

# Leyard TVH Series LED Video Wall User Manual



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## **Introduction**

The Leyard® TVH Series LED Video Wall is characterized by small pixel pitch, no splicing gap, high brightness and resolution, large angle of view, wide color gamut and low power consumption, as well as the following characteristics.

### **High Splicing Accuracy**

All critical components are provided with advanced fine machining technology, which has greatly improved the splicing accuracy.

### **Fast Assembly**

There are independent elastic protection devices between cabinets, with fast positioning locks on both sides to enable fast assembly.

### **Standardized Interface**

HDMI is adopted to improve the universal adaptation of products.

### **High Integration of Hardware**

The control board and drive board can be integrated without external LED controller.

## Safety Information

Before using your Leyard TVH Series LED Video Wall, please read this manual thoroughly to help protect against damage to property and to ensure personal safety.

Be sure to observe the instructions

For your safety, be sure to observe ALL the warnings detailed in this manual.

For installation or adjustment, please follow this manual's instructions and refer all servicing to qualified service personnel.

## Safety Precautions

- **If water is spilled or objects are dropped inside the display, remove the power plug from the outlet immediately.** Failure to do so may result in fire or electrical shock. Contact your dealer for inspection.
- **If the display is dropped or the chassis is damaged, remove the power plug from the outlet immediately.** Failure to do so may result in fire or electrical shock. Contact your dealer for inspection.
- **If the power cord or plug is damaged or becomes hot, turn off the main power switch of the display. Make sure the power plug has cooled down and remove the power plug from the outlet.** If the display is still used in this condition, it may cause a fire or an electrical shock. Contact your dealer for a replacement.

## **WARNING! WALL AND/OR SUPPORT MOUNTS MUST BE SECURE**

If a display or displays are hung from a wall or some other support, the structure must be verified as able to safely sustain the weight of the assembly. Simply mounting to wallboard or wall paneling won't be adequate or safe.

## Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use Leyard TVH Series displays outdoors or near water.
6. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus that produce heat.
7. Do not defeat the safety purpose of a polarized or grounding type plug. The polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. When the provided plug does not fit into your outlet, consult an electrician for the replacement of the obsolete outlet.
8. Protect the power cord(s) from foot traffic or kinks particularly at plugs, convenience receptacles and the point where they exit from Leyard TVH Series displays.
9. You should only use replacement parts, accessories and other components specified by Planar Systems.
10. Unplug all Leyard TVH Series displays during lightning storms or when unused for long periods of time.
11. You must follow all National Electrical Code regulations. In addition, be aware of local codes and ordinances when installing your system.
12. Refer all servicing to qualified service personnel. Servicing is required when any Leyard TVH Series display has been damaged in any way, such as when the AC power cord or plug is damaged, liquid has been spilled or objects have fallen into a product, the products have been exposed to rain or moisture, do not operate normally or have been dropped.
13. You should consider keeping the packing materials in case the equipment ever needs to be shipped.
14. Wall mounts must be secure. The wall must be strong enough to hold all Leyard TVH Series displays, mounting plates, cables and accessories.

## **Recommended Usage**

In order to get the most from your Leyard TVH Series display, use the following recommended guidelines to optimize the display.

Leyard TVH Series displays are designed for fixed installation, indoor use only.

# European Union Disposal Information

## English

- Disposal of old Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collection programs)

This symbol found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources.



This symbol is only valid in the European Union. If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

## Español

- Deshecho de equipos eléctricos y electrónicos (aplicable a la Unión Europea y a otros países europeos con programas de reciclaje independientes)

La presencia de este símbolo en el propio producto o en su material de embalaje, indica que no se debe tratar como residuo doméstico cuando desee deshacerse de él. En su lugar, debe entregarlo en el punto limpio correspondiente de reciclaje de equipos eléctricos y electrónicos. Asegurándose de que este producto se desecha de forma correcta, ayudará a evitar posibles consecuencias negativas para la conservación del medioambiente y la salud humana, consecuencias que podrían darse si se desecha del producto de forma inadecuada. El reciclado de materiales ayuda a conservar los recursos naturales.



Este símbolo solamente es válido en la Unión Europea. Si desea deshacerse de este producto, póngase en contacto con las autoridades locales o con su distribuidor y pida información sobre el método de disposición adecuado.

## Português

- Eliminação de equipamentos eléctricos e electrónicos usados (aplicável na União Europeia e noutros países europeus com programas próprios de recolha destes equipamentos)

Este símbolo, colocado no produto ou na respectiva embalagem, indica que o produto não deve ser tratado como lixo doméstico aquando da sua eliminação. Em vez disso, deve ser entregue num ponto de recolha de equipamentos eléctricos e electrónicos para posterior reciclagem. Ao garantir a correcta eliminação deste produto, estará a evitar consequências potencialmente negativas tanto para o ambiente como para a saúde humana. A reciclagem de materiais ajuda a preservar os recursos naturais.



Este símbolo apenas é válido na União Europeia. Se quiser eliminar este produto, contacte as entidades locais ou o seu fornecedor para ficar a saber qual o método de eliminação correcto.

## Svenska

- Avfall av förtärad elektrisk och elektronisk utrustning (Tillämpbart i hela Europeiska unionen och andra europeiska länder med separata samlingsprogram)

Den här symbolen som finns på den produkt eller på dess förpackning påvisar att produkten inte ska behandlas som hushållsavfall när du vill slänga bort den. Istället ska den lämnas över till en tillämplig samlingspunkt för återvinning av elektriska och elektroniska utrustningar. Genom att följa detta att den här produkten lämnas på ett riktigt sätt hjälper du till med att förhindra möjliga negativa konsekvenser för miljön och mänsklig hälsa. Det kan annars orsakas på grund av olämplig sephandling av den här produkten. Återvinning av material kommer att hjälpa till att bevara naturliga resurser.



Den här symbolen är endast giltig inom den Europeiska unionen. Om du vill slänga bort den här produkten ska du kontakta lokala myndigheter eller återförsäljare, och fråga efter tillämpliga samlingsmetoder.

## Français

- Mise au rebut des équipements électriques et électroniques usagés (valable dans l'ensemble de l'Union Européenne ainsi que dans les pays européens disposant de programmes distincts de collecte des déchets)

Ce symbole appliqué sur votre produit ou sur son emballage indique que ce produit ne doit pas être traité comme un déchet ménager lorsque vous voulez le mettre au rebut. Il doit au contraire être remis à un site de collecte agréé pour le recyclage des équipements électriques et électroniques. En veillant à ce que ce produit soit mis au rebut de façon adéquate, vous contribuerez à prévenir les conséquences potentiellement négatives sur l'environnement et sur la santé humaine qui résulteraient de se produire en cas de mise au rebut inappropriée de ce produit. Le recyclage des matériaux contribuera également à économiser les ressources naturelles.



Ce symbole n'est valable que dans l'Union Européenne. Si vous souhaitez mettre ce produit au rebut, veuillez prendre contact avec les autorités locales ou avec votre revendeur et renseignez-vous sur la méthode de mise au rebut correcte.

## Italiano

- Smaltimento delle attrezzature elettriche ed elettroniche usate (applicabile in tutta la Comunità Europea ed altri Paesi Europei che applicano programmi di raccolta differenziata)

Il simbolo trovato sul prodotto, o sulla sua confezione, indica che il prodotto non può essere trattato come i domestici quando è il momento di smaltirlo. Al contrario, deve essere consegnato ad un centro di raccolta specializzato nel riciclaggio di attrezzature elettriche ed elettroniche. Assicurando che il corretto smaltimento di questo prodotto, si eviterà a prevenire potenziali conseguenze negative sull'ambiente e sulla salute umana, che possono essere provocate da uno scorretto smaltimento di questa attrezzatura. I materiali riciclati aiuteranno a conservare le risorse naturali.



Questo simbolo è valido solo nell'Unione Europea. Per smaltire questo prodotto, mettersi in contatto con le autorità locali - o con il rivenditore - e chiedere informazioni sul corretto metodo di smaltimento.

## Polski

- Usuwanie zużytego sprzętu elektrycznego i elektronicznego (Dotyczy krajów UE Europejskiej i innych krajów europejskich z oddzielnymi programami zbiórki odpadów)

Obecność tego symbolu na produkcie lub na opakowaniu z produktem oznacza, że tego produktu nie można wyrzucać razem z odpadami domowymi. Należy go przekazać do punktu zbiórki w celu poddania recyklingowi produktów elektrycznych i elektronicznych. Usunięcie tego produktu w prawidłowy sposób, pomoże w zabezpieczeniu przed negatywnym wpływem odpadów na środowisko i zdrowie ludzi, powodowanym przez niewłaściwe usuwanie produktów. Przetwarzanie materiałów pomaga w zachowaniu zasobów naturalnych.



Ten symbol obowiązuje wyłącznie w krajach Unii Europejskiej. Informacje dotyczące prawidłowej metody usunięcia tego produktu, można uzyskać u władz lokalnych lub u dostawcy.

## Suomi

- Vanhien käytetty sähkö- ja elektroniikkalaitteiden hävittäminen (Sovelletaan kaikilla Euroopan unionin alueilla, sekä muissa Euroopan maissa, joilla on erilliset keräysohjelmat)

Jos tuotteen tai sen pakkausten näkökulmasta, tämä symboli, sitä ei pidä hävittää kotona tai muualla tavallisen kotitalousjätteenä, vaan se kuuluu jätteenä sähkö- ja elektroniikkalaitteiden hävitysohjelmien. Varmistamalla, että tämä tuote hävitetään asianmukaisella tavalla autat estämään mahdollisia ympäristö- ja ihmisten terveydelle negatiivisia seurauksia, joita sen väärinlaitteen hävittäminen voi aiheuttaa. Materiaalien kierrättäminen auttaa säästämään luonnonvarjoja.



Tämä symboli on voimassa ainoastaan Euroopan unionin alueella. Jos haluat hävittää tämän tuotteen, ota yhteyttä paikallisiin viranomaisiin tai jälleenmyyjään ja tiedustele asianmukaista hävittämismenetelmää.

## Deutsch

- Entsorgung von elektrischen & elektronischen Geräten (gültig für die europäische Gemeinschaft und andere europäische Länder mit separaten Sammelprogrammen)

Dieses Symbol, zu finden auf Ihrem Produkt oder dessen Verpackung, macht Sie darauf aufmerksam, dass dieses Produkt bei der Entsorgung nicht als Hausmüll behandelt werden darf. Stattdessen sollte es an eine Sammelstelle zum Recycling von elektrischen und elektronischen Abgeräten gegeben werden. Helfen Sie mit, potentiell schädliche Einflüsse auf Umwelt und Gesundheit, die durch eine unsachgemäße Entsorgung dieses Produktes entstehen können, zu vermeiden und entsorgen Sie dieses Produkt ordnungsgemäß. Recycling hilft, natürliche Rohstoffe einzusparen.



Dieses Symbol ist nur innerhalb der europäischen Gemeinschaft gültig. Wenn Sie dieses Produkt entsorgen möchten, wenden Sie sich bitte an Ihre örtliche Behörde und fragen Sie nach der ordnungsgemäßen Entsorgungsmethode.

## Nederlands

- Verwijderen van oude elektrische en elektronische apparatuur (toespeeld in de volledige Europese Unie en andere Europese landen met afzonderlijke programma's voor afvalverzameling)

Dit symbool dat op het product of zijn verpakking is aangebracht, geeft aan dat dit product niet mag worden behandeld als huishoudelijk afval als u het wilt weggeworpen. U moet het afgeven bij een specifiek verzamelpunt voor de recycling van elektrische en elektronische apparatuur. Door te garanderen dat u dit product op de correcte manier wegwerpt, helpt u potentiële negatieve gevolgen voor het milieu en de menselijke gezondheid, die zouden kunnen worden veroorzaakt door een onrechtmatig wegwerpen van het product, te voorkomen. De recycling van materialen helpt het behoud van natuurlijke bronnen.



Dit symbool is alleen geldig in de Europese Unie. Als u dit product wenst weg te gooien, dient u contact op te nemen met uw lokale instanties voor details over de gepaste methode voor afvalverwijdering.

Waste Electrical and Electronic Equipment (WEEE) Directive In the European Union, this label indicates that this product should not be disposed of with household waste. It should be deposited at an appropriate facility to enable recovery and recycling. EEE complies with Directive 'Regulation on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment'



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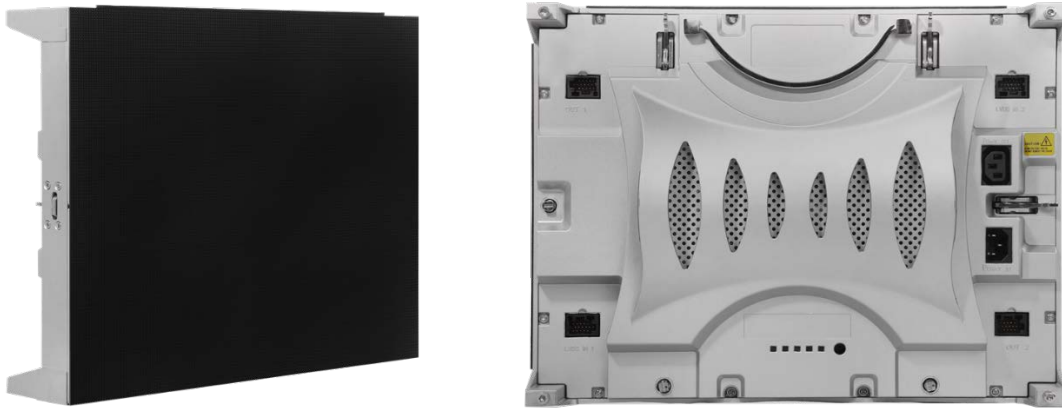


Waste Electrical and Electronic Equipment (WEEE) Yönergeleri Avrupa Birliği'nde bu etiket, ürünün ev elektroniği aletleri atıkları ile imha edilemeyeceğini gösterir. Kurtarmak ve geri dönüşümünü sağlamak için uygun şartlarda saklanması gerekir. EEE Yönetmeliğine Uygundur Ve Elektronik Eşyalarla Bazi Zararlı Maddelerin Kullaniminin Sınırlandırılmasına Dair Yönetmelik.



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## Cabinet Appearance



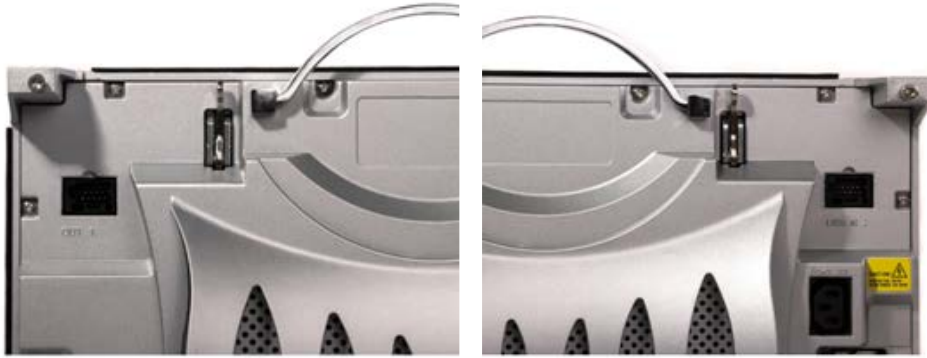
*Front and Side View*



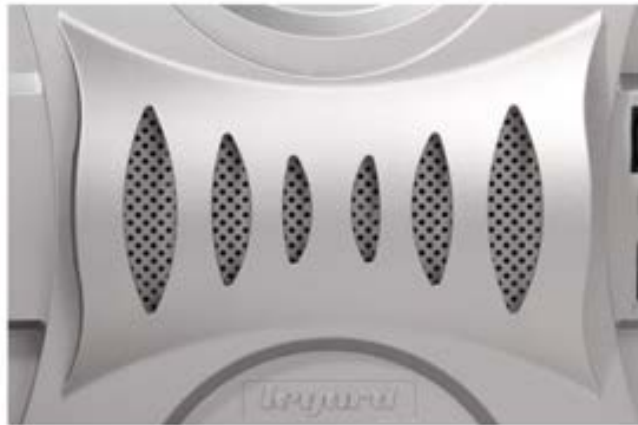
*Single Power Supply – Fixed | Double Power Supply – Fixed*



*Single Power Supply – Rental | Double Power Supply – Rental*



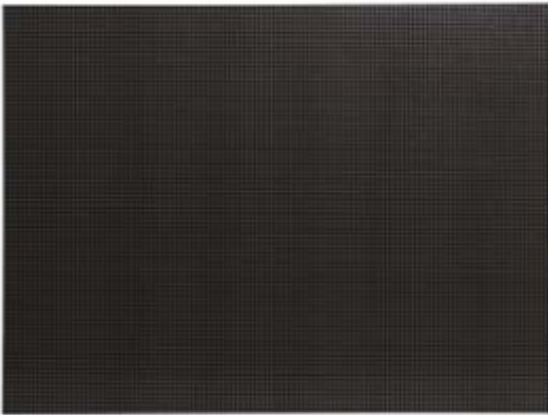
*Connection Details*



*Details*

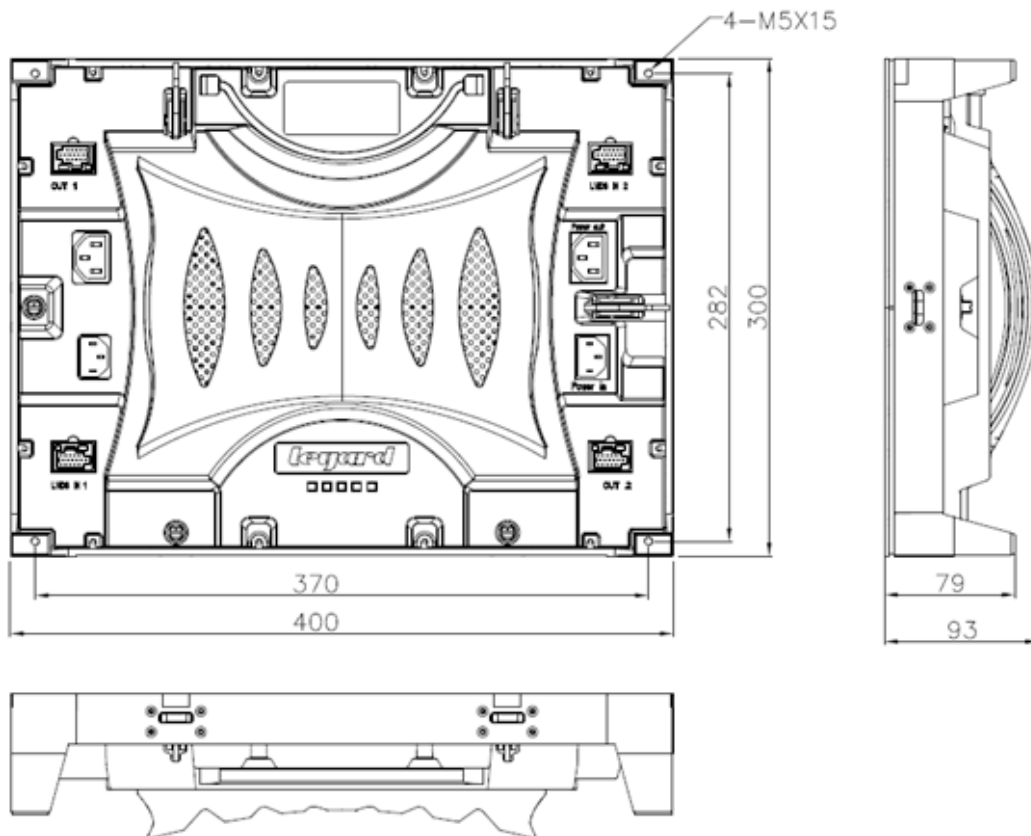


*Cabinet Power Details*



*Comparison of TV Series and TVH Series*

### Cabinet Line Drawing & Dimensions



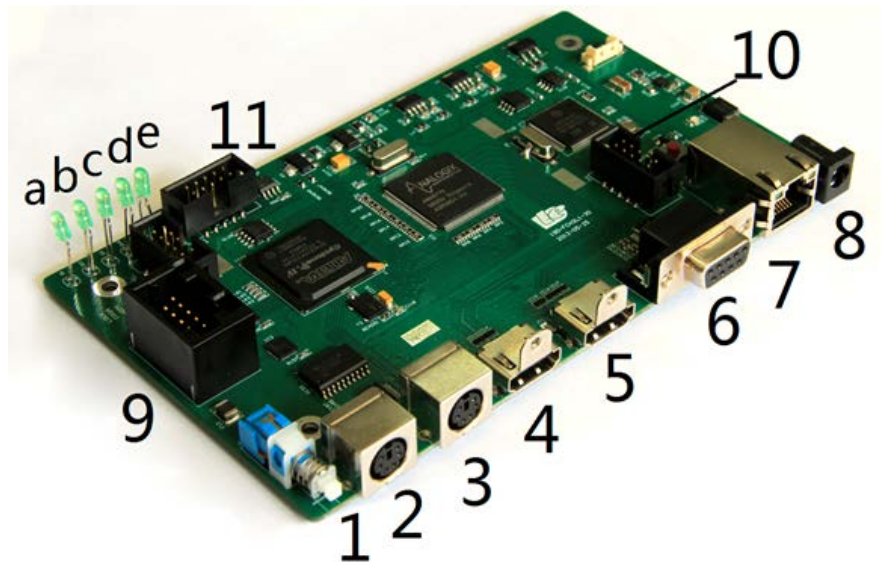
## TV Player Controller

TV Player is the controller for TV LED display. It connects the video processor with the LED display and transfers HDMI signal to LVD. It has a RS232 and standard RJ45 port, 5V power supply input (LVDS signal cable can supply power to display without extra 5V power supply, 2 HDMI input ports and LVDS output port. HDMI input ports are digital interfaces based on 1.3 protocol, supporting HDCP decryption. HDMI I has higher priority than HDMI II. Signal will input per HDMI I when there are inputs on both ports and input will shift to HDMI II once HDMI I is damaged. TV player can support 2D and 3D video source. Max input resolution is 1920\*1200@60p; output resolution is different from input resolution after TV player transfer. Below is input/output resolution datasheet:

HDMI Video Input Resolution	LVDS Video Input Resolution
1024x768	1024x768
1366x768	1310x768
1280x800	1260x800
1280x1024	970x1024
1920x1080	920x1080
1920x1200	820x1200
Other resolution, clock $\leq 165\text{M}$	Height $\leq 1440$

## TV Player Composition

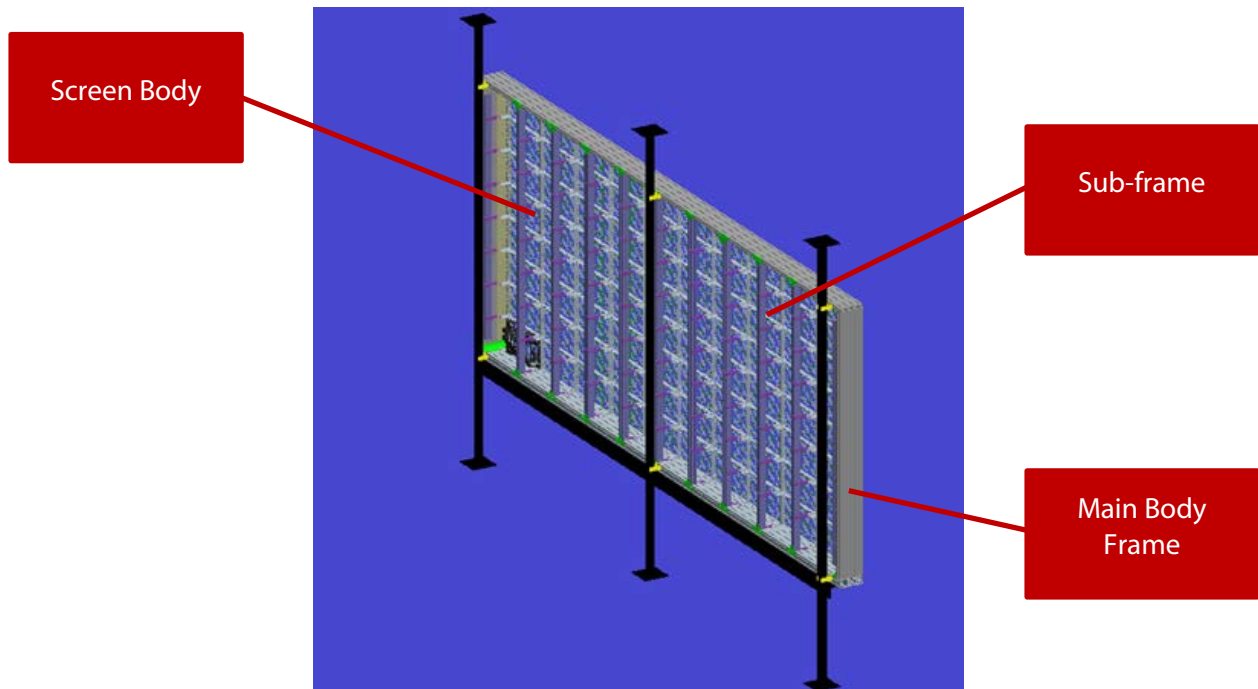
1. 3D Switch – Up is set for Master; Down is set for Server	9. LVDS output
2. Input port for 3D synchronizing signal	10. MCU port for updating procedure
3. Output port for 3D synchronizing signal	11. FPGA port for updating procedure
4. HDMI master	LED a: 3D lock
5. HDMI server	LED b: FPGA
6. RS232 control part	LED c: HDMI
7. IP control port	LED d: MCU
8. 5V power supply	LED e: Power



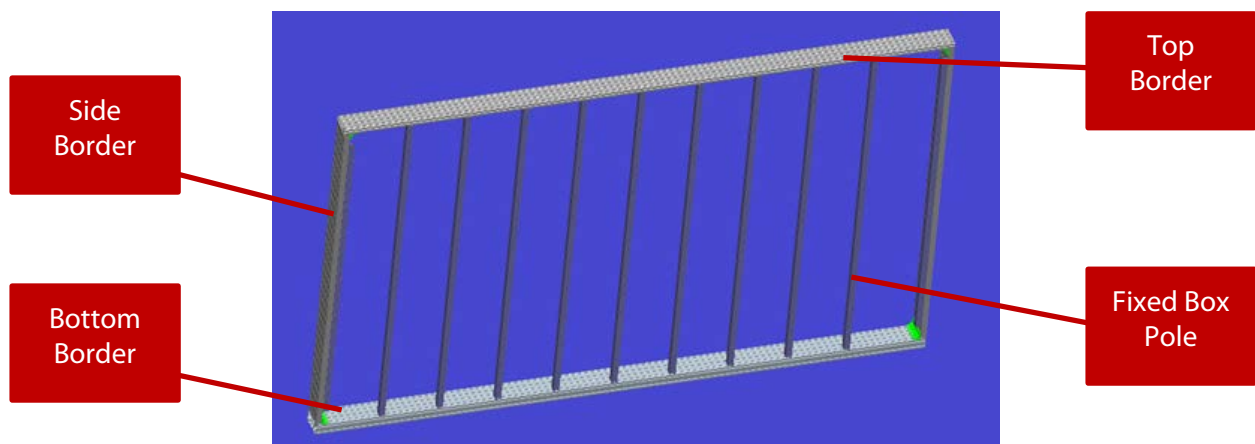
# Installation

## Fixed Installation

LEDTVH screen fixed installation structure consists of three parts: main body frame, sub-frame and screen body, as shown below:



Main body frame: border and pole of frame should choose different size according to the height of screen as shown below:

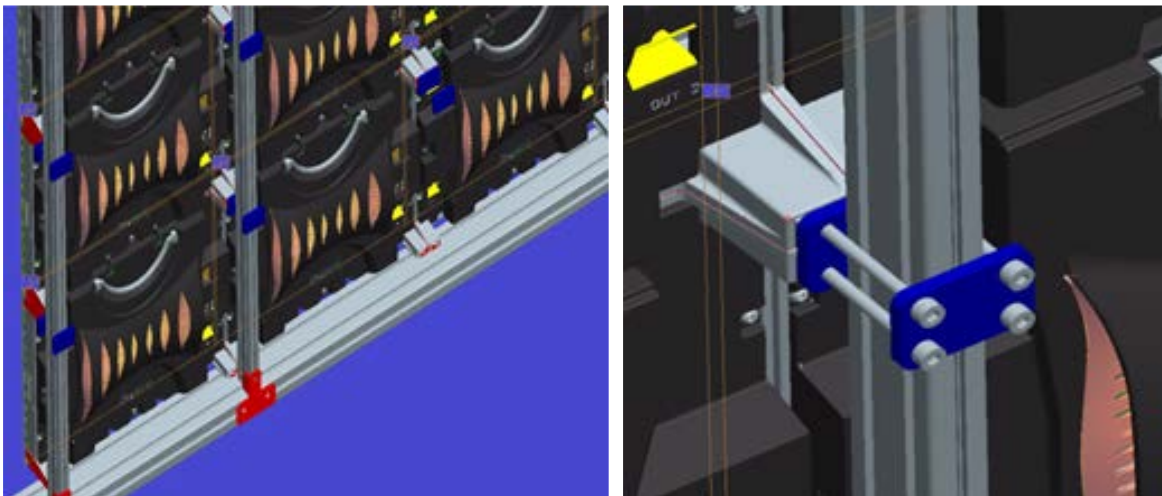


## Frame Material Types

**Height of display screen less than 2.4 meters:** Bottom material of frame should choose 80X120, two sides and top should choose border and current material of 40X120, pole should use 20X40 material.

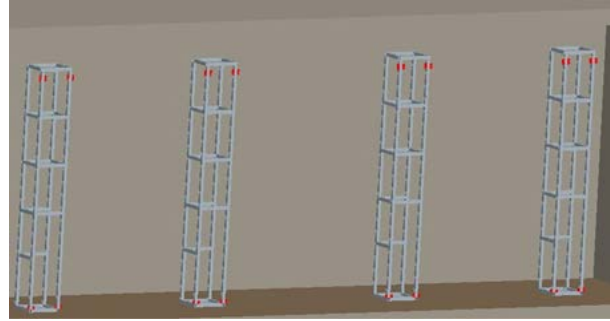
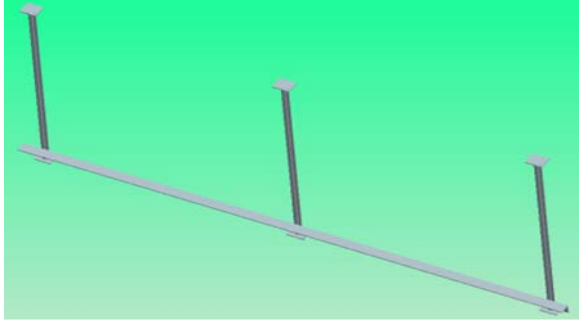
**Height of display screen more than 2.4 meters:** Bottom material of frame should choose 80X160, two sides and top should choose border and current material of 40X160, pole should use 50X80 I-shaped aluminum material and I-shaped pole should process mounting holes.

Fixing cabinet should use connecting link; easy to operate (similar to outdoor cabinet installation method)



## Sub-frame

Screen body associated construction applies channel steel, I-steel or angle iron to weld (reference): both seat installed and mounted can be used. This structure can only maintain from front and behind. If it is embedded structure, then swinging strut structure should be applied.



## Installation Features and Demands

The Leyard TVH Series screen is a sophisticated display device. Consideration should be given to the site's environmental conditions including load bearing of indoor installation location, spatial distribution and so on. The method of installing the frame in this program has the following features:

- Low weight, high strength: structure frame should apply aluminum alloy profiles splicing together; punched aluminum plate should apply to install connection elements to lower the installation structure's weight and make sure the safety and reliability.
- Modular design: structure frame apply to single component splicing together, but the weight of each component shouldn't more than 50 kg, which is convenient to transport and carry.
- Convenient installation method: joint of frame all apply screws and bolts, which can install fast and no need weld on site and then have little effect to engineering and decoration of site.
- Demands of installation accuracy:
  - A. General demands: flatness of each linear meter is no more than 0.1, display unit gap is no more than 4% of pixel pitch, and error of each linear meter is no more than 0.1 mm.
  - B. Light the first line cabinet after completion the installation to display the factory color (30% of blue), standing on the cabinet joint away from screen surface R(800 mm\* pixel pitch ) observe whether there are bright line, black line in cabinet joint, if there is, adjustment should be done to achieve the demands and then do the next work.
  - C. Standing on the location away from screen surface R to observe the screen vertically and after the cabinet joint conforming to demands, observe the vertical joint with the same distance along the direction that parallel to the screen and check the flatness of cabinet. If there are some dark lines, which means the flatness need to be adjusted to required value.

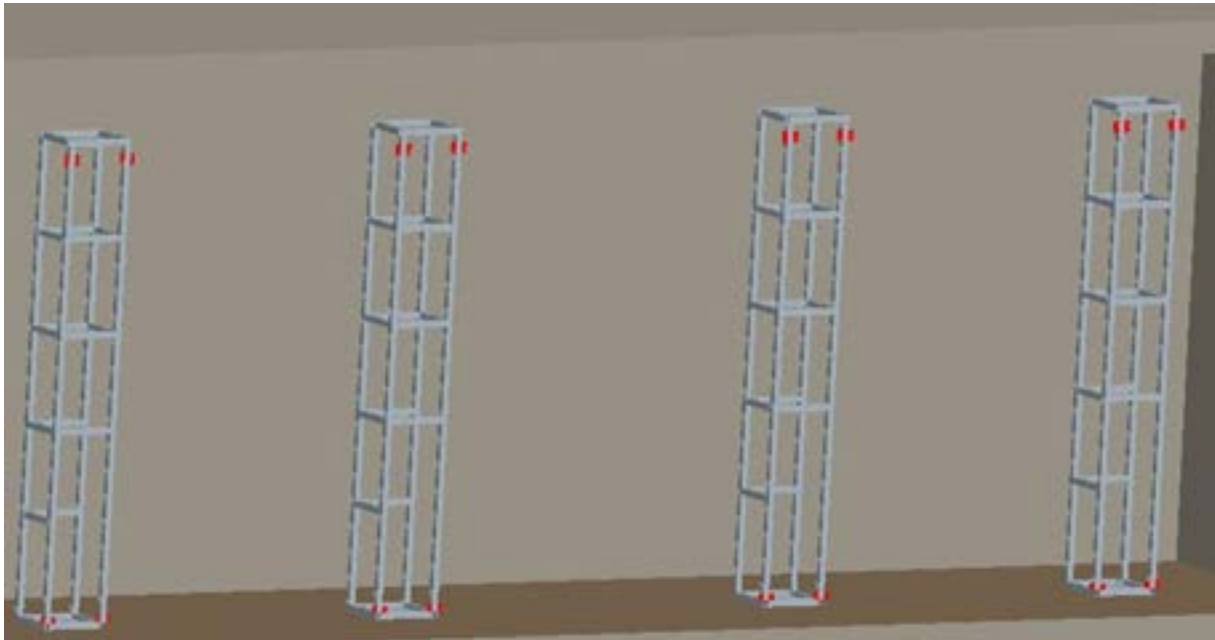
- D. After doing above correctly, touch cabinet inside with hand wearing antistatic gloves to make sure the flatness, if there is uneven place, then adjustment should be done to make it even.
- E. If there is are no problems, you can continue to install the next line cabinet and light them to check the joint of these two lines of cabinet using the same method with C and D; if it is perfect ,you can keep continuing and lighting to check until the completion of the whole screen.

## Installation Methods

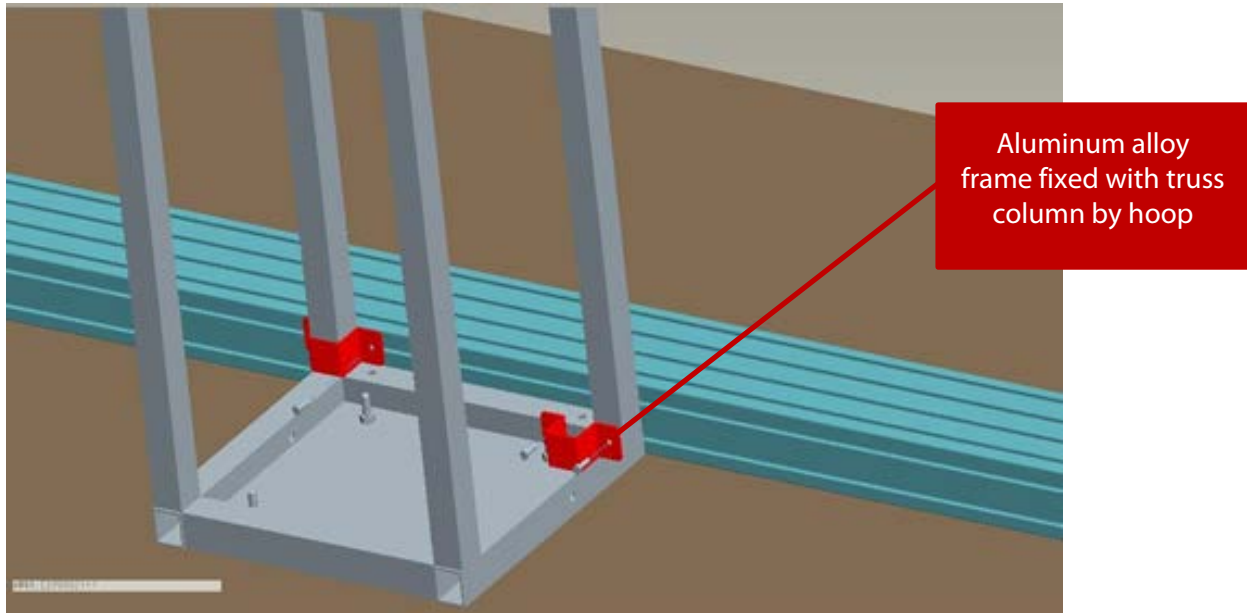
**Necessary Tools:** Laser level ruler (gradienter, 10 meters error 0.1 mm), laser range finder, tape, M16 wrench, 8 mm hexagon wrench, cross screwdriver, vice, antistatic gloves.

### Truss Root Fixed

As shown in the figure, fix truss in installation location and root fixed it on load point



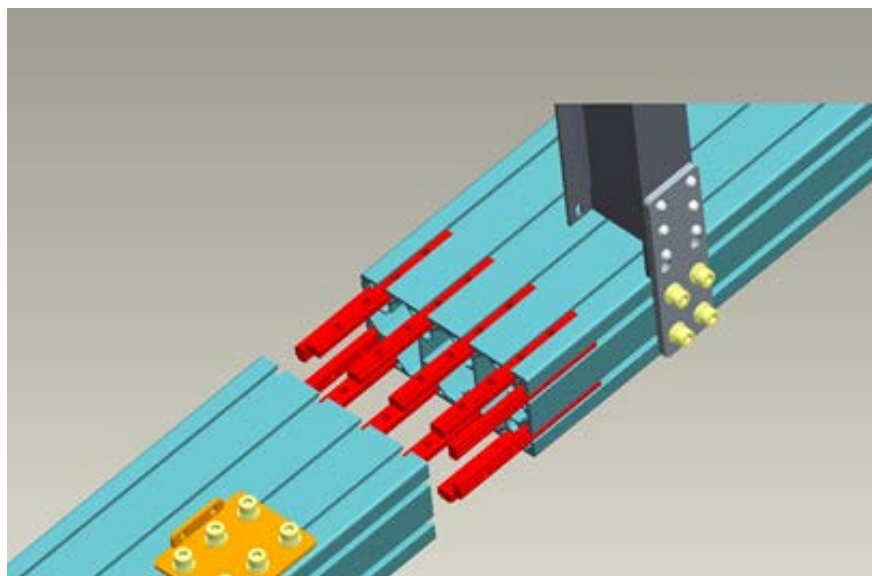
Each truss column anchored on the ground using chemical bolts:

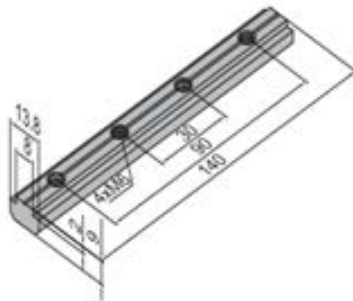
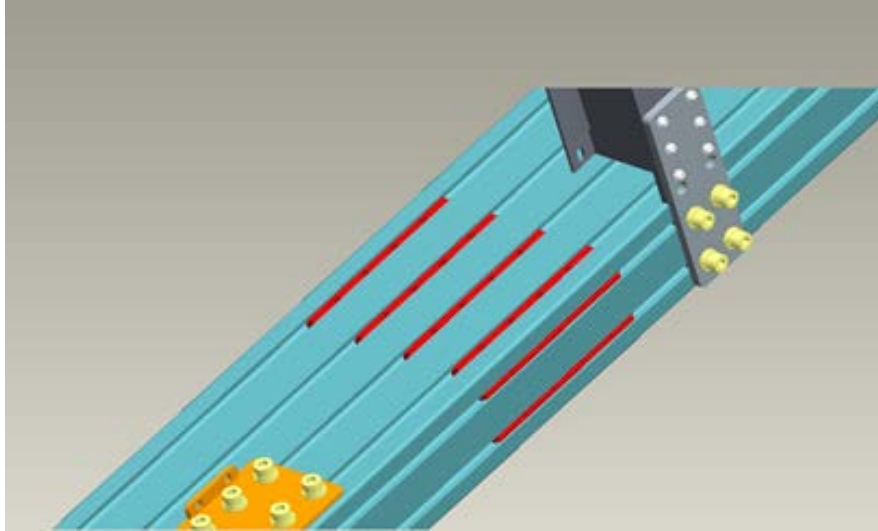


## Installation of Aluminum Alloy Frame

Joint aluminum alloys with different length to LED frame according to design demands using specialized fixation connecting piece, Aluminum alloy frame fixed with truss column by hoop ,as shown above figure.

**Step 1** (frame more than 6 meters should apply material abutting joint)





Tank linear  
connecting plate

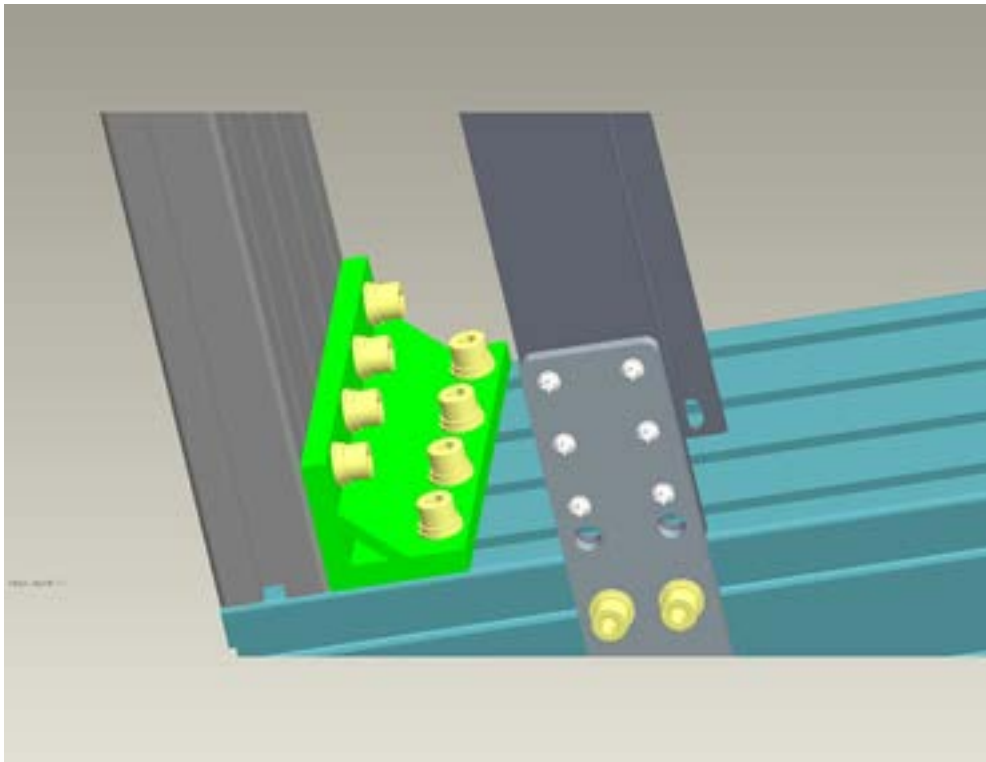
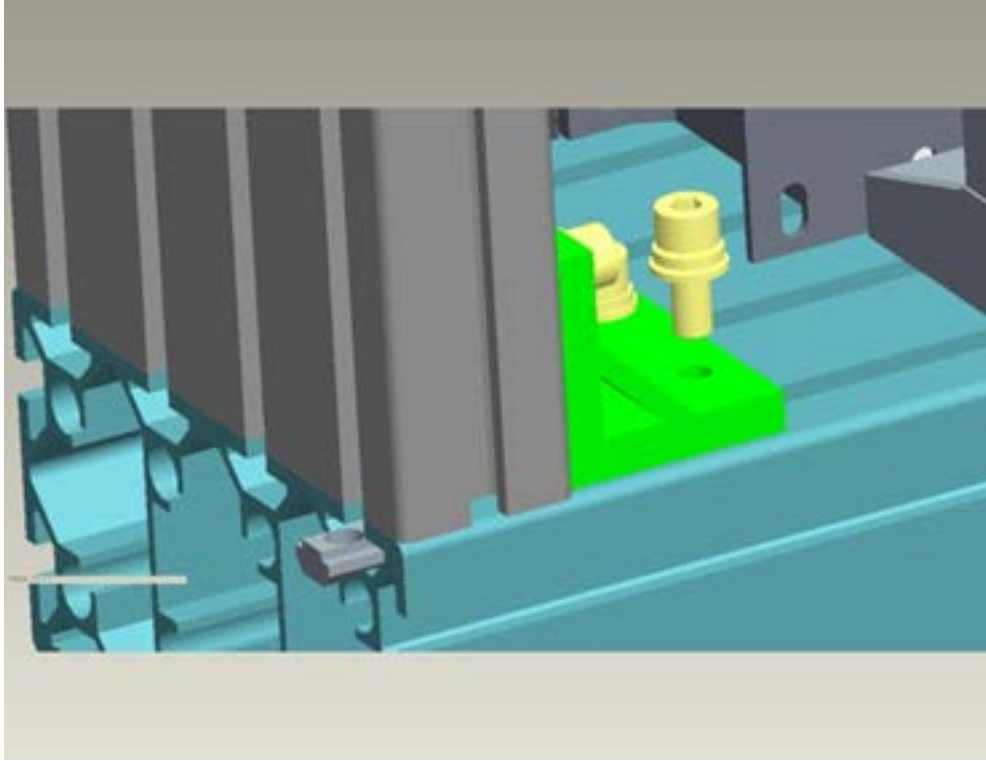


M6x10 jackscrew








Lock jackscrew

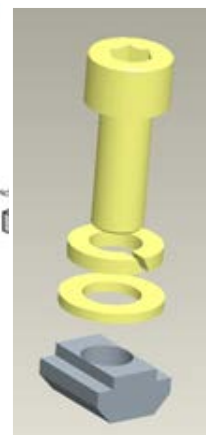
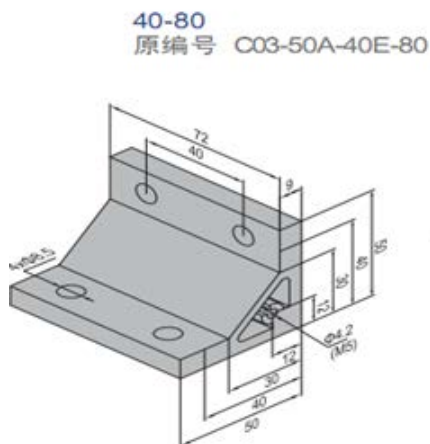
## Step 2 Fix Corners



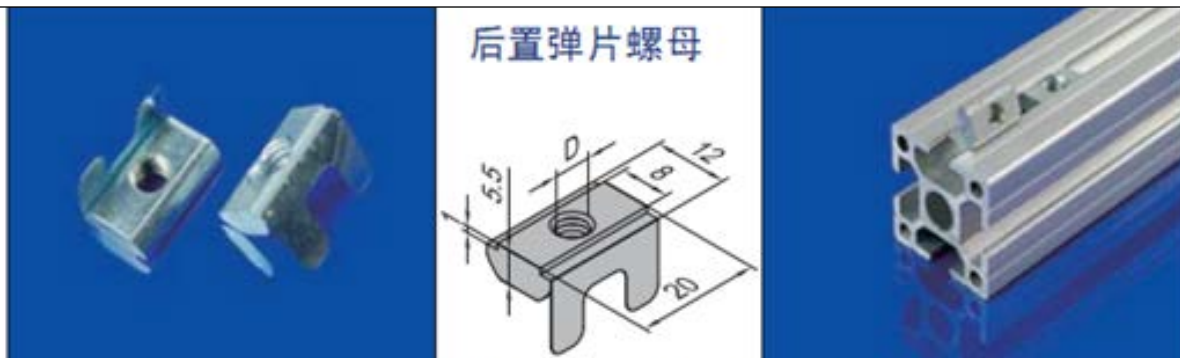
## Standard Connecting Parts

W	Fastening Parts
	GB 7085 Hexagon Socket Head M8*20 Galvanized Steel
	M8 Plain Cushion Galvanized Steel
	M8 Pre-set Spring Plate Nut Galvanized Steel

BK	Fastening Parts
	MS Flange Nut Galvanized Steel
	MS-T Bolt Galvanized Steel

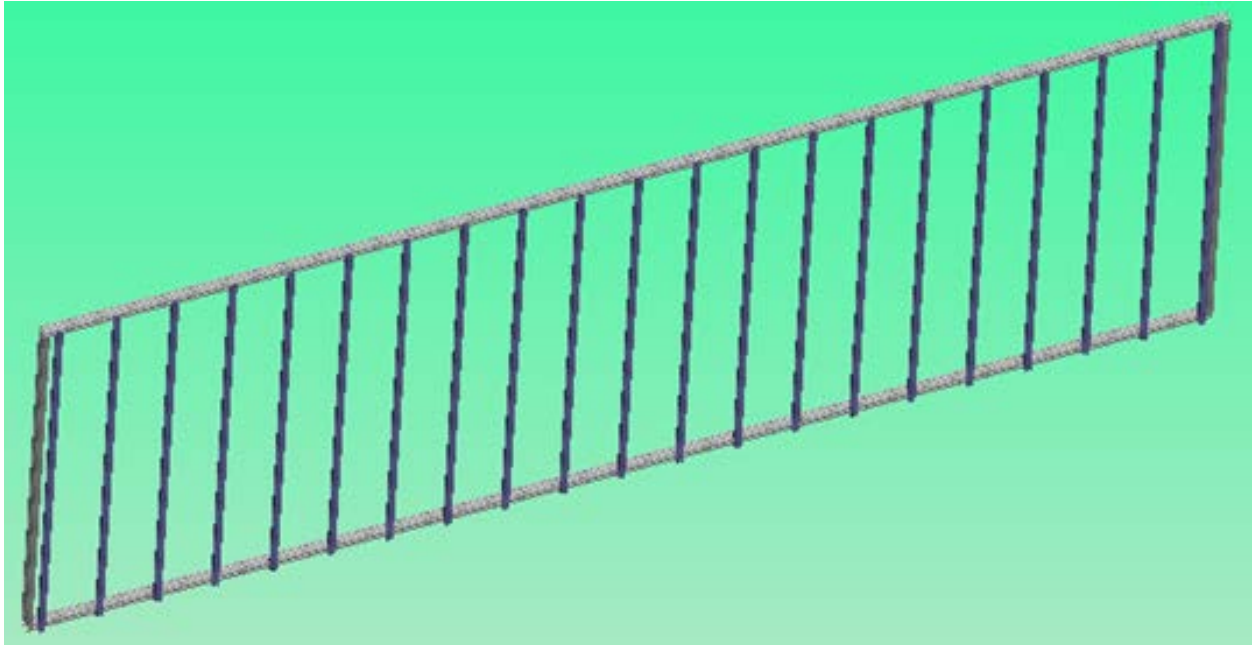


Features: Placed from the head of material, high joint strength can be used to heavy load connection.  
Material: Galvanized Steel

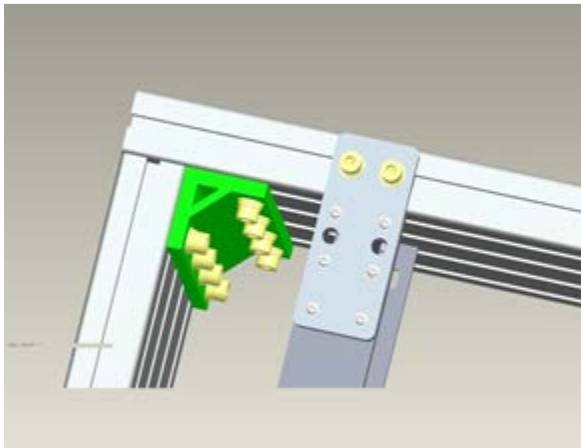


Features: Placed from the head of T-slot or material can make up

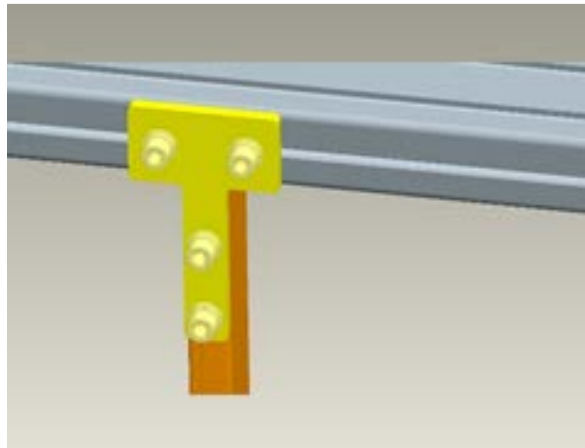
### Step 3 Fix Pole



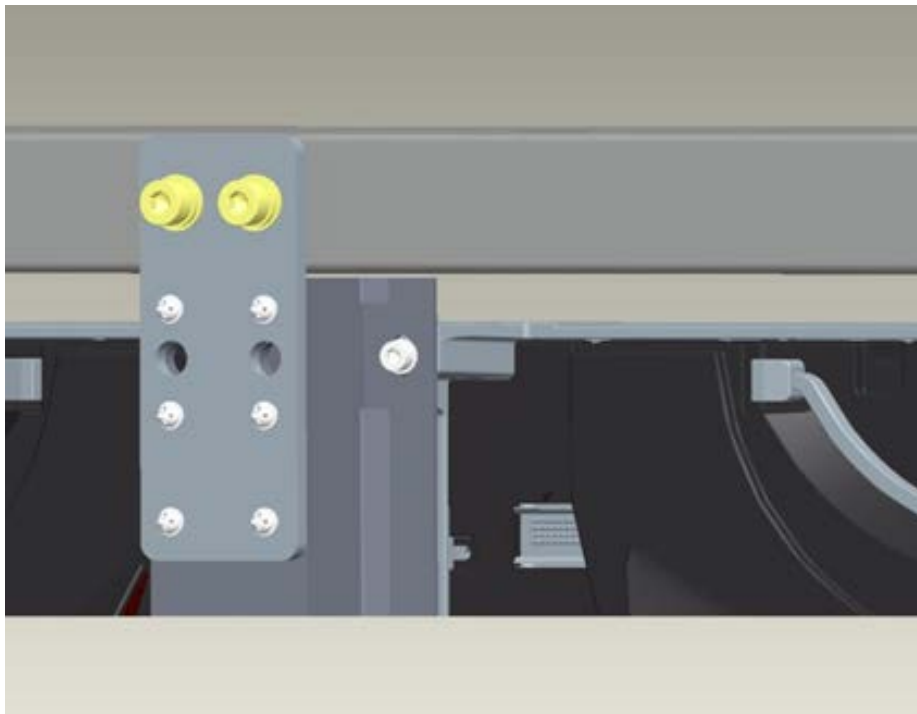
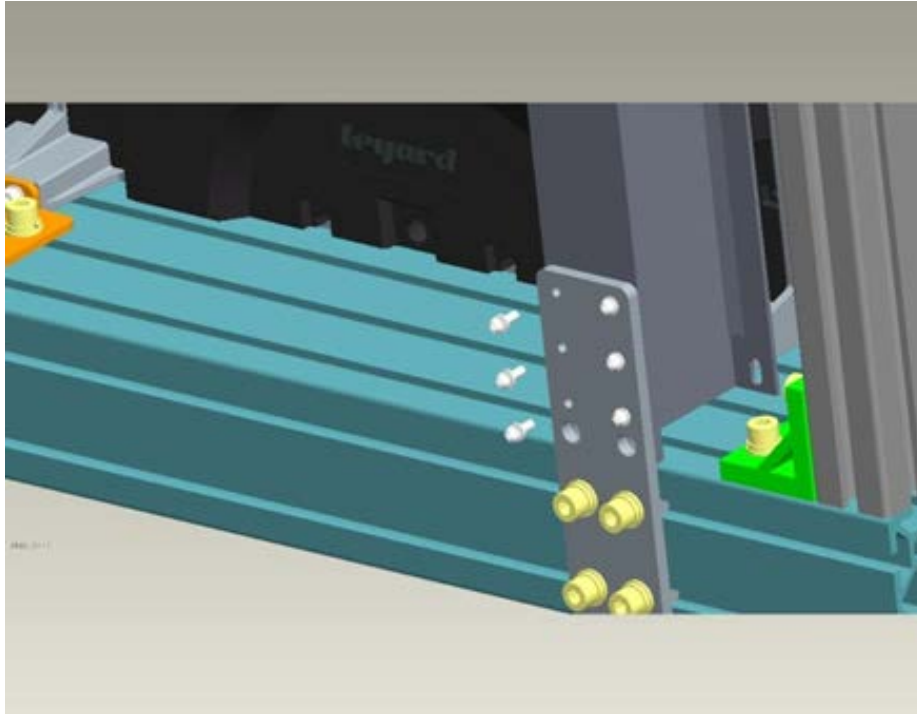
Spacing of poles is 800mm on center



More than 2.4 meter pole connecting piece



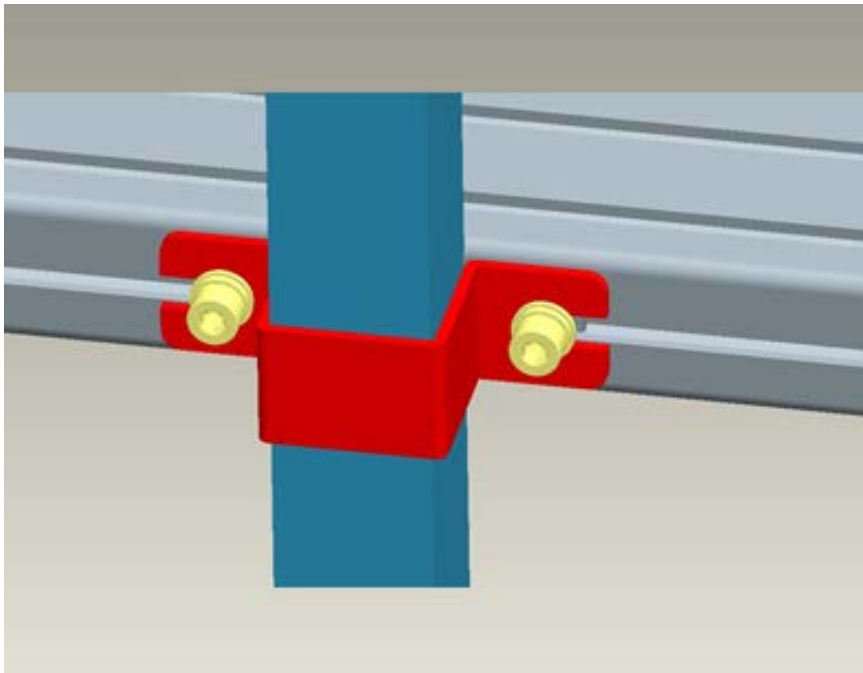
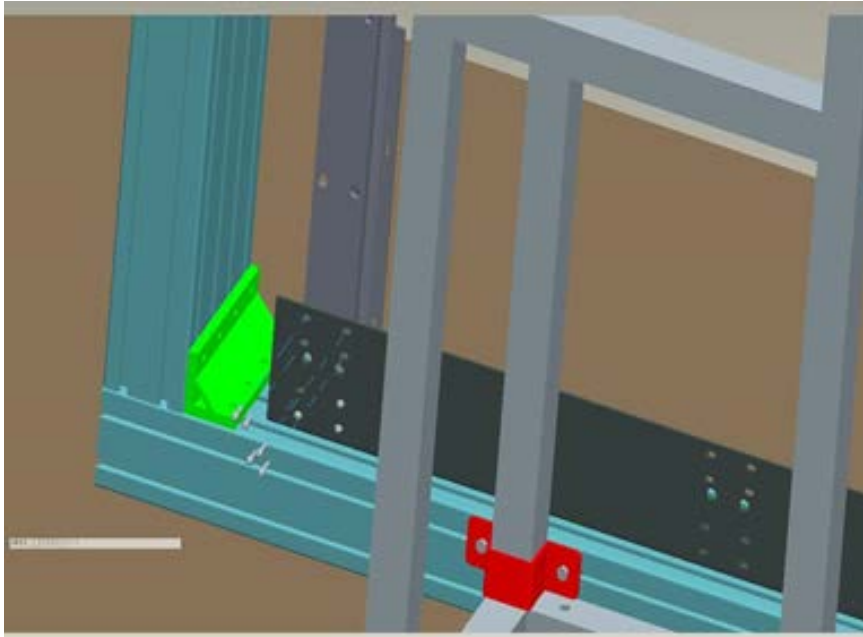
Less than 2.4 meters pole connecting piece



Connecting pole and aluminum alloy frame needs connecting pieces consisting of M4\*12 pan head screw, hexagon socket head screw and square nut block.

#### **Step 4** Fix Frame

Connect every contact point of frame and truss using card holder, as shown below the red part:

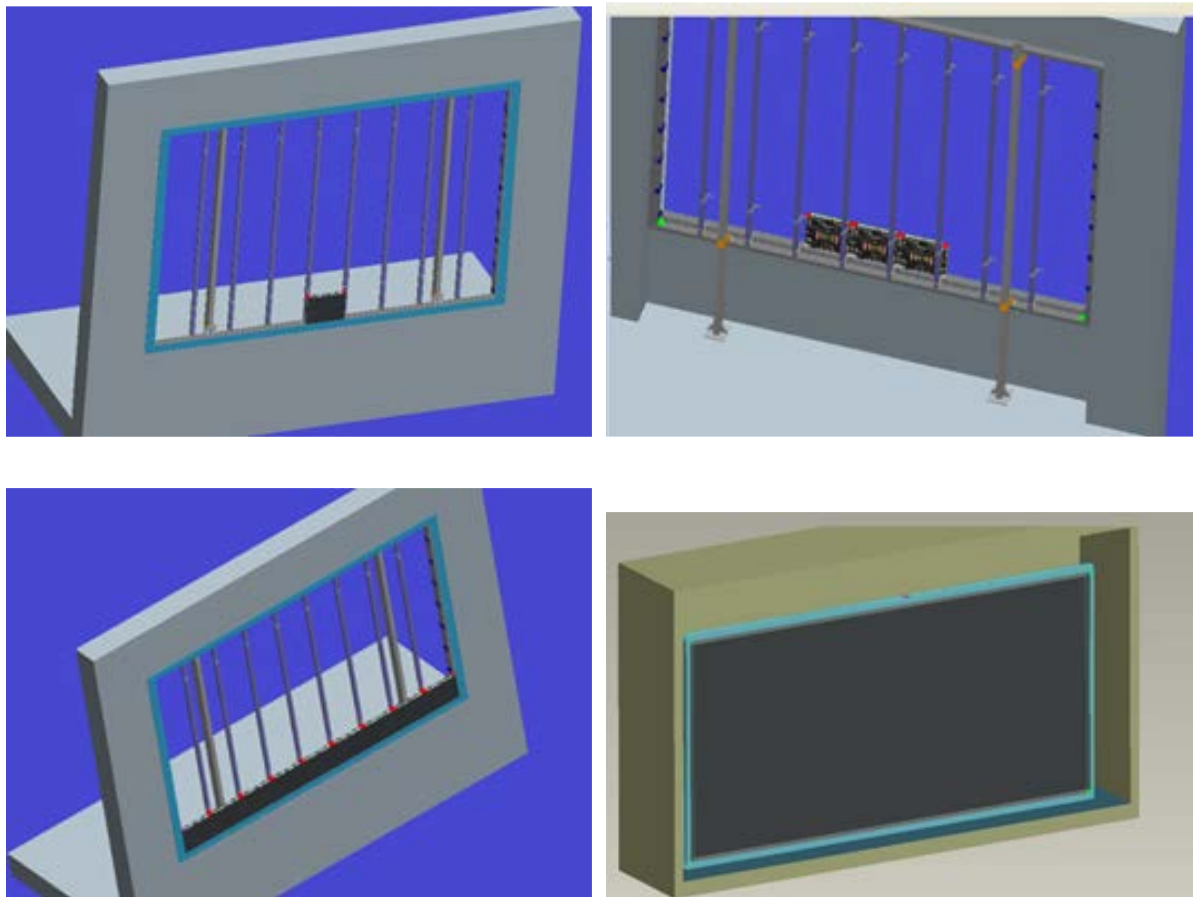


## Installation of LED Display Unit

Calibrate the level and linear degree of the installed first line contact surface with gradienter and other devices and tools; the surface after calibrating can be used as reference. Since the LED TV has large area, you should check the mounting face in the installation process to make sure the effect.

LED TV unit of size 400\*300 mm apply the method of bolt and connecting piece, order from center to side and installed on the vertical pole line by line.

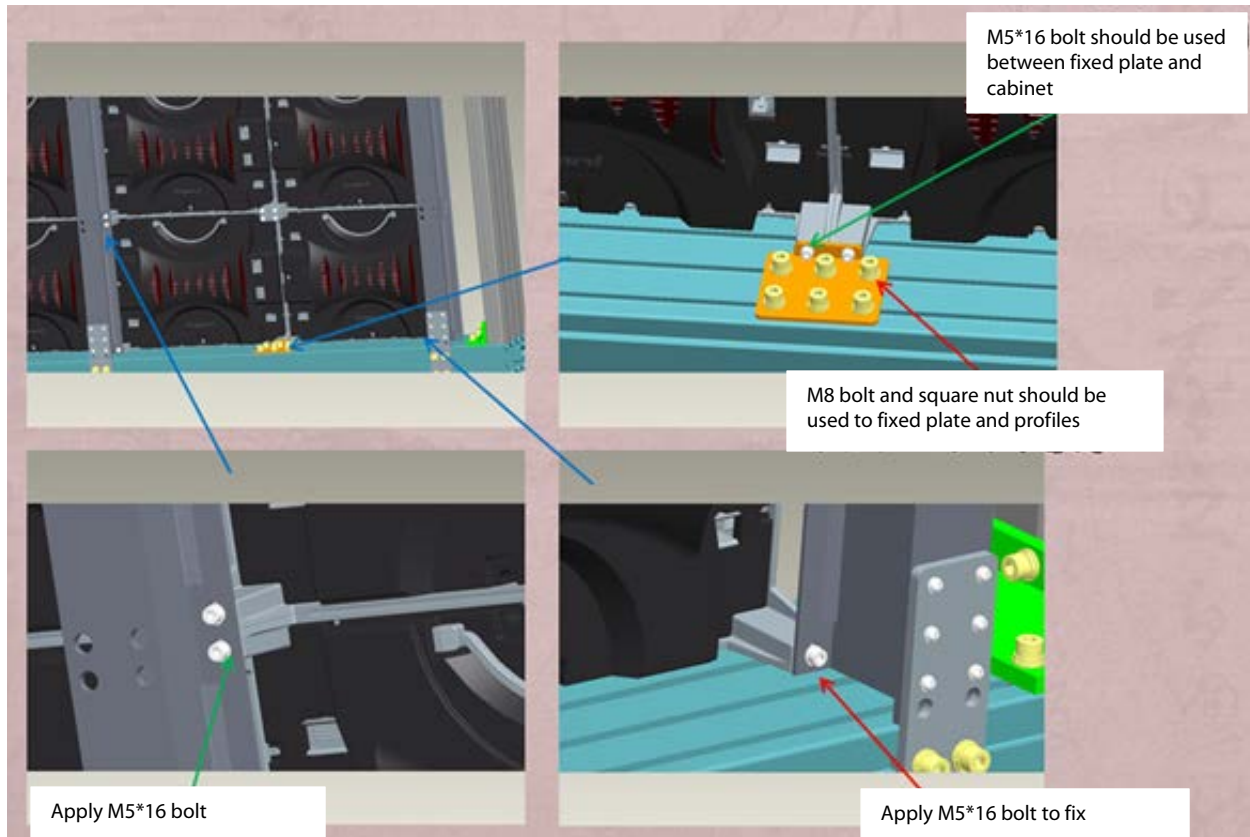
Repeat the installation procedure of TV unit until the completion of installation, as shown below:



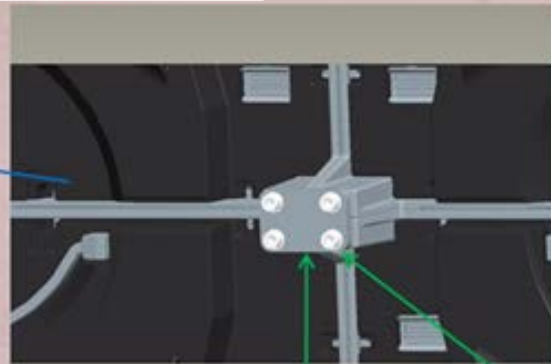
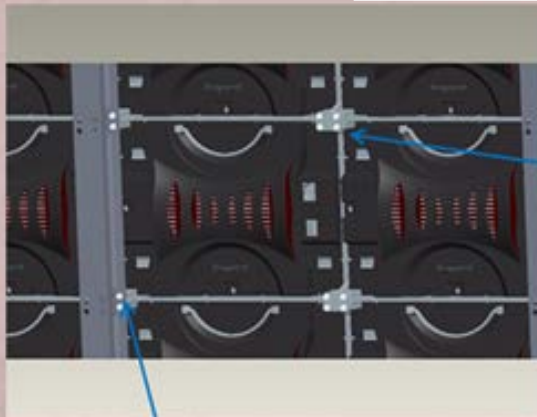
Finally, connect the power and signal line; before lighting, please check the ground connection and break-over condition, check the connection mode; after making sure of the safe debugging operation, you can operate it with power.

## Installation of more than 2.4 Meter

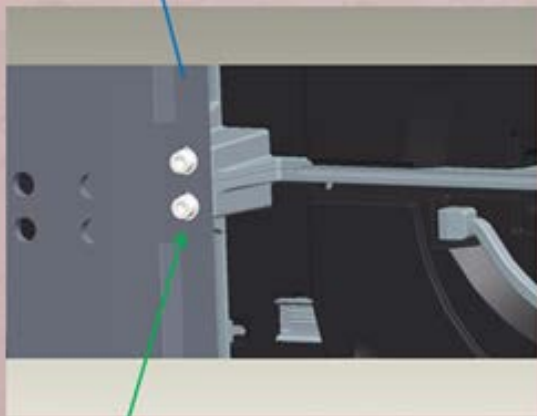
Installation of the last row of cabinets.



Fixed mode of middle cabinets



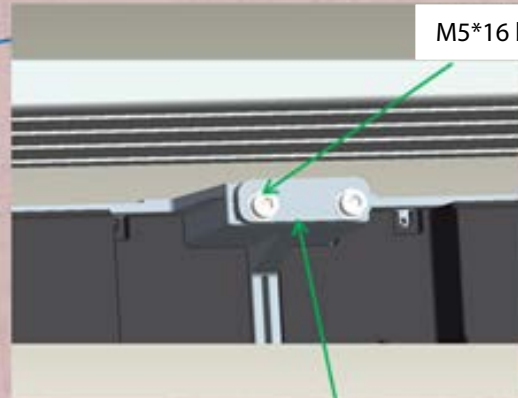
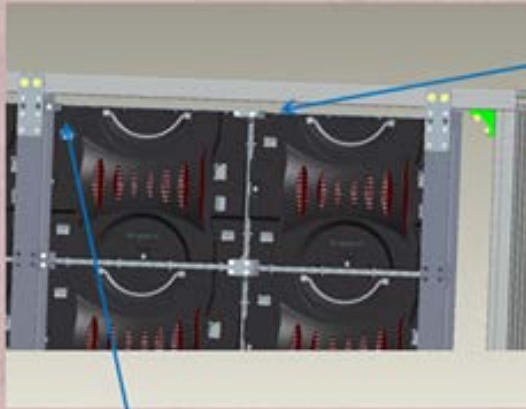
Apply M5\*16 bolt



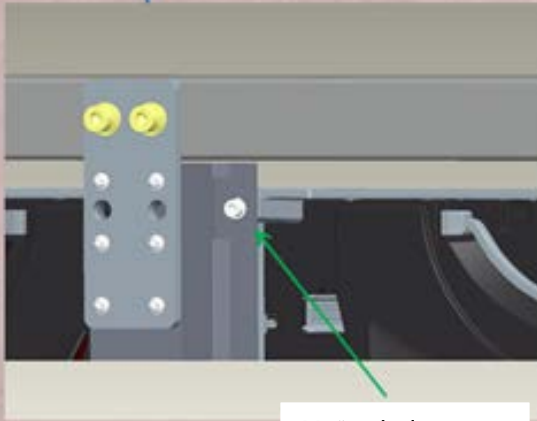
M5\*16 bolt

Fix border that not connect with I-shaped profiles using connecting piece of cabinet

Fixed mode of top cabinets



M5\*16 bolt

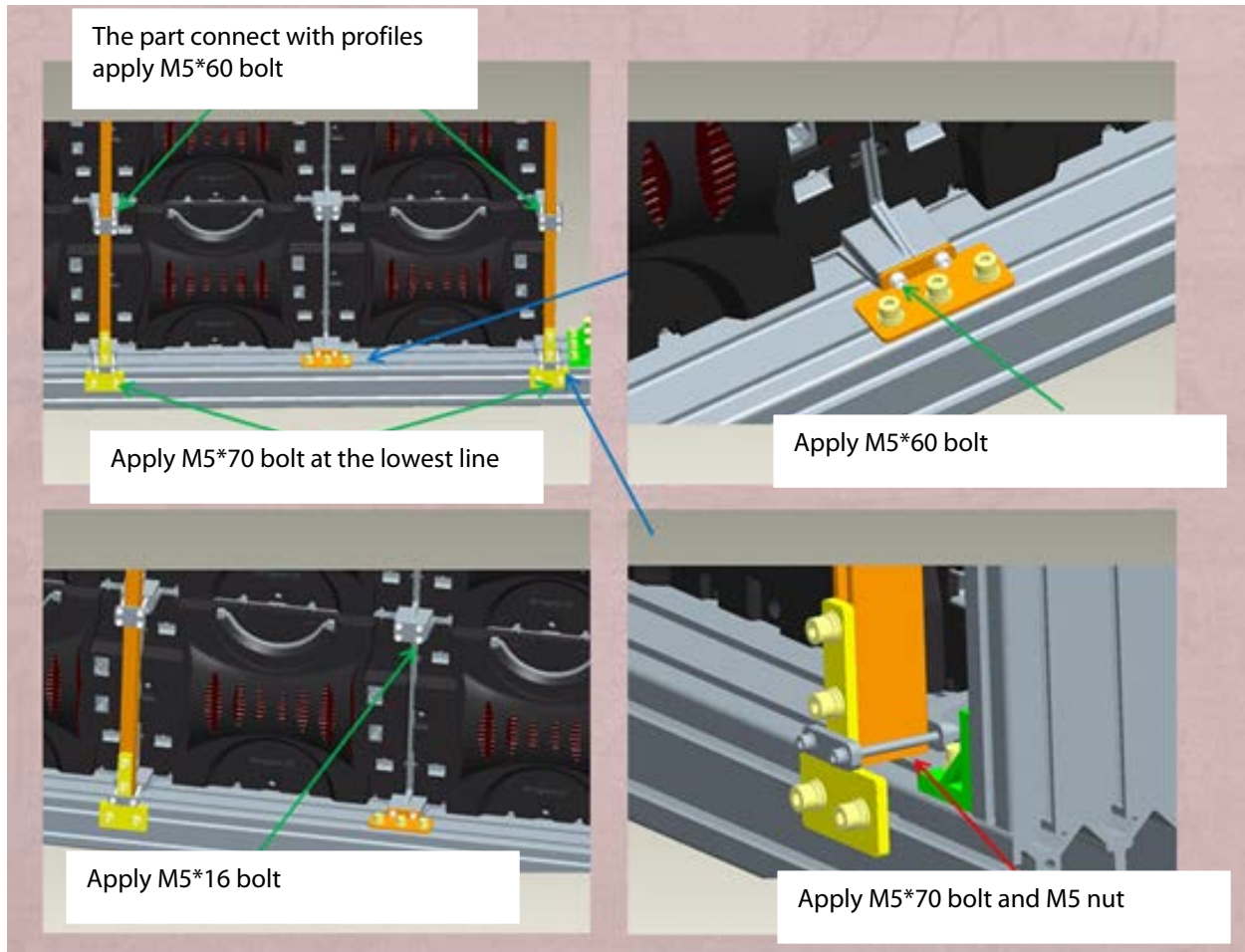


M5\*16 bolt

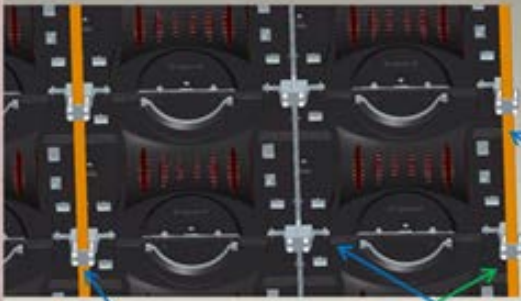
Fix top border of top line cabinet with connecting piece of upper and lower cabinet

## Installation of less than 2.4 Meter

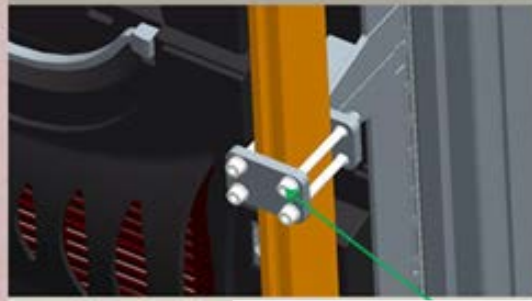
Installation of the last row of cabinets



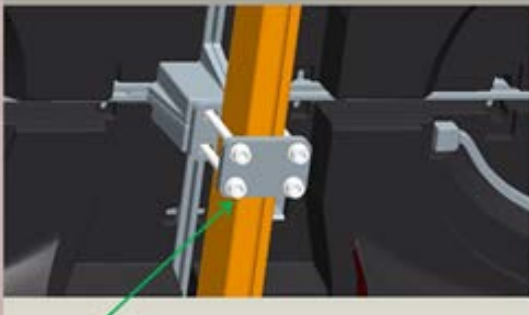
Fixed mode of middle cabinet



Border apply M5\*60 bolt and M5 nut



Apply M5\*60 bolt

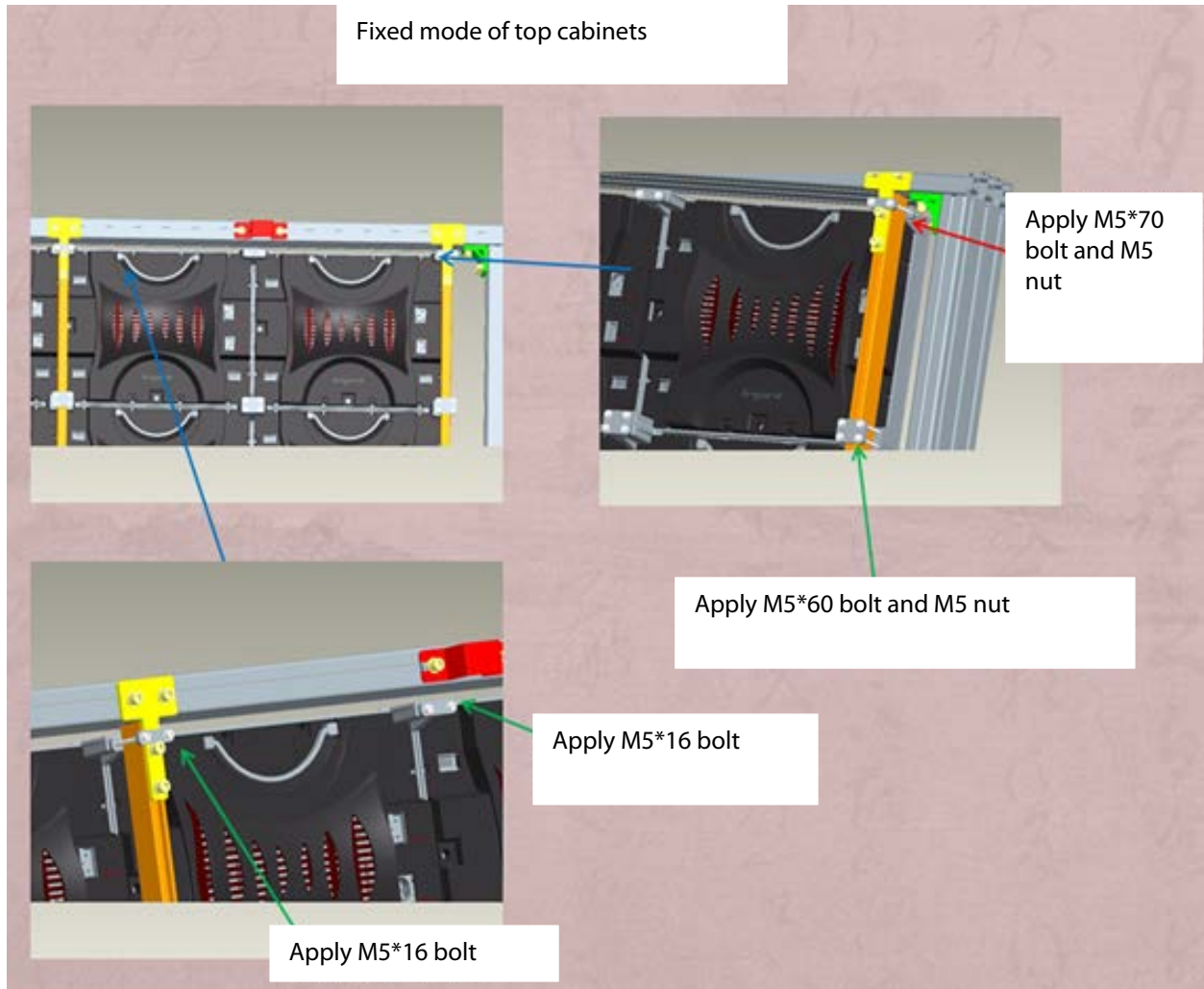


M5\*60 bolt



M5\*60 bolt

### Fixed mode of top cabinets



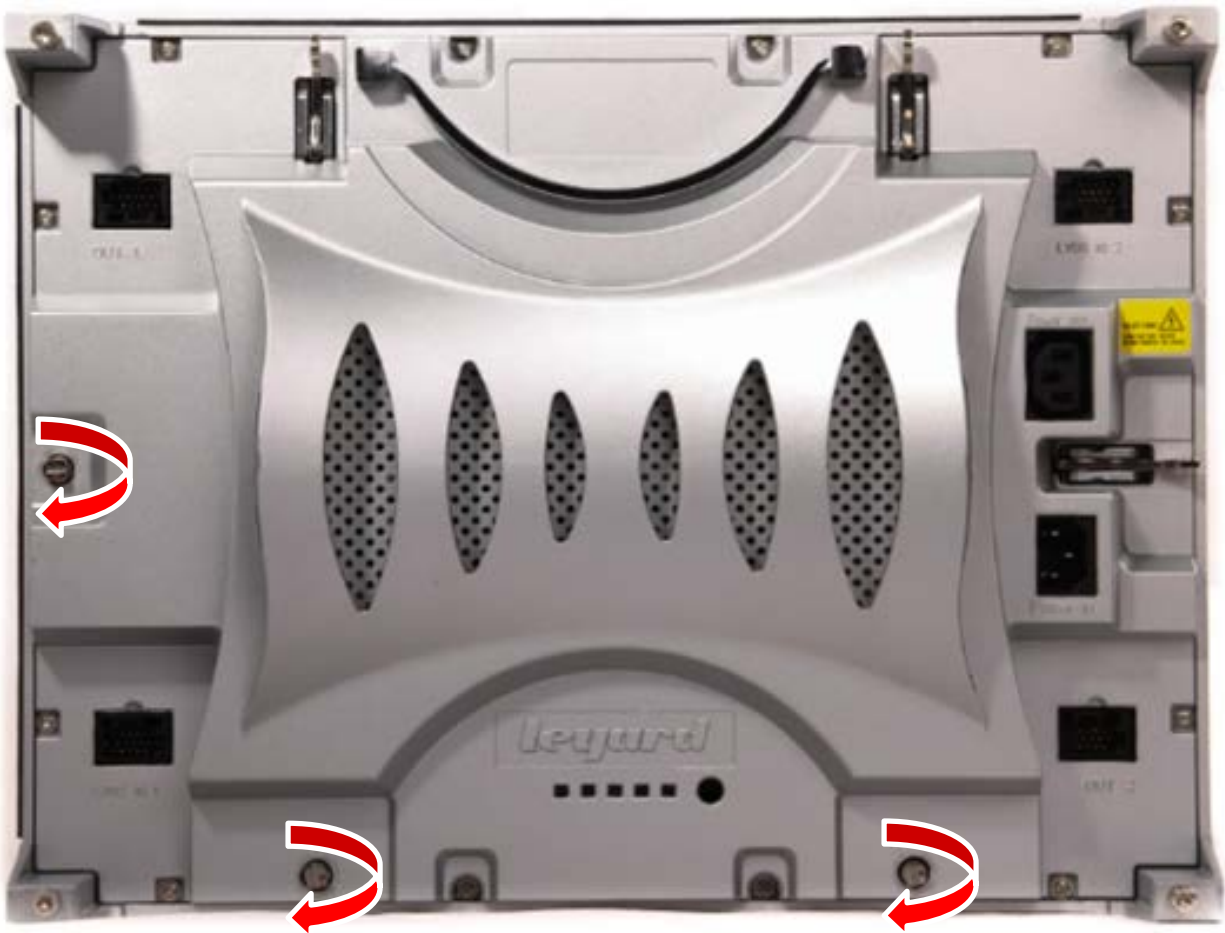
If there are any vertical gaps between cabinets, specialized fixation clamping part can be used to lock them, as shown below:



## Lease Installation

Lease installation includes seat installation and mounted installation. The height limits of using seat installation and mounted installation is the height of 10 cabinets. The ultra-high cabinet needs to be fixed using additional structure to avoid accidents.

Lock the locking device of lease cabinets using special tools and they should be used on the middle of left side and bottom of cabinet back.



Specialized locking device, slotted point screwdriver also can be used here.



## Seated Installation

Leyard TVH Series seated structure consists by u-shaped frame, beam and frame carrier. Beam of seated installation and hanging beam of mounted installation can be in common use. It is very convenient and can save cost and improve work efficiency. Leyard TVH Series cabinet seated structure has double and three times cabinet beam. Beam and u-shaped frame constitute ground frame that cabinet can install on it. Supported by frame carrier and ground frame, the cabinet structure will be solid. There are still supporting from each foundation and frame carrier.

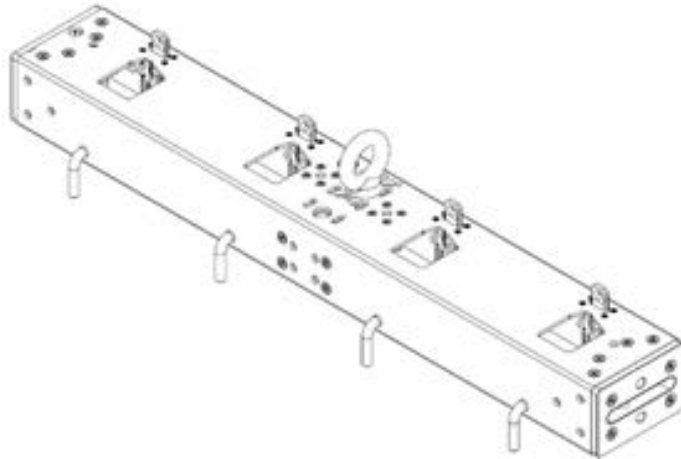
Dimension of double ground frame (L \* W \* T) 800\*900\*200mm ;

Dimension of three times ground frame (L \* W \* T) 1200\*900\*200mm ;

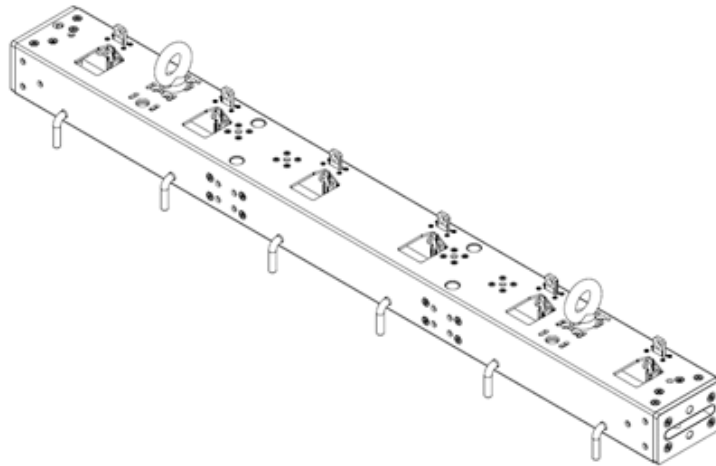
Dimension of three times frame carrier (H \* W \* T) 900\*320\*40mm ;

Dimension of four times frame carrier (H \* W \* T) 1200\*320\*40mm ;

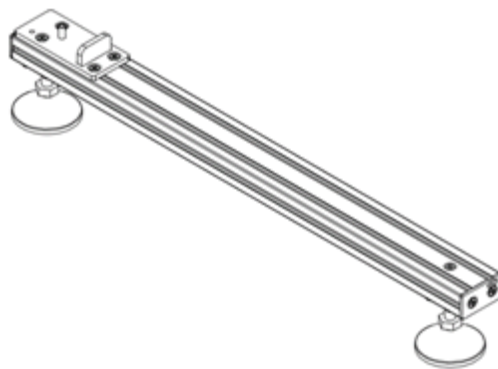
Their appearances are as follows:



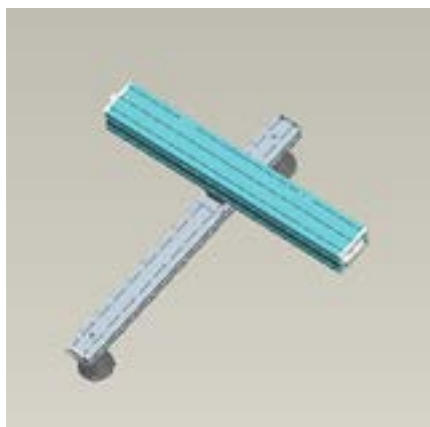
*Double Lifting Socket Integrated Beam*



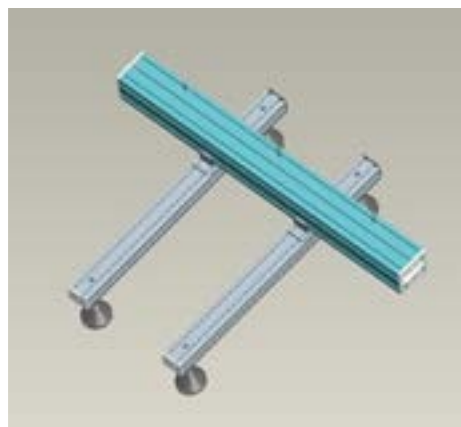
*Three Times Lifting Socket Integrated Beam*



*U-Shaped Frame*



*Double Ground Frame*



*Triple Ground Frame*



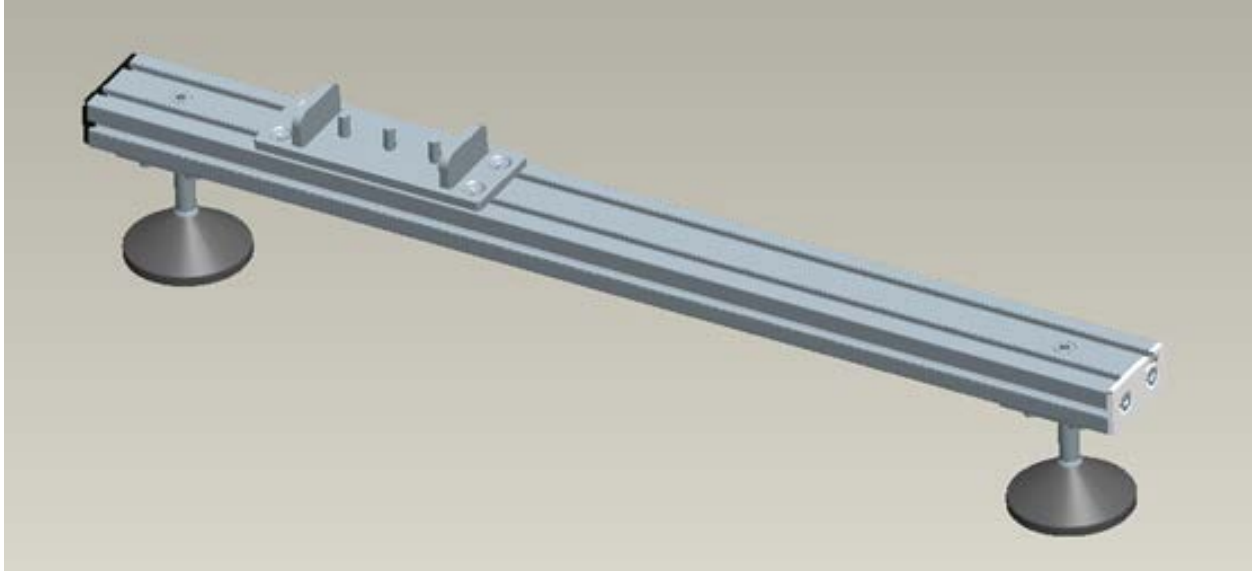
*Triple Frame Carrier*



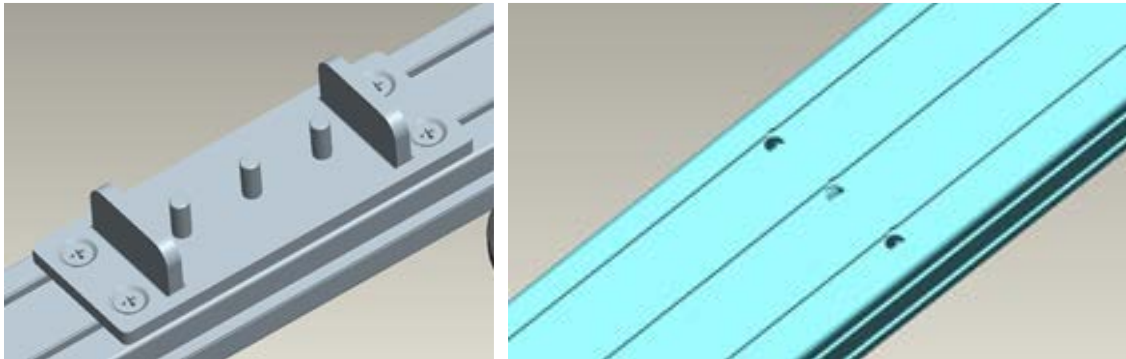
*Quadruple Frame Carrier*

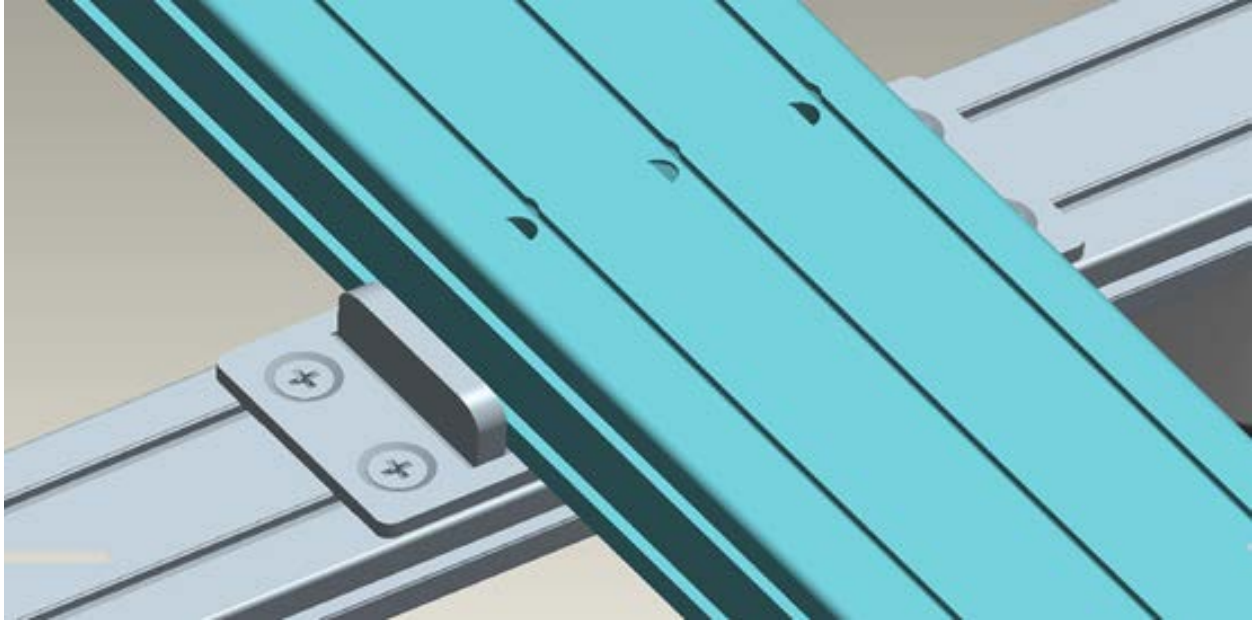
## Installation Order

**One:** Level the chassis beam: Put u-shaped frame on the ground, adjust fang bolt to level

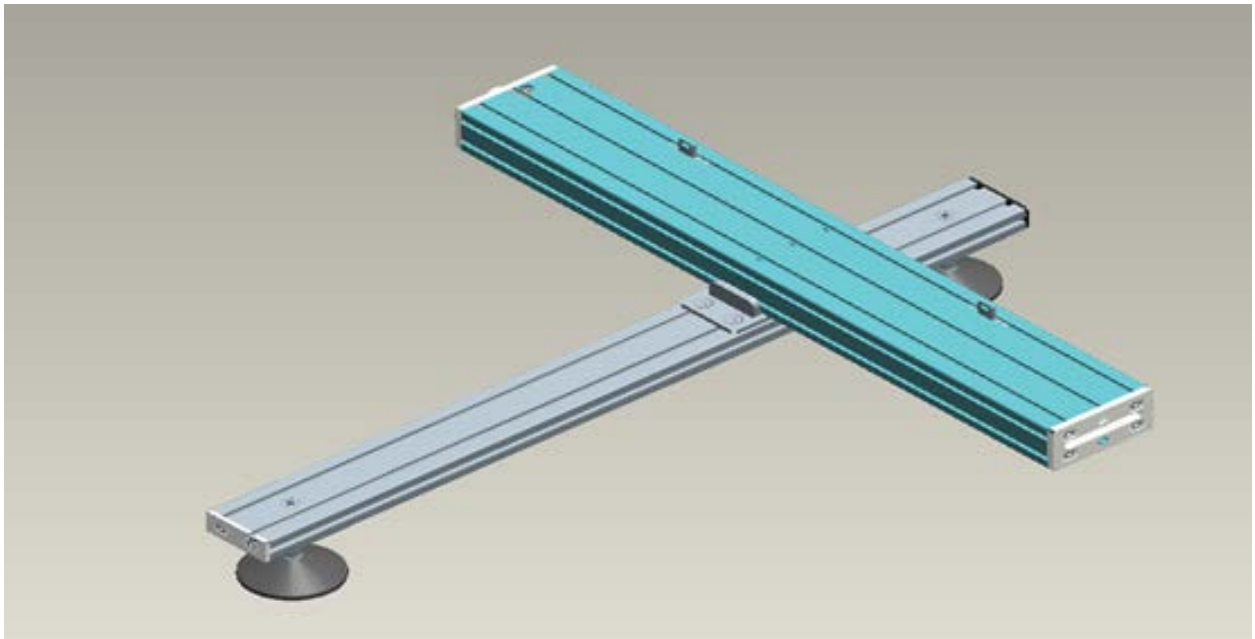


**Two:** Install Beam: Install double lifting socket integrated on u-shaped beam. There are there locating pins on u-shaped beam, insert into two hole locations on ground frame.

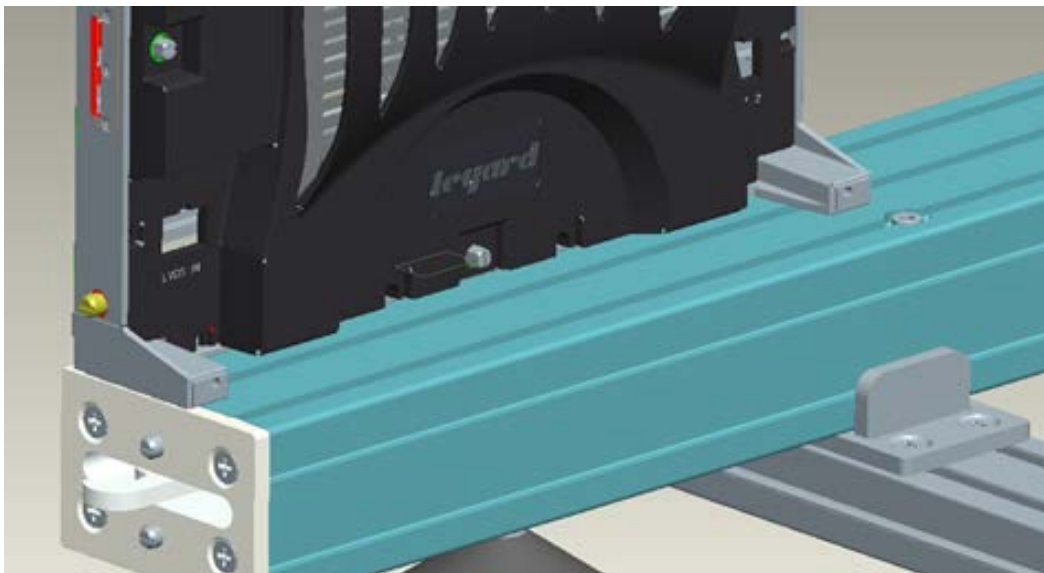
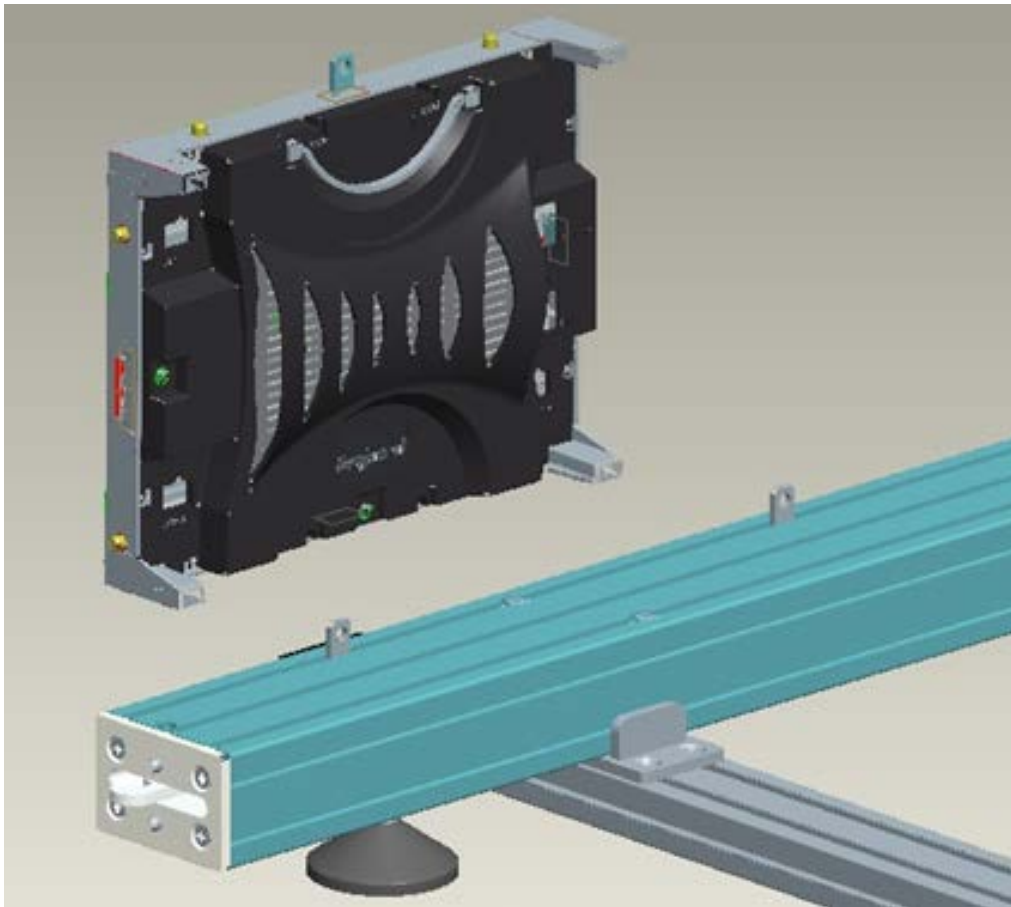


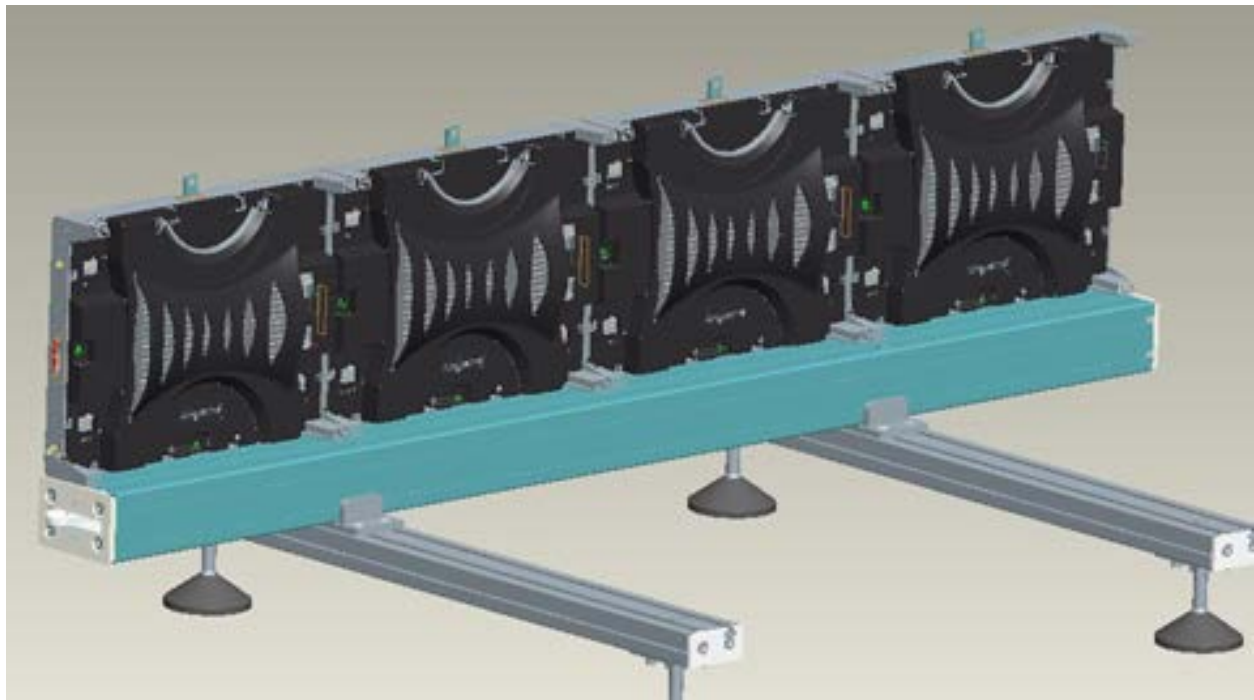
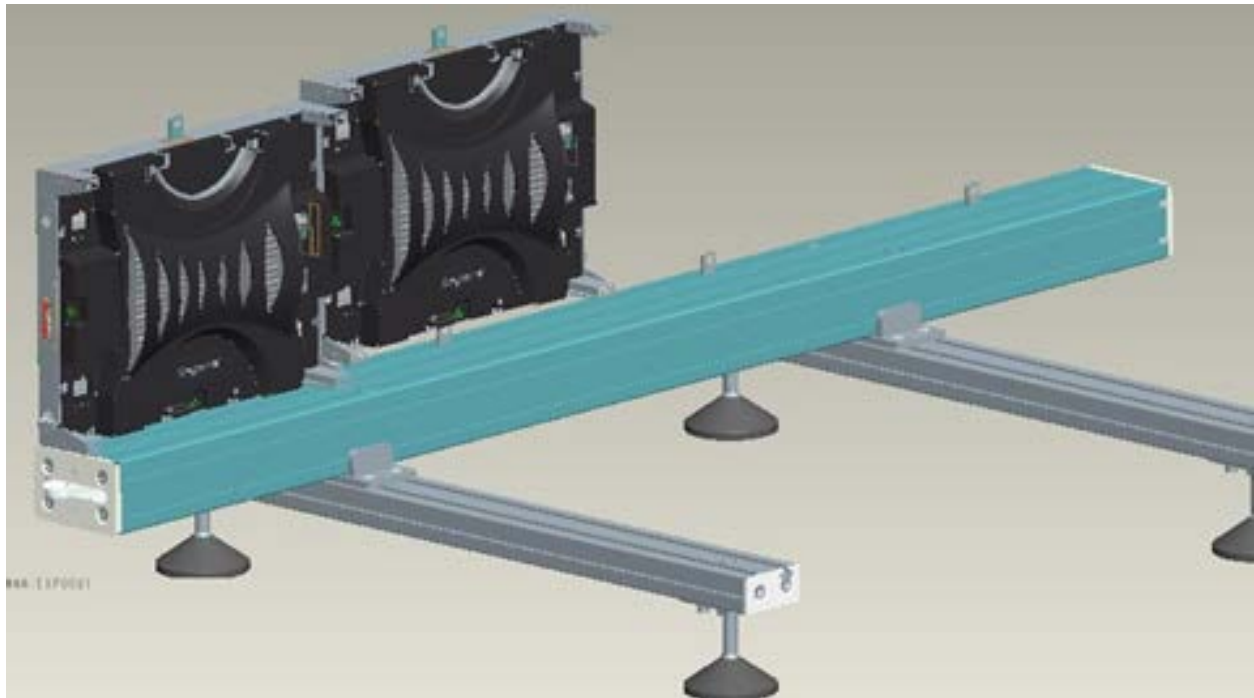


Connect several level foundation beams using hexagonal screw locking device to extend the length of the chassis.

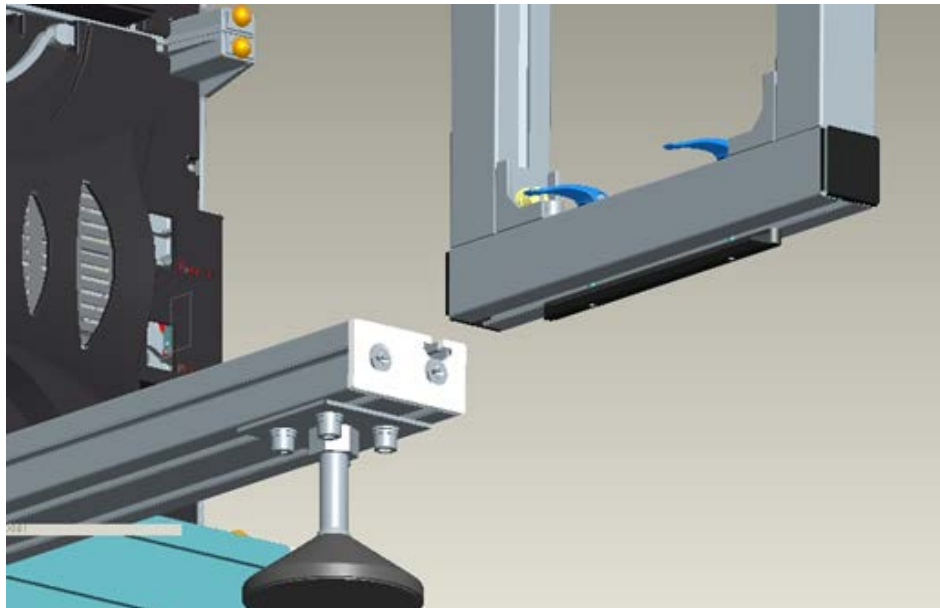


**Three:** Installation of Cabinet: Start from left of display screen back successively. Lock cabinet foundation and beam; lock between cabinets.





**Four:** Installation of frame Carrier: The Frame carrier needs to be installed after installing the second line of cabinets. Bottom of frame carrier should connect with load beam of chassis. The connection of frame carriers can be extended the height of frame carrier.

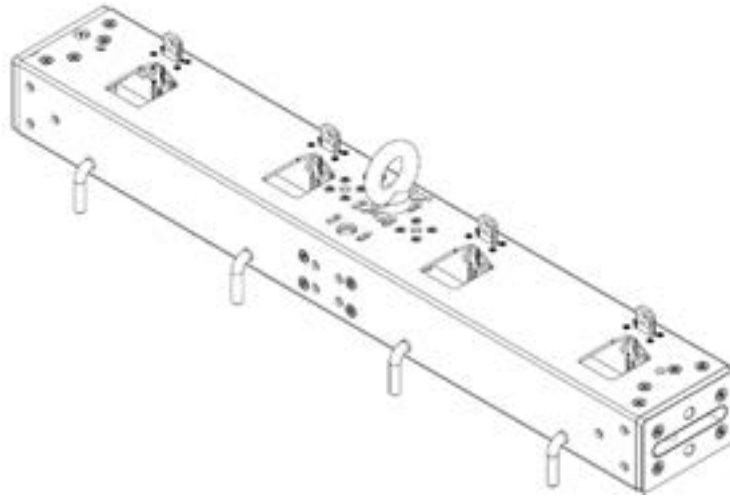




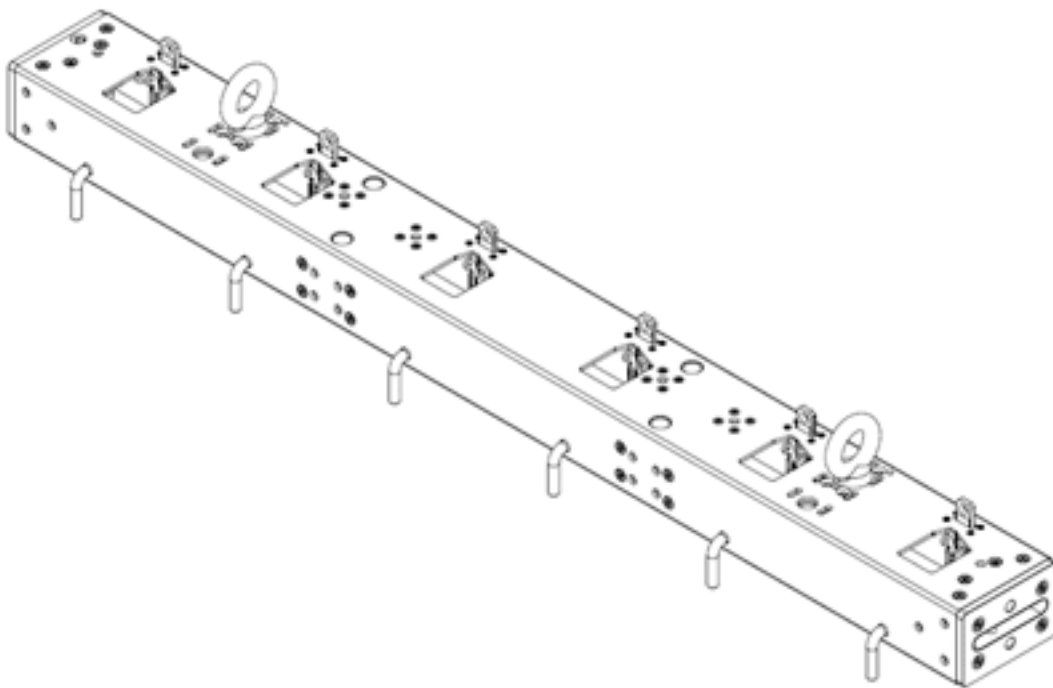
## Mounted Installation

Mounted structure of TV has double hanging bracket and three times hanging bracket.

Dimension of double hanging bracket: 800\*120\*80mm (L\*W\*T).

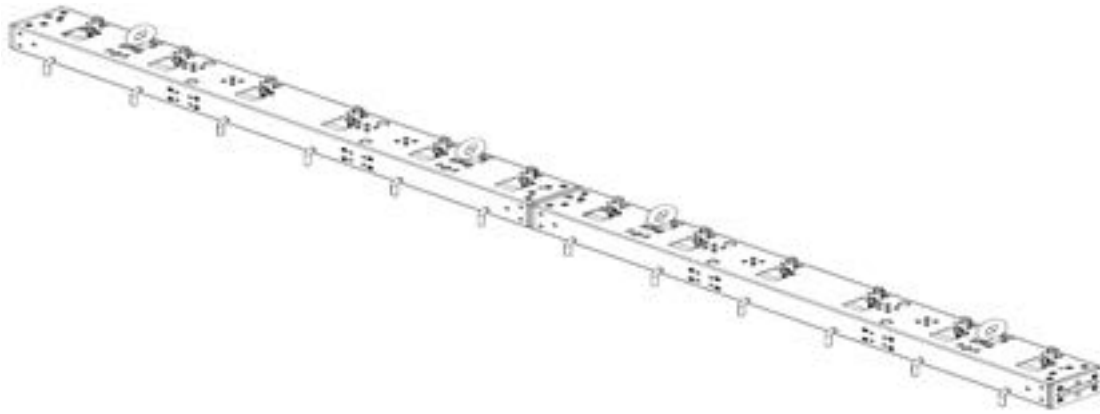


Dimensions of the triple hanging bracket: 1200\*120\*80mm (L\*W\*T).

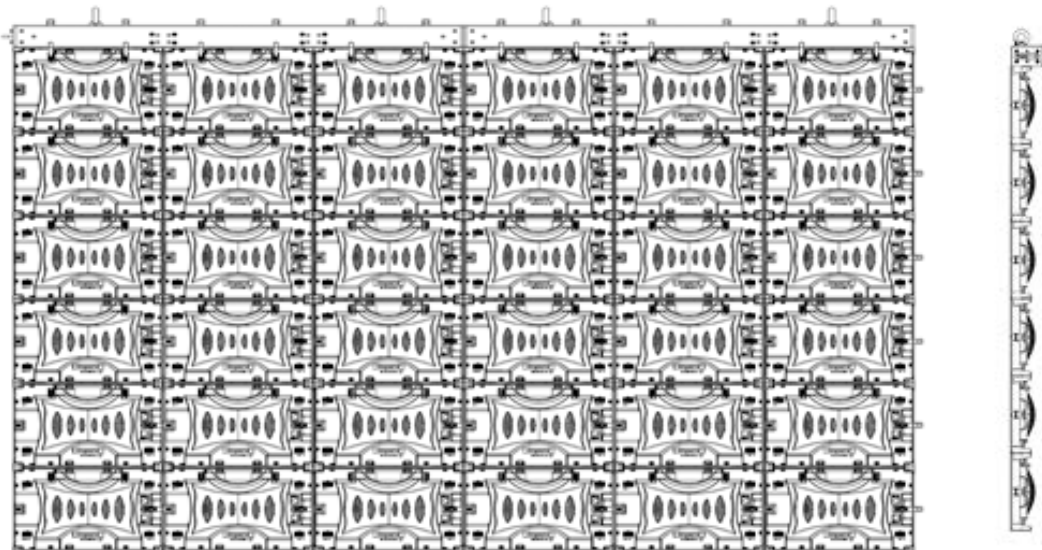


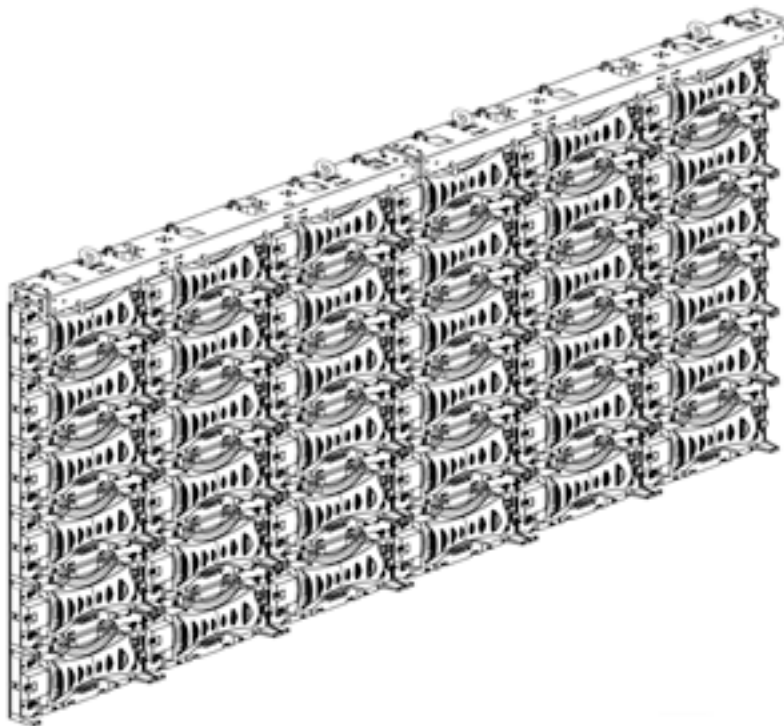
## Installation Order:

**One:** Fix hanging brackets with connection plate when using several hanging brackets.



**Two:** Install cabinets from right to left on the back. The first line cabinets need to be connected with hanging bracket using presser foot metal parts.





## Screen Electrical Connection

There are signal cables and power supply cables for screen electrical connection.



*Power Cable*

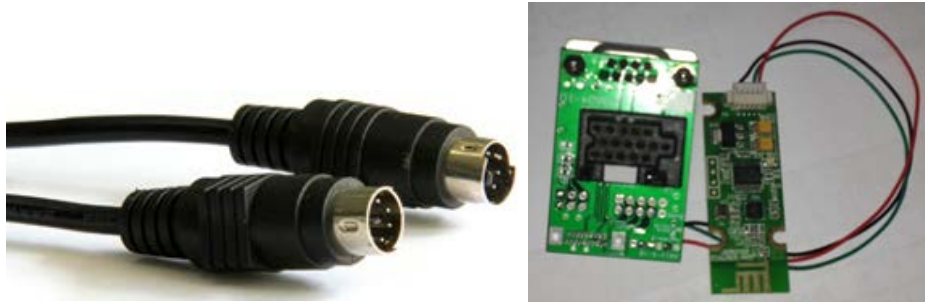


*Signal Cable – Vertical Application*

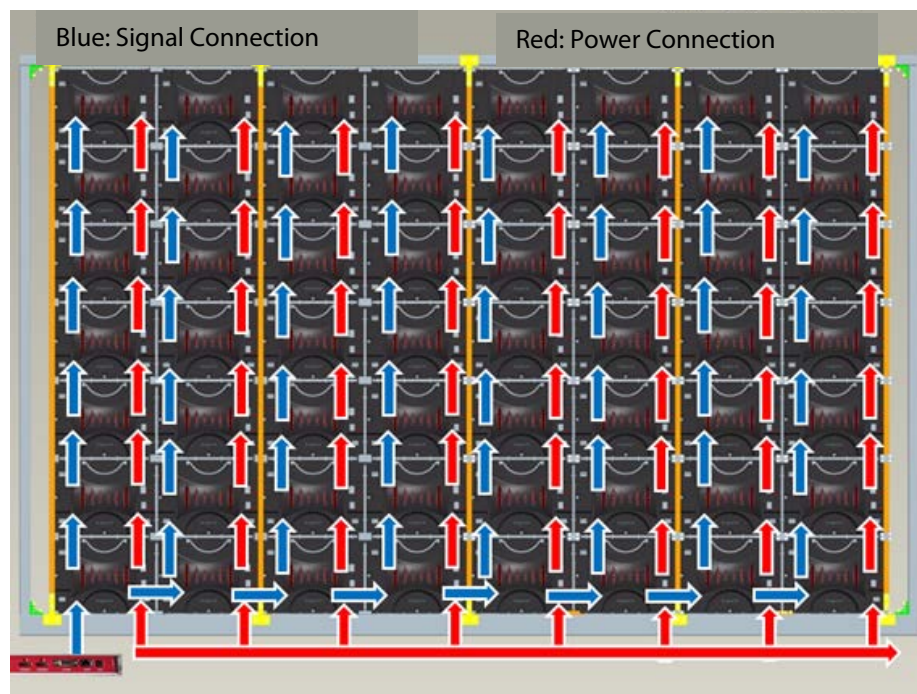


*Signal Cable – Horizontal Application*

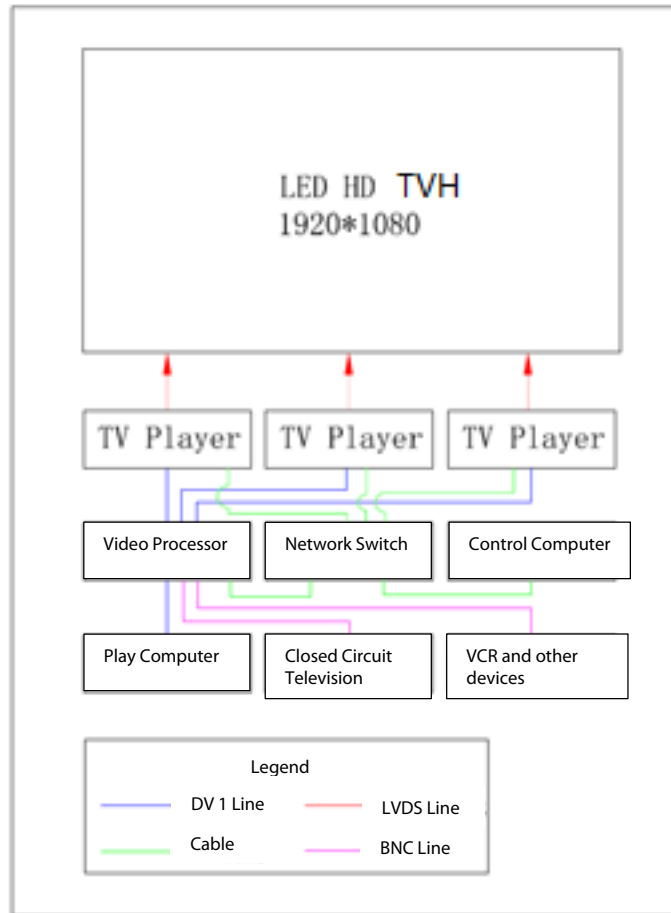
TVPlayer 3D Synchronous signal lines (as shown below--left figure) can receive signal source to sync signals to realize 3D signal concatenation among multiple sets of TV Player. 3D signal projector (as shown below --right figure). It can sync 3D glasses switching frequency and 3D video. It should insert into any free data output port and only can be used to 3D screen.



Signal from TV player is input from screen left quarter. Cabinet numbers controlled by one TV player is referring to setting resolution.



Typical system diagram, the video processor in this diagram need to choose different brands and number of input windows and output windows according to users' demands. Commonly use LED control management software and video processor software to control computer.



**Loop function screen circuits connection:** Seen from the back of the screen, the main TV Player controller in the left has circuits entering it from the lower left import, and the backup TV Player controller in the right has circuits entering in it from the upper import. **Each cabinet has dual AC power supply.**

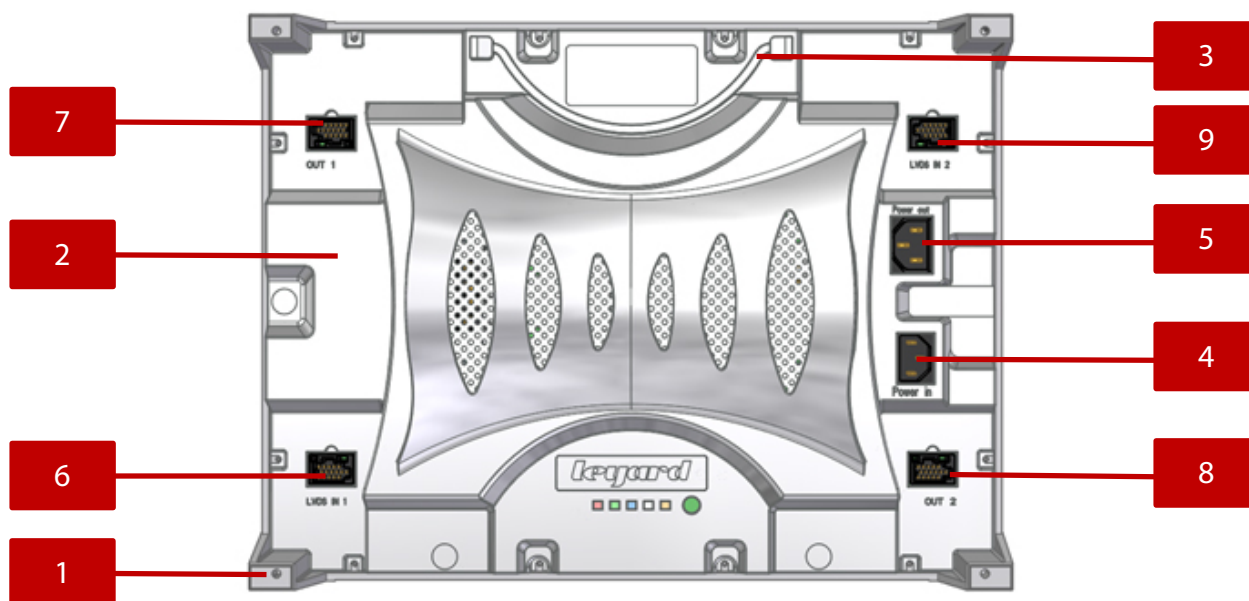


# Maintenance

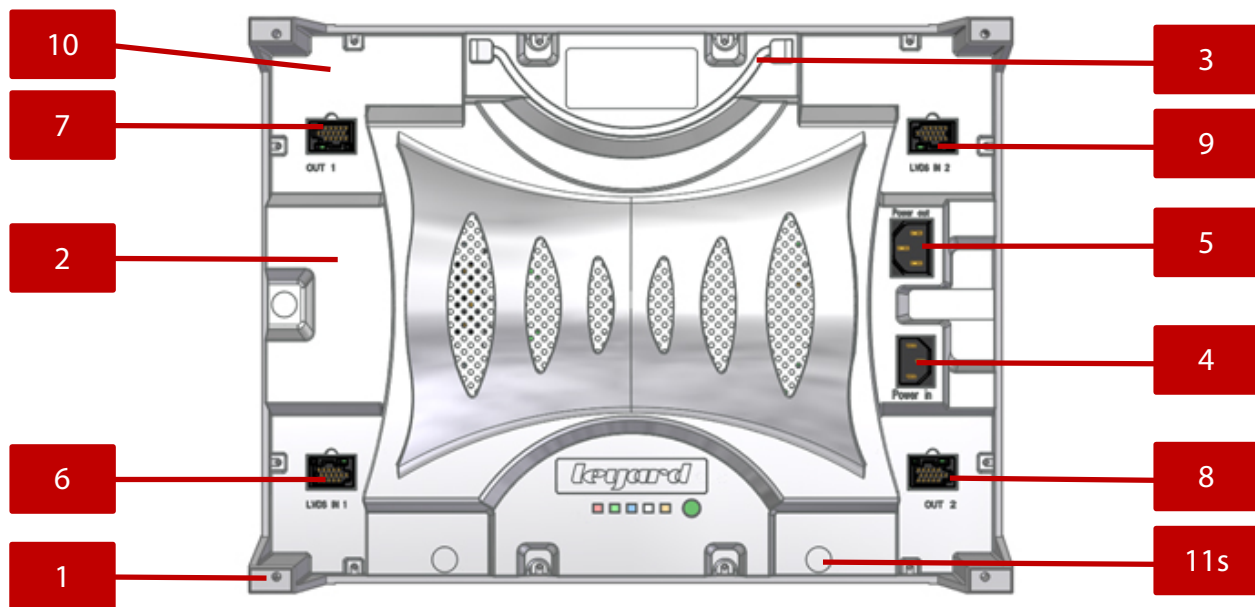
## Cabinet Composition

Each display unit is composed of 4 LED modules, a driver board, 1 5v 40A switching power supply, frame and back cover. In case of maintaining and changing any component, please refer to this chapter. The following is an introduction of all kinds of ports and connectors of the conventional cabinet with a single power supply:

1. Aluminum Alloy Frame	4. AC Power Input	7. LVDS Signal Output
2. Aluminum Alloy Back Cover	5. AC Power Loop – Out	8. LVDS Signal Output
3. Metal Handle	6. LVDS Signal Input	9. LVDS Signal Input



1. Aluminum Alloy Frame	5. AC Power Loop – Out	9. LVDS Signal Input
2. Aluminum Alloy Back Cover	6. LVDS Signal Input	10. Stretchable Deactive
3. Metal Handle	7. LVDS Signal Output	11. Lockpin
4. AC Power Input	8. LVDS Signal Output	



## Instruction of Indicator Lights on the Back of Leyard TVH Series Products

Each Leyard TVH Series product has five LED indicator lights in all. Seen from the rear view of the cabinet from left to right, they are FPGA2, FPGA1, MCU, POWER1 and POWER2

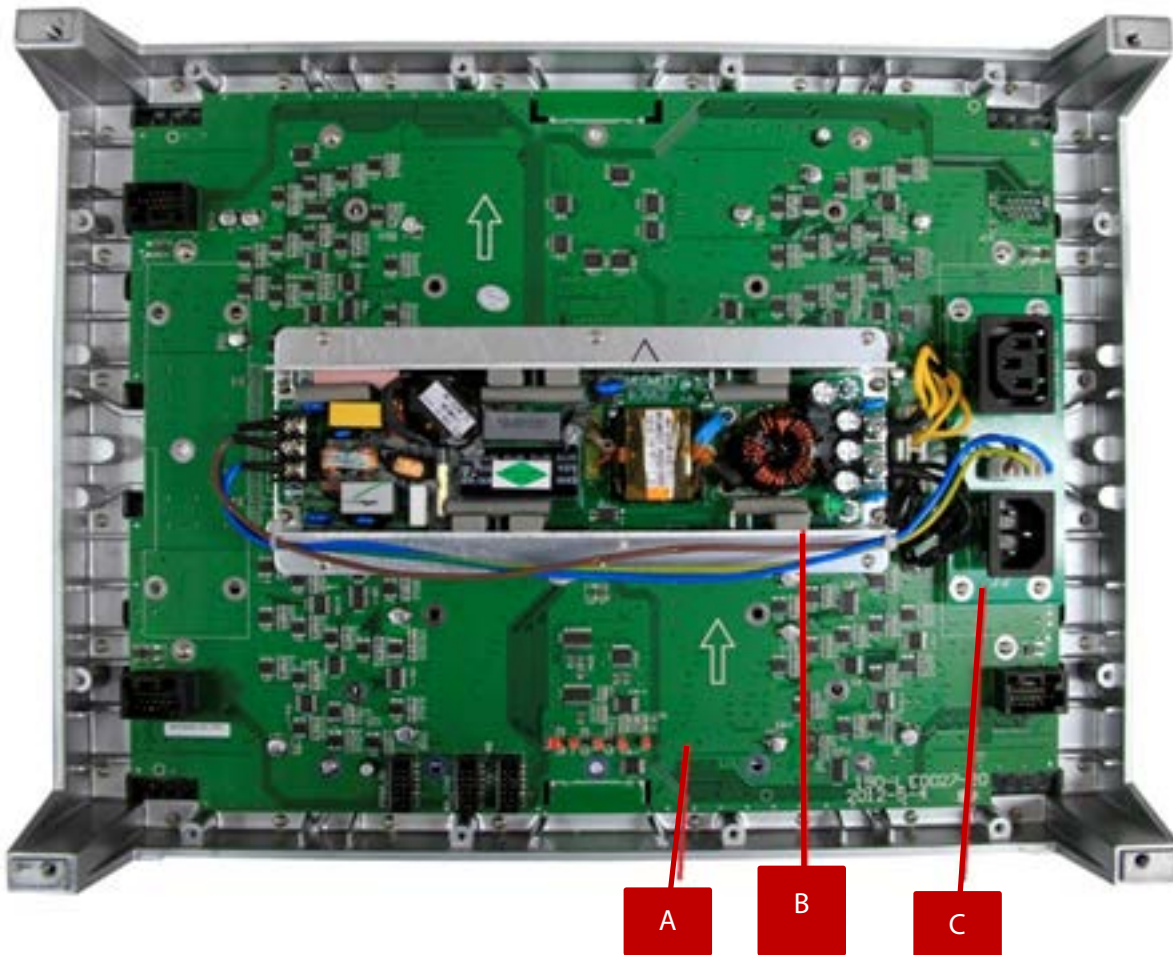
1. Status lamp of FPGA is the combination of FPGA2 and FPGA1
  - a. When both of the two lights are flickering slowly at the same time; LVDS input of FPGA in the cabinet is not working.
  - b. When the two lights are flickering slowly alternately; LVDS is working but no signal is input.
  - c. If FPGA2 is flickering quickly but FPGA1 slowly; LVDSIN1 has input signals at present.
  - d. If FPGA1 is flickering quickly but FPGA2 slowly; LVDSIN2 has input signals at present.

2. MCU light status

- a. If it flickers quickly when it's powered on; the cabinet is loading the correct data.
- b. If it flickers slowly when it's powered on; cabinet is reading the corrected data back from the lamp panel.
- c. It flickers when parameters are set up or the corrected data are sent.
- d. When the lamp is powered on successfully, the MCU light will work normally. If no command is received, the MCU light will not illuminate.

3. Power light status

- a. If POWER1 lights; the direct-current power supply of J15 works.
- b. If POWER2 lights; the direct-current power supply of J16 works.



*A: Driver Board   B. Switching Power Supply   C. Input/Output Power Socket*



*Circuit Back-Up Cabinet*



*Driver Board and Power Supply Removed*



*LED Module*

## Toubleshooting

Fault Description	Troubleshooting
Screen doesn't show images	1. Check 220VAC power supply of display is working. Check power distribution box is working.
	2. Check video signal of display is good. Check signal output of processor is not black mode. Check signal input of DVI, VIDEO and RGB are not black. Check if there is image on Synchronous video monitor.
	3. Check if TV player receives signal. Restart TV player to check if signal indicator works well.
Part of screen doesn't show images	1. Check power supply of faulty parts. Check if power distribution box works well. Check if PSU of cabinet works well.
	2. If power supply is working well. Turn off screen, wait for 1 min then turn on screen to initialize faulty parts.
	3. Signal connection problem between cabinets. If the above 2 solution can't fix the problem, turn off power of the faulty cabinets then change signal connection cable or driver board. If image after replaced driver board doesn't match the surrounding image, set software location, brightness and color value.
	4. Check if TV player receives signal. Restart TV player to check if signal indicator works well.
	5. Check video signal of display is good. Check signal output of processor is not black mode. Check signal input of DVI, VIDEO and RGB are not black. Check if there is image on Synchronous video monitor.

Images on part of LED are flickering	1. Signal connection problem between cabinets. Turn off power of the faulty cabinets' then change signal connection cable or driver board. If image after replaced driver board doesn't match the surrounding image, set software location, brightness and color value.
	2. Check if input image has problem. Check if the image is different from that on synchronous video monitor.
Module works abnormal. Whole or part of module is lack of color, long bright, or not in control.	1. Initialization of display unit is abnormal. Restart power supply in this area with interval of not less than 1min and sometimes, this fault can be removed by restarting it 2-3 times.
	2. If the fault remains unsolved after Step 1 is conducted, it preliminarily indicates that the fault may be caused by poor contact between LED module and adapter plate, which can be solved by re-plugging and inserting them again.
	3. .If the fault remains unsolved after the aforementioned two steps, the LED module or driver board may be faulty, which can be solved by replacing LED module or driver board. If LED module is replaced, the coordinate, color and brightness shall be adjusted to be consistent with color of image.

Remarks: When replacing LED module of cabinet, the factory calibration data must be saved in the new module; after LED module is replaced, the cabinet will read the calibration data of the new lamp panel during first start-up and therefore, the startup period is longer than usual; please be patient.

# Specifications

## TVH016

Parameter		TVH1.6
<b>Module</b>	Pixel Configuration	SMD 3-IN-1
	Pitch(mm)	1.667
	Resolution(W×H)	120×90
	Size(mm)	200(W)×150(H)×13(D)
	Weight(kg)	0.35
<b>Cabinet</b>	Module configuration(W×H)	2×2
	Resolution(W×H)	240×180
	Size(mm)	400(W)×300(H)×93(D)
	Area(m <sup>2</sup> )	0.12
	Weight (rental)(kg/cabinet ; kg/m <sup>2</sup> )	6 ; 50 (6.3;53)
	Pixel density(pixel/m <sup>2</sup> )	360,000
	Flatness(mm)	≤0.2
<b>Optical</b>	Pixel brightness calibration	Yes
	Pixel color calibration	Yes
	Brightness(nits)	≥800(After Calibration)
	Color temperature(K)	3200—9300K adjustable
	Horizontal Viewing Angle( °)	160
	Vertical Viewing Angle( °)	140
	Light Centre Distance Deviation	<3%
	Brightness Uniformity	≥97%
	Color Uniformity	Within ±0.003Cx,Cy
	Max. Contrast Ratio	≥3000:1
<b>Electrical</b>	Max Power Consumption(W/Cabinet ; W/m2)	100 ; 830
	Average Power Consumption(W/Cabinet ; W/m2)	30 ; 250
	Power Supply	AC 100~240V(50Hz&60Hz)
<b>Processing</b>	Driving Mode	Constant current drive
	Reframe Rate(Hz)	50&60
	Refresh Rate(Hz)	2,100
<b>Operational</b>	Lifetime(Half Brightness)	50,000hrs
	Operating Temperature Range(°C)	-10 — 40

	Storage Temperature Range(°C)	-20 — 60
	Operating Humidity(RH)	10 - 80%RH
	Storage Humidity(RH)	10 - 85%RH

Notice: Above parameters are subject to change without prior notice. (Updated 14/7/2014)

## Leyard TVH019

Parameter		TVH1.9
<b>Module</b>	Pixel Configuration	SMD 3-IN-1
	Pitch(mm)	1.923
	Resolution(W×H)	104×78
	Size(mm)	200(W)×150(H)×13(D)
	Weight(kg)	0.35
<b>Cabinet</b>	Module configuration(W×H)	2×2
	Resolution(W×H)	208×156
	Size(mm)	400(W)×300(H)×93(D)
	Area(m <sup>2</sup> )	0.12
	Weight (rental)(kg/cabinet ; kg/m <sup>2</sup> )	6 ; 50 (6.3;53)
	Pixel density(pixel/m <sup>2</sup> )	270,400
	Flatness(mm)	≤0.2
<b>Optical</b>	Pixel brightness calibration	Yes
	Pixel color calibration	Yes
	Brightness(nits)	≥800(After Calibration)
	Color temperature(K)	3200—9300K adjustable
	Horizontal Viewing Angle( °)	160
	Vertical Viewing Angle( °)	140
	Light Centre Distance Deviation	<3%
	Brightness Uniformity	≥97%
	Color Uniformity	Within ±0.003Cx,Cy
	Max. Contrast Ratio	≥3000:1
	Max Power Consumption(W/Cabinet ; W/m2)	100 ; 830

<b>Electrical</b>	Average Power Consumption(W/Cabinet ; W/m <sup>2</sup> )	30 ; 250
	Power Supply	AC 100~240V(50Hz&60Hz)
<b>Processing</b>	Driving Mode	Constant current drive
	Reframe Rate(Hz)	50&60
	Refresh Rate(Hz)	3,000
<b>Operational</b>	Lifetime(Half Brightness)	50,000hrs
	Operating Temperature Range(°C)	-10 — 40
	Storage Temperature Range(°C)	-20 — 60
	Operating Humidity(RH)	10 - 80%RH
	Storage Humidity(RH)	10 - 85%RH

Notice: Above parameters are subject to change without prior notice. (Updated 14/7/2014)

## Leyard TVH025

Parameter		TVH2.5
<b>Module</b>	Pixel Configuration	SMD 3-IN-1
	Pitch(mm)	2.5
	Resolution(W×H)	80×60
	Size(mm)	200(W)×150(H)×13(D)
	Weight(kg)	0.35
<b>Cabinet</b>	Module configuration(W×H)	2×2
	Resolution(W×H)	160×120
	Size(mm)	400(W)×300(H)×93(D)
	Area(m <sup>2</sup> )	0.12
	Weight (rental)(kg/cabinet ; kg/m <sup>2</sup> )	6 ; 50 (6.3;53)
	Pixel density(pixel/m <sup>2</sup> )	160,000
	Flatness(mm)	≤0.2
<b>Optical</b>	Pixel brightness calibration	Yes
	Pixel color calibration	Yes
	Brightness(nits)	≥800(After Calibration)
	Color temperature(K)	3200—9300K adjustable

	Horizontal Viewing Angle( °)	160
	Vertical Viewing Angle( °)	140
	Light Centre Distance Deviation	<3%
	Brightness Uniformity	≥97%
	Color Uniformity	Within ±0.003Cx,Cy
	Max. Contrast Ratio	≥3000:1
<b>Electrical</b>	Max Power Consumption(W/Cabinet ; W/m2)	100 ; 830
	Average Power Consumption(W/Cabinet ; W/m2)	30 ; 250
	Power Supply	AC 100~240V(50Hz&60Hz)
<b>Processing</b>	Driving Mode	Constant current drive
	Reframe Rate(Hz)	50&60
	Refresh Rate(Hz)	6,300
<b>Operational</b>	Lifetime(Half Brightness)	50,000hrs
	Operating Temperature Range(°C)	-10 — 40
	Storage Temperature Range(°C)	-20 — 60
	Operating Humidity(RH)	10 - 80%RH
	Storage Humidity(RH)	10 - 85%RH

Notice: Above parameters are subject to change without prior notice. (Updated 14/7/2014)

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