

# Design Series DS4 User Guide



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**DOCUMENT VERSION**

Please check [www.adj.com](http://www.adj.com) for the latest revision/update of this guide.

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09/06/18	1	Initial release
11/26/19	1.5	Update specifications

Europe Energy Saving Notice  
Energy Saving Matters (EuP 2009/125/EC)  
Saving electric energy is a key to help protecting the environment. Please turn off all electrical products when they are not in use. To avoid power consumption in idle mode, disconnect all electrical equipment from power when not in use. Thank you!

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## **GENERAL INFORMATION**

The DS4 LED Video Panels and connectors are composed of lightweight nanocomposite materials (nanotechnology polymer), and feature multiple rigging points to connect panels in conventional, offset, or staggered (3D) configurations. This innovative system can easily be linked, rigged, and transported using numerous accessories. An injection molded unibody construction comprises the integral aluminum alloy heatsink and power supply, which significantly improves heat dissipation. And because of its high refresh rate, up to 3840Hz, images displayed on the LED Video Panel can be photographed flicker free. With an expansive screen size potential, high brightness, and curved installation options, our DS4 LED Video Panels allow manifold applications for stage, exhibitions, shows, and commercial advertising.

## LIMITED WARRANTY (USA ONLY)

- A. ADJ Products, LLC hereby warrants, to the original purchaser, ADJ Products, LLC products to be free of manufacturing defects in material and workmanship for a prescribed period from the date of purchase (see specific warranty period on reverse). This warranty shall be valid only if the product is purchased within the United States of America, including possessions and territories. It is the owner's responsibility to establish the date and place of purchase by acceptable evidence, at the time service is sought.
- B. For warranty service, you must obtain a Return Authorization number (RA#) before sending the product back— please contact ADJ Products, LLC Service Department at 800-322-6337. Send the product only to the ADJ Products, LLC factory. All shipping charges must be prepaid. If the requested repairs or service (including parts replacement) are within the terms of this warranty, ADJ Products, LLC will pay return shipping charges only to a designated point within the United States. If the entire instrument is sent, it must be shipped in its original package and packaging material. No accessories should be shipped with the product. If any accessories are shipped with the product, ADJ Products, LLC shall incur no liability whatsoever for loss of or damage to any such accessories, nor for the safe return thereof.
- C. This warranty is void if the product serial number and/or labels are altered or removed; if the product is modified in any manner which ADJ Products, LLC concludes, after inspection, affects the reliability of the product; if the product has been repaired or serviced by anyone other than the ADJ Products, LLC factory unless prior written authorization was issued to purchaser by ADJ Products, LLC; if the product is damaged because it was not properly maintained as set forth in the product instructions, guidelines and/or user manual.
- D. This is not a service contract, and this warranty does not include maintenance, cleaning, or periodic checkup. During the period specified above, ADJ Products, LLC will replace defective parts at its expense with new or refurbished parts, and will absorb all expenses for warranty service and repair labor by reason of defects in material or workmanship. The sole responsibility of ADJ Products, LLC under this warranty shall be limited to the repair of the product, or replacement thereof, including parts, at the sole discretion of ADJ Products, LLC. All products covered by this warranty were manufactured after August 15, 2012, and bear identifying marks to that effect.
- E. ADJ Products, LLC reserves the right to make changes in design and/or improvements upon its products without any obligation to include these changes in any products theretofore manufactured.
- F. No warranty, whether expressed or implied, is given or made with respect to any accessory supplied with products described above. Except to the extent prohibited by applicable law, all implied warranties made by ADJ Products, LLC in connection with this product, including warranties of merchantability or fitness, are limited in duration to the warranty period set forth above. And all warranties, whether expressed or implied, including warranties of merchantability or fitness, are limited in duration to the warranty period set forth above. The consumer's and/or dealer's sole remedy shall be such repair or replacement as is expressly provided above; and under no circumstances shall ADJ Product, LLC be liable for any loss and/or damage, direct and/or consequential arising out of the use of, and/or inability to use this product.
- G. This warranty is the only written warranty applicable to ADJ Products, LLC products, and supersedes all prior warranties and written descriptions of warranty terms and conditions heretofore published.

## MANUFACTURER'S LIMITED WARRANTY PERIODS:

**Non-LED Lighting Products = 1-Year (365 Days)** (Including Special Effect Lighting, Intelligent Lighting, UV lighting, Strobes, Fog Machines, Bubble Machines, Mirror Balls, Par Cans, Trussing, Lighting Stands, Power/Data Distribution, etc. excluding LED and lamps)

**Laser Products = 1-Year (365 Days)** (excluding laser diodes which have a 6-Month Limited Warranty)

**LED Products = 2-Year (730 Days)** (excluding batteries which have a 180 Day Limited Warranty)

**NOTE: 2-Year (730 Days) Limited Warranty ONLY applies to product purchased within the United States.**

**StarTec Series = 1-Year (365 Days)** (excluding batteries which have a 180 Day Limited Warranty)

**ADJ DMX Controllers = 2 Year (730 Days)**

**American Audio Products = 1 Year (365 Days)**

## CUSTOMER SUPPORT INFORMATION

Contact ADJ Service for any product related service and support needs.

Also visit [forums.adj.com](http://forums.adj.com) with questions, comments or suggestions.

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## SAFETY GUIDELINES

This panel is a sophisticated piece of electronic equipment. To guarantee a smooth operation, it is important to follow all instructions and guidelines in this manual. ADJ is not responsible for injury and/or damages resulting from the misuse of this panel due to the disregard of the information printed in this manual. Only qualified and/or certified personnel should perform the installation of this panel and all included and/or rigging accessories. Only the original included rigging parts and/or rigging accessories for this panel should be used for proper installation. Any modifications to the panel, included and/or rigging accessories will void the original manufactures warranty and increase the risk of damage and/or personal injury.



### PROTECTION CLASS 1 - PANEL MUST BE PROPERLY GROUNDED

**THERE ARE NO USER SERVICEABLE PARTS INSIDE THIS PANEL.**



**DO NOT ATTEMPT ANY REPAIRS YOURSELF; DOING SO WILL VOID YOUR MANUFACTURES WARRANTY. DAMAGES RESULTING FROM MODIFICATIONS TO THIS PANEL AND/OR THE DISREGARD OF SAFETY INSTRUCTIONS AND GUIDELINES IN THIS MANUAL VOID THE MANUFACTURES WARRANTY AND ARE NOT SUBJECT TO ANY WARRANTY CLAIMS AND/OR REPAIRS. DO NOT PLUG PANEL INTO A DIMMER PACK! NEVER OPEN THIS PANEL WHILE IN USE! UNPLUG POWER BEFORE SERVICING PANEL! NEVER TOUCH FRONT OF PANEL DURING OPERATION, AS IT MAY BE HOT! KEEP FLAMMABLE MATERIALS AWAY FROM PANEL.**



**INDOOR / DRY LOCATIONS USE ONLY!**

**DO NOT EXPOSE PANEL TO RAIN AND/OR MOISTURE!**

**DO NOT SPILL WATER AND/OR LIQUIDS ON OR INTO THE PANEL!**

**DO NOT** touch panel housing during operation. Turn OFF power and allow approximately 15 minutes for panel to cool down before serving.

**DO NOT:** Operate a panel if any cover is open and/or removed.

**DO NOT** shake panel, avoid brute force when installing and/or operating panel.

**DO NOT:** Expose any part of the panel to open flame or smoke. Keep panel away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

**DO NOT:** Install/use panel in extreme hot/humid environments, or handle without ESD precautions.

**DO NOT:** Exceed an operation temperature of 30°C (86°F), doing so will damage the panel.

**DO NOT** operate panel if power cord is frayed, crimped, damaged and/or if any of the power cord connectors are damaged and do not insert into the panel securely with ease. **NEVER** force a power cord connector into the panel. If the power cord or any of its connectors are damaged, replace it immediately with a new one of similar power rating.

**DO NOT** block air ventilation slots/vents. All fan and air inlets must remain clean and never blocked. Allow approximately 6" (15cm) between panel and other devices or a wall for proper cooling.

**ALWAYS** disconnect panel from main power source before performing any type of service and/or cleaning procedure. Only handle the power cord by the plug end, never pull out the plug by tugging the wire portion of the cord.

## **SAFETY GUIDELINES**

**ONLY** use the original packaging materials and/or case to transport the panel in for service.

**PLEASE** recycle shipping boxes and packaging whenever possible.

**CAUTION:** To avoid physical damage, read the installation instructions carefully before installation.

**CAUTION:** Panels should only be installed/operated by qualified and trained professionals **ONLY**.

**CAUTION:** Always mount panels in a safe and stable manner.

**CAUTION:** INDOOR / DRY location use **ONLY!** Outdoor use will void the warranty.

**CAUTION:** Wear appropriate safety equipment during panel installation.

**CAUTION:** Turn OFF power to panel, computers, servers, system boxes, and monitors before making any type of power or data connections and performing any maintenance work.

**CAUTION:** Read user manual carefully to ensure normal operation and lifespan of the panel.

**CAUTION:** Electronics used in this panel are ESD (Electrostatic Discharge) sensitive. To protect device from ESD, wear a grounded ESD wrist strap or similar grounding device when handling panel.

**CAUTION:** Panel must be properly grounded before operating. (resistance must be less than  $4\Omega$ )

**CAUTION:** Ensure all power is disconnected from panel before unplugging any data cables from the panel, especially serial line ports.

**CAUTION:** Route power and data cables so that they are **NOT** likely to be walked on or pinched.

**CAUTION:** Air conditioning is required if operating environment temperature exceeds  $30^{\circ}\text{C}$  ( $86^{\circ}\text{F}$ ).

**CAUTION:** Test panel for 2-hours per week, if not used regularly or for an extended period of time.

**CAUTION:** Cases used to transport panel must be properly waterproofed for transportation.

## MAINTENANCE GUIDELINES

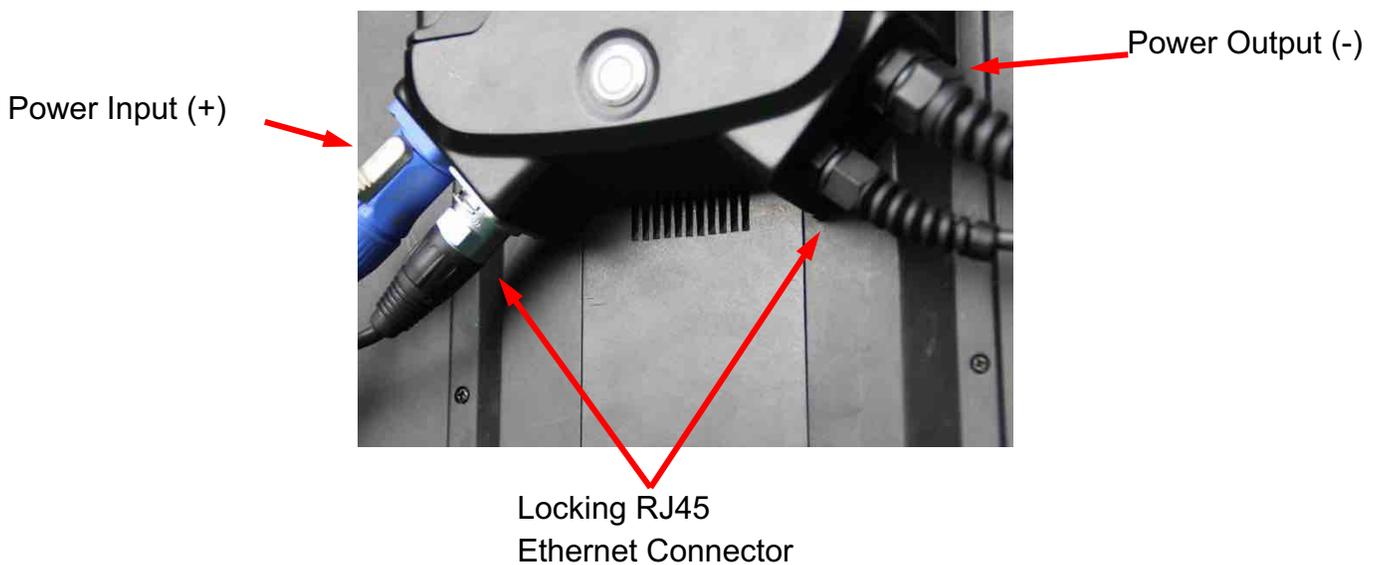
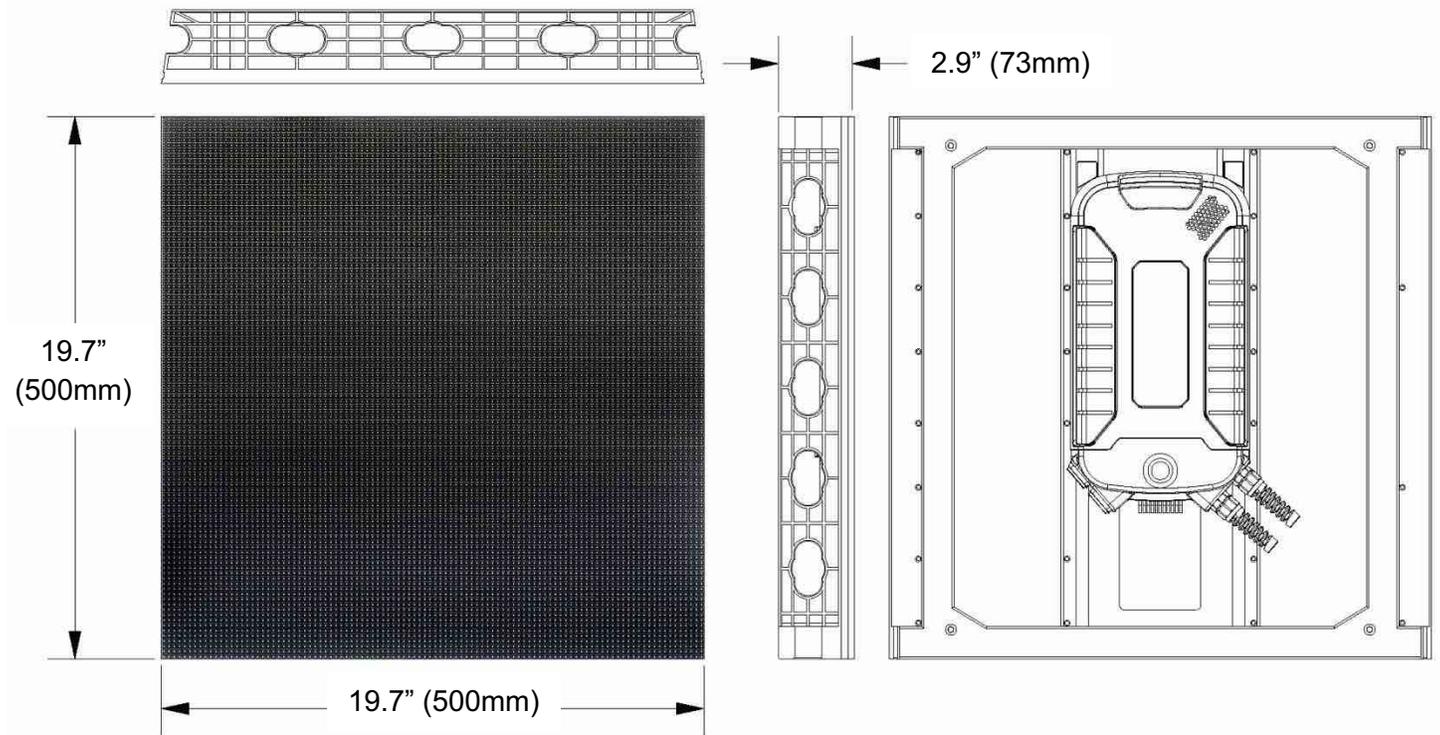
Careful and regular maintenance is necessary to optimize the potential functional lifespan of the DS4 LED Video Panels.

1. Read the installation and operation instructions for correct operation of the DS4 LED Video Panels.
2. Although the DS4 LED Video Panels are designed and built to withstand some impact forces when installed correctly, take care to avoid impact damage when handling or transporting them, especially corners and edges which are particularly frangible during transportation.
3. The fixture should be serviced by a qualified service technician when:
  - A. Objects have fallen, or liquid has been spilled into the fixture.
  - B. The fixture has been exposed to rain or water.
  - C. The fixture does not appear to operate normally or exhibits a marked change in performance.
  - D. The fixture has fallen and/or subjected to extreme handling.
4. Check each DS4 LED Video Panel for loose screws and other fasteners.
5. If the DS4 LED Video Panel installation is fixed or displayed for a lengthy time, regularly inspect all rigging and installation equipment, and replace or repair it as necessary, and during long periods of non-use, disconnect the main power to the unit.
6. Because the nanocomposite material comprising the DS4 LED Video Panel frames is susceptible to damage caused from exposure to oil, acid, and other corrosive substance, bar any exposure of the DS4 panel and frame structures to those substances.
7. Use necessary ESD (electrostatic discharge) precautions when handling DS4 LED Video Panels, especially the LED screens, as they are ESD sensitive and easily damaged from ESD exposure.
8. The Null Line and Live Line connections from the computer and control system cannot be reversed, and should therefore only be connected in original layout order.
9. If the GFI (Ground Fault Interrupt) breaker-switch trips often, check the display or replace the power-supply switch.
10. When operating the DS4 LED Video Panels, power the computer before powering the LED Video Screens; conversely, when shutting down after operation, turn the LED Video Panels off before turning off the computer. If the PC is turned off first, a high intensity brightness might appear, causing catastrophic failure to those LEDs.
11. If while conducting an electrical test a circuit shorts, a breaker-switch trips, wires burn, and or any other abnormality appears, discontinue testing and troubleshoot units to find the problem before continuing with any testing or operation.
12. To ensure consistent operation, it might be necessary to learn operating parameters for installation, data recovery, backup, controller settings, and basic data preset modification.
13. Regularly check computer for any viruses, and remove any irrelevant data.
14. Only a qualified technician should operate software system.
15. Remove any moisture found inside or outside of any DS4 LED Video Panels before dismantling video installation, and returning them to their respective flight cases. Ensure flight cases are free of any moisture, using a fan to dry them if necessary, and avoid ESD generating friction when returning DS4 LED Video Panels.
16. Because the DS4 LED Video Panels are strictly designed for indoor usage, limit or remove any unit exposure to moisture, condensation, or humidity, and consider using air conditioning where available.
17. When not in use, store DS4 LED Video Panels in a dry, well ventilated facility.

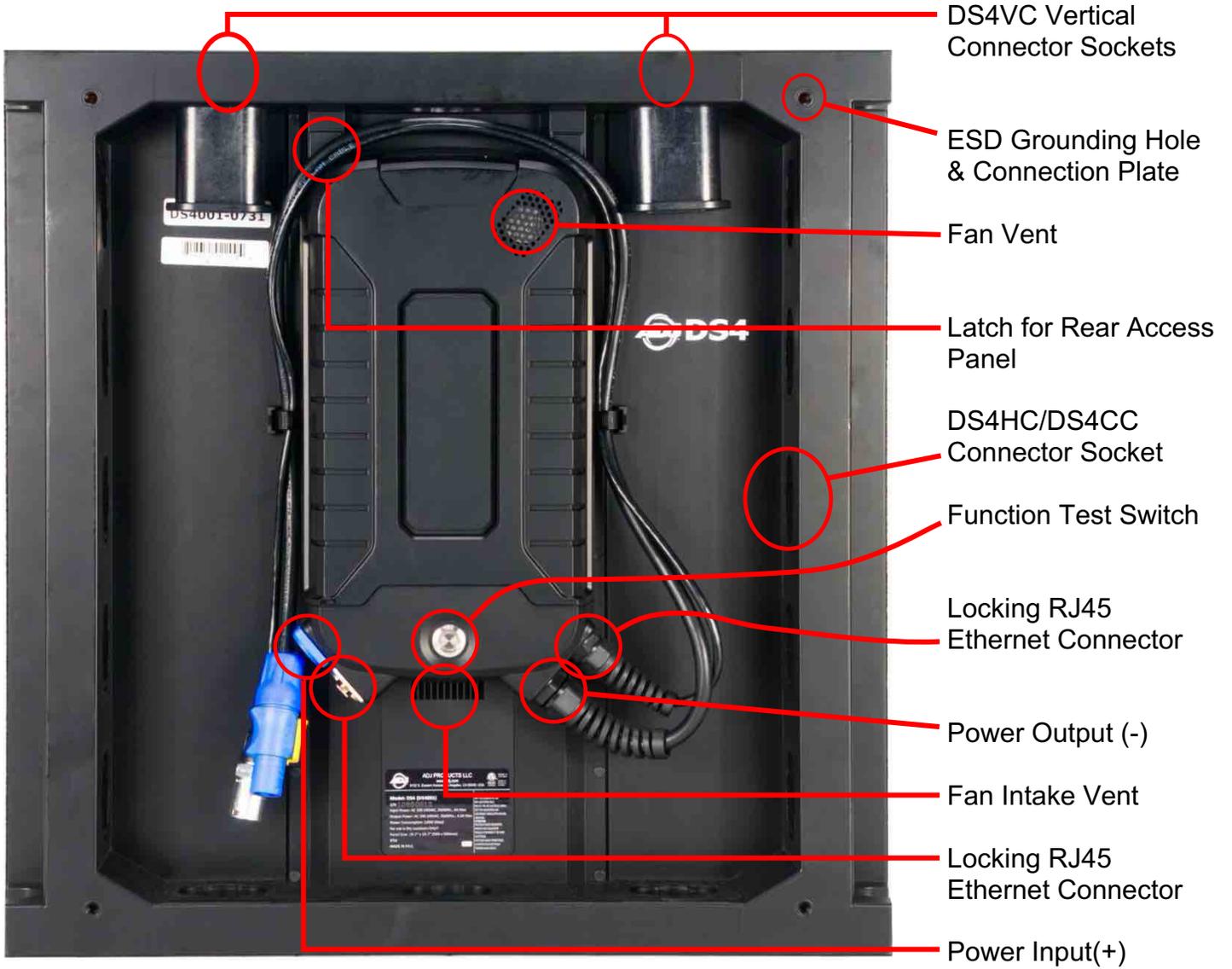
## PANEL OVERVIEW

The DS4 LED Video Panel includes a power supply, modules, and receiver card. The cover of the power supply box can be secured to protect all internal accessories and components. Instead of traditional die cast aluminum alloy or steel, the Panel of the Designer Series LED Video Panels are comprised of a special lightweight industrial nanocomposite material (nanotechnology polymer) to greatly reduce Panel weight.

**Dimensions:** 19.7" x 19.7" x 2.9" (500x500x73mm).



# PANEL OVERVIEW



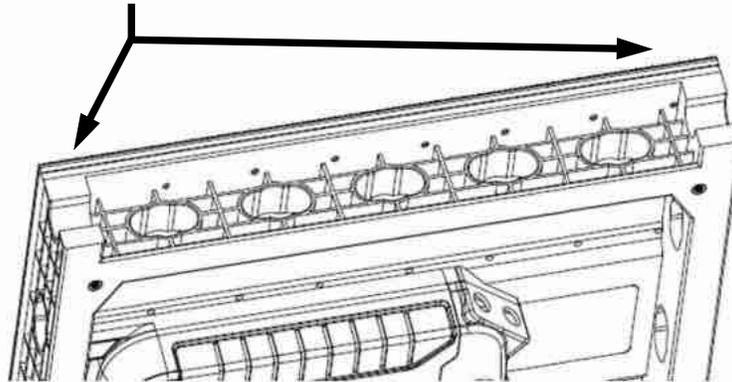
FUNCTION TEST SWITCH CHART

<b>BUTTON PRESS</b> Pressing button specific number times below will select the corresponding test	<b>COLOR/PATTERN/FUNCTION TESTED</b>
1	Red
2	Green
3	Blue
4	White
5	Horizontal Pattern
6	Vertical Pattern
7	Slash Pattern
8	256 Gray Gradient
9	Aging (Lifespan)

## HANDLING AND TRANSPORTATION

The 4 front corners of the DS4 LED Video Panel are susceptible to damage during handling and transportation. When removing DS4 LED Video Panels from their respective Flight Cases, and before they are installed, take care to avoid damaging any of the 4 corners.

The DS4 LED Video Panels are susceptible to damage at corners



Tab Frangibility

Because these are ESD sensitive units, use ESD precautions when removing the DS4 LED Video Panels from their flight case (ESD gloves, protective clothing, wrist straps, etc.). In addition to using standard ESD precautions, to reduce static building friction, take care to lift the panels without rubbing the LED panel surface along the foam-covered clapboard, which can generate static electricity that can damage LEDs on DS4 panel. The optional DS4FC10 Flight Case (sold separately) for the DS4 LED Video Panels hold (10x) DS4 Panels.



DS4 LED Video Panels shown stored in optional DS4FC10 Flight Case

DS4 LED Video Panels stored with ESD bags

## HANDLING AND TRANSPORTATION

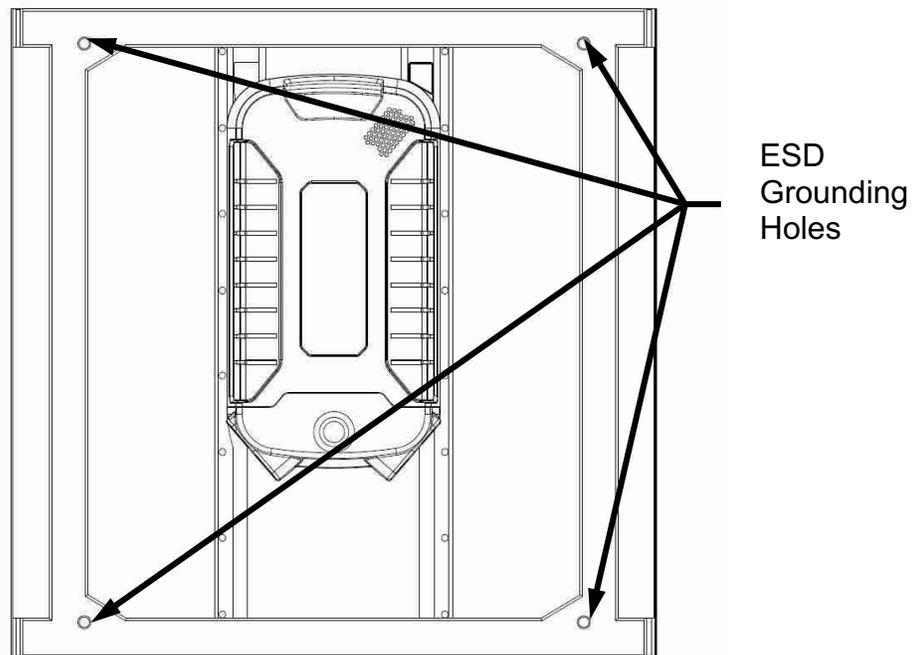
For storage, route the cables over the top of the power-supply/heatsink housing and secure them with their integrated cable stays.



Transportation Cable Configuration

## ESD GROUNDING HOLES

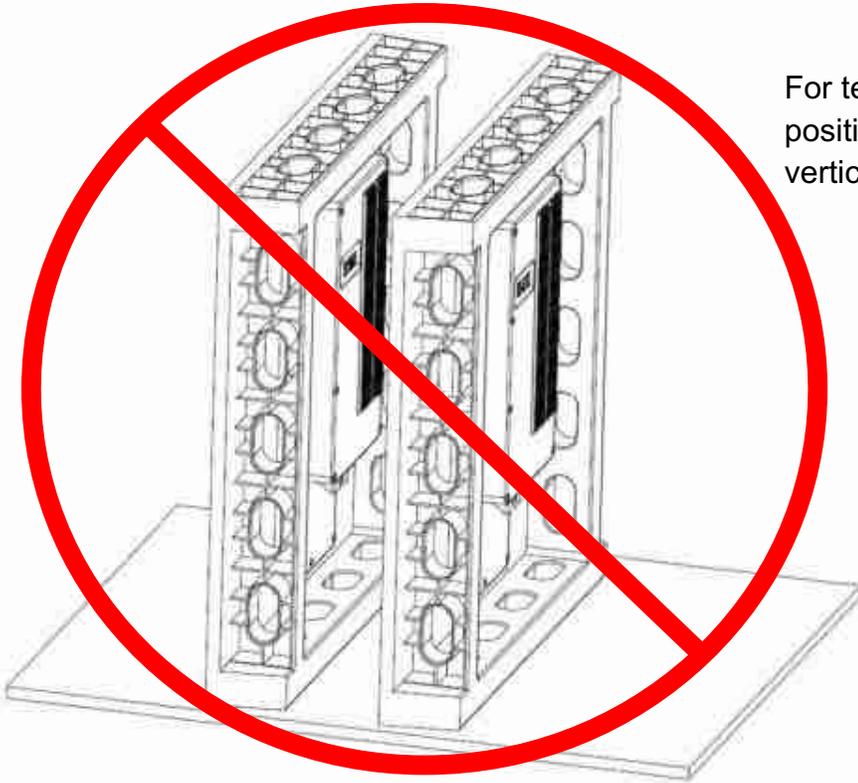
There are 4 ESD Grounding Holes located on the back-side of the panel at each panel frame corner. Ground any structural/mechanical parts touching or connected to any of these ESD Grounding holes.



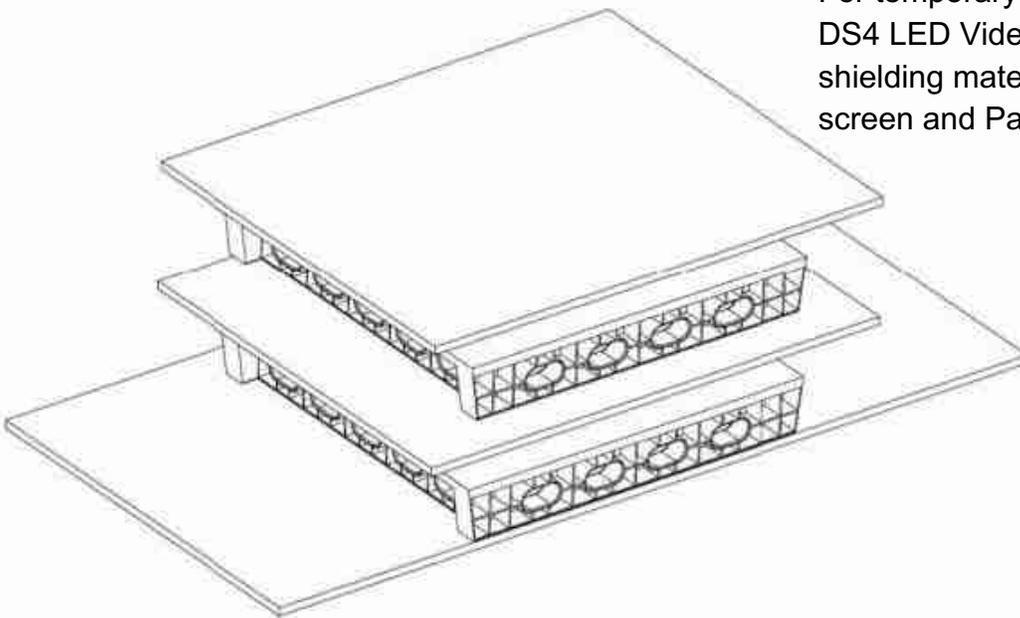
ESD Grounding Holes

## HANDLING AND TRANSPORTATION

Generally, unused DS4 LED Video Panels will remain in their flight cases. However, if that is not practical, take care to stack them horizontally, with ESD shielding material placed between unit layers, limiting the stack to 10 units or fewer. The units are unstable if placed vertically, and if placed in line within proximity, are susceptible to the domino effect. Avoid this.



For temporary storage, do not position DS4 LED Video Panels vertically, very unstable



For temporary storage, stack  $\geq 10$  DS4 LED Video Panels with ESD shielding material between each LED screen and Panel frame

Temporary storage of DS4 Panels

## INSTALLATION



**DO NOT INSTALL THE PANEL IF YOU ARE NOT QUALIFIED TO DO SO!  
INSTALLATION BY QUALIFIED TECHNICIANS ONLY!**



**INSTALLATIONS SHOULD BE CHECKED BY A QUALIFIED PERSON ONCE A YEAR!**



### **FLAMMABLE MATERIAL WARNING**

**Keep panel minimum 5.0 feet (1.5m) away from flammable materials and/or pyrotechnics.**



### **ELECTRICAL CONNECTIONS**

**A qualified electrician should be used for all electrical connections and/or installations.**



**A MAXIMUM OF 24 panels may be suspended from each other vertically in a curtain.  
An unlimited number of panels may be installed horizontally.  
(NOTE: Additional processing may be necessary)**



**USE CAUTION WHEN POWER LINKING MULTIPLE PANELS AS THE POWER CONSUMPTION  
OF OTHER PANEL MODELS MAY EXCEED THE MAX POWER OUTPUT ON THIS PANEL.  
CHECK SILK SCREEN FOR MAX AMPS.**

<b>MODEL</b>	<b>MAXIMUM POWER CONSUMPTION (W)</b>	<b>MAXIMUM AMPERES OUT (A)</b>
<b>DS4</b>	<b>104W</b>	<b>4.2A</b>
<b>DS4Q</b>	<b>72W</b>	<b>4.2A</b>
<b>DW4T</b>	<b>47W</b>	<b>4.2A</b>
<b>DS4RA</b>	<b>8.9W</b>	<b>4.2A</b>

**WARNING!** The safety and suitability of any lifting equipment, installation location/platform, anchoring/rigging/mounting method and hardware, and electrical installation is the sole responsibility of the installer.

Panel(s) and all panel accessories and all anchoring/rigging/mounting hardware **MUST** be installed following all local, national, and country commercial electrical and construction codes and regulations.

Before rigging/mounting a single panel or multiple interconnected panels to any metal truss/structure, a professional equipment installer **MUST** be consulted to determine if the metal truss/structure or surface is properly certified to safely hold the combined weight of the panels(s), clamps, cables, and all accessories.

Inspect metal truss/structure visually to ensure it does not flex and/or become deformed due to the weight of the panel(s). Damage caused to panel(s) by mechanical stress is not covered by warranty.

Panel(s) should be installed in areas outside walking paths, seating areas, or away from areas where unauthorized personnel might reach the panel(s) by hand. Access under work area must be blocked.

**NEVER** stand directly below the panel(s) when rigging, removing or servicing.

### **OVERHEAD RIGGING**

Overhead fixture installation must always be secured with a secondary safety attachment, such as an appropriately rated safety cable. Overhead rigging requires extensive experience, including amongst others calculating working load limits, installation material being used, and periodic safety inspection of all installation material and the fixture. If you lack these qualifications, do not attempt the installation yourself. Improper installation can result in bodily injury and property damage.

# INSTALLATION – PANEL CONNECTORS



DS4CC—Convex/Concave Panel Connector



DS4HC—Horizontal Connector



Horizontal Panel Connector (Small)



DS4—Vertical Panel Connector

## INSTALLATION – PANEL CONNECTORS



DS4FW—Fastening Wrench



DS4OB—Offset Bracket



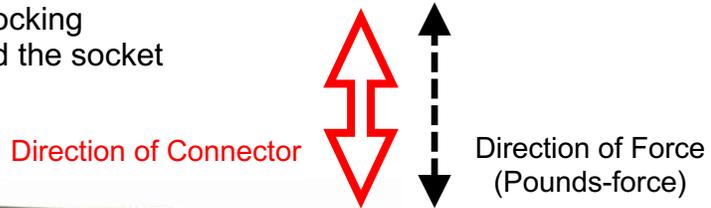
DS4MFC—Multi-Function Clamp

DS4 Connectors, Clamps, & Accessories

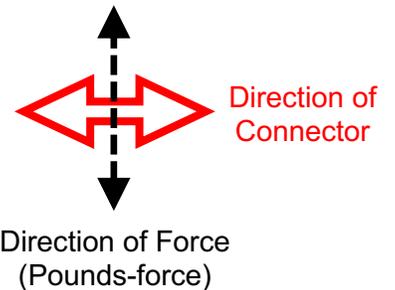
# INSTALLATION – PANEL CONNECTORS

The maximum horizontal load bearing capacity of the DS4CC Horizontal Curve Panel Connector is 112 Pounds-force (500 Newton), with a safety bearing capacity of 45 Pounds-force (200 Newton); the maximum horizontal load bearing capacity of the DS4HC Horizontal Panel Connector is 337 Pounds-force (1500 Newton), with a safety bearing capacity of 112 Pounds-force (500 Newton); and the maximum vertical load bearing capacity of the DS4VC is 562 Pounds-force (2500 Newton), with a safety bearing capacity of 186 Pounds-force (830 Newton). All of the brackets are designed to be used more than 2000 times and stored for more than 3 years.

Load bearing capacity of DS4VC Vertical Connector (562lbs-force) is measured vertically, the force of the load pulling in alignment with both the locking mechanism knob (when turned 90°) and the socket flange of the connector (tension)



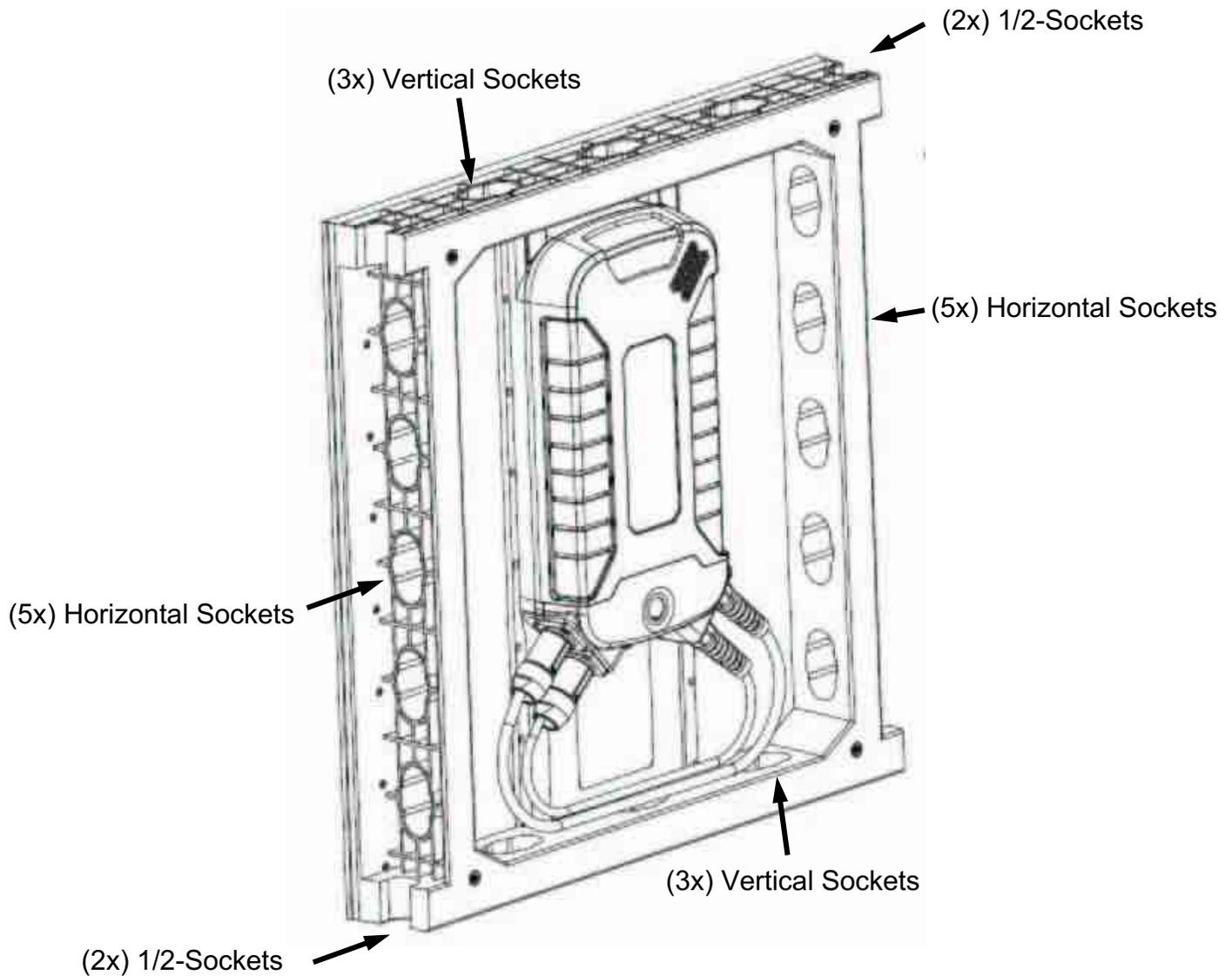
Load bearing capacity of the DS4HC Horizontal Connector (186lbs-force) and DS4CC Curve Connector (45lbs-force) is measured vertically, the force of the load being perpendicular to the alignment of the connectors.



Connector Load Bearing Capacity

## INSTALLATION – PANEL CONNECTORS AND SOCKETS

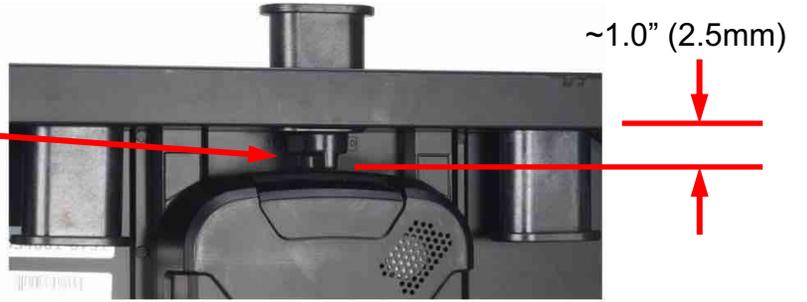
There are 3 mounting sockets and 2 half mounting sockets on the top and bottom frames of the DS4 LED Video Panel, and five mounting sockets on both vertical sides.



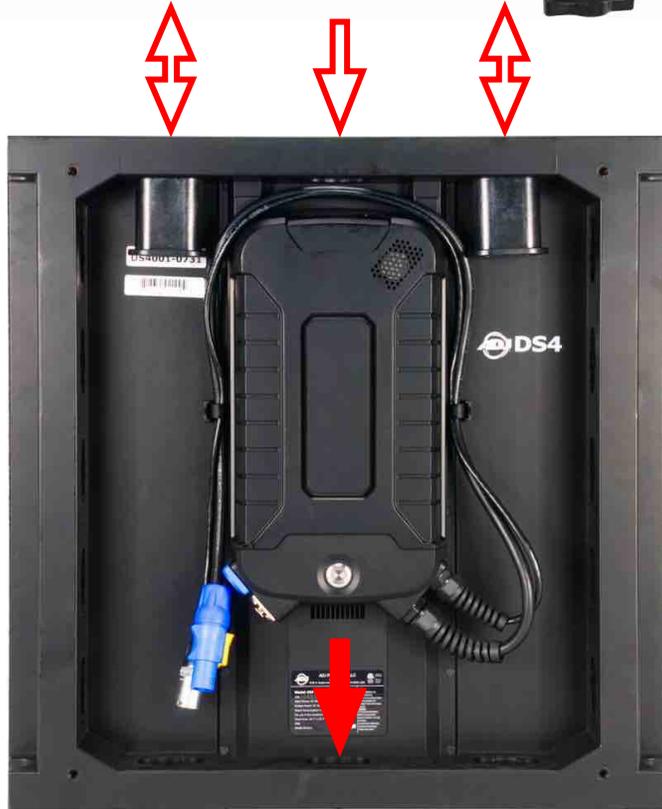
The 2 half sockets, when adjacent to another DS4 LED Video Panel, form a single mounting socket. Each unit comes standard with (2x) DS4VC Vertical Connectors (installed), and (3x) DS4HC Horizontal Connectors. A DS4VC Vertical Connector can only be installed from the top of both center sockets, and still lock (top and bottom frames), because of inherent design limitations of the center power-supply/heatsink mounting rails inside the panel, and the location of the power-supply/heatsink itself.

# INSTALLATION – PANEL CONNECTORS AND SOCKETS

This DS4VC Vertical Connector can only insert from the top with enough room above the Power Supply to turn the connector locking mechanism knob 90°



Insert DS4VC Vertical Connector from the top of the bottom rail. The locking mechanism of the DS4VC Vertical Connector can only turn approximately 45° because it is blocked by the raised central rail panel under the Power Supply



DS4VC Installation & Power Supply

## INSTALLATION – PANEL CONNECTORS AND SOCKETS

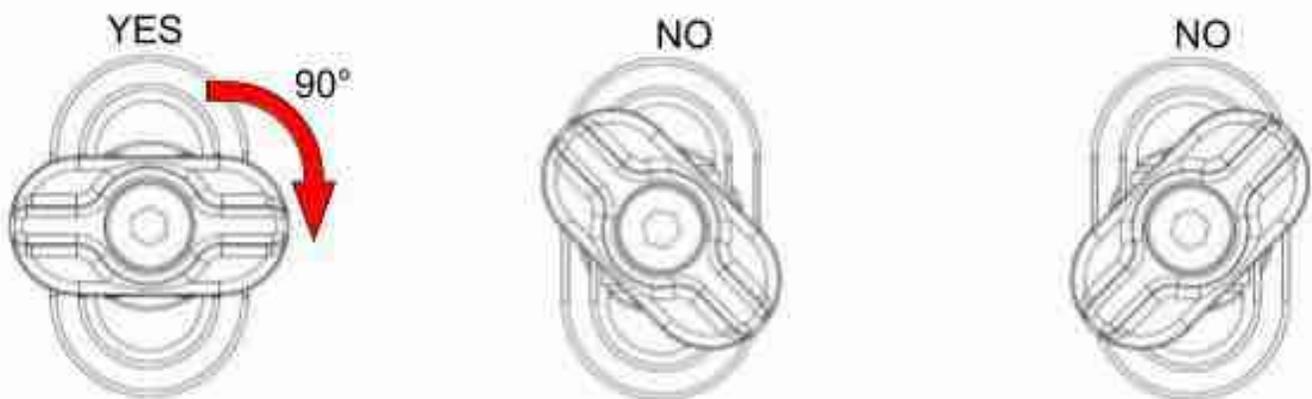
To remove the (2x) DS4VC Vertical Connectors from the top frame of the DS4 LED Video Panel, it may be necessary to remove the radiused Connector Flange Clips from the DS4VC Vertical Connectors.



Remove Radiused Connector Flange Clip

## CONNECTOR LOCKING MECHANISM

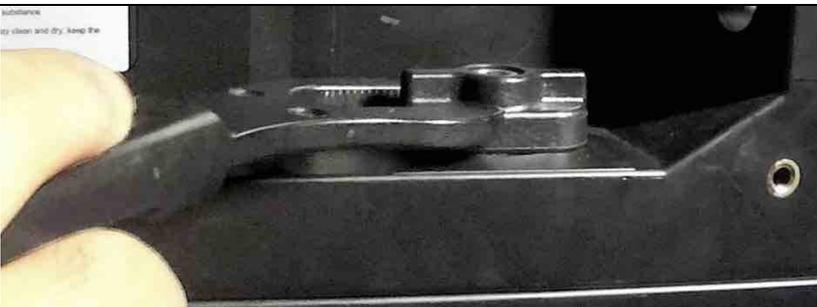
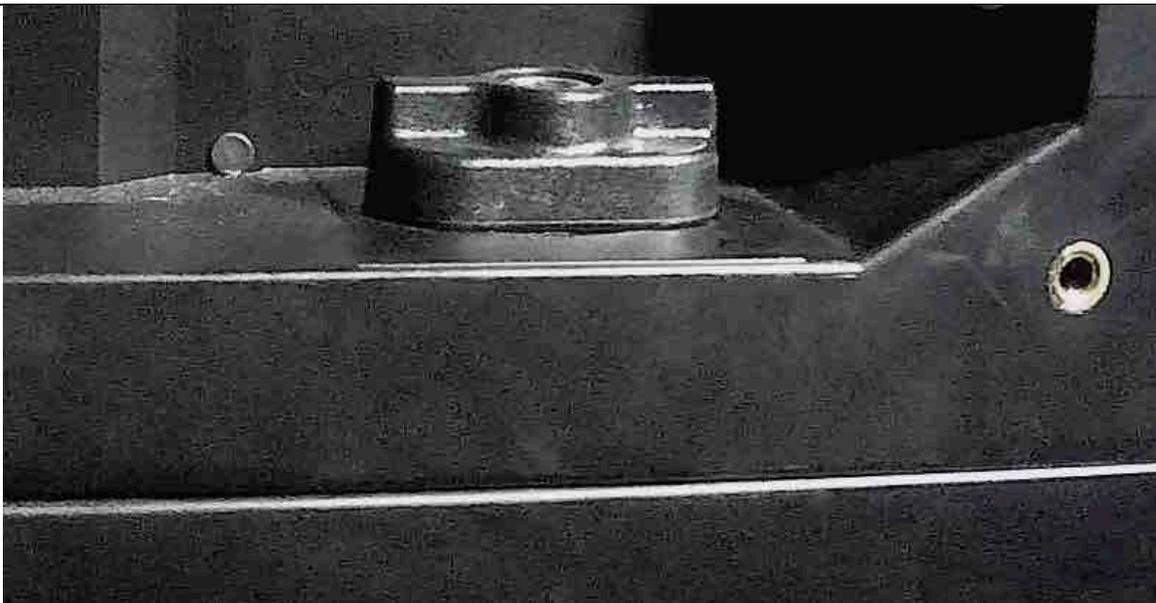
Regardless of the model used (DS4VC, DS4HC, or DS4CC), all connectors have an integrated locking mechanism that, when turned 90°, will lock the respective DS4 LED Video Panels into place, ensuring maximum hold strength. When you turn the knob of the locking mechanism the full 90°, you should feel a slight snap.



Turn connector locking mechanism knob 90° to lock

## INSTALLATION – VERTICAL PANEL CONNECTION

# DS4VC Vertical Panel Connector



With the DS4VC Horizontal Connectors installed in both panels, twist their locking mechanism knobs 90° to lock them in place.

## INSTALLATION – HORIZONTAL PANEL CONNECTION



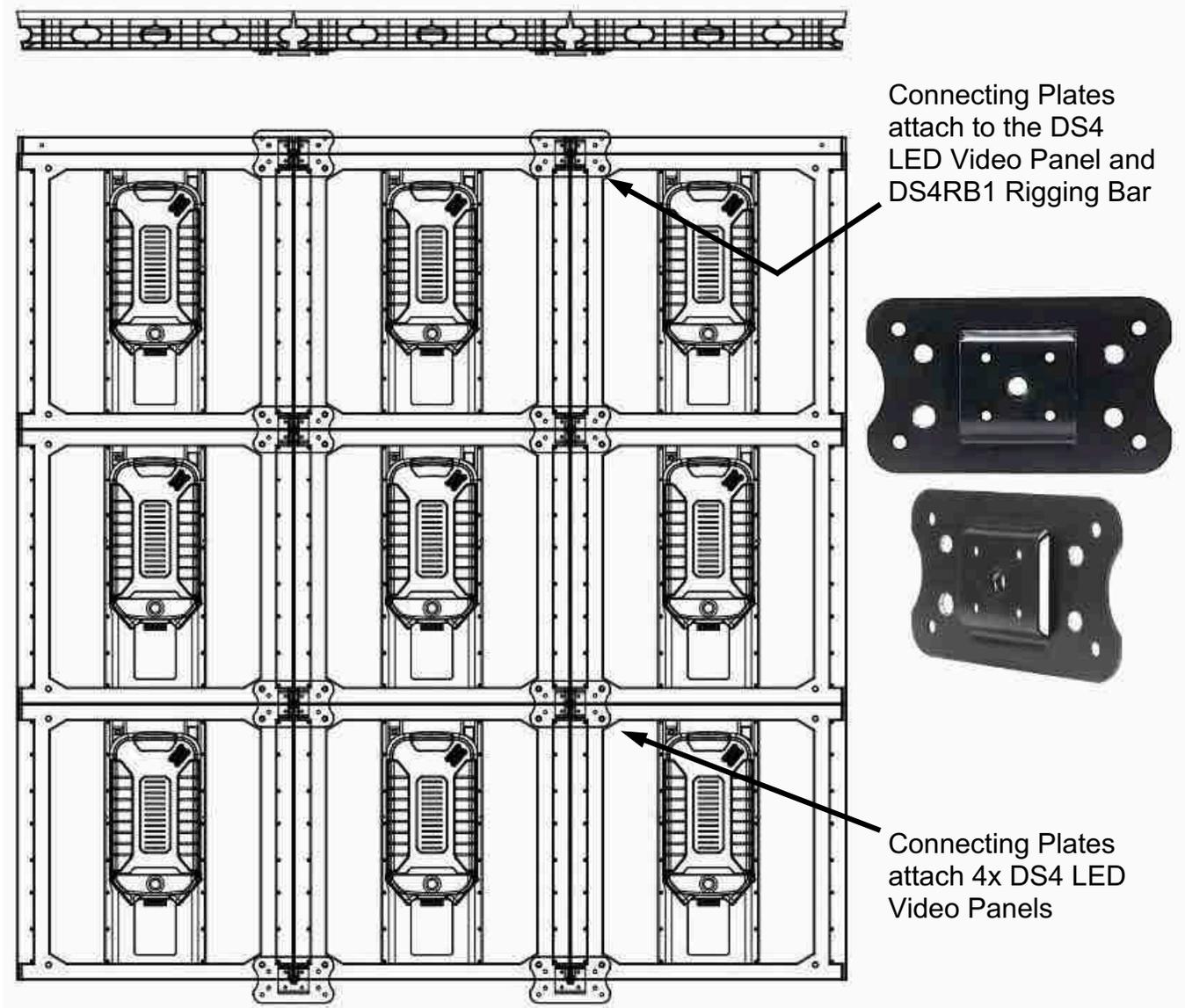
The DS4HC Horizontal Connectors have panel locking mechanisms on both sides with a panel spacer sleeve between them.



With the DS4HC Horizontal Connectors installed in both panels, twist their locking mechanism knobs 90° to lock them in place.

## INSTALLATION – STACKED PANELS

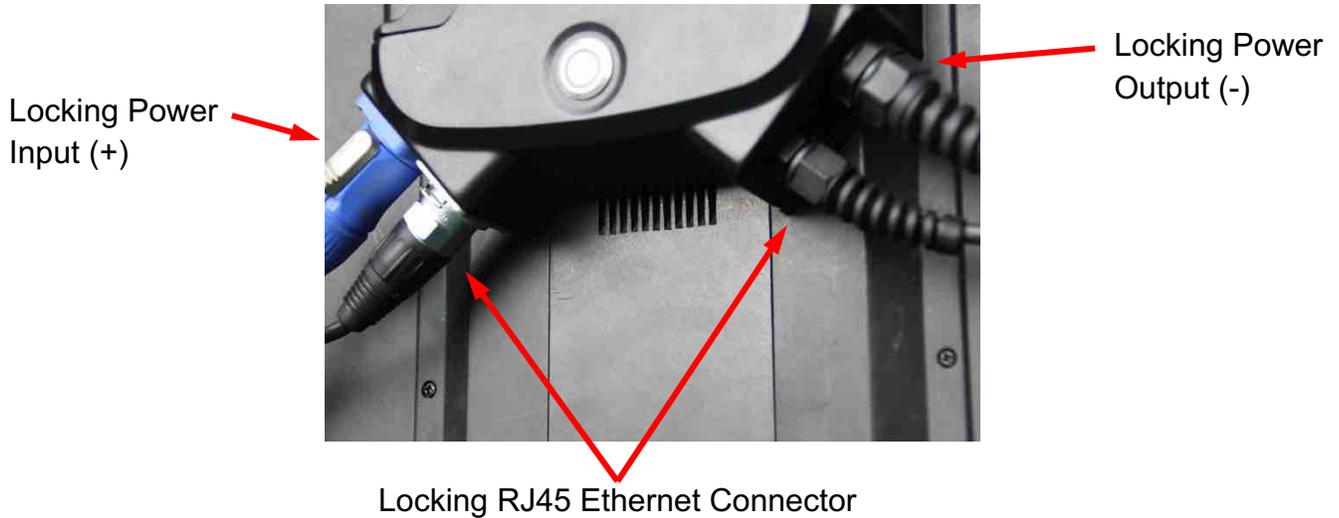
For safety, and to ensure surface flatness and integrity between panels, install Connecting Plates when the height of stacked DS4 LED Video Panels exceeds 4 meters (~8 stacked DS4 LED Video Panels). The Connecting Plates can also be used for fixed wall installations.



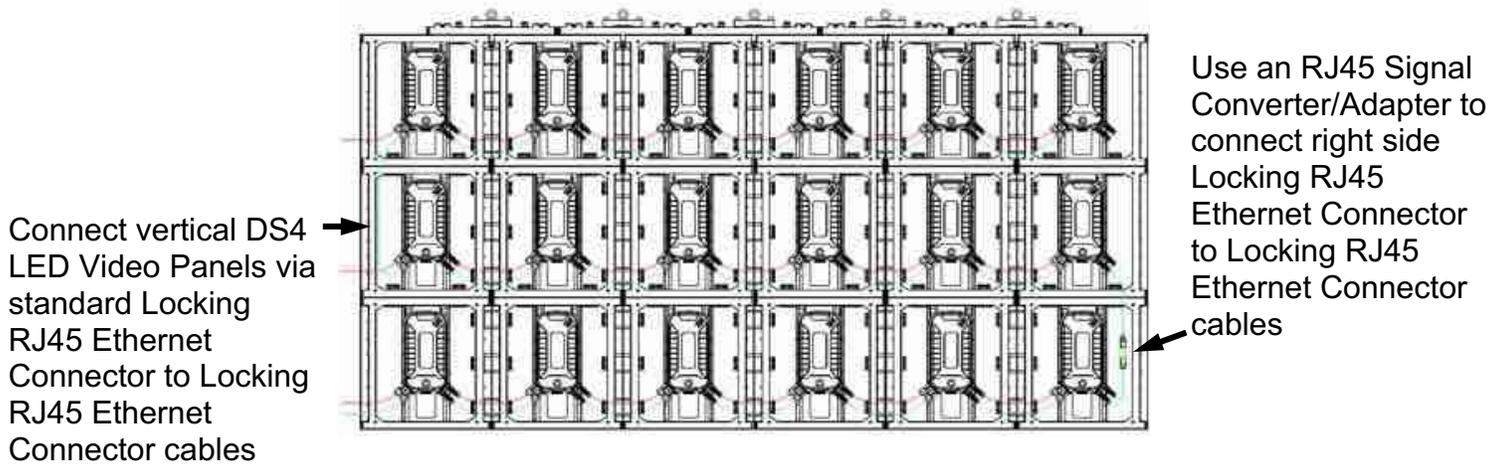
Connecting Plate Installation

## INSTALLATION – STACKED PANELS

From the back side, on the left is Locking Power Connector In and Locking RJ45 Ethernet Connector In/Out, and on the right side is Locking Power Connector Out and Locking RJ45 Ethernet Connector In/Out.



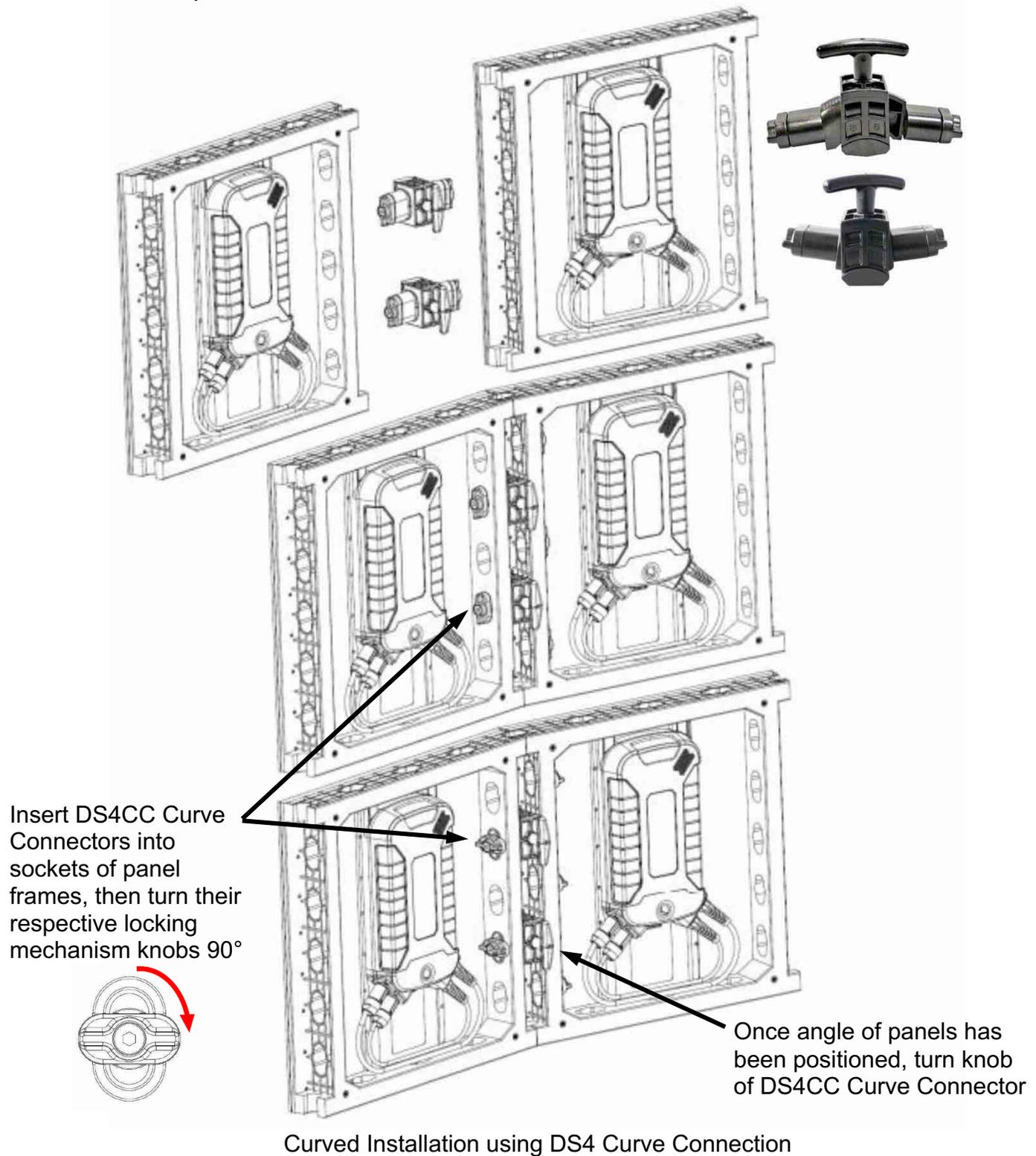
To connect two stacked DS4 LED Video Panels on the left side, use an Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector cable. To connect two stacked DS4 LED Video Panels on the right, you can use an RJ45 signal adaptor (not included) to connect the two Locking RJ45 Ethernet Connector In/Out cables.



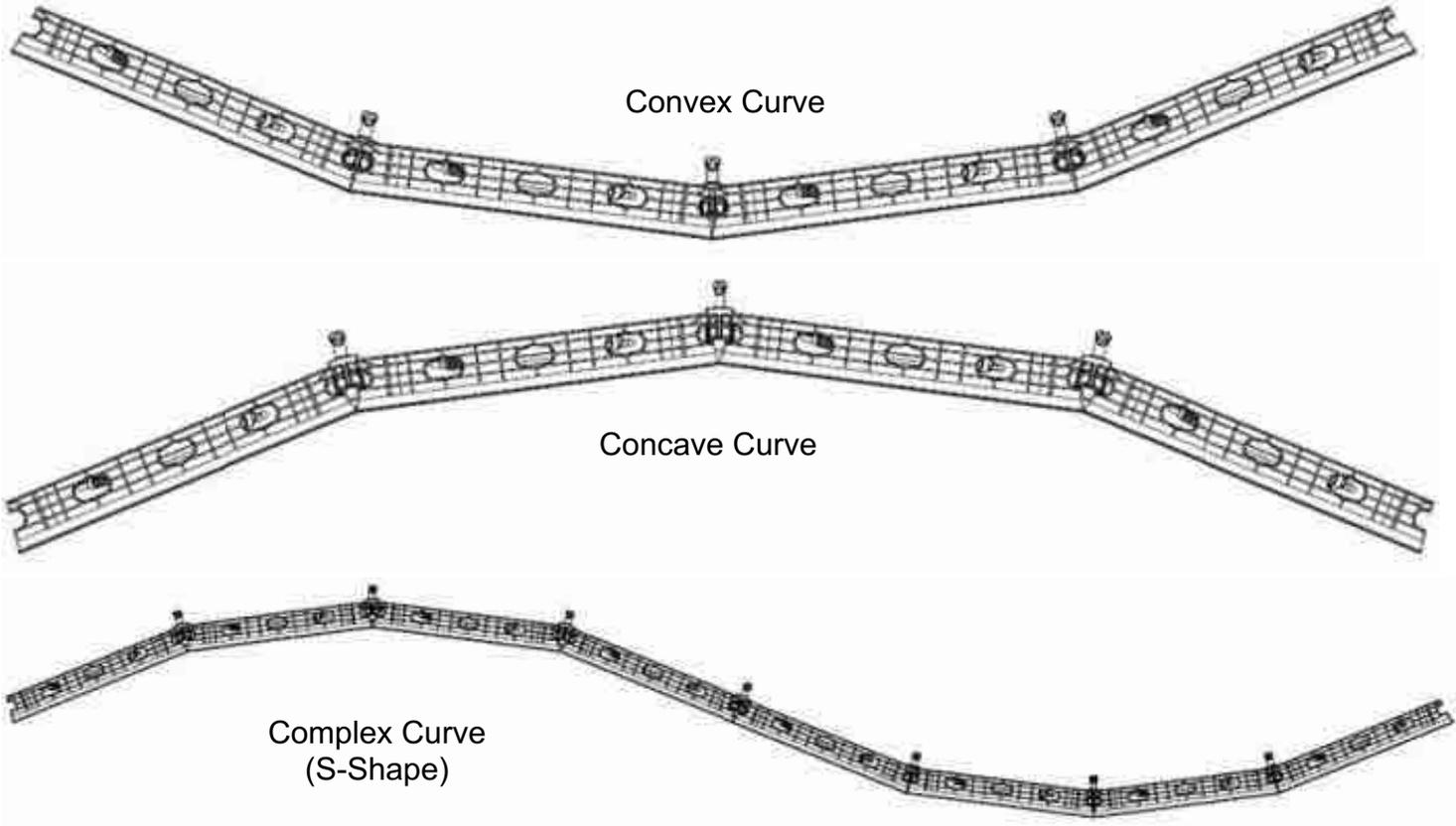
Power Cable and Signal Cable Connection Schematic.

## INSTALLATION – CONVEX, CONCAVE, OR COMPLEX CURVED PANELS

A curvilinear screen installation requires the use of DS4CC Curved Connectors to assemble the DS4 LED Video Panels to achieve convex, concave, or complex curve screen shapes. Once connected, the DS4CC Curved Connectors allow adjoining DS4 LED Video Panels to be positioned plus or minus 15° and locked in place.



# INSTALLATION – CONVEX, CONCAVE, OR COMPLEX CURVED PANELS



Top View of Curved Installation Options

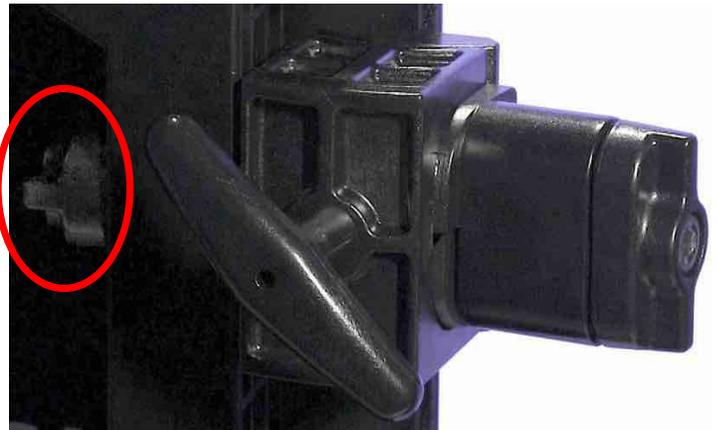
## INSTALLATION – CONVEX, CONCAVE, OR COMPLEX CURVED PANELS



Note the side handle on the DS4CC Curve Connector, which faces the back side of the panels when installed.



1. Insert the DS4CC Curve Connectors into one panel.



2. Twist their locking mechanism knobs 90° to lock them in place.

## INSTALLATION – CONVEX, CONCAVE, OR COMPLEX CURVED PANELS



1. With the DS4CC Curve Connectors installed in both panels, twist their locking mechanism knobs 90° to lock them in place.



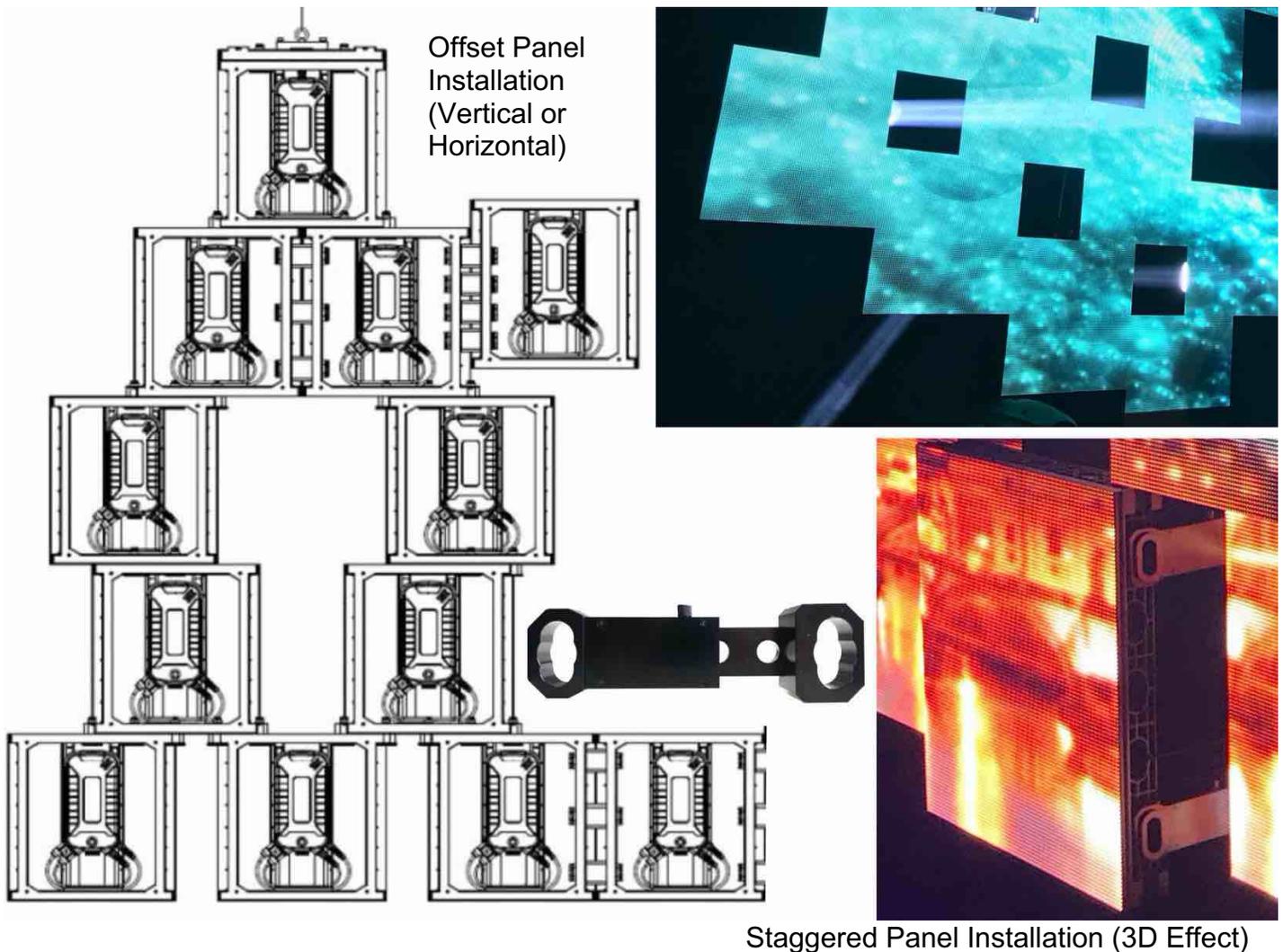
2. Position panels to the desired angle.



3. Twist the angle lock to secure the desired panel angle position

## INSTALLATION – OFFSET & STAGGERED (3D) PANELS

The DS4 LED Video Panels are designed for myriad staggered and offset mounting options, allowing greater display design flexibility. Our DS4 LED Video Panels come with two preinstalled DS4VC Vertical Connectors. If necessary, remove these connectors by removing both half round flange stops from their slots just under the locking mechanism knobs. Use the DS4OB Offset Bar for staggered 3D effects.

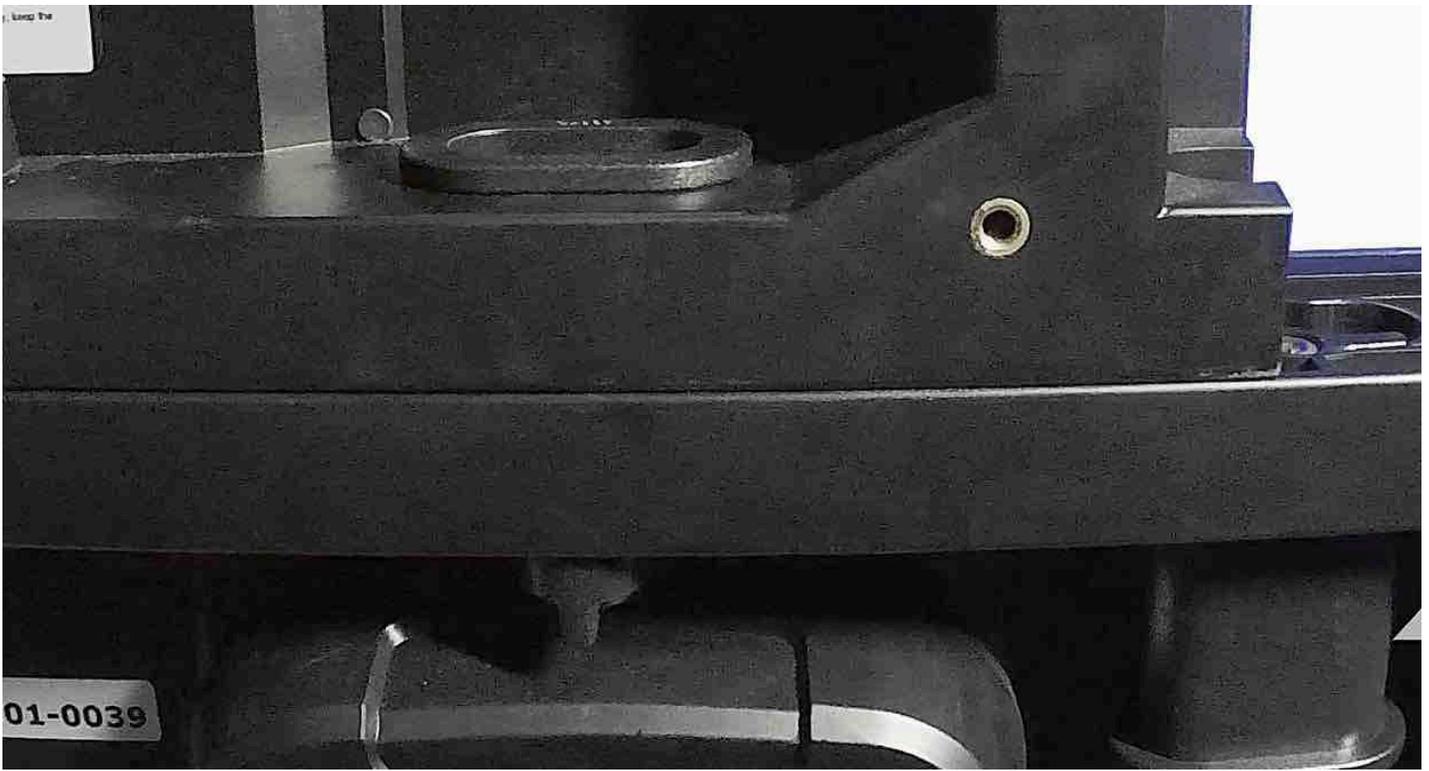


Offset and Staggered (3D) Installations

## INSTALLATION – OFFSET & STAGGERED (3D) PANELS

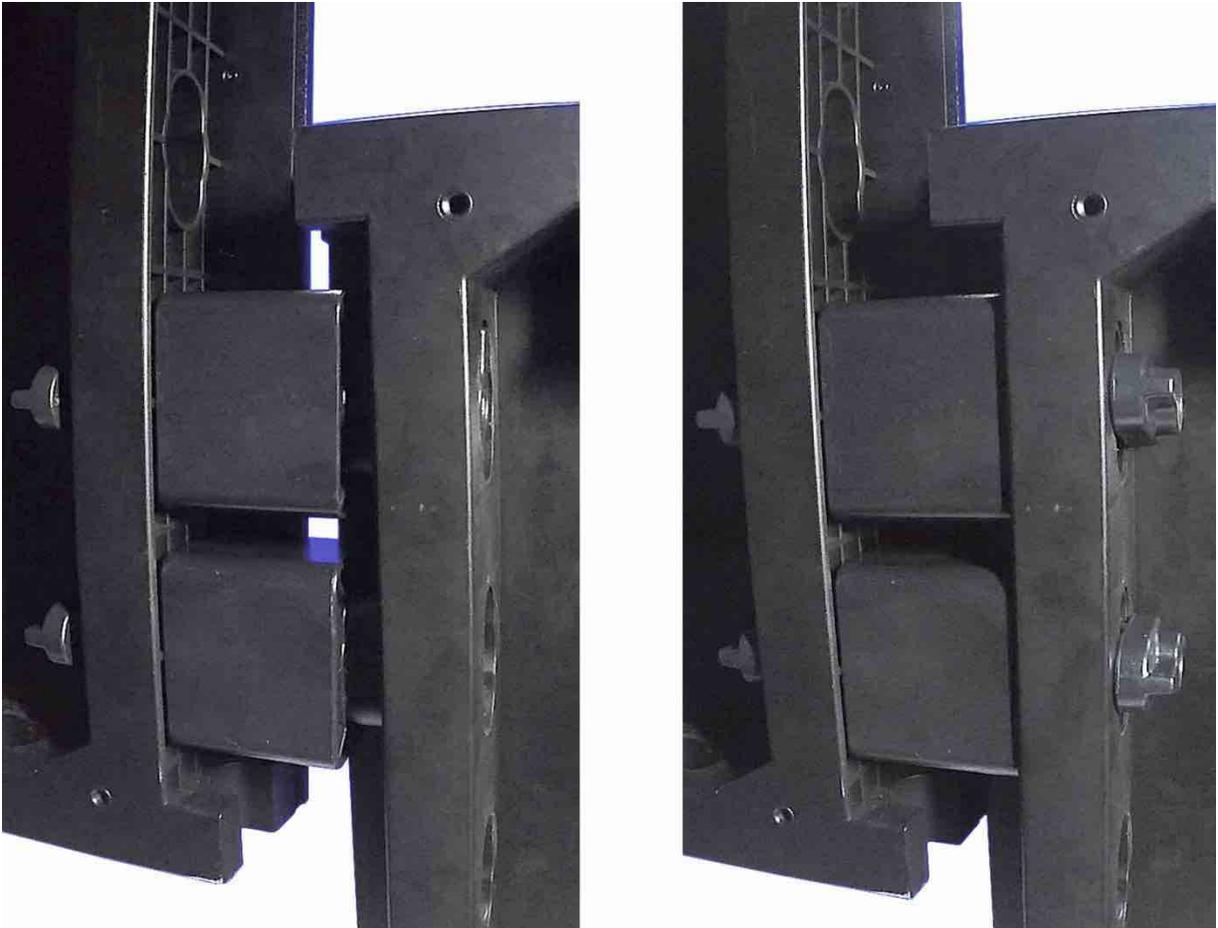


1. Use the DS4FW Fastening Wrench to turn the more difficult to reach, or hard to turn locking mechanism knobs.



2. With the DS4VC Vertical Connectors installed in both offset panels, twist their locking mechanism knobs to 90° to lock them in place.

## INSTALLATION – OFFSET & STAGGERED (3D) PANELS



3. With the DS4HC Horizontal Connectors installed in both offset panels, twist their locking mechanism knobs 90° to lock them in place.

## INSTALLATION – OFFSET & STAGGERED (3D) PANELS



1. Secure the DS4OB Offset Bar to the panel with a DS4VC Vertical Connector.

## INSTALLATION – OFFSET & STAGGERED (3D) PANELS



2. Twist the locking mechanism knobs of the DS4VC Vertical Connectors 90° to lock them in place.



3. With the DS4OB Offset Bars in position, and the second set of DS4HC Horizontal Connectors installed, twist their locking mechanism knobs 90° to lock them in place.

## INSTALLATION – OFFSET & STAGGERED (3D) PANELS



4. For a deeper 3D effect, the DS4OB Offset Bars can extend another 2 inches.



5. Pull and twist the knurled spring-loaded locking pin to an open position on the DS4OB Offset Bar, extend the panel, then re-engage the locking pin.

## INSTALLATION – RIGGING

When flying the DS4 LED Video Panels using a truss lifting frame, lintel, or overhead beam, the center of gravity of the DS4 LED Video Panel is near the LED screen, counterbalanced by the integrated power-supply/heatsink. To maintain balance, orient the DS4RB1 Rigging Bar so that the integrated level and eye-bolt of the top bolt-plate assembly face the front of the DS4 LED Video Panel.

1. With the DS4RB1 Rigging Bar affixed to an overhead truss system, orient it so that eye-bolt and integrated level are facing forward

Note that the integrated level is on the front of the DS4RB1 Rigging Bar, coinciding with the LEDs of the DS4 LED Panel



2. The DS4 LED Video Panels are then installed vertically. Each DS4 LED video panel has two installed DS4VC Vertical Connectors; use them to attach to DS4RB1 Rigging Bar.



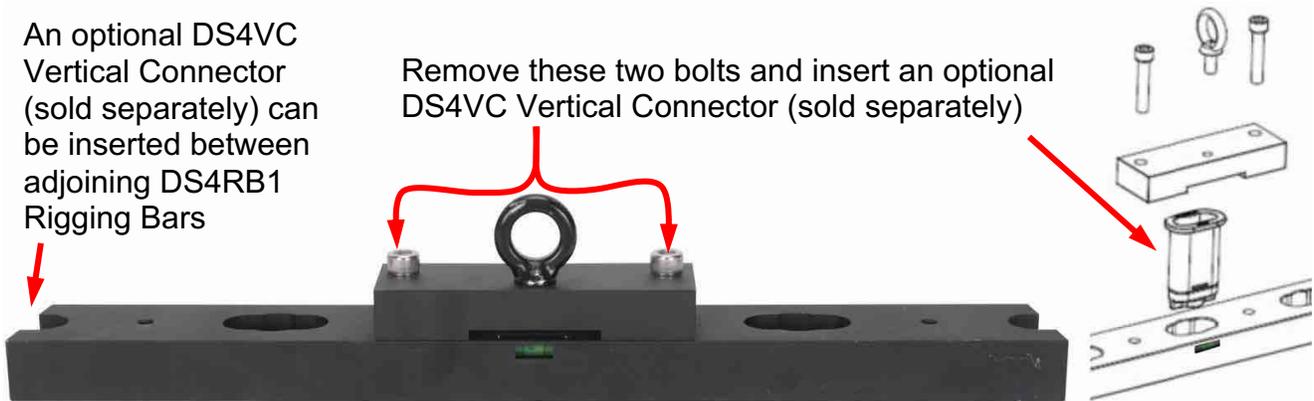
3. With the DS4RB1 and DS4 attached to an overhead truss, continue connecting DS4s vertically.



**NOTE: 24 MAX. PANELS PER RIGGING BAR**

## INSTALLATION – RIGGING

If you need to increase vertical load capacity, you can add additional DS4VC Vertical Connectors (sold separately). You can install an optional (1x) DS4VC Vertical Connector to the DS4RB1 Rigging Bar under the Bolt-Plate assembly, inserted from the top through the center installation hole of the beam, and secured with the Bolt-Plate assembly, and an additional DS4VC Vertical Connector (sold separately) can be added between each adjoining DS4RB1 Rigging Bar.

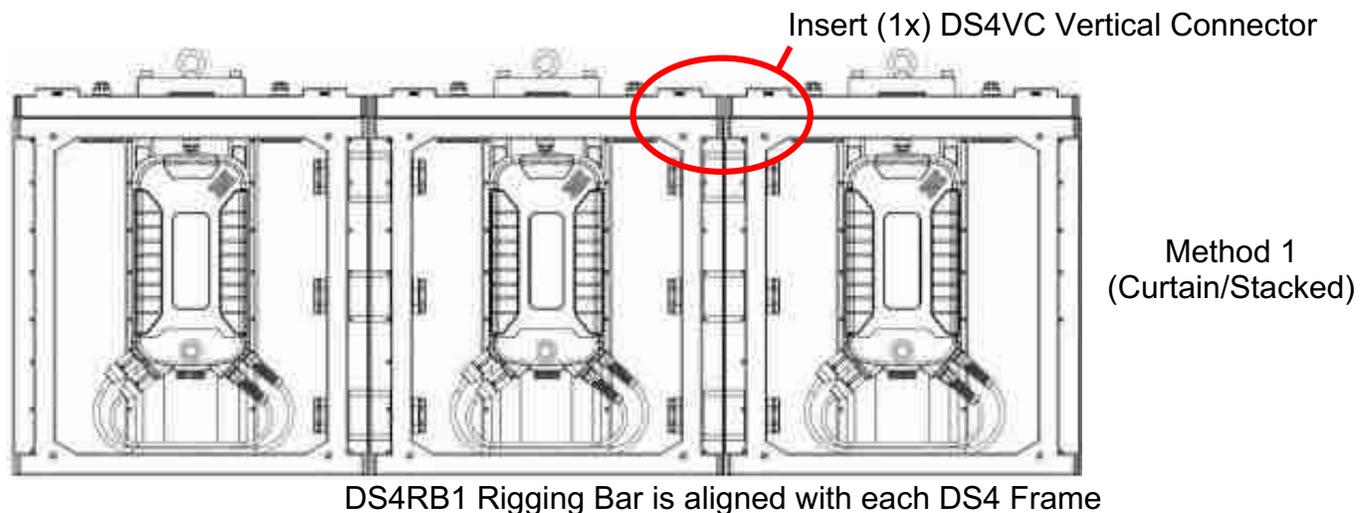


Optional DS4VC Vertical Connector Installation

To hang the DS4 LED Video Panels, there are two basic DS4RB1 Rigging Bar installation configurations: with the first, the DS4RB1 Rigging Bar is aligned with the frame of the LED Video Panel (curtain/stacked); the second, the DS4RB1 Rigging Bar straddles two DS4 LED Video Panels.

### Curtain/Stacked Rigging

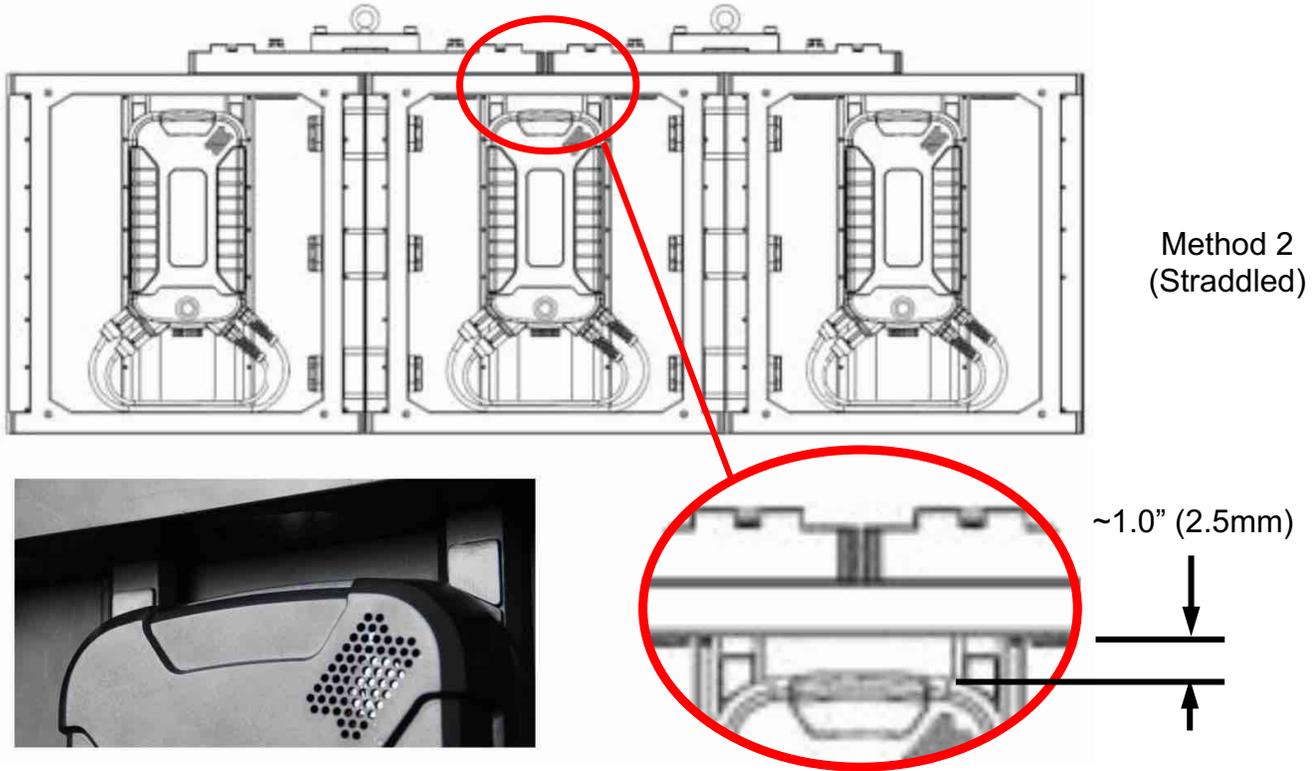
Match the DS4RB1 Rigging Bar installation sockets with those of the top installation sockets of the DS4 LED Video Panel, then insert the center installed DS4VC Vertical Connector of the DS4RB1 Rigging Bar into the center installation socket of the DS4 LED Video Panel, and twist the knob of the locking assembly 90° to lock it. Insert two DS4VC Vertical Connectors from the bottom of the top frame of the DS4 LED Video Panel, then twist the knobs of their respective locking mechanisms 90° to lock. Once the LED Video panels have been connected both vertically and horizontally, an extra DS4VC Vertical Connector is installed between the DS4 LED Video Panels to the Rigging Bars.



# INSTALLATION – RIGGING

## Straddled Rigging

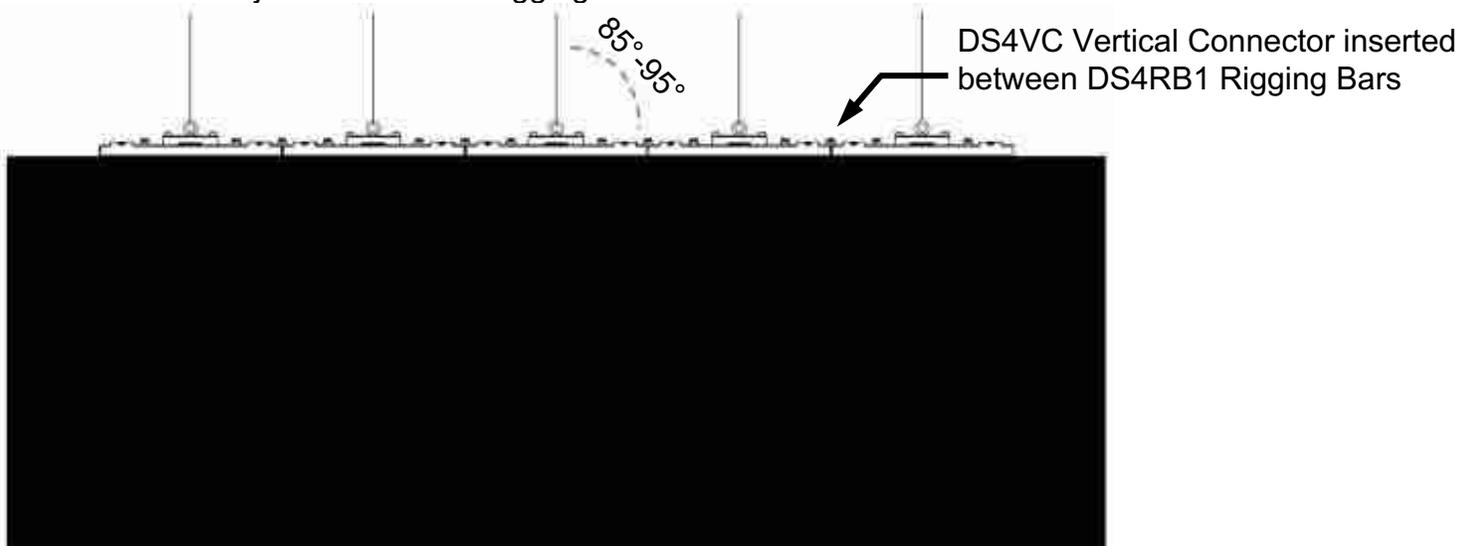
Although not always possible, the second and recommended method for larger installations, is to straddle two DS4 LED Video Panels with the DS4RB1 Rigging Bar, the end of each Rigging Bar bisecting the top frame of two adjacent DS4 LED Video Panels, like stacking bricks. This second method creates an overlapping framework with greater inherent structural integrity, distributing workload stress through to the multiple cable rigging points, and throughout the latticework of the screen frames.



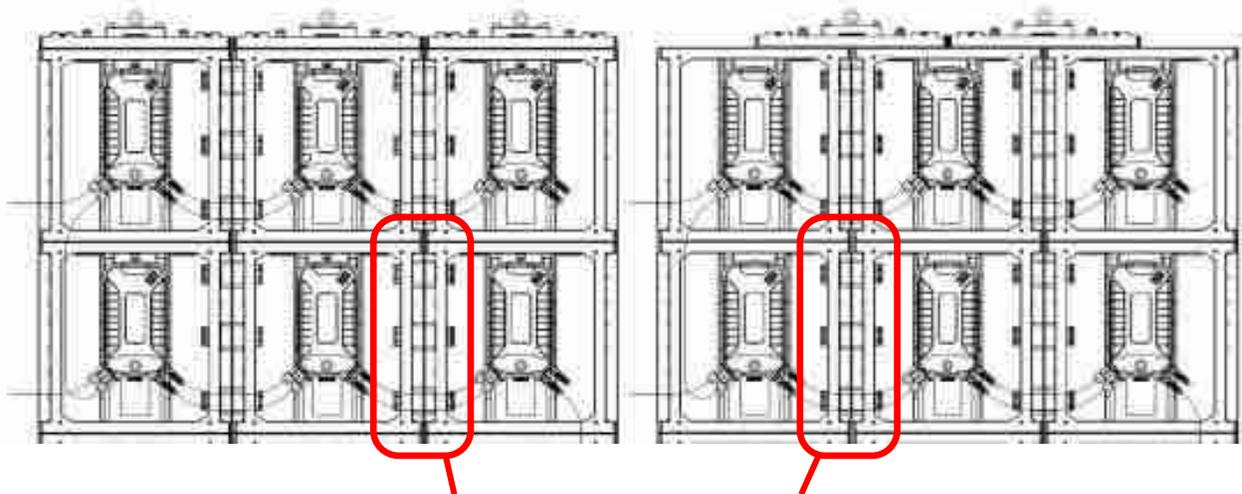
Each DS4RB1 Rigging Bar Straddles two DS4 LED Video Panels

## INSTALLATION – RIGGING

When tested for strength using just 4 holes of two installed DS4RB1 Rigging Bars, the Safe Working Load (SWL) is 243 Pounds-force (2861 Newton), with a 3:1 risk factor of Minimum Breaking Load (MBL), and is safe for building up to 16 (24 maximum) stacked panels in a curtain configuration. This test was conducted with just the 4 available holes of two DS4RB1 Rigging Bar units installed end to end, and not utilizing the connector hole under their respective top bolt-plates, or the extra connector hole formed by their adjoined placement. To maximize strength and safety\*, maintain the vertical alignment angle for the suspension rope or rigging cable to within plus or minus 5° of vertical (85° to 95°), ensure each vertical suspension or rigging cable is taught, and for extra support when stacking more than 8 DS4 LED Video Panels, add an extra DS4VC Vertical Connector with each hole that is formed between adjoined DS4RB1 Rigging Bars.



Front View of Hanging Installation



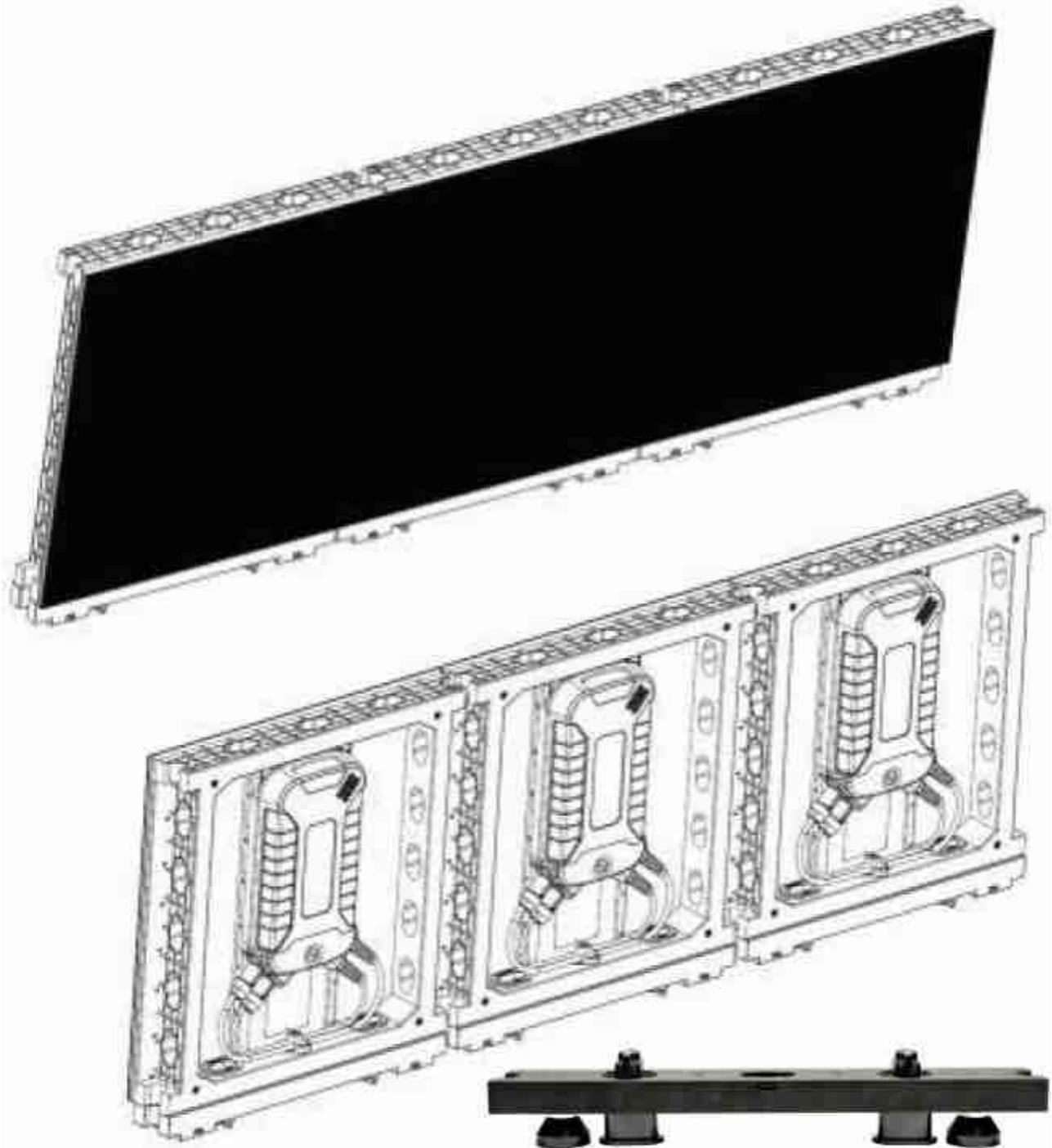
(3x) DS4HC Horizontal Connectors per adjacent Panel

In both installations methods, as seen from back side,  
(3x) DS4HC Horizontal Connectors installed with each adjacent panel.

\*N.B.: This is to minimize, or conserve, angular-momentum torque at each rigging anchor point, and subsequently, relating a cascading torqueing stress to the rest of the DR4 LED Video Panel frames. You might think of a cascading torqueing stress as stacked boxes taped to each other, and when tilted or pushed over a curve, the series of compression/tension stresses to the tape holding the boxes.

## INSTALLATION – RIGGING: GROUND SUPPORT

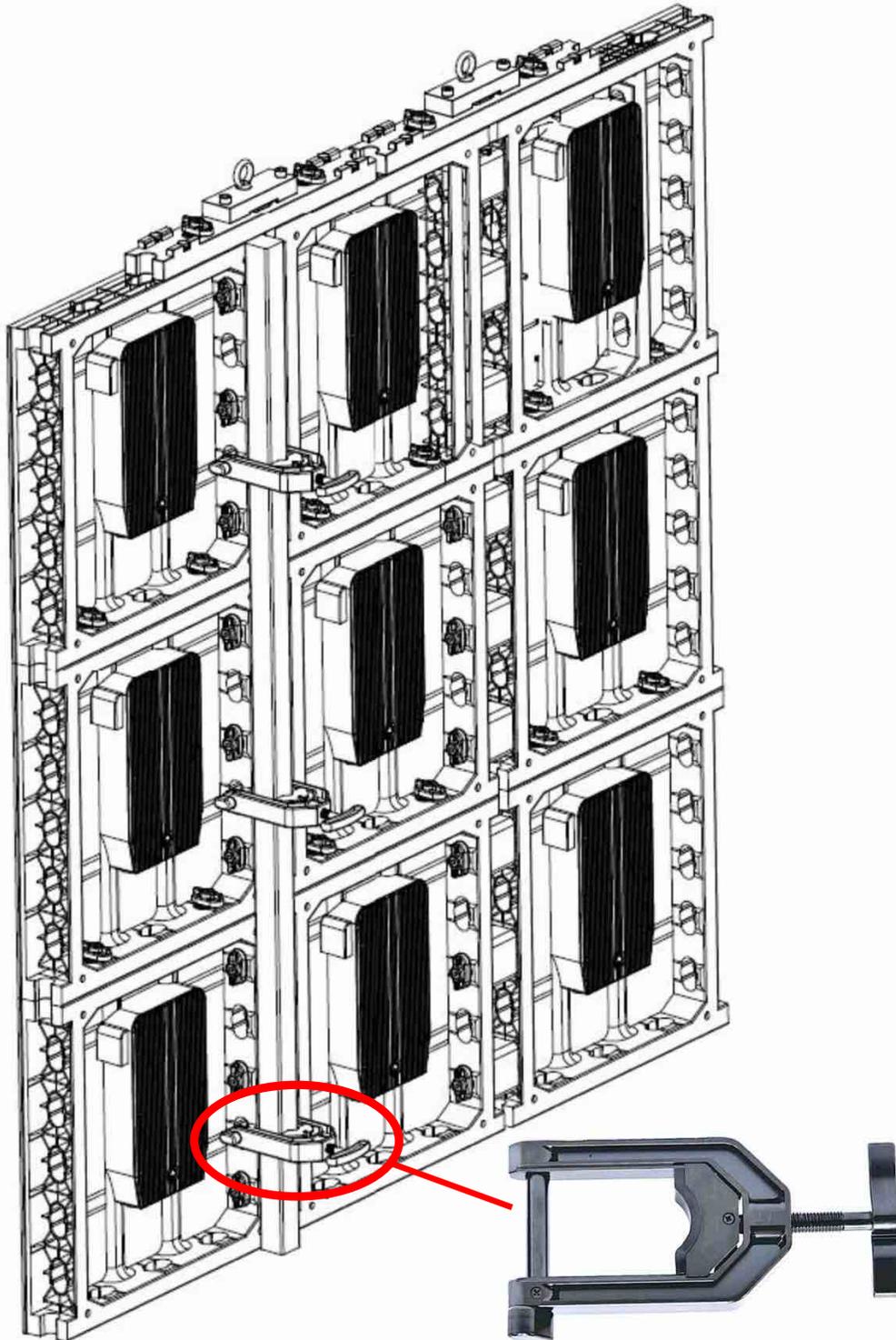
The DS4RB1 can also be installed at the bottom of your screen as a ground support beam, especially if the ground is particularly uneven.



Rigging Bar used with Ground Support Installation, Front and Back Views

## INSTALLATION – RIGGING: FIXED

For fixed or semi-permanent installations, the DS4 LED Video Panels can be attached to a wall or steel poll using the DS4MFC Multi-Function Clamp. In addition, use a minimum of three DS4HC Horizontal Connectors for each horizontal adjoining DS4 LED Video Panel to ensure horizontal structural integrity.



Fixed Installation using the DS4MPC Multi-Purpose Clamp

## TECHNICAL SPECIFICATIONS

Items	Specifications & Metrics	
Module	LED Configuration	3-in-1 SMD 2020 LED
	Pixel Pitch (mm)	4.8mm
	Module Resolution (WxH)	104x104
	Size (mm)	500x125
	Weight (kg)	388g(PGBA)
Panel	Module Per Panel (WxH)	1x4
	Panel Resolution (WxH)	104x104
	Panel Size (mm)	500x500x73
	Panel Area (m <sup>2</sup> )	0.25
	Weight (kg/Panel)	5.7
	Pixel Density	43264
	IP Rating	IP50
	Surface Flatness (mm)	Gaps±
Optical Parameters	Brightness Before Correction (nit)	600~800
	White Balance Brightness (nit)	800~1200
	Color Temperature (k)	7000±3000K
	Distance:	12.5ft. (3.8m)
	Vertical Viewing Angle (°)	Horizontal 160° / Vertical 120°
	Pixel Center Distance Deviation	<3%
	Brightness Uniformity	≥97%
	Brightness Adjustment	0~100% 100 Levels
	Gray Scale / Display Color:	14 Bit
	Color Uniformity	No more than ±0.003Cx, Cy
	Contrast Ratio	3000:1
Electrical	Working Voltage	AC100~240V (50~60Hz)
	Power Consumption	Max: 104W/panel Average: 15W/panel
	Connections Power/Data	Power-Locking Power Connector In/Out; Data Locking RJ45 Ethernet Connector In/Out
	Frame Update Frequency	50-60Hz
	Driving Method	Constant Drive
	Scan Mode	1/13 Duty
	Frame Update Frequency	50-60Hz
	Refresh Frequency (Hz)	≥1920Hz
	Support Input	Composite, S-Video, Component, VGA, DVI, HDMI, HD_SDI
	Control Distance	Ethernet Cable<100m, Fiber Optic>120m
	Support VGA Mode	1024x768, 1280x1024, 1600x1200, & 1920x1280
Control System	Nova Star Synchronous System with Control via DVI	
Environmental and Usage Parameters	Operating Life / MTBF	80,000 Hours / 10,000 Hours
	Environment Temperature	Working temperature: -20°C-45°C Storage Temperature: -30°-60°C
	Environment Humidity	Working: 10-90% (No condensation) Storage: 10-90% (No condensation)
	Out of Control Rate	<0.0003%
	Environment Mode	Cat5
	Angle of Arc Installation	165° - 195°
	Minimum Circle Diameter (m)	3.8
Listings	CE, FCC, & ETL	

Specifications subject to change without any prior written notice.



Intertek  
501032 41

# TECHNICAL SPECIFICATIONS

## FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## FCC RADIO FREQUENCY INTERFERENCE WARNINGS & INSTRUCTIONS

This product has been tested and found to comply with the limits as per Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device uses and can radiate radio frequency energy and, if not installed and used in accordance with the included instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

Reorient or relocate the device.

Increase the separation between the device and the receiver.

Connect the device to an electrical outlet on a circuit different from which the radio receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

## OPTIONAL COMPONENTS & ACCESSORIES

SKU	DESCRIPTION
CAT303	3' Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector Data Jumper
CAT305	5' Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector Data Jumper
CAT310	10' Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector Data Jumper
CAT315	15' Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector Data Jumper
CAT325	25' Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector Data Jumper
CAT451	25' First Data Cable Processor to Panel
CAT461	50' First Data Cable Processor to Panel
CAT471	100' First Data Cable Processor to Panel
DS4001	DS4 4.8mm Video Panel 104 X 104
DS4015	DS4RA Rectangle 1/4 size Panel (Right Angle)
DS4030	DS4RA Chandelier Bracket holds 8 units
DS4044	DS4T1 Top Right Triangle Section 4.8mm
DS4052	DS4T2 Bottom Right Triangle Section 4.8mm
DS4067	DS4T3 Bottom Left Triangle Section 4.8mm
DS4078	DS4T4 Top Left Triangle Section 4.8mm
DS4089	DS4QC1 Top Left Quarter Circle Section 4.8mm
DS4100	DS4QC2 Top Right Quarter Circle Section 4.8mm
DS4115	DS4QC3 Bottom Right Quarter Circle Section 4.8mm
DS4130	DS4QC4 Bottom Left Quarter Circle Section 4.8mm
DS4144	DS4 Transport Cart/Ground Support
DS4152	DS4HC Horizontal Panel Connector (2 per panel)
DS4167	DS4VC Vertical Panel Connector (2 per panel)
DS4178	DS4CC Adjustable Curve Connector 15° (2 per panel)
DS4189	DS4MFC Multi-Function Adjustable Clamp
DS4200	DS4OB Adjustable Offset Bar (3D effect)
DS4215	DS4RB1 Rigging Bar / Ground Support Bar
DS4230	DS4FW Fastening Wrench
DS4244	DS4FC10 Full Panel Flight Case holds 10 units
DS4252	DS4RAFC24 Rectangle Panel Flight Case hold 24 Units
DS4267	DS4QCFC10 Quarter Circle Road Case hold 10 Units
DS4278	DS4TFC10 Triangle Section Road Case hold 10 Units
DS4289	DS4AFC; Flight Case for DS4 Accessories
DS4300	DS4LED-M; LED module for DS4
DS4719	MRV410-6; receiving card for DS4
DS4733	HSP-300PSU; Meanwell Power Supply
DS4751	DS4RACA; Right Angle Hardware Adapter
MCT300	ADJ MCT RL300 Video Wall Processor
MED592	Media Master Express—Video Control Software

## OPTIONAL COMPONENTS & ACCESSORIES (Continued)

SKU	DESCRIPTION
MPC10	I
MPC15	15' Main Power Cable Locking Power Connector to Edison
MPC25	25' Main Power Cable Locking Power Connector to Edison
PLC1	1' Power Link Cable Locking Power Connector to Locking Power Connector
PLC3	3' Power Link Cable Locking Power Connector to Locking Power Connector
PLC6	6' Power Link Cable Locking Power Connector to Locking Power Connector
PLC10	10' Power Link Cable Locking Power Connector to Locking Power Connector
PLC25	25' Power Link Cable Locking Power Connector to Locking Power Connector
VX4001	Nova Pro VX4S Processor / Scaler / Switcher
Eye Clamp	Eye Clamp
Shackle	1/2" Shackle
TBD	Locking RJ45 Ethernet Connector to Locking RJ45 Ethernet Connector Coupler for Data
TBD	Locking Power Connector to Locking Power Connector Coupler for Power
TBD	Connecting Plate

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