THOR:

CANVAS USER GUIDE

Document reference: CANVAS User Guide 26v2.17
Distribution date: February 17, 2026

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated and/or potentially dangerous voltage within the products enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT SAFETY INSTRUCTIONS

1. Intended use for the CANVAS series is for indoor applications.
2. Inspect all products and perform safety related checks before deployment.
3. Read and understand this entire manual.
4. Keep this manual available for reference.
5. Heed all warnings and precautions in this manual and notices marked on the product.
6. Do not use this product near water or damp environments.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Ensure proper airflow around product. Do not install near products that produce high levels of heat. Do not expose the unit to direct sun light or heating units as the internal components' temperature may rise and shorten the life of the components.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they connect to the product. Do not use the unit if the electrical power cord is frayed or broken.
11. THOR AV products must be used in accordance with local, state, federal and industry regulations. The responsibility to evaluate the reliability of any rigging or mounting method for their application is solely the user's responsibility. Rigging is to be carried out by experienced professionals.
12. Abide by the Working Load Limit (WLL) of third party equipment for suspension points, chain hoists and additional rigging hardware.
13. Verify structural integrity meets engineering requirements for wall mounting and flying applications.
14. THOR AV is not responsible for any rigging, attachments and accessories provided by third party manufacturers.
15. Utilize safety measures at all times, including safety slings and cables.
16. Unplug this product during lightning storms or when unused for long periods of time.
17. Refer all servicing to qualified service personnel. There are no user serviceable components inside the product.
18. The product shall not be exposed to moisture. Do not touch the unit with wet hands. Do not handle the unit or power cord when your hands are wet or damp.
19. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.

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LIMITED WARRANTY

THOR AV products are warranted to the original purchaser to be free of defects in materials and workmanship from date of purchase as follows:

LED PANELS
CANVAS, ELEMENT, TERRA & RIDGE v2: 3 YEARS
ALL OTHER LED PANELS: 2 YEARS

During this period, THOR AV will, at its discretion, repair the defective unit or replace it with a new or rebuilt one.

This warranty excludes:

- Abuse, misuse, shipping damage or accident
- Operation contrary to the instructions in the product instruction manual
- Wear and tear
- Events categorized as force majeure or any other sources beyond the control of the manufacturer
- Another device that is connected to the product
- Any modification, alteration, or repair made by any unauthorized party or without prior written consent
- General maintenance and servicing

All implied warranties, including warranties on merchantability and fitness, are limited in time to the length of this warranty. Some states do not allow time limitations on implied warranties, so this limitation may not apply to you. THOR AV's liability is limited to the repair or replacement of its product. THOR AV shall in no way be held liable for incidental or consequential damages resulting from the use of their product or its software, including, without limitation, damages from loss of business profits, business interruption, loss of business information or other pecuniary loss. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

REPAIR POLICY
Please contact support to obtain an RMA number prior to returning your product to THOR AV. Do not return the product to the place of purchase. Write the RMA number on the outside of the shipping carton. Any product sent to us without a valid RMA number will be refused.

Shipping Address:
THOR AV
Attn: RMA Number
8821 Zealand Ave. N
Minneapolis, MN 55445 USA

Include the following with the product: a brief description of the problem, your name, return shipping address, phone number and the RMA number. Do not include any accessories. THOR AV is not responsible for any damage to or loss of the product during transit. We recommend that customers obtain a receipt and tracking number for all packages shipped to us. Turnaround time on repairs is generally ten business days. If you live outside of the United States, please contact your local distributor for warranty service.

WARRANTY SERVICE
You will be responsible for shipping charges to THOR AV and the product will be returned via non-express shipping by THOR AV. We reserve the right to inspect any product that may be the subject of any warranty claim before repair is carried out. Final determination of warranty coverage lies solely with THOR AV.

NON-WARRANTY SERVICE
If it is determined that the product does not meet the terms of our warranty, you will be billed for labor, materials, return shipping and insurance. There is a $100 USD minimum charge for materials and labor. Appropriate shipping charges will be applied. We require payment in advance of repair by credit card; we accept Visa and Master Card. In the event the charges are over the minimum charge, THOR AV will contact you and inform you of the cost of the repair before any work is completed.

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CANVAS LED Panel

CANVAS offers a full range of pixel pitches 3.7, 2.5, 1.8, 1.5, and 1.2 so you can match resolution to viewing distance and environment. From close-range settings like control rooms to large public displays, it delivers stunning clarity at any scale. Built to broadcast standards, CANVAS ensures color accuracy and low-brightness detail. Compatible with Brompton and NovaStar processing, CANVAS leads the way with 18-bit+ grayscale, advanced IC drivers, plus pixel-level and thermal calibration. The result… visual performance is crisp and consistent for any indoor application.

CANVAS features a native 16:9 aspect ratio, allowing content to scale flawlessly—no cropping, no compromise. With fine pixel pitch options, it's ideal for high-resolution needs in control rooms, conference spaces, retail, and more. Its streamlined integration and scalable form make CANVAS the go-to solution for large video walls, immersive displays, and environments where clarity and impact matter most.

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SPECIFICATIONS

	1.2 NovaStar	1.5 Brompton 1.5 NovaStar	1.8 Brompton 1.8 NovaStar	2.5 Brompton 2.5 NovaStar	3.7 Brompton 3.7 NovaStar
Pixel Pitch	1.2 mm	1.5 mm	1.8 mm	2.5 mm	3.7 mm
Receiving Card	N/A	Brompton R2+	Brompton R2+	Brompton R2+	Brompton R2+
	NovaStar A10s Pro (2x)	NovaStar A10s Pro (2x)	NovaStar A10s Pro	NovaStar A8s Pro	NovaStar A8s Pro
Calibrated Brightness	500 nits	600 nits	1000 nits	1000 nits	1000 nits
Closest Viewer	4.1 FT / 1.2 M	5 FT / 1.5 M	6 FT / 1.8 M	8 FT / 2.4 M	15 FT / 4.5 M
Scan Rate	1/54	1/30	1/29	1/27	1/18
Pixel Configuration	768 x 432 (w x h) 331,776	640 x 360 (w x h) 230,400	512 x 288 (w x h) 147,456	384 x 216 (w x h) 82,944	256 x 144 (w x h) 36,864
Viewing Angle	160° x 160°	160° x 160°	140° x 140°	140° x 140°	140° x 140°
LED Pixel	SMD 1010	SMD 1212	SMD 1515	SMD 2121	SMD 2121
LED Driver IC	MBI with S-PWM	MBI with S-PWM	MBI with S-PWM	MBI with S-PWM	MBI with S-PWM
Grayscale	18-22 bit*	18-22 bit*	18-22 bit*	18-22 bit*	18-22 bit*
Refresh Rate	3840+ Hz	3840+ Hz	7680 Hz	7680 Hz	7680 Hz
Serviceability	Front	Front	Front	Front	Front
Cabinet Dimensions	960 x 540 x 38 mm (37.79" x 21.25" x 1.49")	960 x 540 x 38 mm (37.79" x 21.25" x 1.49")	960 x 540 x 38 mm (37.79" x 21.25" x 1.49")	960 x 540 x 38 mm (37.79" x 21.25" x 1.49")	960 x 540 x 38 mm (37.79" x 21.25" x 1.49")
Installation Options	Wall Mount & Fly	Wall Mount & Fly	Wall Mount & Fly	Wall Mount & Fly	Wall Mount & Fly
Operating Temperature	-10° to 45° C	-10° to 45° C	-10° to 45° C	-10° to 45° C	-10° to 45° C
Operating Humidity	Up to 80% RH	Up to 80% RH	Up to 80% RH	Up to 80% RH	Up to 80% RH
Power Input	120 / 240 Volt at 50 / 60 Hz	120 / 240 Volt at 50 / 60 Hz	120 / 240 Volt at 50 / 60 Hz	120 / 240 Volt at 50 / 60 Hz	120 / 240 Volt at 50 / 60 Hz
Power Consumption (max/avg)	270 W / 78 W	270 W / 78 W	270 W / 78 W	285 W / 104 W	246 W / 91 W
BTU/hr (max/avg)	920 / 265	920 / 265	920 / 265	972 / 353	840 / 309
Electrical Circuits	20 A / 120 V circuit (7 Cabinets)	20 A / 120 V circuit (7 Cabinets)	20 A / 120 V circuit (7 Cabinets)	20 A / 120 V circuit (6 Cabinets)	20 A / 120 V circuit (7 Cabinets)
Flown Rigging Height (max)	6 M / 20' (11 Cabinets)	6 M / 20' (11 Cabinets)	6 M / 20' (11 Cabinets)	6 M / 20' (11 Cabinets)	6 M / 20' (11 Cabinets)
Chassis Material	Die Cast Aluminum	Die Cast Aluminum	Die Cast Aluminum	Die Cast Aluminum	Die Cast Aluminum
Weight	11.4 kg / 25 lbs	11.4 kg / 25 lbs	11.4 kg / 25 lbs	11.4 kg / 25 lbs	11.4 kg / 25 lbs
IP Rating	IP41	IP41	IP41	IP41	IP41
Certifications	FCC, ETL, CE	FCC, ETL, CE	FCC, ETL, CE	FCC, ETL, CE	FCC, ETL, CE
Life Span	75,000 Hours	75,000 Hours	75,000 Hours	75,000 Hours	75,000 Hours
Limited Warranty	3 years	3 years	3 years	3 years	3 years

*Up to 22 bit software enhanced

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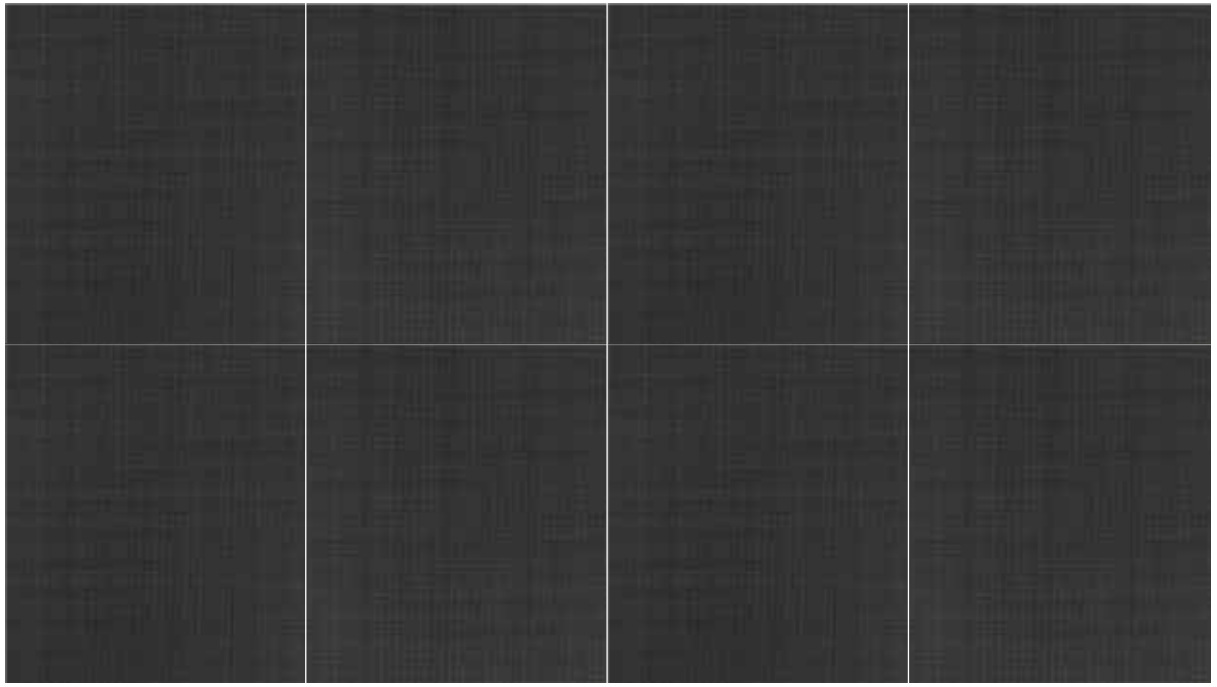
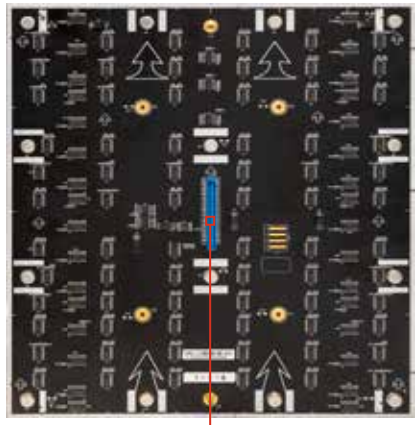
MODULES



EIGHT LED MODULES



MODULE CONNECTOR

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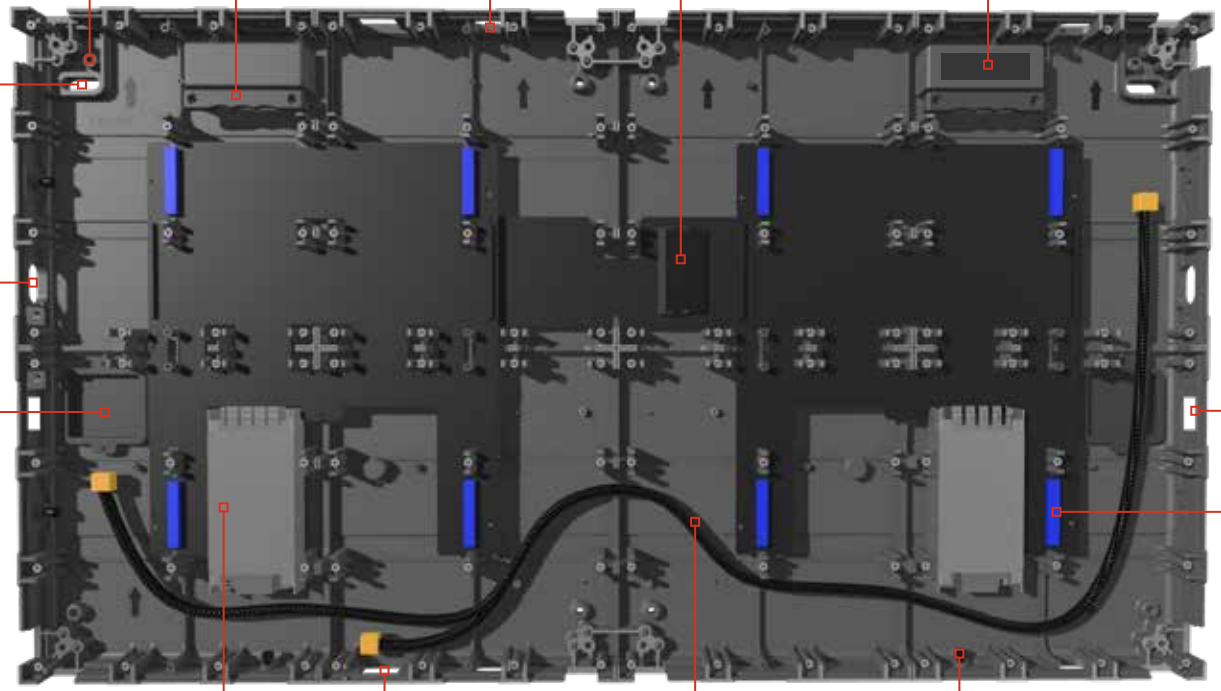
FRONT VIEW



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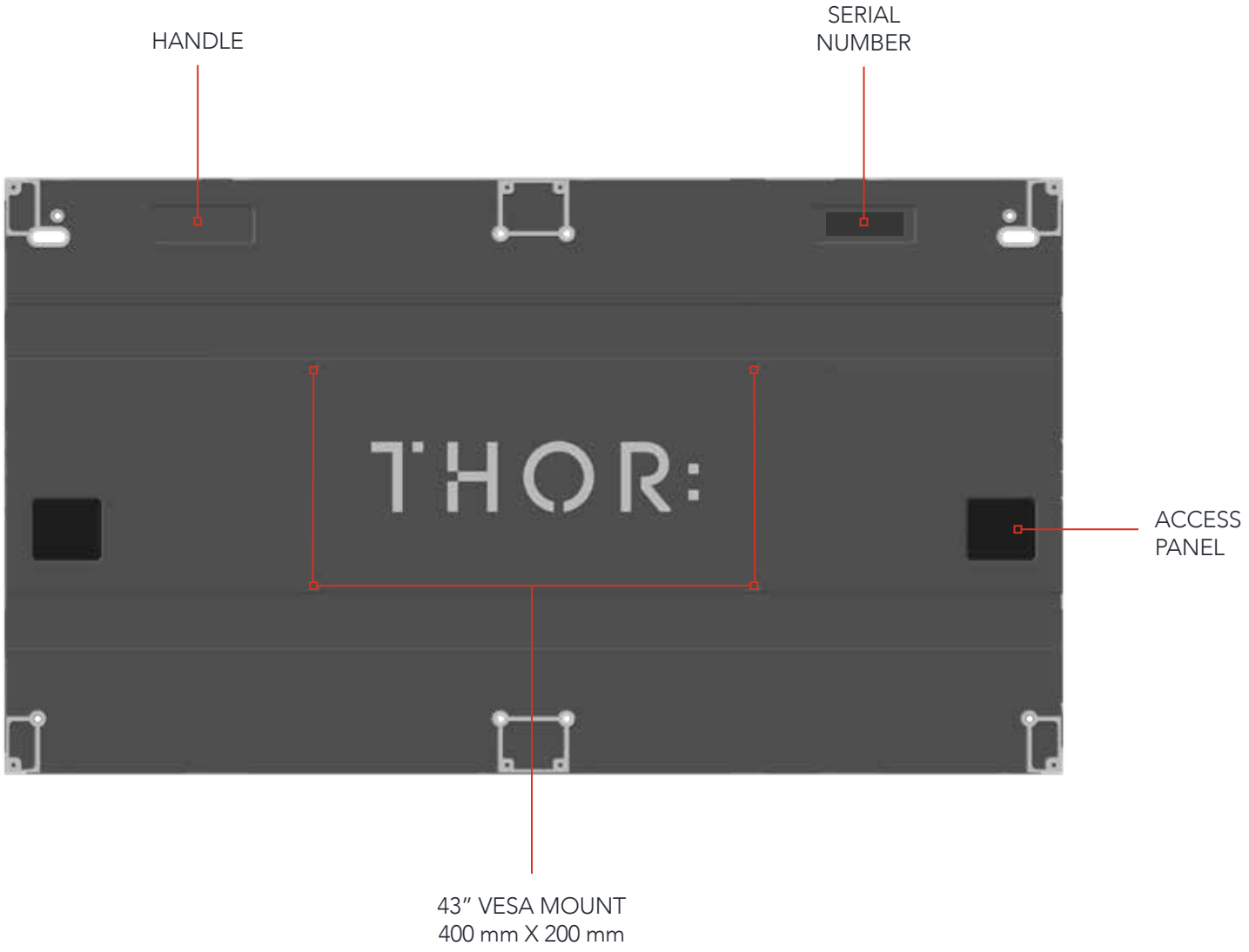
REAR VIEW



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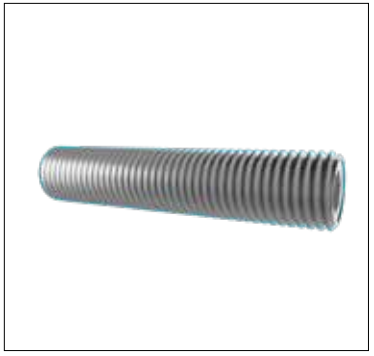
Wall Mount Bracket - CNVWMB-B

125mm x 100mm x 15mm
4 15/16″ x 3 15/16″ x 9/16″
.29 kg / .64 lbs

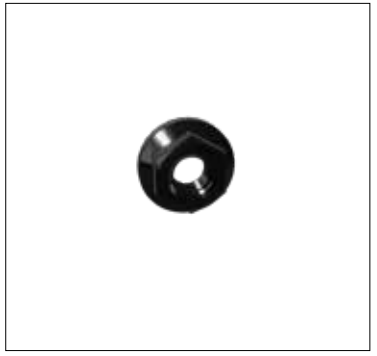
Top Hat Washer - CNVWMB-THW

19mm x 16mm x 16mm
3/4″ x 5/8″ x 5/8″
.006 kg / .015 lbs



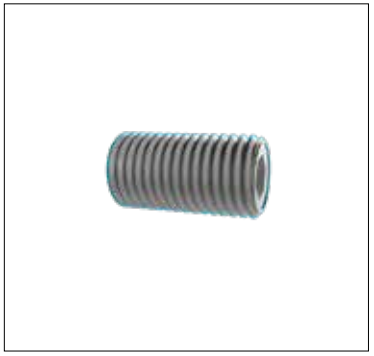
Wall Mount Bolt - ABM8HL40

40mm x 8mm x 8mm
1 9/16″ x 5/16″ x 5/16″
.01 kg / .0252 lbs



Wall Mount Nut - ABM8N

18.25mm x 18.25mm x 6.98mm
11/16″ x 11/16″ x 1/4″
.004 kg / .0095 lbs



Tension Bolt - TNBM8HL25

25mm x 8mm x 8mm
1″ x 5/16″ x 5/16″
.006 kg / .0153 lbs

Chassis Alignment Bracket

80mm x 80mm x 10mm
3 1/8″ x 3 1/8″ x 3/8″
.09 kg / .2099 lbs

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Chassis Alignment Bracket Screw

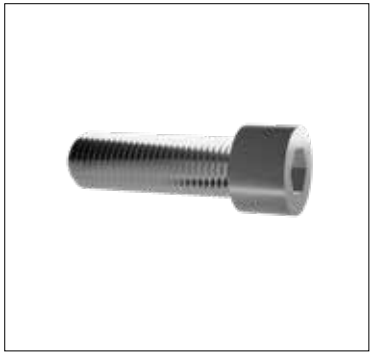
80mm x 40mm x 10mm
3 ⅛" x 1 9/16" x ⅜"
.04 kg / .0988 lbs

Double Flybar

1919mm x 60mm x 60mm
75 9/16" x 2 ⅜" x 2 ⅜"
19.05 kg / 42 lbs

Chassis Alignment Bracket Screw - SM6L8

16mm x 10mm x 10mm
⅝" x ⅜" x ⅜"
.004 kg / .0098 lbs



Flybar Mounting Screw - SM8L35

42mm x 11mm x 11mm
1 ⅝" x 7/16" x 7/16"
.01 kg / .032 lbs

Single Flybar

959mm x 60mm x 60mm
37 ¾" x 2 ⅜" x 2 ⅜"
9.43 kg / 20.8 lbs

Flybar Bracket

115mm x 90mm x 10mm
4 ½" x 3 9/16" x 3 9/16"
.26 kg / .057 lbs

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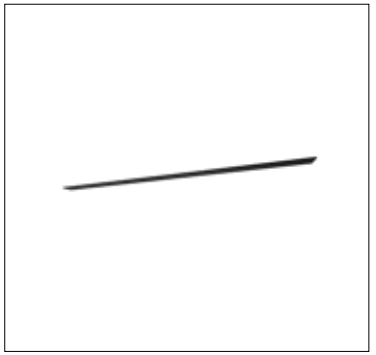
Flybar Bracket Screw
SM8L20

28mm x 11mm x 11mm
1 ⅛″ x 7/16″ x 7/16″
.01 kg / .0234 lbs

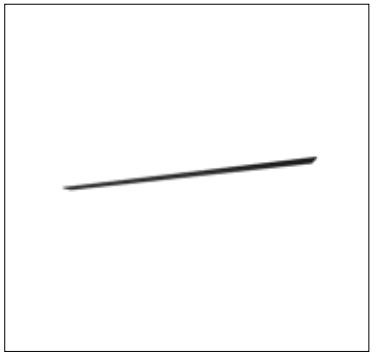


Finish Frame -
CNVFF1PH-BLTR

545mm x 40mm x 5mm
21 7/16″ x 1 9/16″ x 3/16″
.26 kg / .58 lbs

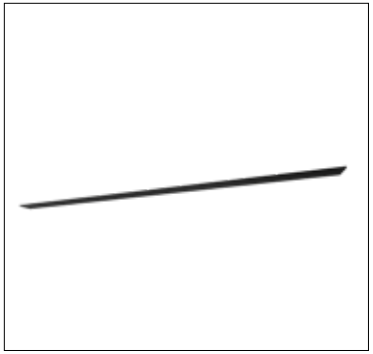
Finish Frame Screw -
SM3L10

12mm x 5mm x 5mm
½″ x 3/16″ x 3/16″
.0006 kg / .0014 lbs



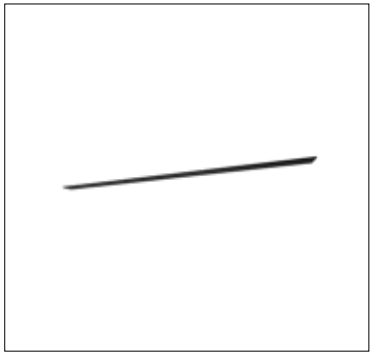
Finish Frame -
CNVFF1PH-M

540mm x 40mm x 5mm
21 1/4″ x 1 9/16″ x 3/16″
.26 kg / .58 lbs



Finish Frame -
CNVFF1PW

960mm x 40mm x 5mm
37 13/16″ x 1 9/16″ x 3/16″
.47 kg / 1.04lbs



Finish Frame -
CNVFF1PH-TLBR

545mm x 40mm x 5mm
21 7/16″ x 1 9/16″ x 3/16″
.26 kg / .58 lbs

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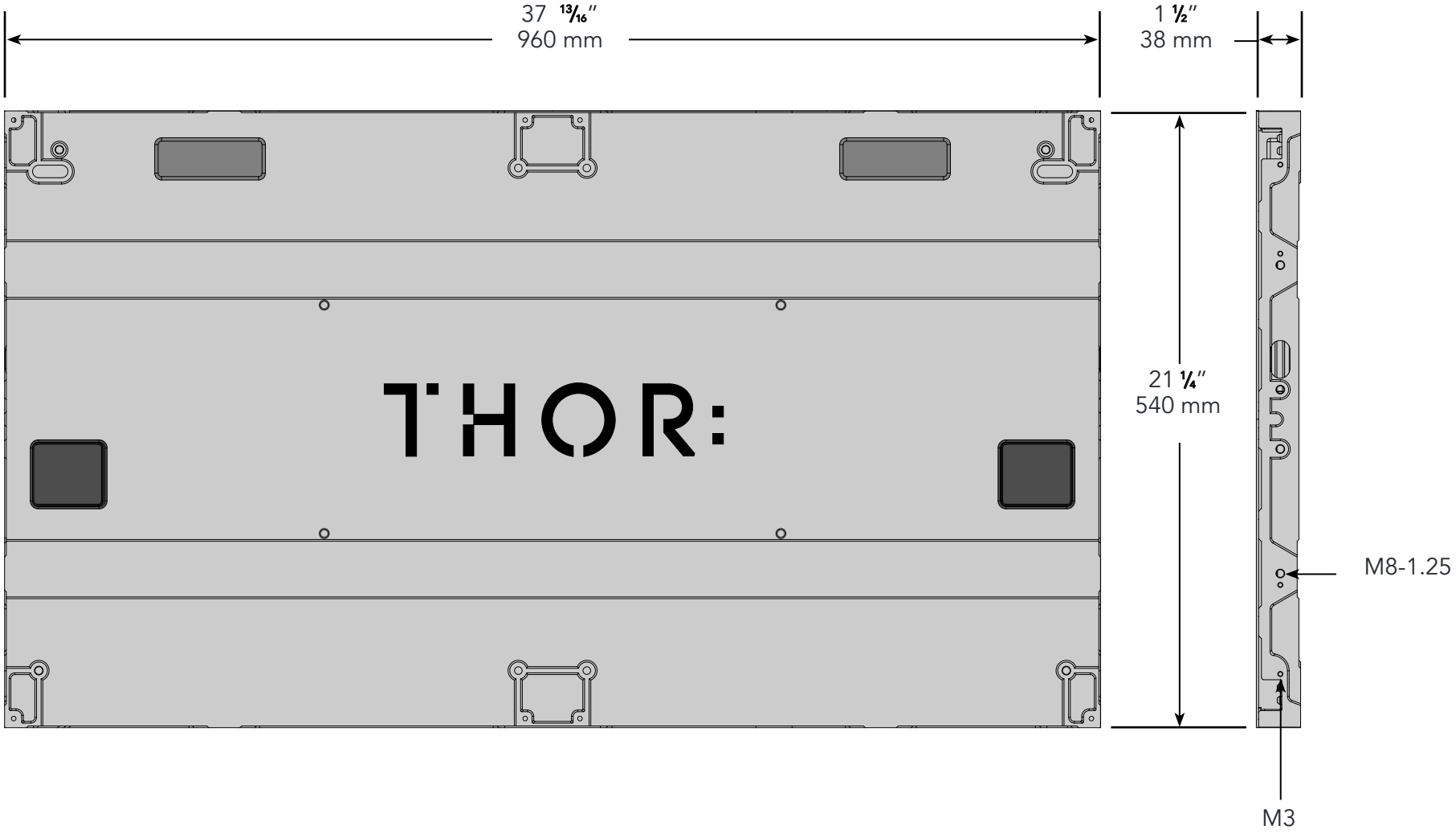
DIMENSIONS



MECHANICAL

STRUCTURAL

Structural integrity for LED wall installation applications (Flown and Wall Mount) is required for each site, with verification by a structural engineer.

RIGGING

Rigging integrity for flown or hung installation applications is required to be verified by a structural engineer and certified rigging professionals.

ELECTRICAL

POWER

CANVAS LED Panels require 110-240 VAC, 50-60 Hz and should be 16A or less. Proper grounding is required.

VIDEO SYSTEM

PROCESSING

THOR LED Panels are available with Brompton and NovaStar processing. Contact THOR for specifics.

LED PANELS PER PROCESSOR PORT

Pixel capacity per port may vary based on LED wall mapping configuration, pixel pitch, bit depth, and refresh rate.

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IMPORTANT SAFETY CONSIDERATIONS

THOR AV products must be used in accordance with local, state, federal and industry regulations.

INTENDED USE
The CANVAS series LED panels are for indoor applications only. Installations require professionally trained personnel.

Do not use this product near water or damp environments. Do not expose the unit to direct sun light or heating units as the internal components' temperature may rise and shorten the life of the components. Provide for proper airflow around product. Do not install near products that produce high levels of heat.

INSPECT PRODUCT
Inspect all products and perform safety related checks before deployment. Heed all warnings and precautions in this manual and notices marked on the product.

Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they connect to the product. Do not use the unit if the electrical power cord is frayed or broken.

INSTALLATION GUIDELINES
The responsibility to evaluate the reliability of any rigging or mounting method for their application is solely the user's responsibility. Rigging is to be carried out by experienced professionals. Abide by the Working Load Limit (WLL) of third party equipment for suspension points, chain hoists and additional rigging hardware.

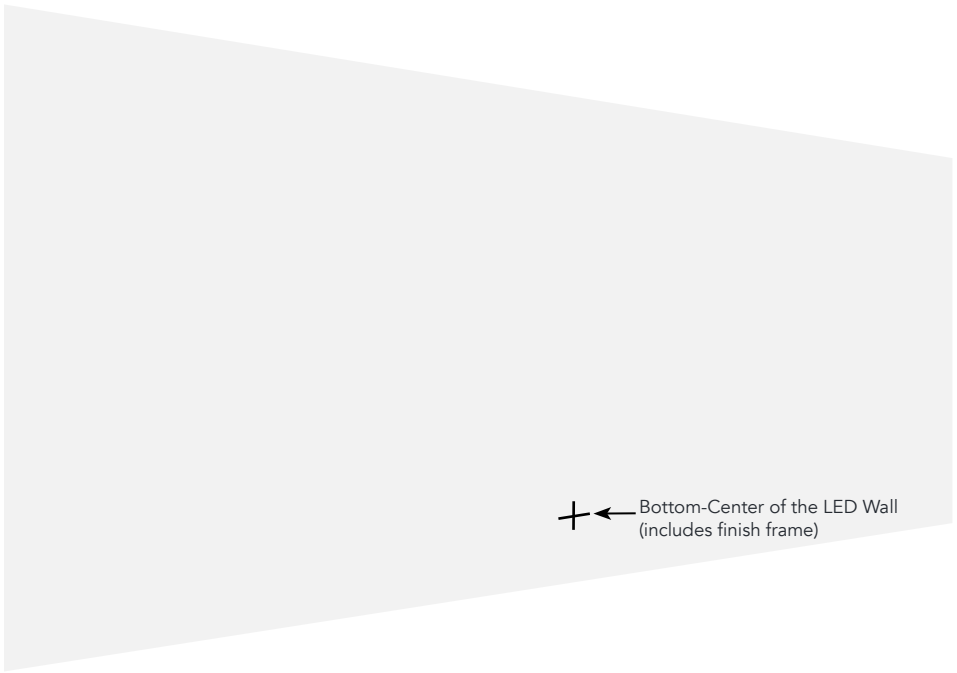
Verify structural integrity meets engineering requirements for flying and wall mounting applications. Utilize safety measures at all times, including safety slings and cables.

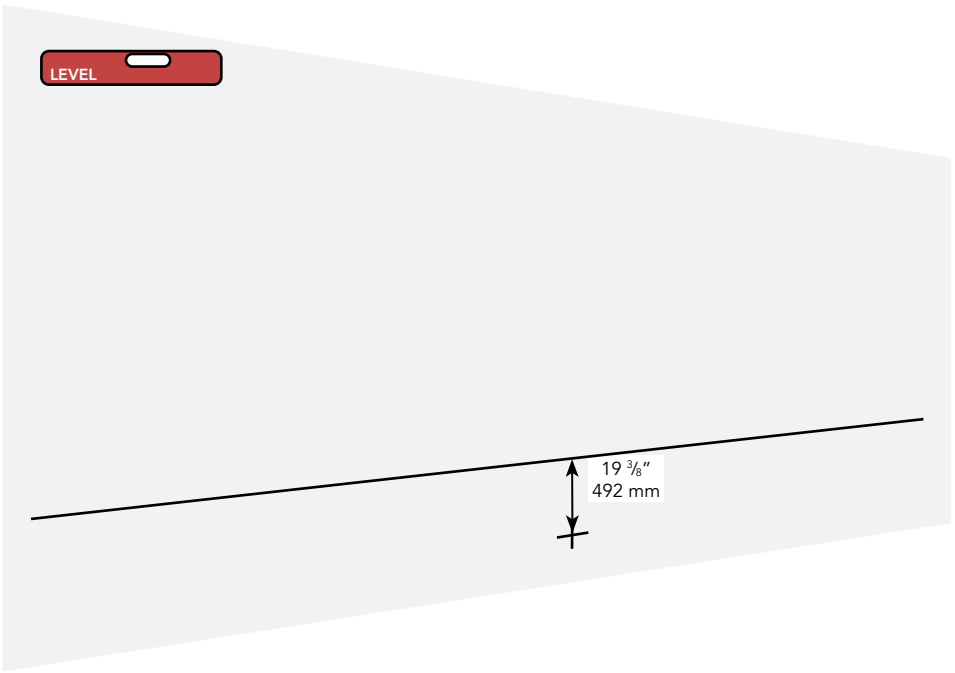
1 Determine the display position, accounting for the finished flooring. Mark the center of the bottom edge of the LED display. Then mark the height to the bottom edge of the LED display. The two marks result in a plus sign. It is often useful to mark out the dimensions of the entire LED wall with tape to visualize the aesthetic and to ensure the LED wall fits in the space.

PRO TIP: Before mounting, drive a wood screw into the wall and attempt to remove it to roughly test the strength of the architectural wall.

Next, establish the bottom reference. Measure up from the horizontal edge mark by 19 3/8 inches (492 mm) and mark the architectural wall. This is where the laser is aligned to install the first row of Wall Mount Brackets. Verify screws anchor securely into the 3/4-inch plywood behind the drywall.

If the center aligns with the seam of two panels, then place first Wall Mount Bracket at this position. If the center aligns with the center of a panel, then measure 18 7/8 inches (480mm) either direction and place the first Wall Mount Bracket (see next page).

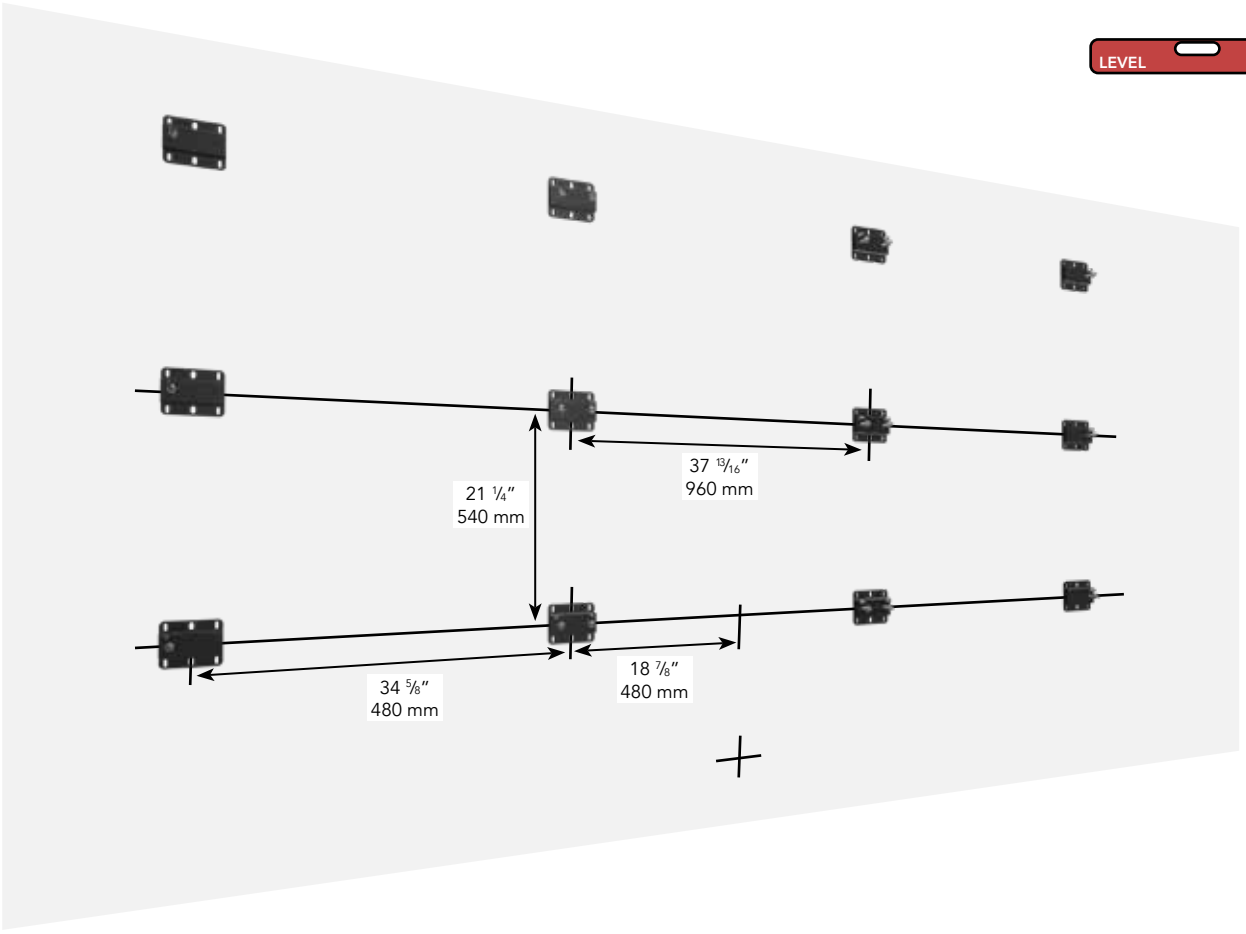




Wall Mount Brackets

2 Once the first Wall Mount Bracket is installed all measurements are from the center of each bracket. Continue installing Wall mount brackets using measurements below, column by column. On large walls (6+ cabinets in width or height), add vertical laser line for each column to avoid left or right drift. When installing the far left and far right Wall Mount Brackets, measure only 34 5/8 inches.This way the Wall Mount Brackets do not extend beyond the LED wall edge or perimeter. It is reccomended to use at least 4 screws when attaching Wall Mount Brackets to the wall. After Wall Mount Brackets have been secured, attach two ABM8HL40 headless bolts to each hole on the Wall Mount Brackets. NOTE: The outer most brackets will only have one ABM8HL40 bolt in the outer hole.

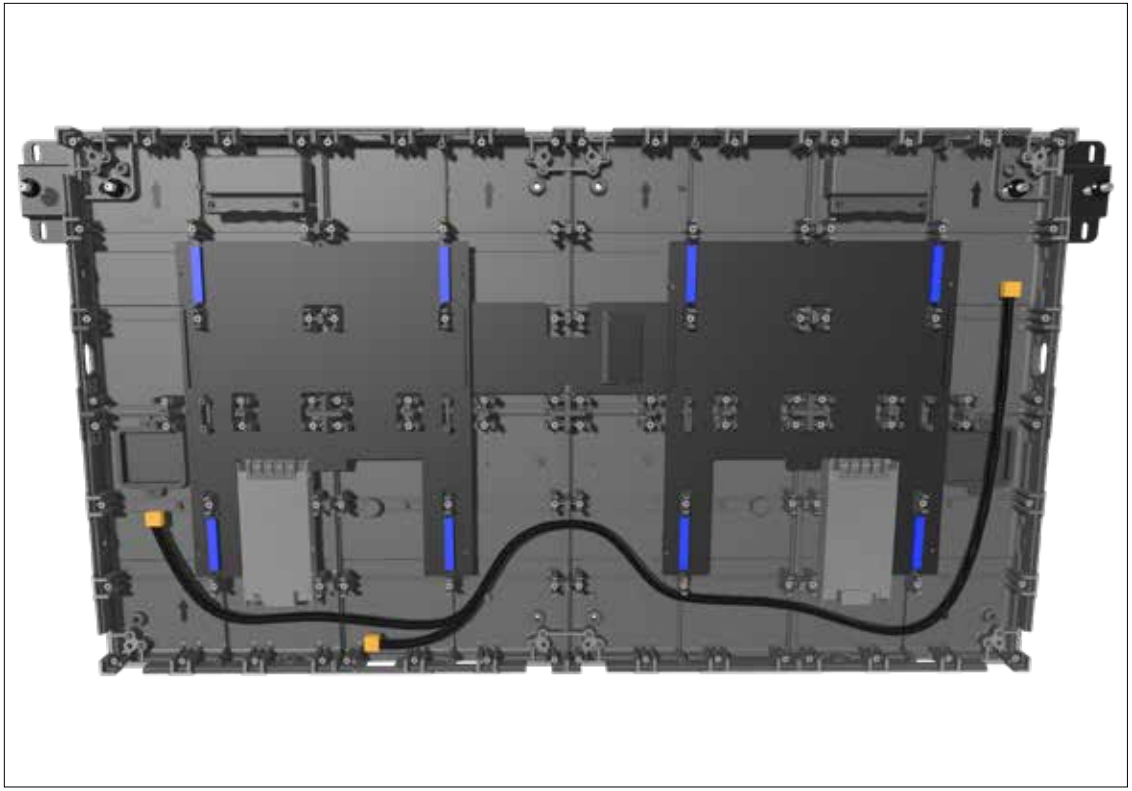
NOTE: The Wall Mount Brackets are located at the top of the bottom row of cabinets.



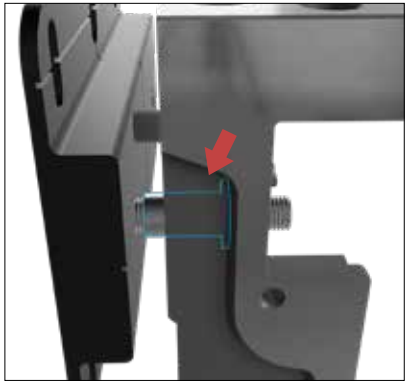
First LED Panel (Keystone Cabinet)

3 The first LED cabinet is vital to a successful installation. Mount the first cabinet by hanging on the bottom-center Wall Mount Brackets. Be sure to place the Top Hat onto Stud Bolt to keep cabinet off of the threads. Attach the nut to secure the Chassis to the wall. Using an M4 Allen Key, use the Tension Bolt (TNBM8HL25) and adjust to acheive plumb. Once in position, the cabinet should be perfectly level and plumb.

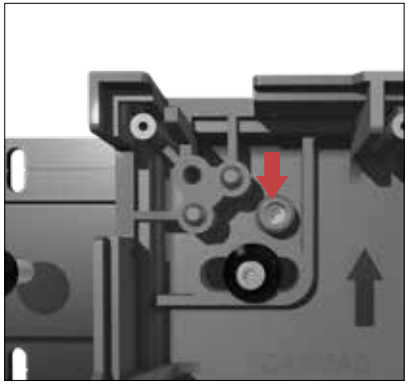
NOTE: Plumb may not be exact until second cabinet is attached..

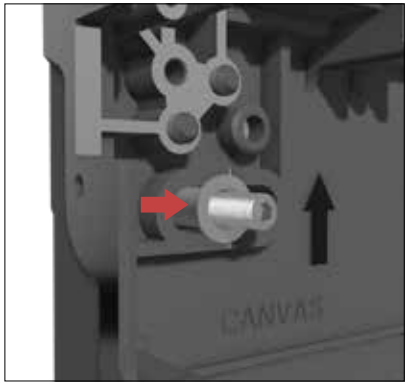


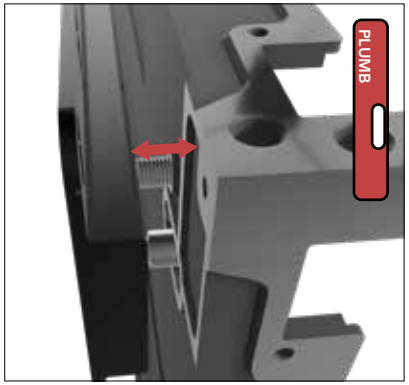
Top Hat



Tension Bolt







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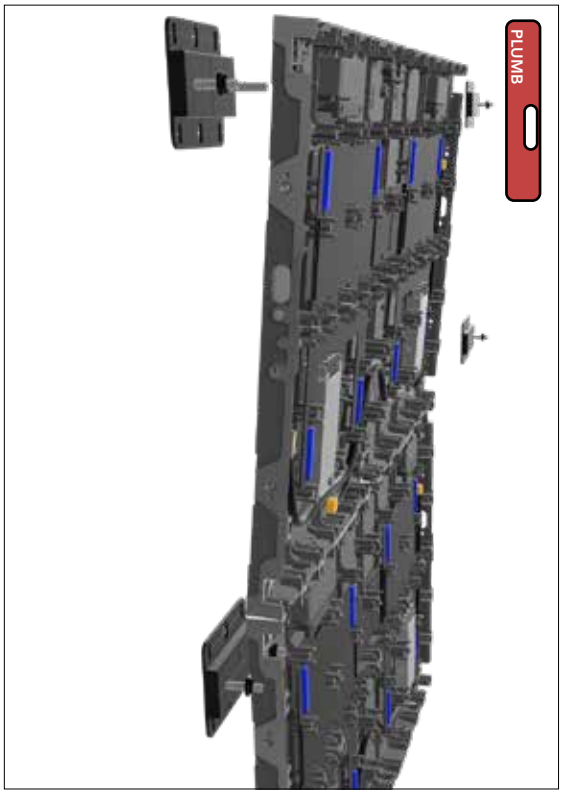
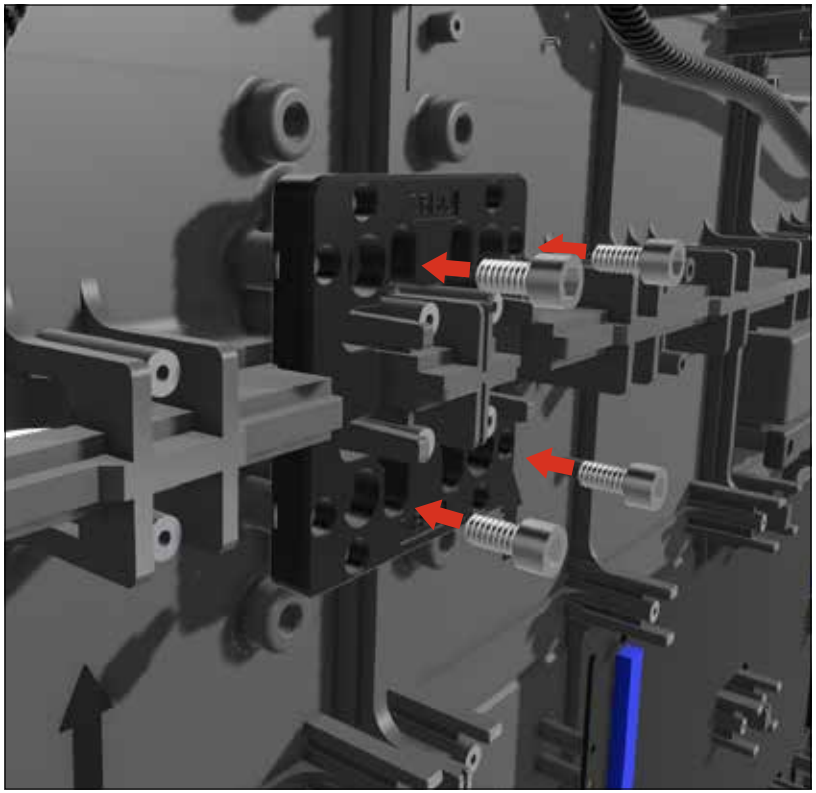
4 Add the next cabinet to build the center column. Angle the cabinet slightly to fit. Install Top Hats and attach nuts to secure panel. Be sure to install the Chassis Alignment Bracket, facing forward (the four bolt holes should be countersunk), before tightening the Locking Screws. Repeat this step for each cabinet in the column. Install Chassis Alignment Brackets, using an M5 Allen key and the Chassis Alignment Bolts (SM6L8), on all designated locations between cabinets.

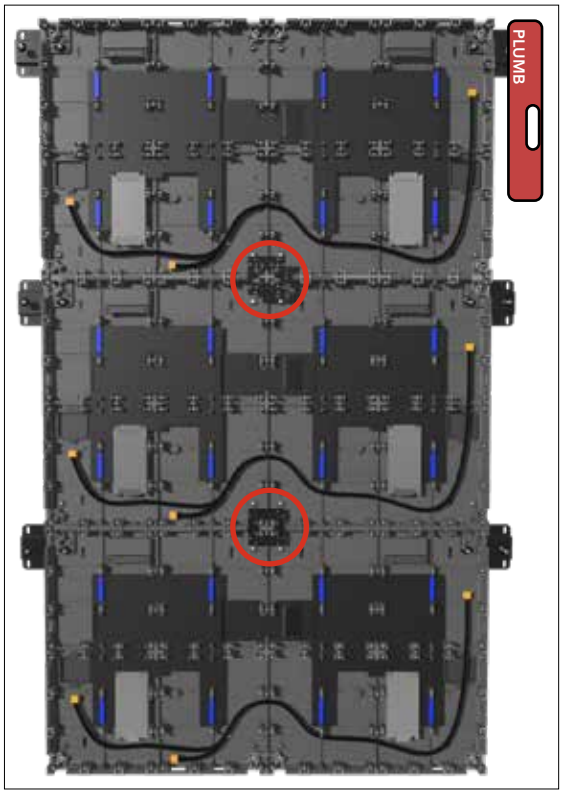
PRO TIP: Allow the Chassis alignment Brackets to define flatness, and do not overtighten the Locking Screws.



Four Chassis Alignment Bracket Bolts



Chassis Alignment Brackets



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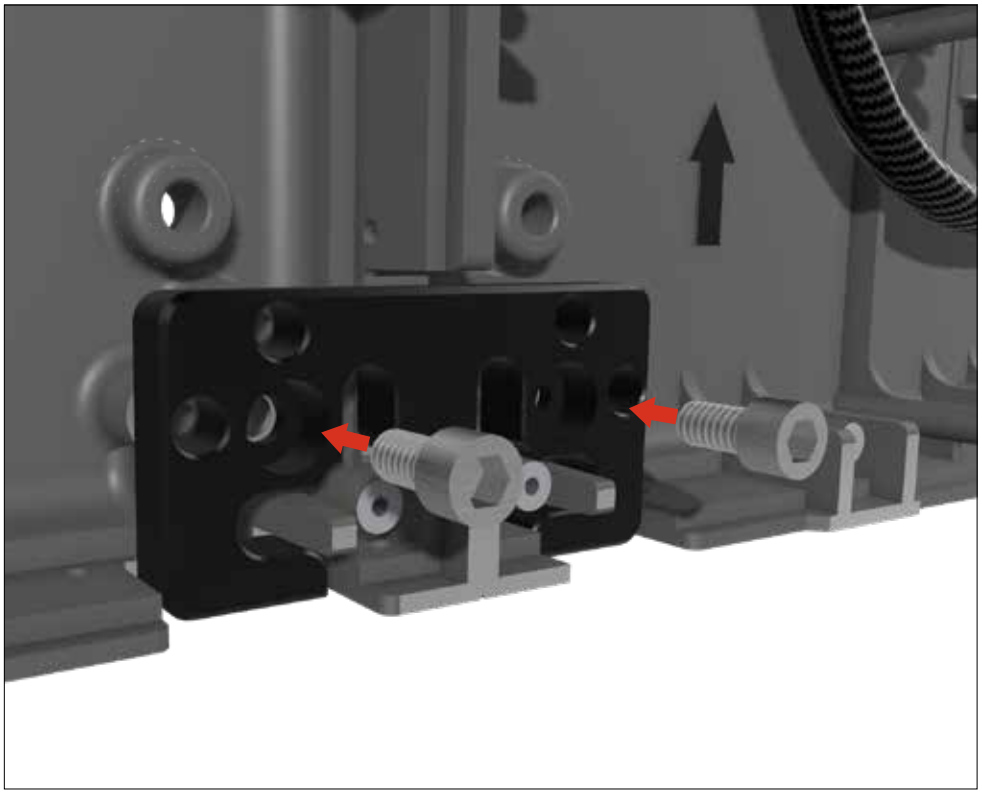
Building the Wall

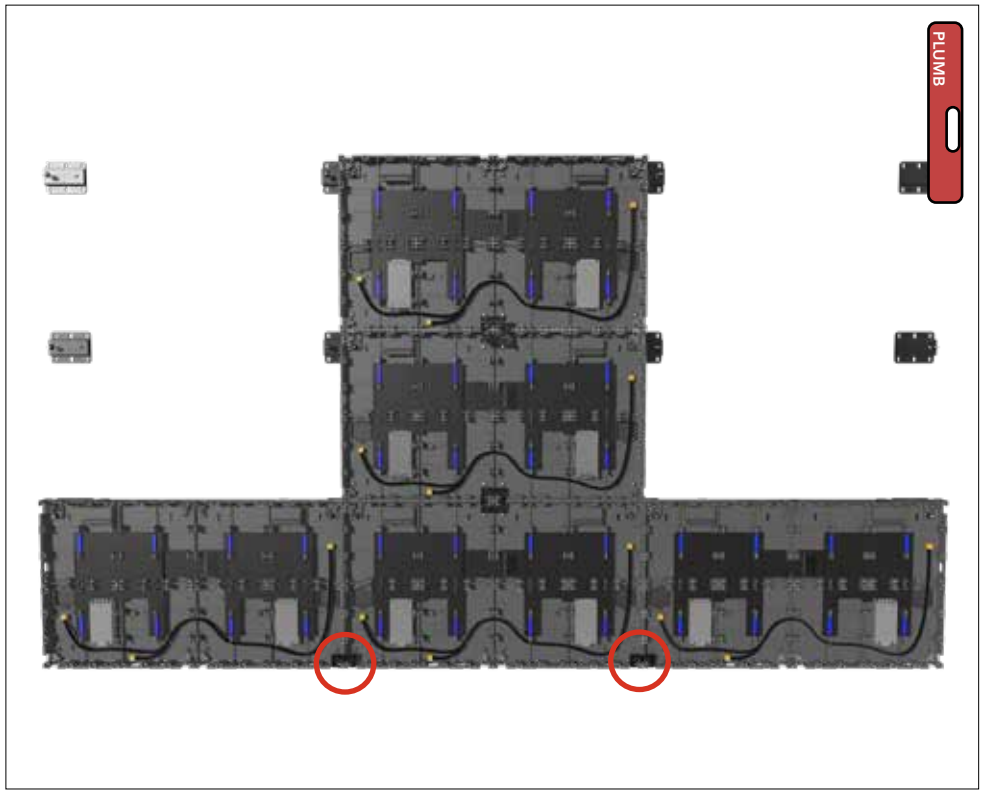
5 Once the center column is complete, install the bottom-row cabinets. Add Half Chassis Alignment Brackets, using an M5 Allen key and the Chassis Alignment Bolts (SM6L8), at the outside edges.

PRO TIP: Gravity may create stepping. Lift slightly when securing lower cabinets.

Two Chassis Alignment Bracket Bolts



Half Chassis Alignment Brackets



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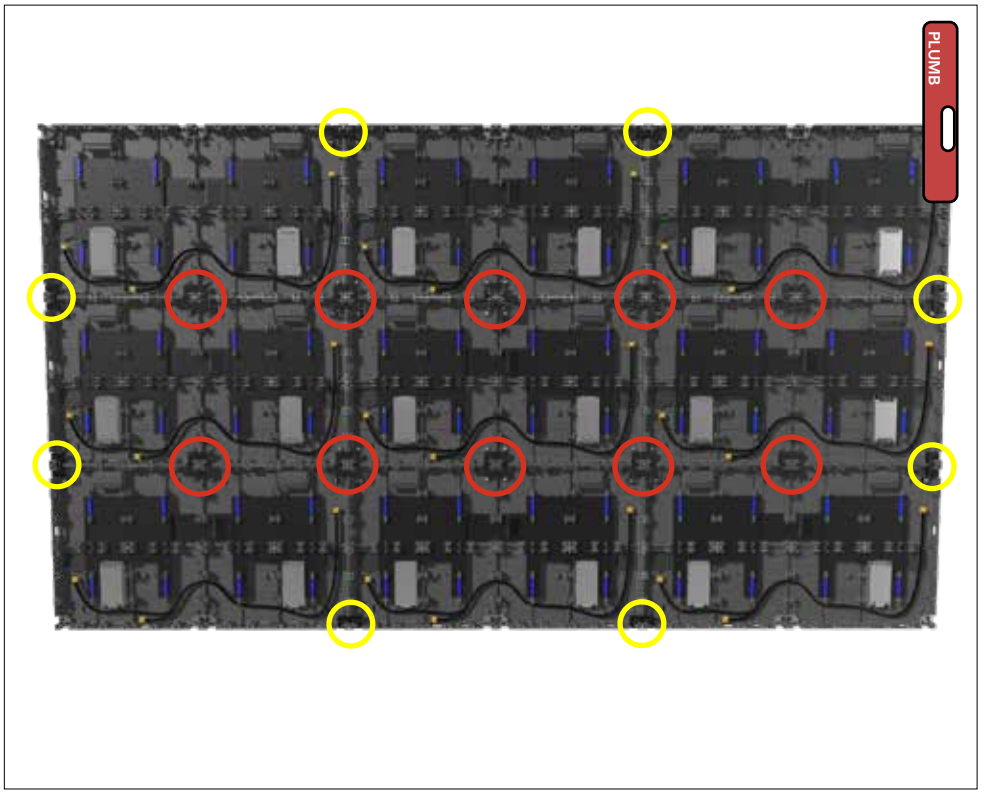
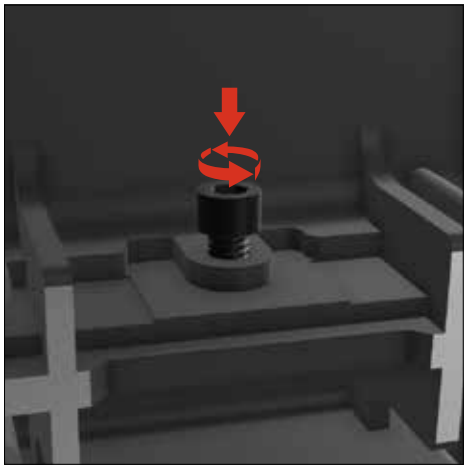
Building the Wall

6 Add cabinets row by row, making sure to install all Chassis Alignment Brackets and Half Chassis Alignment Brackets (see locations below) along the way. Tighten the four Locking Screws, located on the left and bottom of each cabinet. Allow the Chassis Alignment Brackets to define flatness instead of Locking Screws.

Chassis Alignment Brackets Half Chassis Alignment Brackets



Locking Screws



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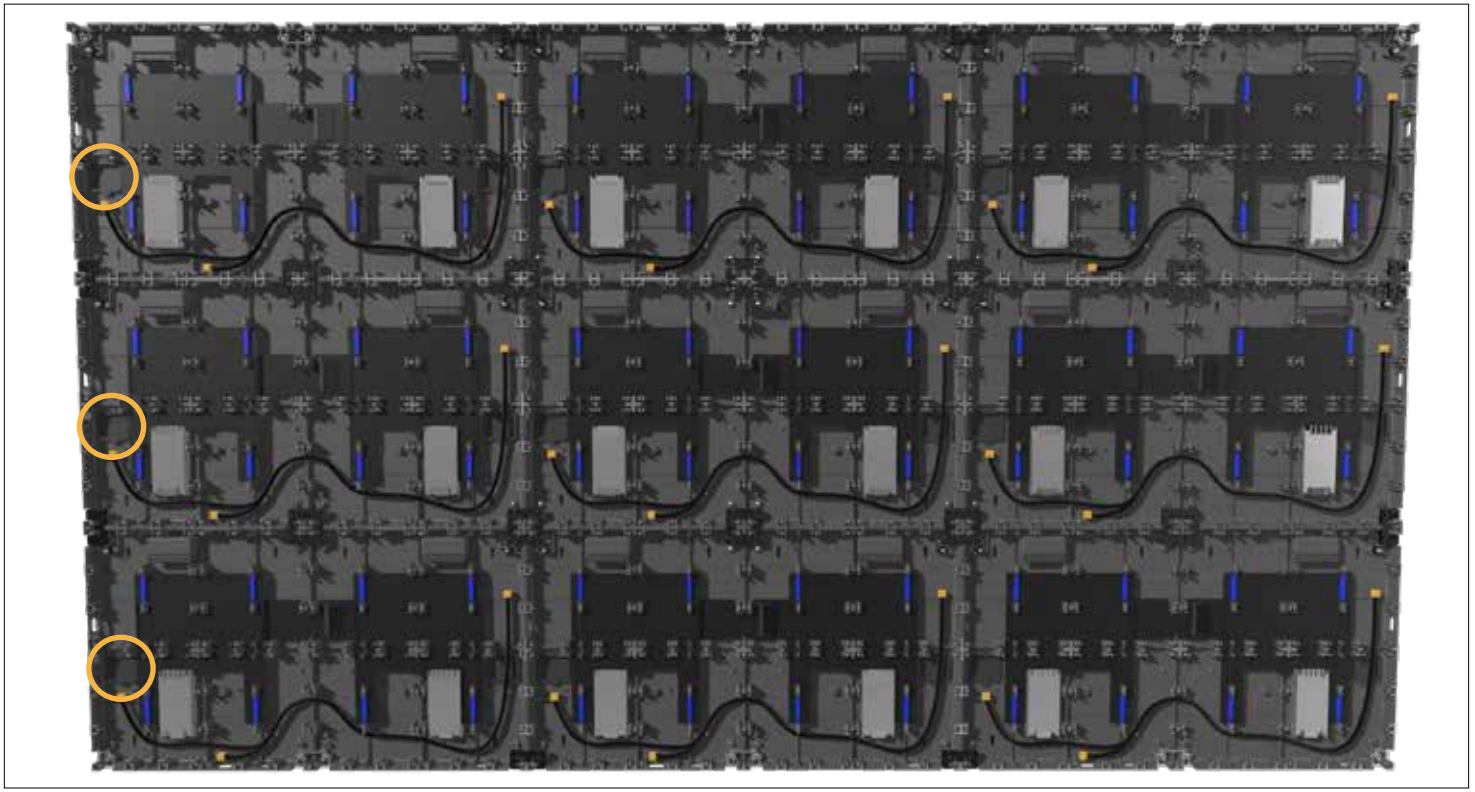
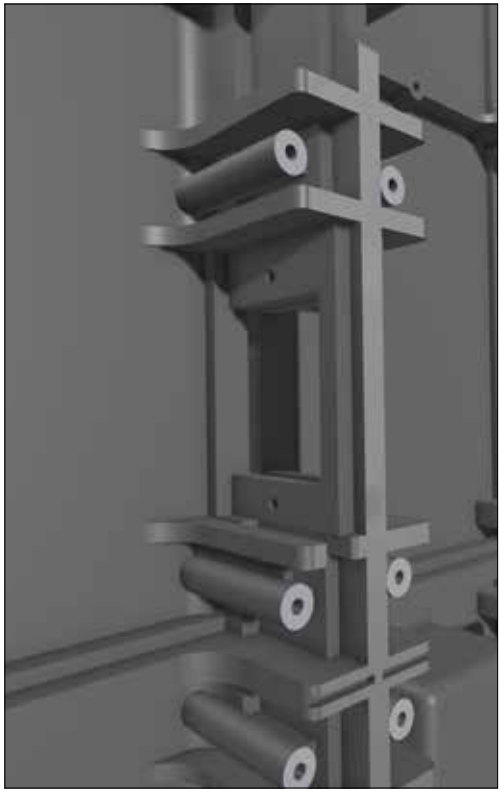
Power and Data

7 Power starts at the left panel (facing front of wall). Standard left-to-right power configuration does not require extra power jumper cables. However, top-to-bottom configurations require an extra power jumper cable. Feed power cable through the Access Panel (use P1 Phillips to remove) and the Power Cable Passthrough (rectangle) from one cabinet to the next. Refer to the THOR wiring diagram included in the project design documentation.

Access Panel



Power Cable Passthrough (Rectangle)



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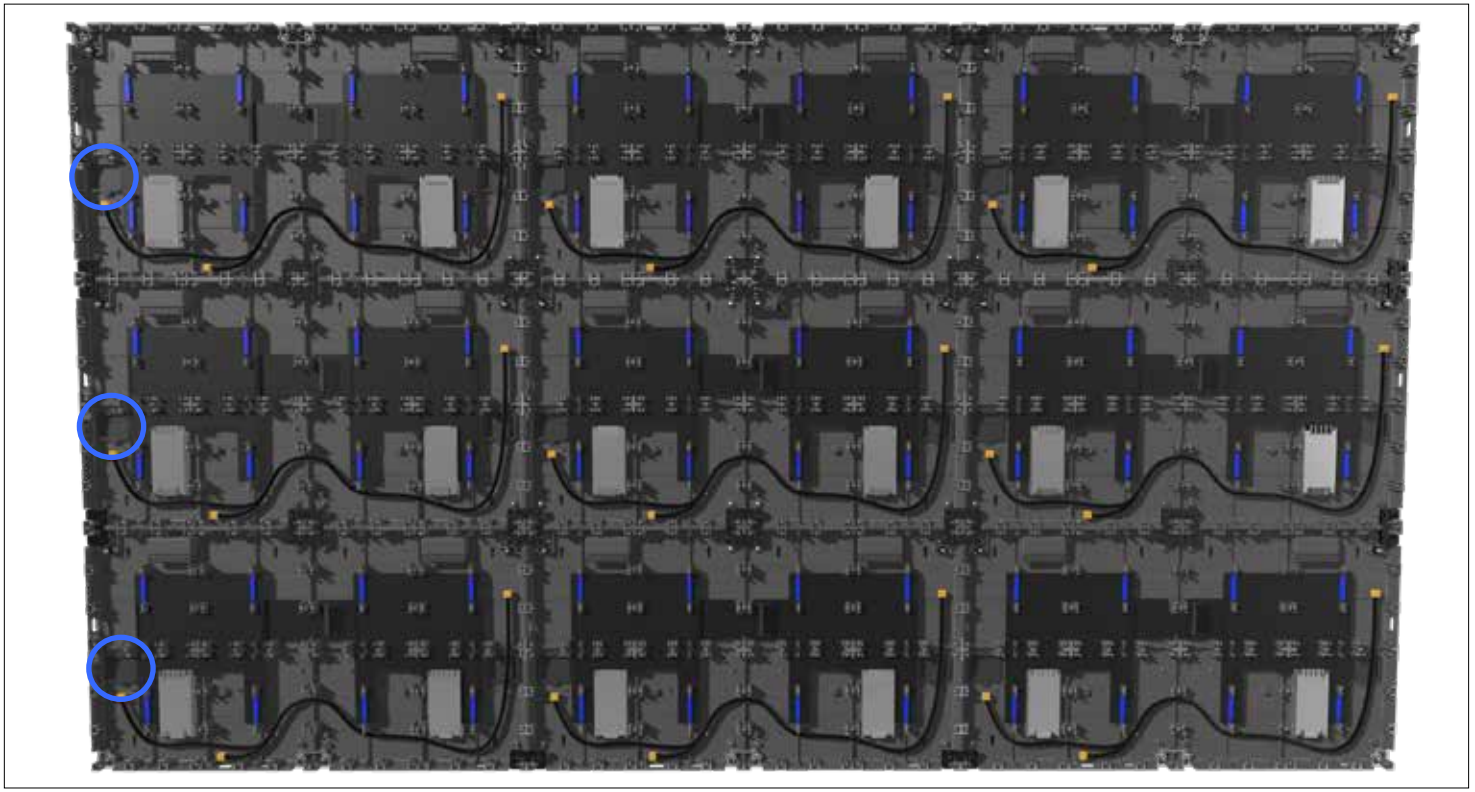
Power and Data

8 Data cables run horizontally or vertically. Data home runs enter through the Access Panel (use P1 Phillips to remove). Cables pass through the oval opening and travel top-down or bottom-up depending on the layout. Refer to the THOR wiring diagram included in the project design documentation.

PRO TIP: For the cleanest aesthetic, route data home run cables through the architectural wall before entering the panel.

Access Panel



Data Cable Passthrough (Oval)

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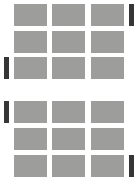
Finish Frame

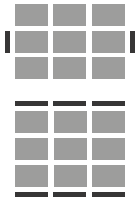
9 Attach each Finish Frame using a #2 Phillips screwdriver and Finish Frame Screws (SM3L10) by hand. All Finish Frames requre four screws.

NOTE: Install the finish frame before you install the modules.



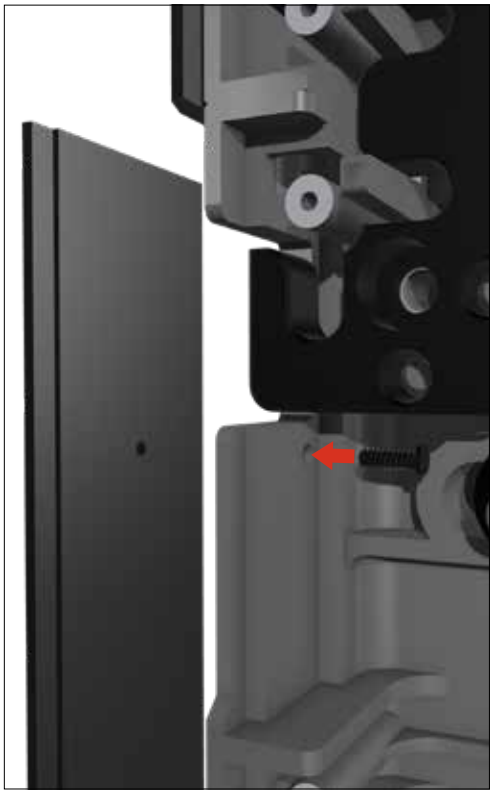
CNVFF1PH-BLTR

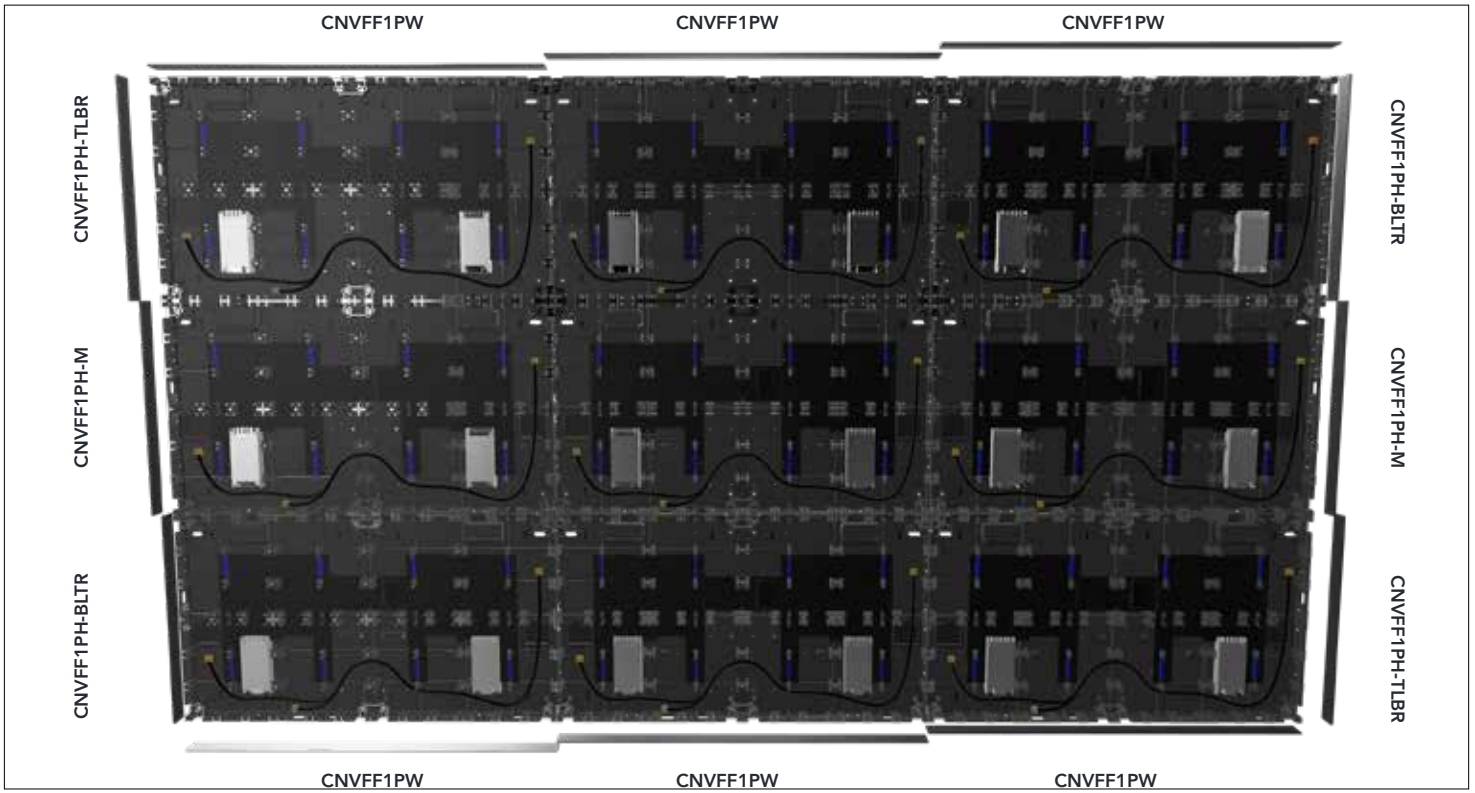
CNVFF1PH-TLBR



CNVFF1PH-M

CNVFF1PW





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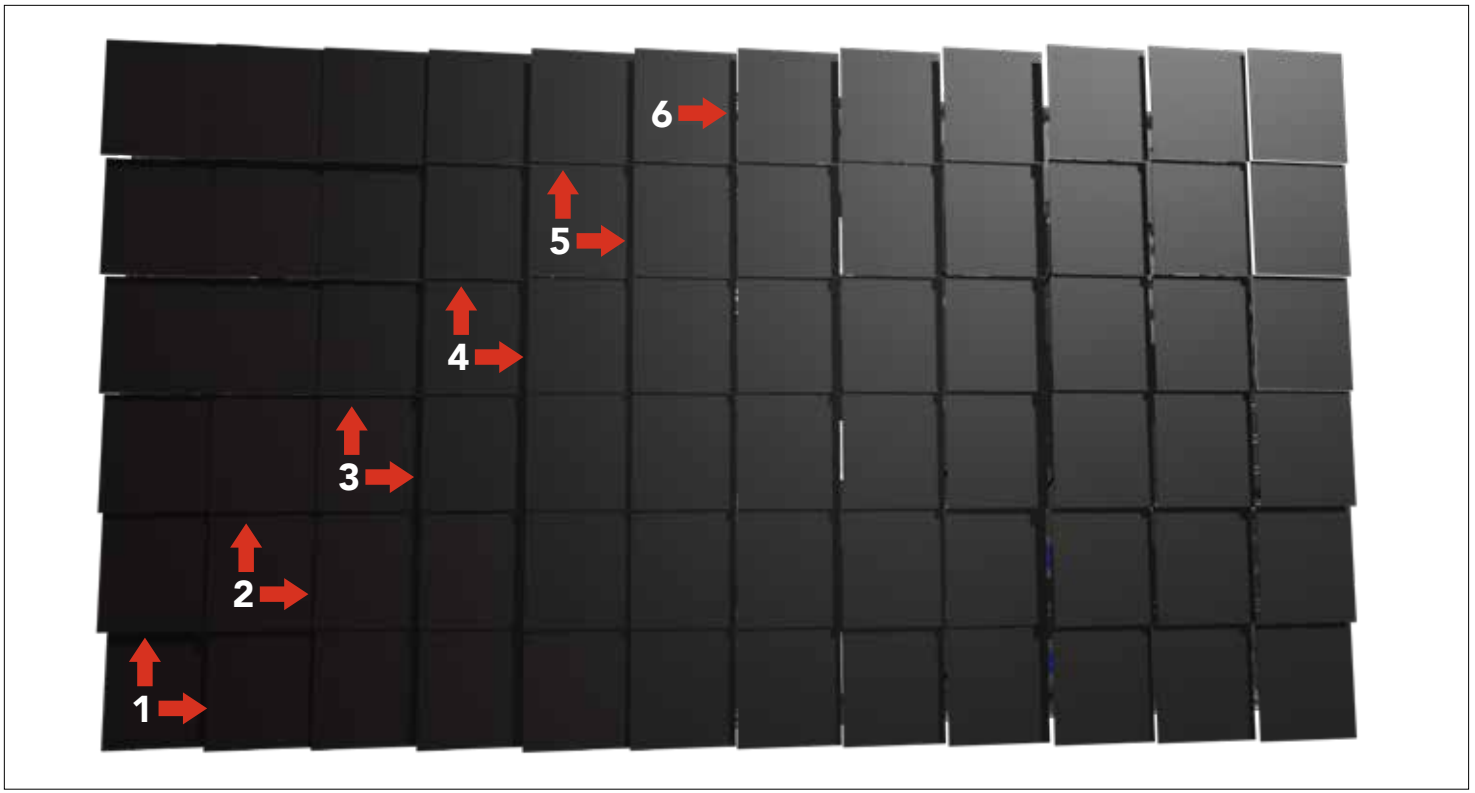
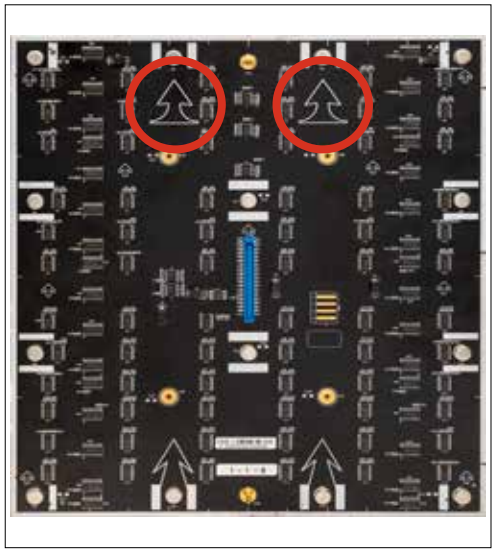
Populate Modules

10 Begin at the lower left and install one row of modules across the bottom and one up the left side to form an L shape. Start by ensuring the arrows on the modules face up to align correctly and by attaching the Safety Cable to eye hook for each module. Check for stepping or misalignment before you continue. Use the vacuum tool install and remove modules.

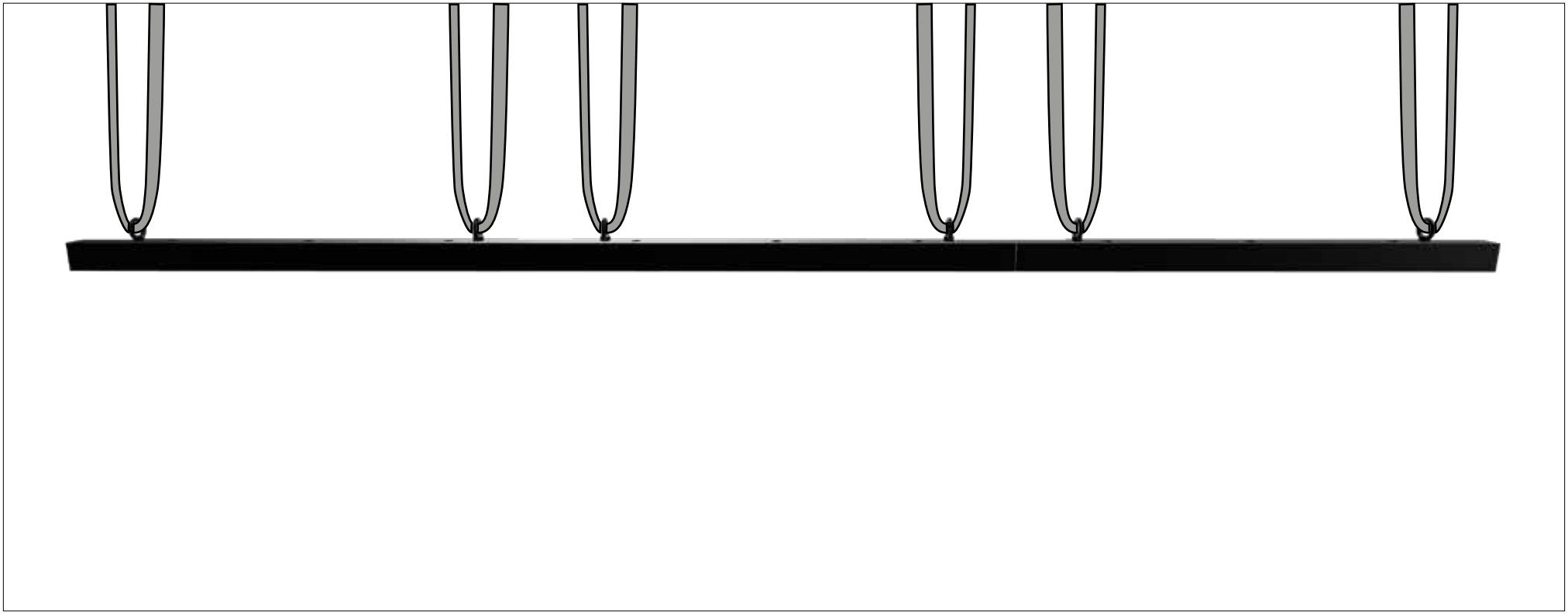
PRO TIP: Use gloves or wash your hands before handling modules.





Flybars

1 Secure and level Flybars to weight bearing structure using Eyebolt. Eyebolts are removable.



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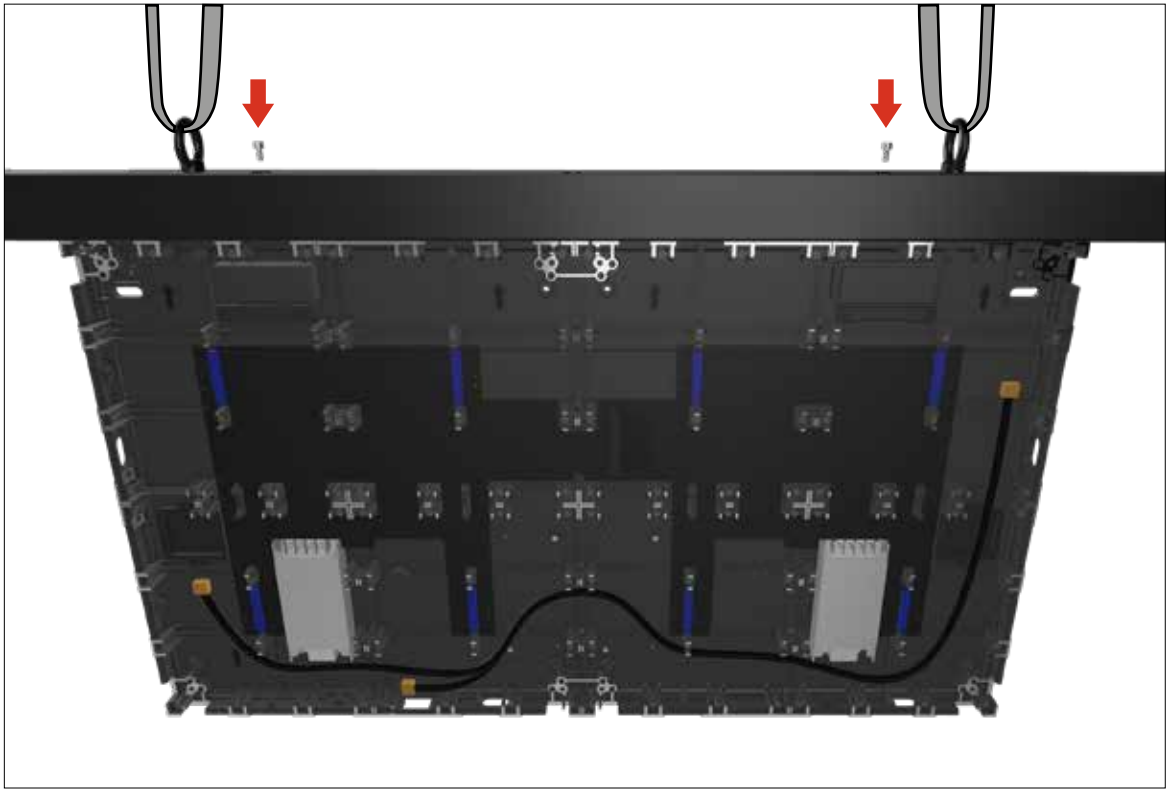
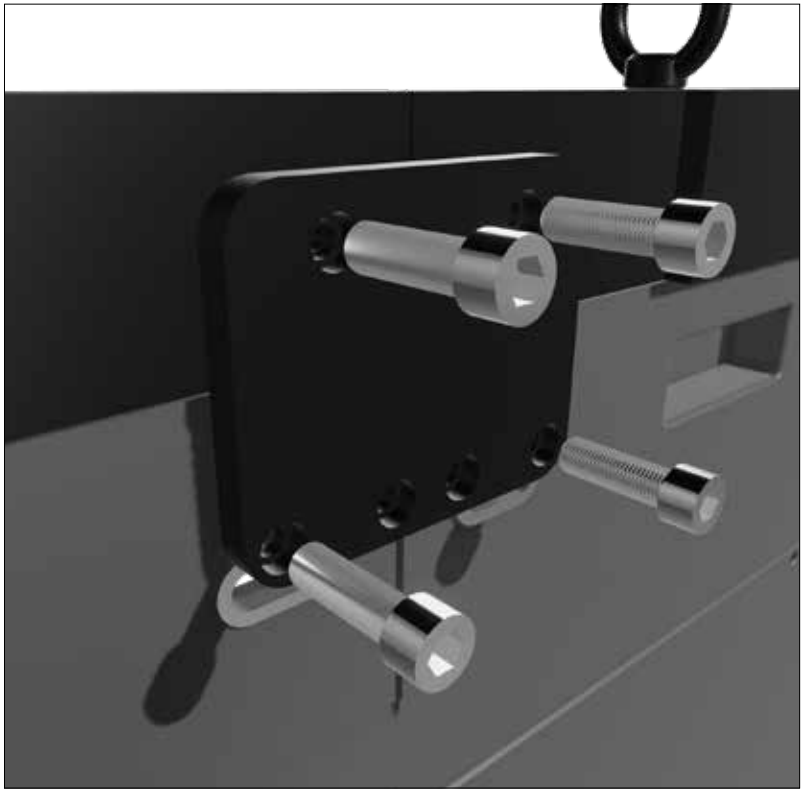
First Panels to Flybars

2 Attach cabinet to flybar using Flybar Mounting Screw (SM8L35). Continue attaching additional panels in row. Using Flybar Bracket Screw (SM8L20), be sure to attach Flybar Brackets to back of Flybar and Cabinets for structural integrity.

Flybar Mounting Screw (SM8L35)



Flybar Bracket Screw (SM8L20)



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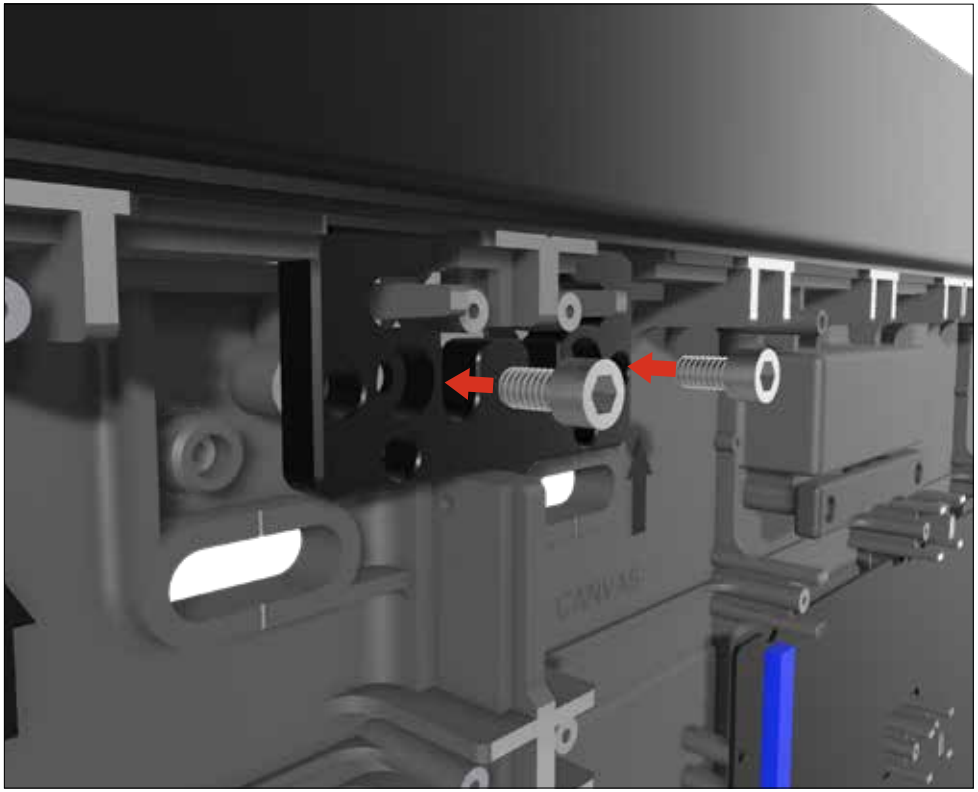
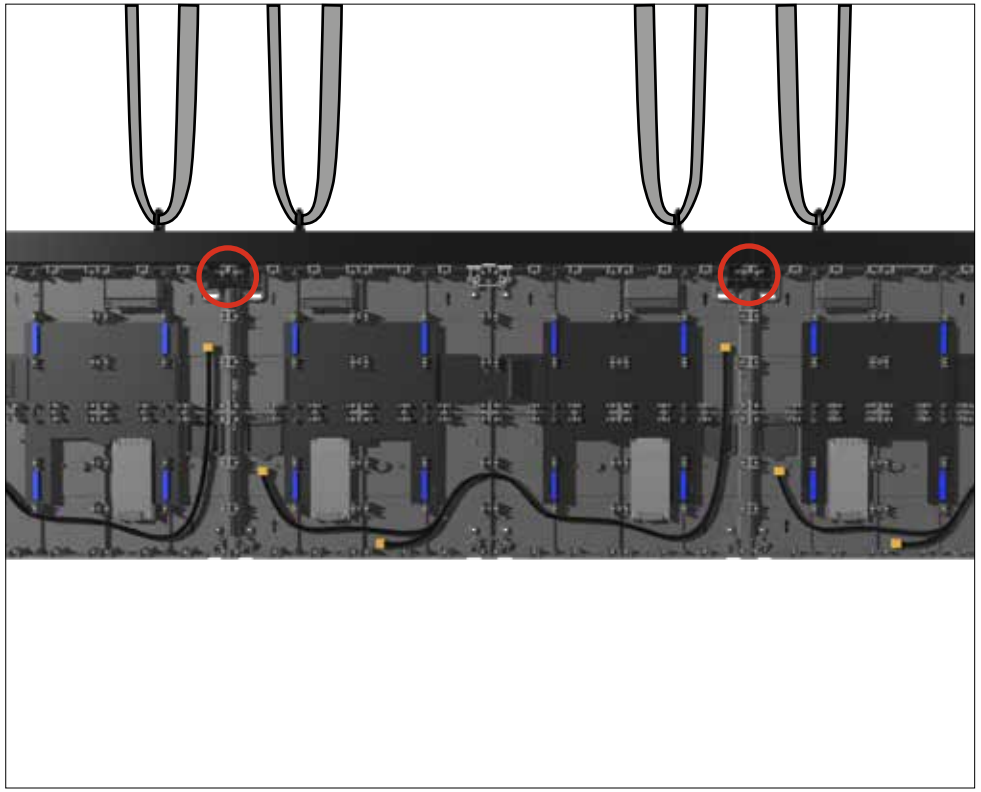
First Panels to Flybar

3 Once the first row is complete, install Half Chassis Alignment Brackets, using an M5 Allen key and the Chassis Alignment Bolts (SM6L8), between cabinets for the outside edges.

Two Half Chassis Alignment Brackets Bolts

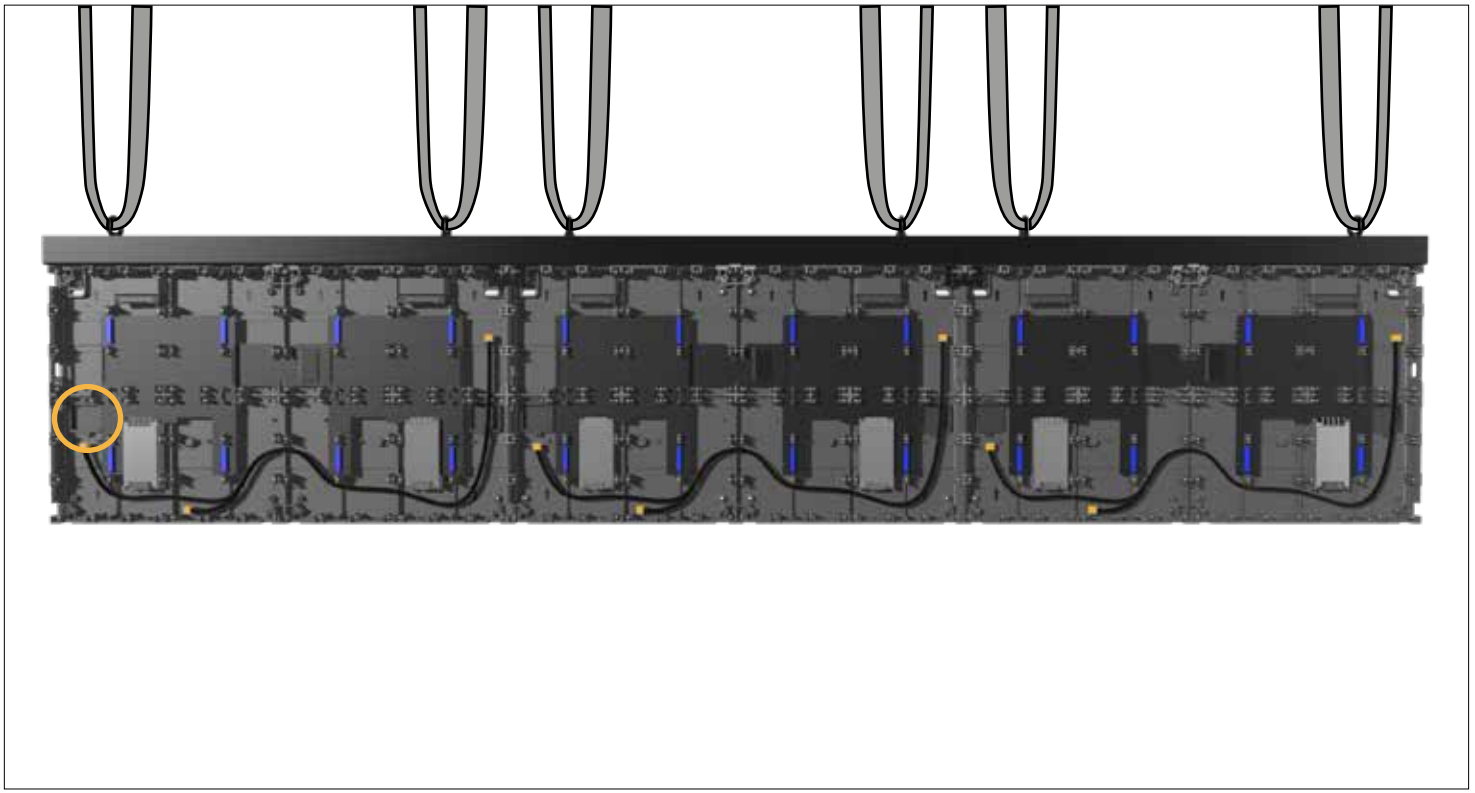


Half Chassis Alignment Brackets

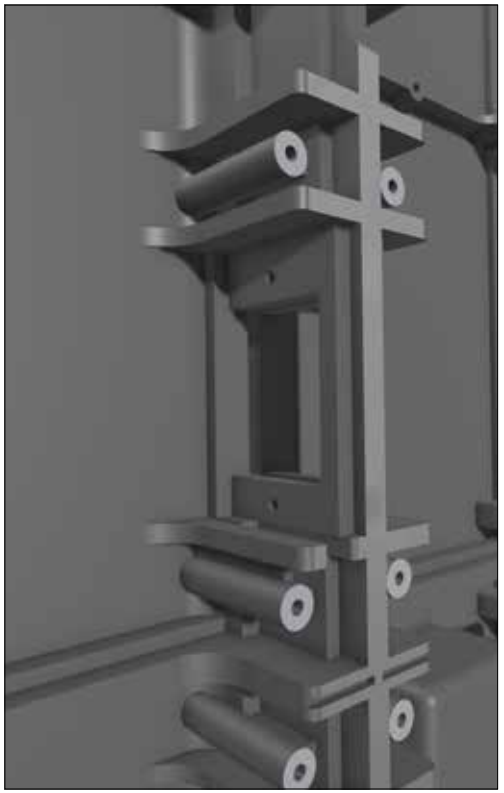


4 Power starts at the left panel (facing front of wall). Standard left-to-right power configuration does not require extra power jumper cables. However, top-to-bottom configurations require an extra power jumper cable. Feed power cable through the Access Panel (use P1 Phillips to remove) and the Power Cable Passthrough (rectangle) from one cabinet to the next. Refer to the THOR wiring diagram included in the project design documentation.

Access Panel



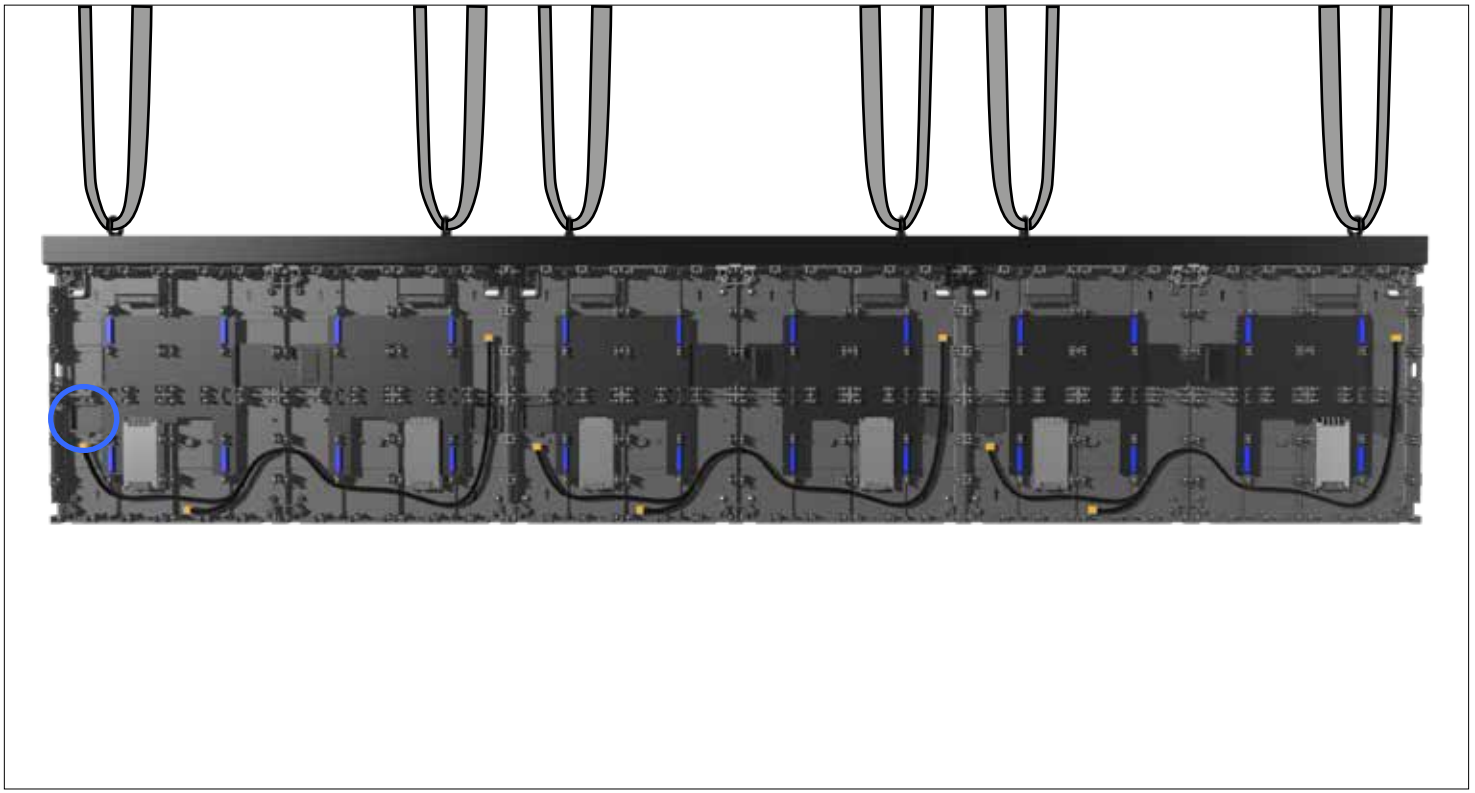
Power Cable Passthrough (Rectangle)



Power and Data

5 Data cables run horizontally or vertically. Data home runs enter through the Access Panel (use P1 Phillips to remove). Cables pass through the oval opening and travel top-down or bottom-up depending on the layout. Refer to the THOR wiring diagram included in the project design documentation.

Access Panel

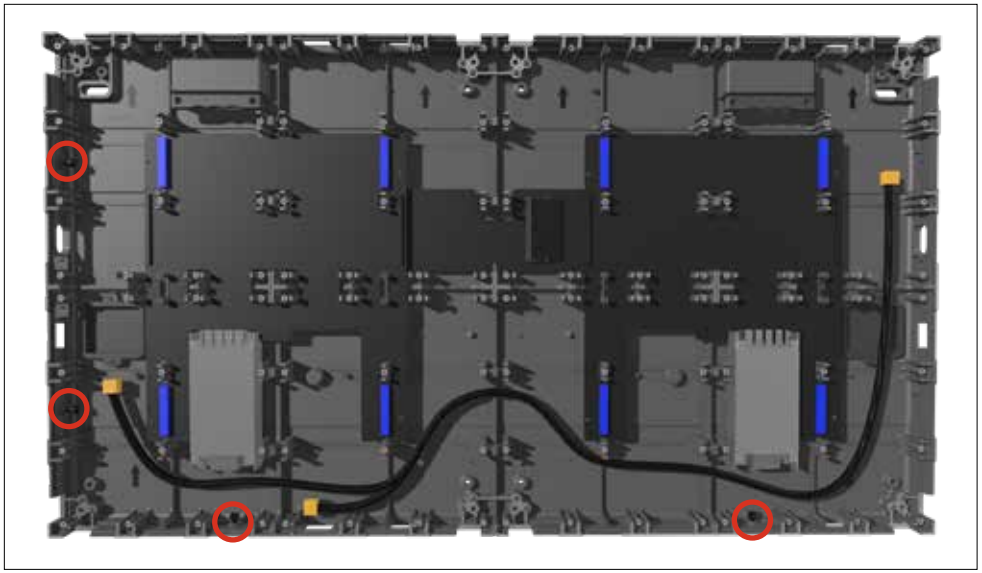


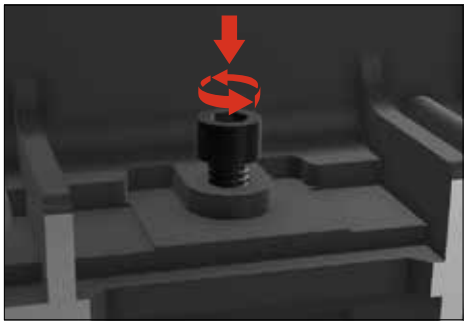
Data Cable Passthrough (Oval)

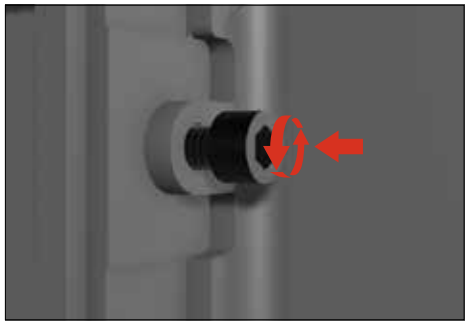
Building the Wall

7 Add cabinets row by row using the four Locking Screws to attach next cabinet. Then repeat Steps 4-6 for each row. Be sure to install the Chassis Alignment Bracket, using Chassis Alignment Bolts (SM6L8), and fully tighten the Locking Screws before moving on to next row. Chassis Alignment Bracket should be facing forward (the four bolt holes should be countersunk) and secured in place before fulling tightening the Locking Screws.

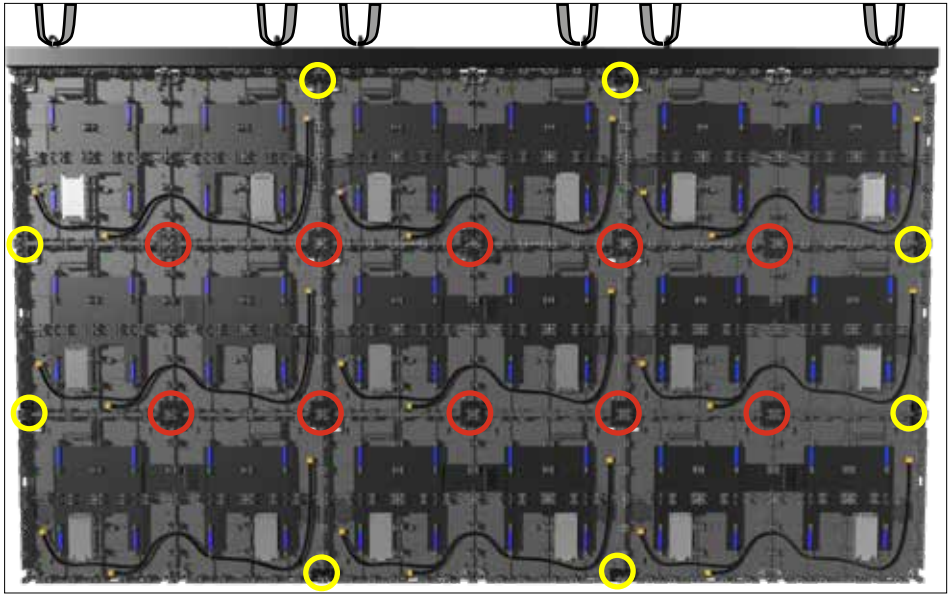
Locking Screws







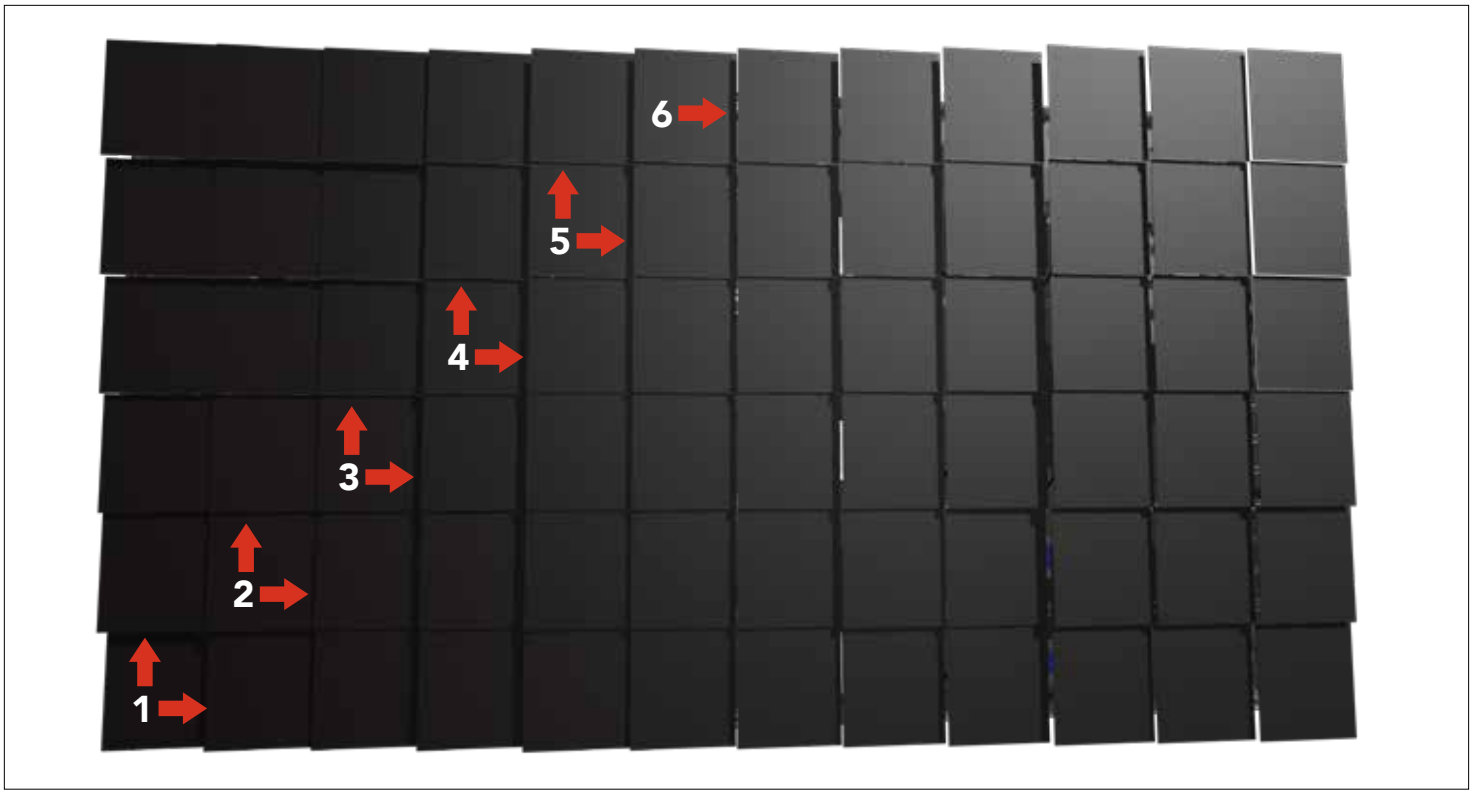
Chassis Alignment Brackets — Half Chassis Alignment Brackets

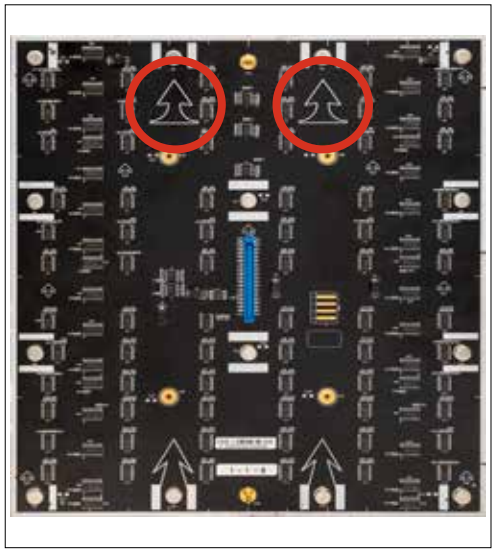


Populate Modules

8 Begin at the lower left and install one row of modules across the bottom and one up the left side to form an L shape. Check for stepping or misalignment before continuing. Ensure the arrows, on the back of the modules are facing upwards. Use the vacuum tool or clean hands or gloves to install and remove modules.

PRO TIP: Use gloves or wash your hands before handling modules.





THOR AV partners with Brompton Technology and Novastar processor manufacturers.

BROMPTON TECHNOLOGY

For more information on LED wall setup using Brompton processors, refer to: www.bromptontech.com/support

NOVASTAR

For more information on LED wall setup using Novastar processors, refer to: www.novastar.tech

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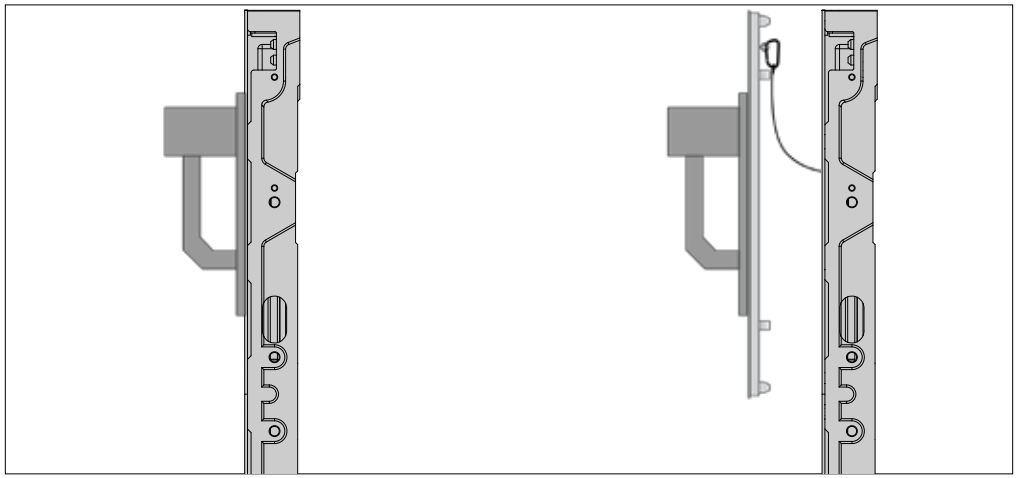
REMOVING MODULES

Position vacuum onto module. Turn on and wait for suction to build. Carefully pull module toward you.

Disconnect Safety Carabiner from module.



REPLACING MODULES

Modules can be reattached from the front (using Module Removal Tool Magnet) or rear (using module handles).

Align module with Power & Data Box (PDB). Module will snap into place.

Connect Safety Carabiner to module.

Brompton Product:
Power cycle is reccomended.
Contact your THOR dealer for support.

NovaStar Product:
Power cycle is recommended and module flash may be required.
Contact your THOR dealer for support.

CLEANING MODULES

- From time to time, wipe off the front and side panels and the cabinet with a dry soft cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since this may damage the finish.
- The manufacturer cannot be held responsible for damages caused to persons, personal possessions, or data due to an improper or missing ground connection.

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Troubleshooting

What if a block of my LED panels aren't working right?	Try replacing a data cable. Usually between the last panel that is working and the first panel that has stopped working.
How do I flash the receiving card and why?	Please contact a certified system integrator for more information and instructional guides.
Is there a reason why power cables connect stage left to right?	Yes. Power is not bi-directional.
Are the CANVAS power data boxes "hot swappable"?	No. The power data boxes are not hot swappable on CANVAS LED panels.

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Troubleshooting

My display has moiré issues.	Wavy lines! Moiré is an image artifact that appears when two fine patterns overlap at an angle. One of the easiest ways to reduce the moiré effect is to soften its direct focus by focusing on something else, like an individual. Slightly soften the focus on the screen itself to reduce the on-camera moiré effect with LED screens. Focus points matter when using cameras. Focusing on the LED wall creates moiré no matter what your camera resolution is set to. Another way is to use shallow depth of field if your subject is in front of the LED screen; the subject will be in focus and the background LED screen will be softly blurred. Image sensors found in digital cameras have their pixels arranged in a very fine pattern; when videoing an LED display, the camera's fine patterns will not line up with the fine pattern of the LED's.
Why do I have to reconfigure the LED wall every time I restart the system?	When changing settings in the processor, all settings need to be "Saved to Hardware". If this has not happened, the wall will return to the state of the last saved setting. This applies to every setting in the software, including: brightness, color temperature, wire flow, and calibration settings.
How do I remove a module if there are faulty pixels?	Each module on an LED panel has magnets to keep them in the proper position. Use the included CANVAS Module Removal Tool. CANVAS LED panels — Verify that the module's safety cable is detached. Carefully insert the module removal tool into the top front of the module via the thin slots and then slide the tool upwards to secure. While holding onto the removal tool, place forearm parallel against the module and use a curling motion (think lifting weights in the fitness room) to pull the top of the module toward you. This separates the module and panel chassis magnets. Some force will be needed.

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SUPPORT PROCESS INFORMATION

LED orders ship with Advanced Replacements.

Please contact support to obtain an RMA number prior to returning your product to THOR AV. Do not return the product to the place of purchase. Write the RMA number on the outside of the shipping carton. ***Any product sent to us without a valid RMA number will be refused.***

Shipping Address:
THOR AV
Attn: RMA Number
8821 Zealand Ave. N
Minneapolis, MN 55445 USA

Include the following with the product: a brief description of the problem, your name, return shipping address, phone number and the RMA number. Do not include any accessories. THOR AV is not responsible for any damage to or loss of the product during transit. We recommend that customers obtain a receipt and tracking number for all packages shipped to us. Turnaround time on repairs is generally ten business days. If you live outside of the United States, please contact your local distributor for warranty service.

WARRANTY SERVICE
You will be responsible for shipping charges to THOR AV and the product will be returned via non-express shipping by THOR AV. We reserve the right to inspect any product that may be the subject of any warranty claim before repair is carried out. Final determination of warranty coverage lies solely with THOR AV.

NON-WARRANTY SERVICE
If it is determined that the product does not meet the terms of our warranty, you will be billed for labor, materials, return shipping and insurance. There is a $100 USD minimum charge for materials and labor. Appropriate shipping charges will be applied. We require payment in advance of repair by credit card; we accept Visa and Master Card. In the event the charges are over the minimum charge, THOR AV will contact you and inform you of the cost of the repair before any work is completed.

Glossary

Aspect Ratio	The ratio of width to height of an image or a screen. Typical video aspect ratios are 16:10 and 16:9.
Bit Depth	The higher the bit depth of an LED panel, the more colors it is capable of reproducing. Bit depth quantifies how many unique colors an LED panel is capable of or are available in an LED panels color palette. The higher the bit depth, the greater level of color precision. For a grayscale video content, the bit depth quantifies how many unique shades are available.
Brightness	Brightness in an LED wall refers to how much illumination comes from the LED panels. There is a difference between the Maximum Brightness which is the brightest possible setting and the Calibrated Brightness which is the maximum setting at which all LEDs are the same brightness. With Maximum brightness, it is possible that not ALL the LEDs will be at that brightness level, it is the brightest that some LEDs in the panel will display. Brightness is particularly important if you will use LED walls in high ambient light such as sunlight or heavily lit venues.
BTU	The British Thermal Unit is a measurement of how much heat is emitted from a device.
Certification	Certifications verify that an LED wall has been tested and complies with emissions, power, and safety regulations. Look for the following certifications to ensure your LED walls meet all necessary standards: • FCC (Federal Communications Commission) *Description:* Verifies that LED walls comply with U.S. regulations on radio frequency emissions, preventing interference with other devices and communication networks. www.fcc.gov • ETL (Electrical Testing Laboratories) *Description:* Verifies that LED walls have been independently tested to meet North American safety standards, including electrical and other safety aspects. www.intertek.com/marks/etl • EMC (Electromagnetic Compatibility) *Description:* Verifies that LED walls operate without causing or being affected by electromagnetic interference, maintaining optimal performance. www.emcstandards.co.uk • UL (Underwriters Laboratories) *Description:* Verifies that LED walls meet extremely stringent safety standards, including electrical and fire safety, with thorough and periodic audits. www.ul.com

Glossary

Chassis	The frame that holds LED modules, the power supply, and receiving card in an LED panel is the chassis.
Closest Viewer	The closest viewer specification is an estimation by the manufacturer of LED panels that describes how far the LED wall should be mounted from the closest viewer. Ideally, this rating is the distance from which a viewer will not be able to see the individual pixels in a video wall.
Color Correction	Color correction is part of customizing an LED walls color by using a video processor. Adjustments to the color, contrast, and exposure enables video content to appear lifelike — natural and unprocessed.
Contrast	The difference in appearance between the lightest part of an image and the darkest part of an image.
Curving Radius	Some LED panels can have a slight curve for use in studios, corporate offices or other applications where a flat wall is not desirable.
Distance from Presenter to LED wall	Refers to the distance of the subject on the stage and the LED wall behind them. This is important for the camera setting needed to have the correct depth of field, minimizing moiré.
Driving Method	Sometimes referred to as Scan Mode, the driving method tells you how many LEDs are active at one time. LEDs are turning off and on at a visually imperceptible speed, this is what helps control the perceived brightness. If a Driving Method is 1/15 scan, that means that at any given time only 1/15th of the LEDs are active. This happens so fast however that it will not be detected by the eye.
Gray Scale	A bit of a misnomer, Gray Scale refers to the color depth, or simply (perhaps too simply), the number of available colors. • A 12-bit gray scale will have a potential of 4096 colors (2^{12}) • A 14-bit gray scale will have a potential of 2^{14} color or 16,384 • A 16-bit gray scale offers a 2^{16} color potential or 65,536 colors
HDR – High Dynamic Range	HDR is a series of technologies that improve the range of color and contrast in a video image. By offering higher brightness, wider color ranges, more detail and higher headroom, HDR provides more lifelike depth and image quality.
IC Driver	The IC Driver controls the state of each individual LED in the LED panel. It controls the on-off state through Pulse Width Modulation (PWM) or the more advances Scrambles Pulse Width Modulation (S-PWN). The refresh rate of each LED panel is determined by the IC Driver.
IP Rating	Ingress Protection rating provides a range for the level of protection from solid objects or liquid for electrical enclosures or mechanical casings.
Mask	Masks are an extra layer of protection for LED pixels. They also significantly improve the overall image quality and create a more efficient display. Also known as louvers or shaders, masks are black plastic screens that cover the face of the module.

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Glossary

Module	A module in an LED panel houses the LED's themselves. Often two or more modules will be a part of a single LED Panel.
Moiré	Wavy lines! Moiré is an image artifact that appears when two fine patterns overlap at an angle. One of the easiest ways to reduce the moiré effect is to soften its direct focus by focusing on something else, like an individual. Slightly soften the focus on the screen itself to reduce the on-camera moiré effect with LED screens. Focus points matter when using cameras. Focusing on the LED wall creates moiré no matter what your camera resolution is set to. Another way is to use shallow depth of field if your subject is in front of the LED screen; the subject will be in focus and the background LED screen will be softly blurred. Image sensors found in digital cameras have their pixels arranged in a very fine pattern; when videoing an LED display, the camera's fine patterns will not line up with the fine pattern of the LED's.
Nit	A nit is the measurement of the intensity of a visible light source. Brightness is measured in nits.
Pixel Pitch	Pixel Pitch is the distance between two LED's in an LED panel. It is measured from the center of one LED to the center of the adjacent LED horizontally or vertically. Usually measured in millimeters, a smaller pixel pitch generally allows the viewer to be closer to the LED wall.
Power Supply	Power to the LED wall is provided in a pass-through daisy chain configuration. Power enters the wall at one of the LED panel's Power Data Boxes and then each subsequent panel receives power from the panel before it.
Processor	The Processor takes your video image, applies filters and adjustments, and outputs to the video wall. The processor also formats the output so that it displays correctly across multiple LED panels.
Receiving Card	The receiving card is the part of the LED panel that receives a signal from the sending card in the Processor. The "first" LED panel in the LED wall connects directly to the processor via a CAT5 or CAT6 cable and then each subsequent LED panel (up to the maximum pixel count on the channel) is connected in a daisy chain fashion.
Refresh Rate	The refresh rate is how often the image is redrawn on the screen. The images on a screen are redrawn many times per second. The refresh rate is particularly important when using a camera that captures the LED wall in the video feed. If the refresh rate is not high enough, or if the camera is configured improperly, the refresh or scan lines can be caught on the camera.
Resolution	Resolution is the number of pixels in a digital display. It is measured as width by height. There are a number of standard resolutions such as 1080p, WUXGA, 4K, etc. Each resolution will have an aspect ratio which is the ratio of pixels in the format width:height.

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Rigging	Rigging is the frame system that holds up and supports the LED wall. Rigging can be used on the ground, hung from a ceiling, mounted on a wall or constructed into a frame depending on the stage requirements.
Sending Card	A sending card is a part of the Processor that outputs a “channel” of video content to the receiving card on the back of the LED panel. Each processor can have multiple sending cards to output multiple channels of content.
Viewing Angle	The viewing angle specifies the maximum angle an LED panel is viewable; with 90° being a front view and 180° being parallel with the LED panel on either side.

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