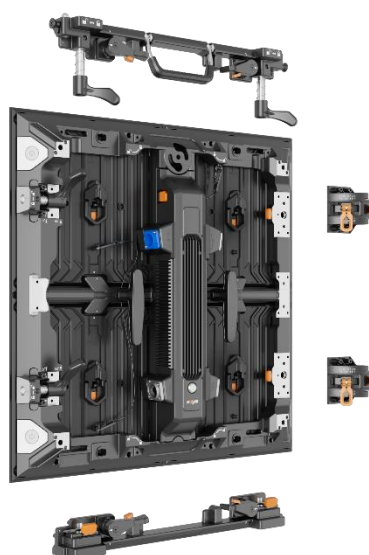


Figure 3-3 NT V2 series cube cabinet-right angle connector

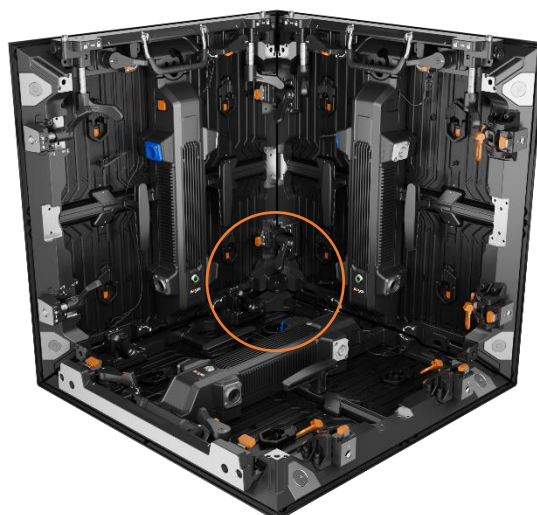
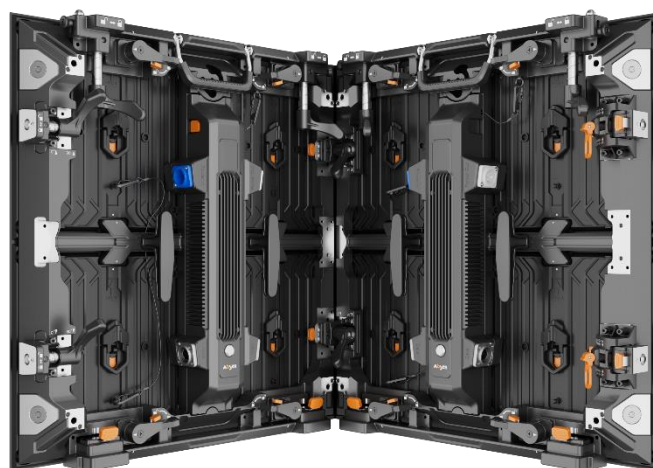
Installation tools: allen wrench, phillips screwdriver

The specific maintenance operations are as follows:

Step 1: Disable the top and bottom beams and the horizontal locks.



Step 2: Attach the cabinet using the right angle connecting tabs.



3.2 Hanging System

Connect cabinets with locking tabs during hanging installation. Hanging bars can load NT V2 panels with a height of 10 meters, that is, each column can support a max number of 20 500×500mm panels in the vertical direction, or 10 500×1000mm panels.

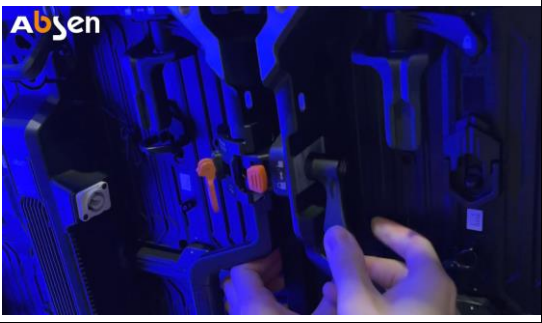
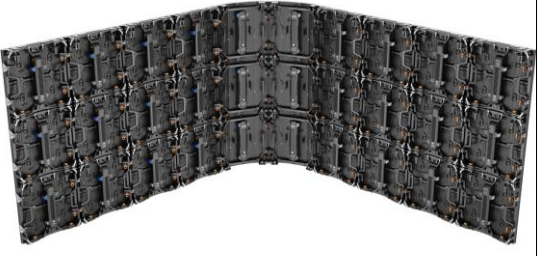


Figure 3-4 Hanging System

Installation steps are as follows:

- (1) Fix the Hanging Bar on the Truss.
- (2) Align the safe lock on the cabinet with the mounting hole on the hanging beam.
- (3) Press the locking plate on the hanging beam.
- (4) Insert the safe lock on the cabinet up.
- (5) Tighten the safe lock from left to right.
- (6) Tighten the second cabinet, as described above.

*Note: For detailed installation steps, please see the product installation video.

STEP	Graphic
STEP 1. Fix the Hanging Bar on the Truss.	
STEP 2. Align the safe lock on the cabinet with the mounting hole on the hanging beam.	
STEP 3. Align the left and right cabinet mounting holes.	
STEP 4. Rise the Hanging bar and install the second line cabinets.	
STEP 5. Install the cabinets one by one follow the 4 till finish the installation	

Single hanging bar:



Figure 3-5 Single Hanging Bar

Double hanging bar:

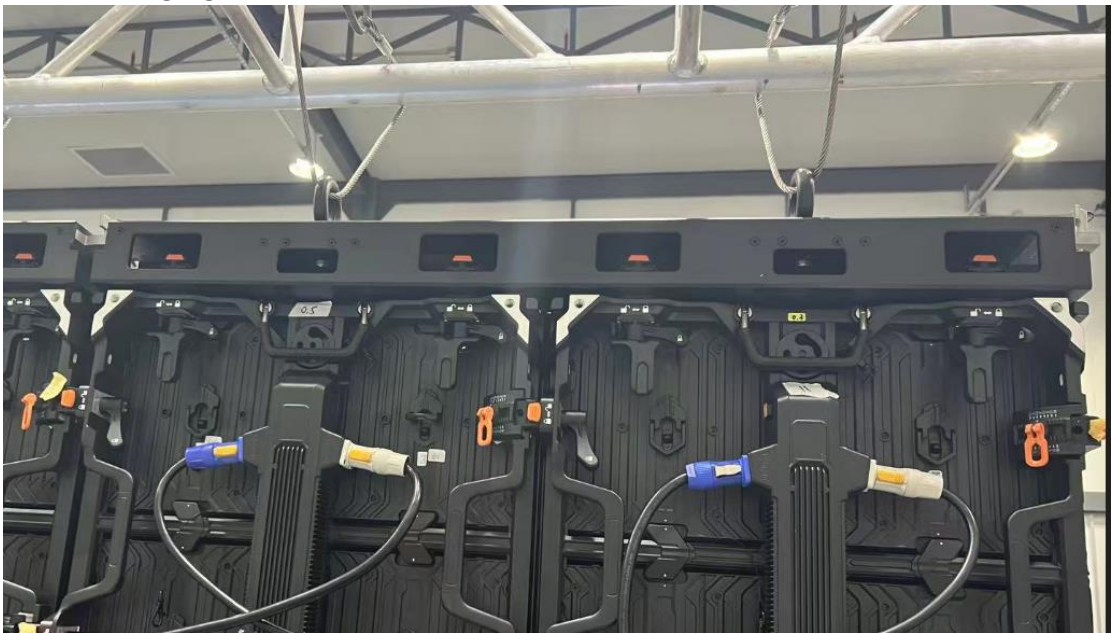


Figure 3-6 Double Hanging Bar

3.3 Stacking Installation

3.3.1 Stacking Support Frame Installation

The cabinet can be installed on the floor using a floor support frame. The floor support frame consists of a floor base, trapezoidal base, trapezoidal base adaptation frame, trapezoidal support, connecting rod, and trapezoidal gripper.



Figure 3-7 Stacking Support Frame Installation

The procedure for installing a stacking support frame is as follows:

Step 1: Fixing the floor base. Place the floor base in the ground, and secure the trapezoidal bracket base to the floor base by using latches.

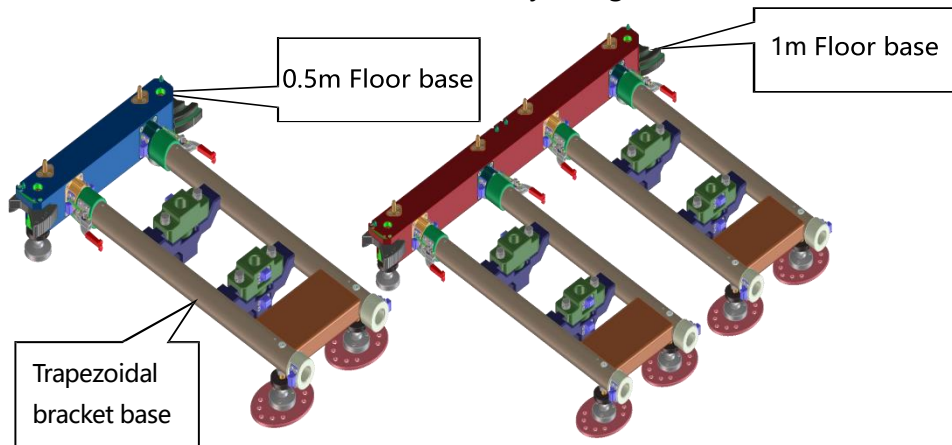


Figure 3-8 Floor Bases of Different Lengths

Step 2: According to the needs of LED screen installation, it can be spliced into inner arc and outer arc modeling. When splicing into an internal arc, the angle between the floor base is selected: $+2.5/+5/+7.5/+10$ degrees; When forming an outer arc, the angle between the floor base is selected: $-2.5/-5/-7.5$ degrees.

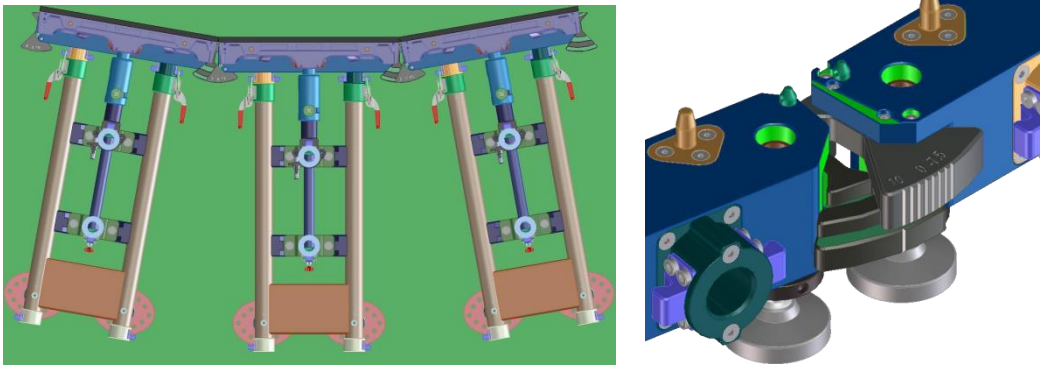


Figure 3-9 Interior Arc Splicing Floor Installation Diagram

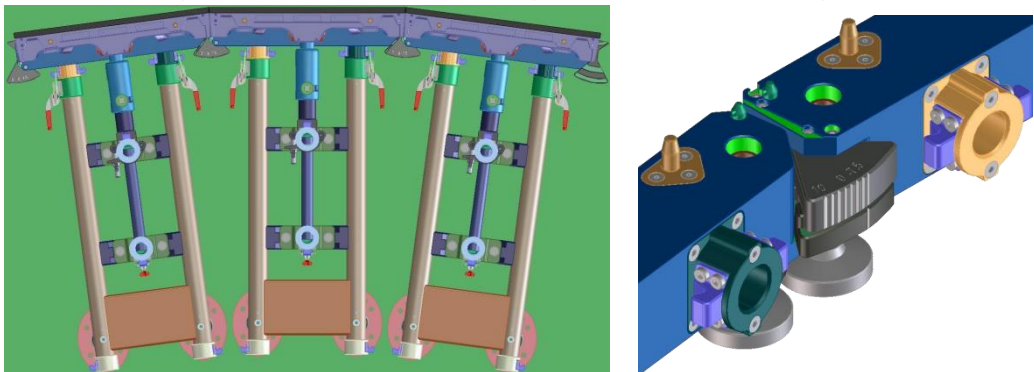


Figure 3-10 Exterior Arc Splicing Landing Installation Diagram

Step 3: Fix the trapezoidal support frame to the trapezoidal support base using the trapezoidal base adapter frame, combine multiple units according to the preceding operations, and connect multiple units into a whole, such as, connect the base to the adjacent base, and connect the trapezoidal support frame through the connecting rod, and connect the cabinet to the trapezoidal support frame through the gripper.

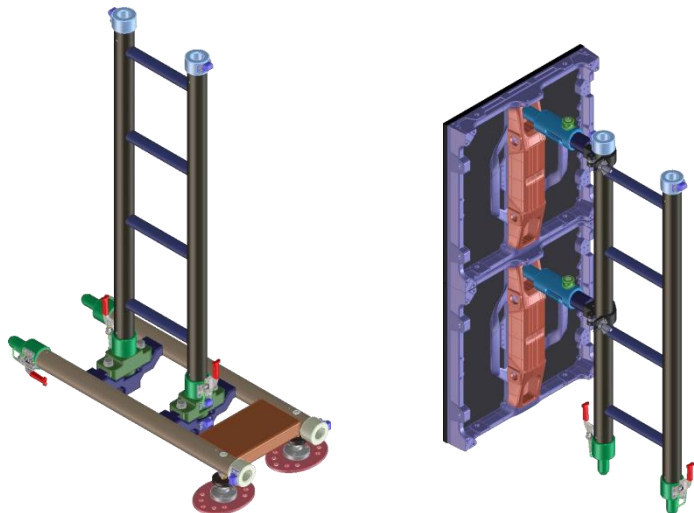


Figure 3-11 The Trapezoidal Support Frame Installation

Step 4: Set up the screen from the bottom up. Positioning pins are used to locate cabinets and floor bases at the bottom layer, and grippers are used to secure cabinets and floor support frames.

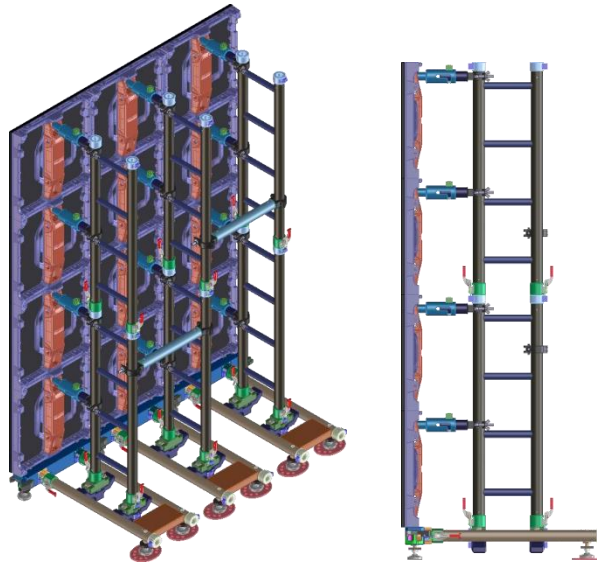


Figure 3-12 Screen Installation Diagram

*Note:

- (1) Pay attention to the installation between the cabinets must be locked with connecting pieces to ensure the left-right/upper and lower flatness between the cabinets.
- (2) The cabinet is configured with an arc lock, and can be connected with an arc of -7.5° to $+10^{\circ}$.
- (3) For details about how to install the cabinet, please refer to the installation above.

3.4 Standard Cable Wiring

3.4.1 Overview

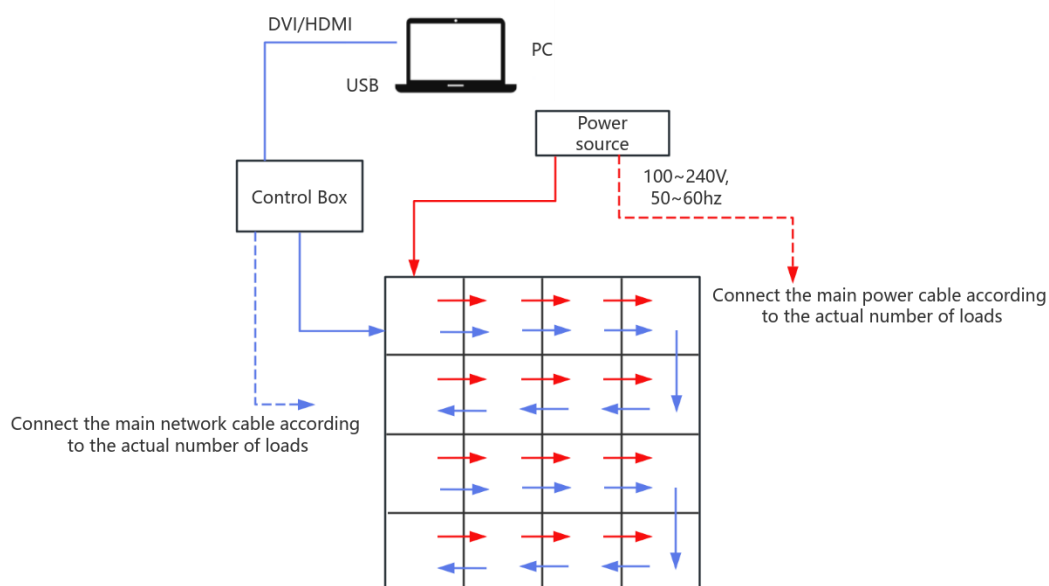


Figure 3-13 System Overview

This product cannot store or display video content solely on itself. To perform normal work, the screen requires video source from the output device such as PC, laptop, media player, etc. and one or more sending box to receive and feed the source to it.

There are 5 main components in the NT V2 data flow: PC, control box, signal transmission cables, power cables, and NT V2 series LED cabinets. Each NT V2 cabinet includes one control card and one HUB card for data distribution within the cabinet. The control card receives signals from the control box to control each LED pixel.

Each cabinet contains a control card, composed of multiple components, including MCU, memory, interface chips, etc., which can process data, store correction data, and also control the effect of the LED display. Signal and power cables connect each cabinet, allowing the signal source to be displayed on the LED screen.

*Note: The connecting cables between the cabinets should pass through the cabinets as much as possible. If the connection method changed, please set the same connection method in the software settings. Please refer to the software for more details.

3.4.2 Preparation Before Cabling

Please check carefully if the connection of power and signal circuit is correct before supplying power and signal to the screen.

Please make sure that there is no short circuit between the L line, N line and PE line of each cabinet's AC power input by using multi-meter.

Power connection instructions:

- (1) Please calculate and select the appropriate model of distribution box or socket according to the maximum power consumption. Please consult your electrician or distribution cabinet manufacturer for specific selection method.
- (2) The input voltage of cabinet is 100-240V/AC and 3X2.5mm² power cable is used between distribution box and the cabinet. Please confirm the input voltage, the number of cabinets loaded on each power cable will be different upon different voltages and product models. (Please feel free to contact our after-sales service department if you are not sure).

3.4.3 Power Cabling

Connect neighboring panels (in the vertical direction) with 1m power cables from

power-out to power-in.

Connect the first power-in port of the panel and power source with the main power cable.

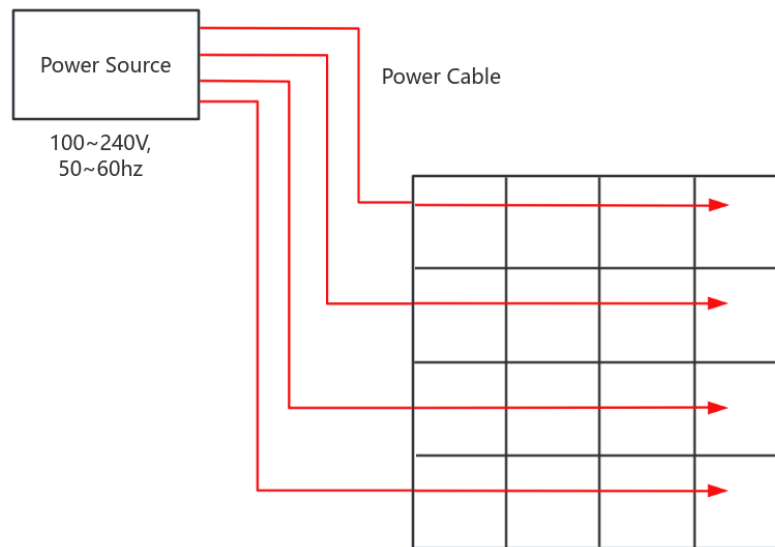


Figure 3-14 NT V2 Series Power Cabling

How to calculate the power cable capacity?

$$N=UI/P$$

N: One main power cable capacity

U: Voltage of AC input, 100~240V

I: Max current

P: Max panel power consumption

Under different cabinet sizes and different input voltages, there are differences in the number of cabinets that wires are able to carry. See the following table for details:

	Cabinet Dimension	Product Type	Qty of cabinet (AC100~120V, 3x2.5mm ²)	Qty of cabinet (AC200~240V, 3x2.5mm ²)
Indoor	500x500	NT1.9 V2	8	16
		NT2.6 V2	9	18
		NT2.9 V2	9	18
	500x1000	NT2.6 V2	4	9
		NT2.9 V2	5	10

3.4.4 Data Cabling

(1) Connect neighboring (vertical) panels with 1m data cables.

- (2) Connect panels in neighboring columns with 1m data cables.
- (3) Connect panels with the processor through 20m data cables.
- (4) Connect the processor with a PC / laptop via the Ethernet port.
- (5) Connect the video source.

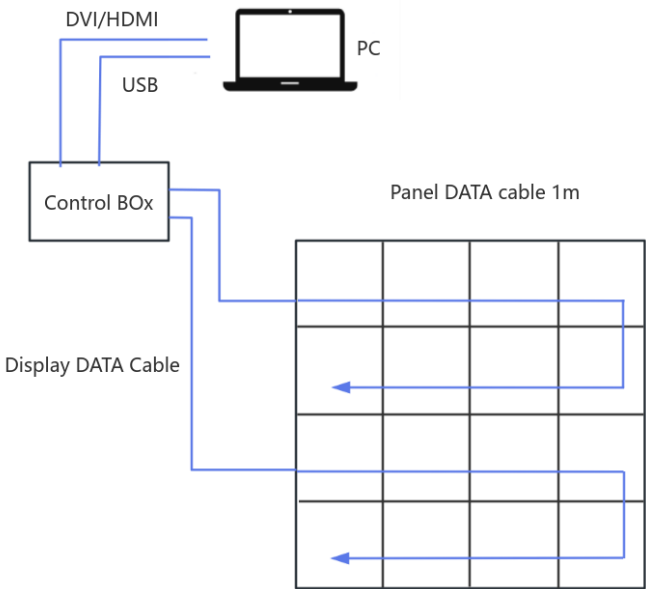


Figure 3-15 NT V2 Series Data Cabling

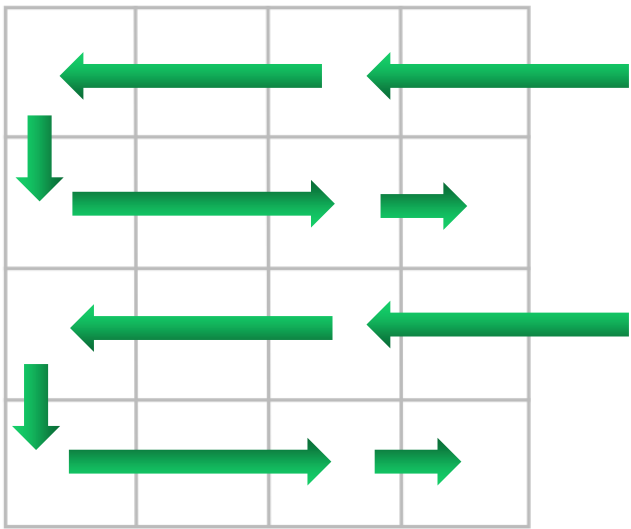


Figure 3-16 Data Mapping

***Notes:**

- (1) The front view is for the setting in the control system.
- (2) The cascade control data cables should not be more than 100 meters. When it's over 100 meters, please switch to fiber cables.
- (3) Please calculate the resolution according to the pixel of each panel and connect the signal line according to the load range of the control box. No more than 655360

pixels can be loaded on each network port. (The data load capacity of specific types of NT V2 series products is shown in 4.5.1 Controller load capacity section)

3.4.5 Cabling Operation

There are at almost 4 operation steps as follows:

(1) Make sure the load capacity of main power cable and main network cable

(2) Checking

After the cabinet wiring is completed, use a multimeter to measure whether there is a short circuit between the AC input (L / N / PE) and DC output (VCC / GND) of the power supply. If so, please check the circuit carefully. Please make sure the circuit is normal before starting up. To avoid the entire screen being burned due to the wrong working voltage, please pay attention to the working voltage range of the cabinet during use.

(3) Turn on screen and check the effect

Play high-definition content after starting up, such as video, text, images, etc. It is suggested to make sure the resolution of the content is in consistent with that of the screen, otherwise the content will be compressed, thus affecting the overall performance.

(4) For software operation, please refer to the software instruction manual.

3.5 Control System

For more information about system operation, please check the corresponding control system user manual, which depend on the type of receive card. NT V2 series are now available on NOVA processing.

3.5.1 NOVA Processing

According to the port capacity of Nova processor, the load capacity of NT V2 series products with different models, different color depths and different frame rates is calculated as follows:

NT1.9 V2

Frame Rate Color Depth	8 bit	10 bit	12 bit
24 Hz	25	20	16
25 Hz	24	18	15
30 Hz	20	16	12
50 Hz	12	9	8
60 Hz	10	8	6

NT2.6 V2 (500mm*500mm)

Frame Rate Color Depth	8 bit	10 bit	12 bit
24 Hz	44	35	29
25 Hz	42	34	28
30 Hz	35	28	22
50 Hz	20	16	14
60 Hz	16	14	10

NT2.6 V2 (500mm*1000mm)

Frame Rate Color Depth	8 bit	10 bit	12 bit
24 Hz	22	17	14
25 Hz	21	17	14
30 Hz	17	14	11
50 Hz	10	8	7
60 Hz	8	7	5

NT2.9 V2 (500mm*500mm)

Frame Rate Color Depth	8 bit	10 bit	12 bit
24 Hz	56	46	38
25 Hz	54	44	36
30 Hz	46	36	30
50 Hz	26	22	18
60 Hz	22	18	15

NT2.9 V2 (500mm*1000mm)

Frame Rate Color Depth	8 bit	10 bit	12 bit
24 Hz	28	23	19
25 Hz	27	22	18
30 Hz	23	18	15
50 Hz	13	11	9
60 Hz	11	9	7

3.5.2 Component of Control System



Figure 3-17 Control System

(1) PC: Sends video signal out through an Ethernet port.

The signal travels through an Ethernet cable from the PC to the control box.

(2) Control Box: An control box that distributes the video signal into Ethernet cables. The signal is transmitted through Ethernet cables to different cabinet areas of the LED screen.

(3) The Hub card is attached directly to the module and distributes
When the cabinet receives signal data from the network cable, the control card and hub card distribute the signal data to different modules, allowing both the cabinet and the screen to display the content correctly.

3.5.3 Sign Control Box



Figure 3-18 Control Box

(1) Control Port : The control port is connected to the PC, which sends debugging commands to the control box. The control box then distributes the command data to all the LED modules through the Ethernet port.

(2) Signal input port : The images generated by the PC are transmitted into the

control box through a DVI cable. The control box processes the received PC image signal and distributes the image data to all the LED modules for display via Ethernet or optical fiber ports.

(3) RJ45 Gigabit Ethernet port: These ports transmit the data processed by the control box to the control card on the LED modules, and the data is processed by the control card and finally displayed by the NT V2 series.

(4) 10G fiber optic port: These ports are similar in function to RJ45 Gigabit Ethernet ports, as they transmit the data processed by the control box to the control card on the LED modules,,the data is processed by the control card and finally displayed by the NT V2 series.

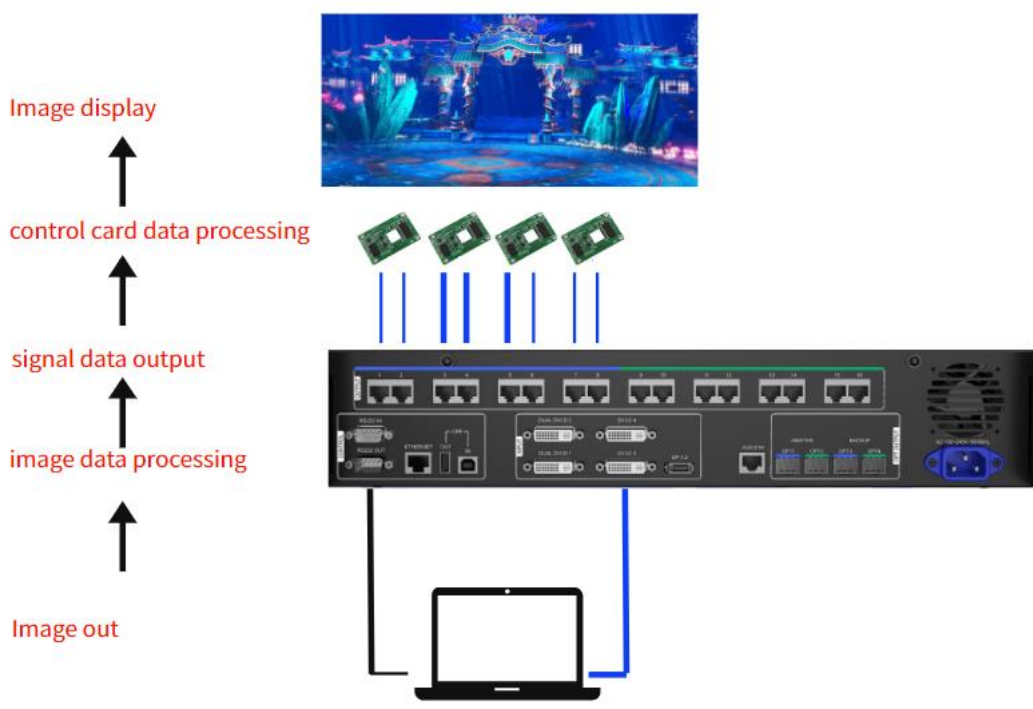


Figure 3-19 Control System Topology Diagram

3.6 Calibration System

The calibration system of the NT V2 series (NT1.9 V2 and NT2.6 V2) collects brightness and chromaticity data for each pixel of the NT V2 modules and stores this data in the calibration system's database. The control card inside the NT V2 cabinet will process the collected calibration data based on the target brightness and color space, and finally distribute the data to each pixel.

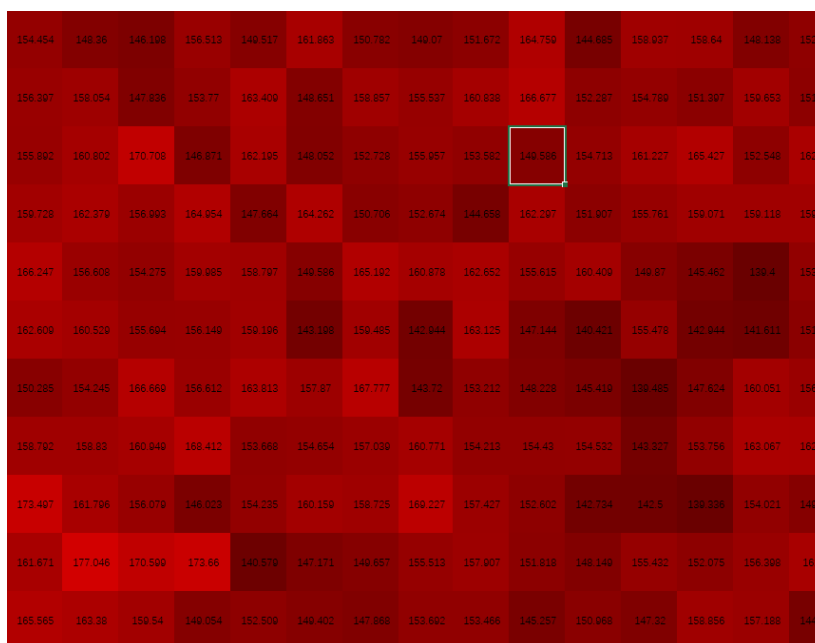


Figure 3-20 Diagram of Correction System

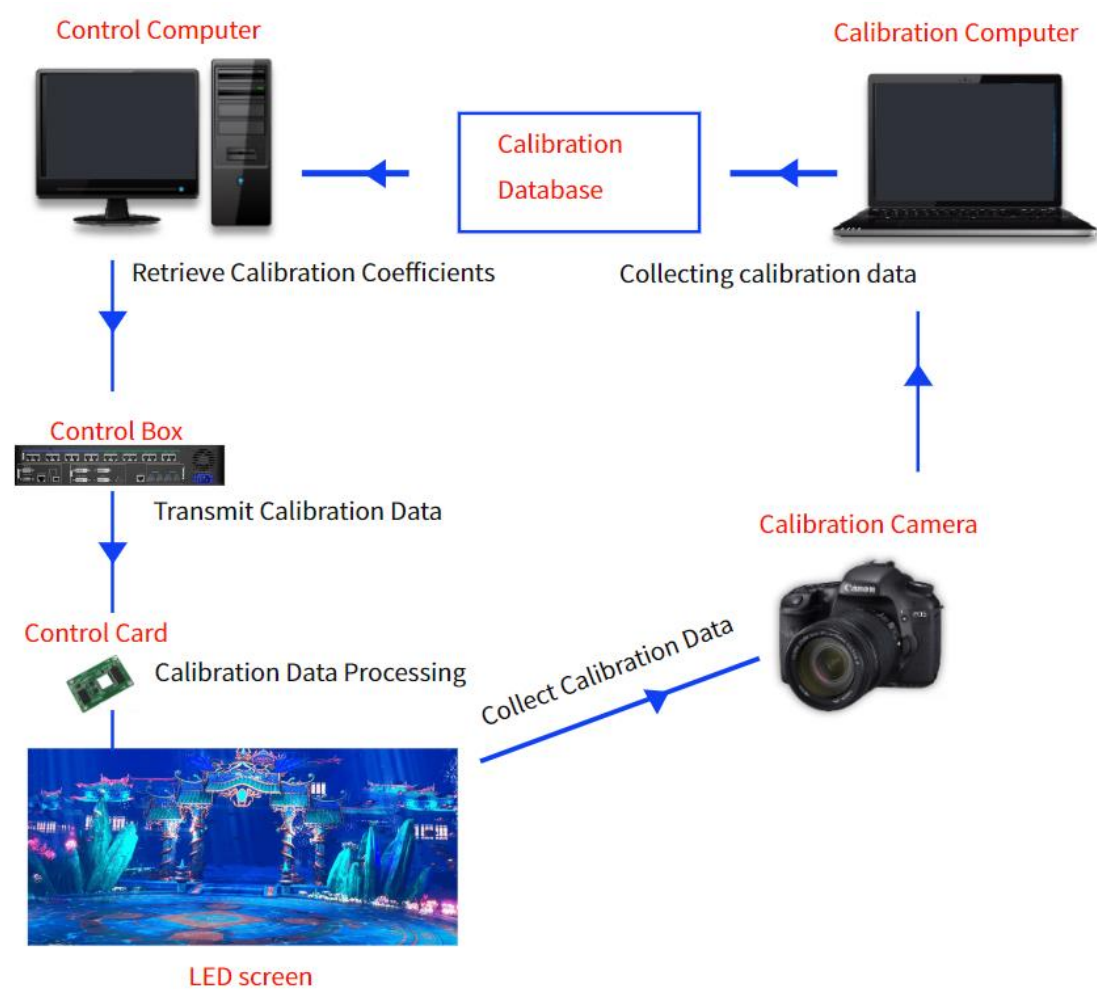
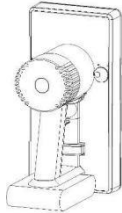


Figure 3-21 Correction System Topology Diagram

4. Maintenance

4.1 Tools for Maintenance

Preparation of maintenance tools:

List	Type	Function	Picture
	Front maintenance tool	Installing and fixing module	
	Phillips screwdriver	Installing and disassembling module & power supply & screw on control card	
	Multi-meter	Measuring power lines and distribution boxes	
	Small Phillips screwdriver	Installing and removing mask	
	Spirit level	Measuring structure	
	laser spirit level	Measuring installation position	
	band tape	Measuring distance of installation hole	

4.2 Maintenance Instructions

4.2.1 Module Maintenance

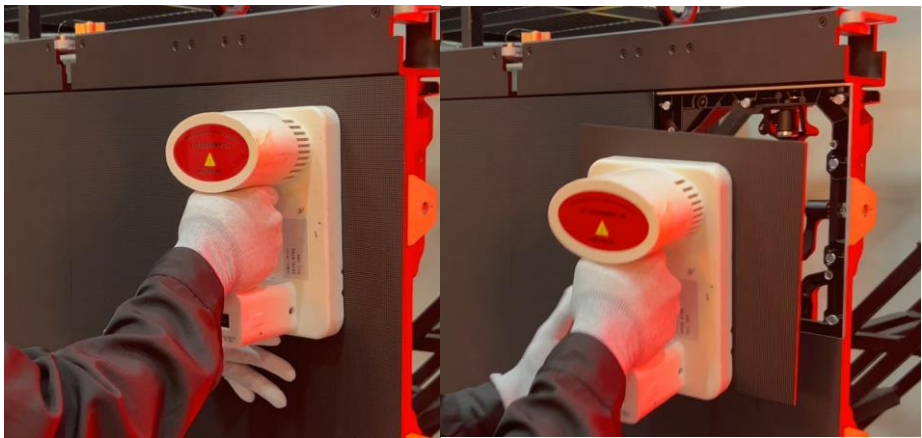
The module of NT V2 series support front or rear maintenance. The specific maintenance operations are as follows:

(1) Module front maintenance

Step 1: Attach the vacuum maintenance tool to the module and press the maintenance tool switch for 5 seconds. Pull it vertically and pull the module off the panel.

Step 2: Remove the failure module.

Step 3: Replace with a good module.



(2) Module rear maintenance

Step 1: Hold the module handle with your right hand and push it forward. Remove the failure module.

Step 2: Replace with a good module.



4.2.2 Power Box Maintenance

The power box of NT V2 series support rear maintenance. The detailed operation steps are as follows:

(1) 500×500mm cabinet

Step 1: Disable the lock of the PSU.

Step 2: Catch the upper side of power box and remove the whole power box.

Step 3: Replace with new power box.

Step 4: Pull the module handles backward to keep the modules at the same flatness.



(2) 500×1000mm cabinet

Step 1: Disable the lock of the PSU and remove it for maintenance.



Step 2: Other operations are the same as maintaining a power box in a 500*500mm cabinet.

*Attention: It is necessary to cut off power supply of cabinets during the maintenance of the power box to avoid electric shock.

4.2.3 Maintenance of Control Card and HUB Card

The Control Card and HUB card of NT V2 series support rear maintenance.



For example: The A8s-N receiving card is connected to the Hub board through the card slot. At the same time, the Hub board is also connected to the module, power and data cables. The Hub board helps transmit power and data. (The A8s-N interface is similar to other types of receiving cards)

(1) Maintenance for control card

Step 1: Remove the screws of the receiving card (please note the Red frame mark);



Step 2: Unplug the receiving card and replace it;

Step 3: Install a new receiving card on the HUB card, please note that the receiving card direction should correspond to the arrow direction on the HUB card (please note the yellow frame mark);

Step 4: Install the fixing screws.



(2) Maintenance for the HUB Board

For the maintenance of the HUB board, please refer to the maintenance method of the receiving card. Please remove the fixing screw when maintenance (marked with a red circle).

Step 1: Remove the power box, then release the screws on the HUB board, including the screws on the control card;



Step 2: Install the HUB board back (Note the direction of the HUB board and the corresponding screw hole);

Step 3: Install the control card back (Note that the direction of the control card

should correspond to the arrow direction on the HUB card);

Step 4: Install the remaining screw;

Step 5: Install the power box back to its original position.

(3) Maintenance for receiving card (Front)

Step 1: remove the power box and module from the cabinet;

Step 2: release the 2 screws on receiving card;

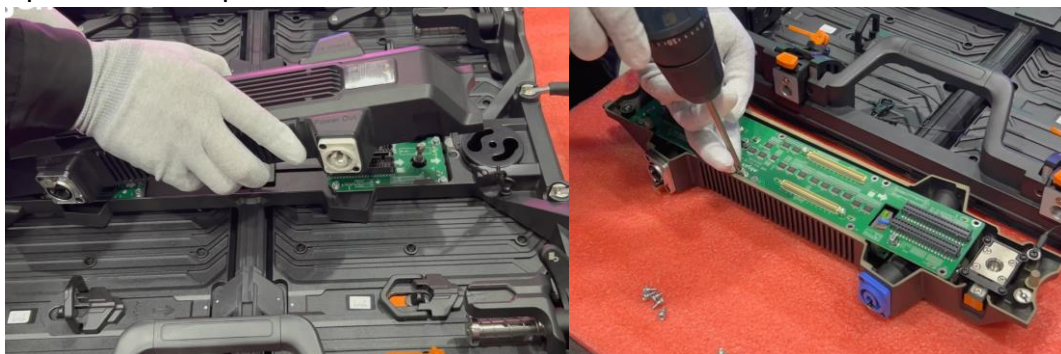
Step 3: release the 7 screws on the HUB board ;

Step 4: install the HUB board back (note the direction of the HUB board and the corresponding screw hole);

Step 5: install the receiving card back(note that the receiving card direction should correspond to the arrow direction on the HUB board;)

Step 6: install the screw;

Step 7: install the power box and module.



5. Common faults and troubleshooting

No.	Common faults	Solution
1	Some modules are black	1. Check whether the power plug of the corresponding module is tightly inserted;
		2. Check whether the power cable of the corresponding module is burnt out;
		3. Check whether the switch power supply of the corresponding module has no output;
		4. Check whether the flat cable of the corresponding module is malfunctioning;
		5. Replace the flat cable of the corresponding module;
		6. Replace the module;
		7. Replace the control card;
		8. Send rcfg file;
2	The whole screen is black	1. Check whether the screen power is on;
		2. Check whether the DVI cable or HDMI cable is loose;
		3. Check whether the main data cable is well inserted;
		4. Check whether the control box is powered on and whether the running indicator is flashing;
		5. Replace the control box;
		6. Connecting the computer to an LCD display, check whether there is output on video card;
		7. Update the video card driver;
		8. Replace the computer;
3	Screen show scrambled image	1. Check whether the power plug of the control card is well inserted;
		2. Check whether the power cable of the control card is burnt out;
		3. Check whether the power supply has no output;
		4. Check the data cable of the control card;
		5. Replace the data cable;
		6. Send the rcfg file;
		7. Upgrade the firmware version of the control card;
		8. Replace the control card;
4	Chromatic aberration between modules	1. Check whether the module power plug is well plugged;
		2. Check whether the main data cable is well inserted;
		3. Check whether the control box is powered on and whether the running indicator is flashing;
		4. Replace the module;
		5. Replace the control card;

5	All panels display the same content	1. Set the screen connection on software;
		2. Check whether the data port is wrong.
6	No control system detected	1. Check the USB cable;
		2. Check whether the computer USB port is malfunctioning;
		3. Update the USB driver;
		4. Replace the USB cable;
		5. Replace the control box;
7	No multi-function card detected	1. Check whether the distribution box is in the automatic state;
		2. Check whether the multi-function card is powered;
		3. Replace the power supply of the multi-function card;
		4. Check whether the main data cable is inserted into the wrong data port;
		5. Check whether the control box data port is malfunctioning;
		6. Re-add the multi-function card;
		7. Replace the multi-function card;
		8. Replace the control box;
8	No full screen display	1. Check whether the setting of the playback window is normal;
		2. Check the output resolution of the video processor;
		3. Check the output window of the video processor;



Check for Power Supply Short Circuit.

After completing the cabinet wiring, please use a multi-meter to check if there is any short circuit at the AC input power supply (L/N/PE) and DC output terminal (VCC/GND). If there is a short circuit, please carefully investigate the wirings. Make sure all wirings are normal, and only then connect power to operate the unit.

6. Revision History

Document	《NT V2 Series User Manual》		
Usage	To instruct users how to use a product		
Version	Update date	Page/Remarks	Editor
V1.0	2025.04.02	Creation	Bryan Lee

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