NEXUS 21

TECHNOLOGY IN MOTION

Projector Lift Model E-500
Installation Instructions

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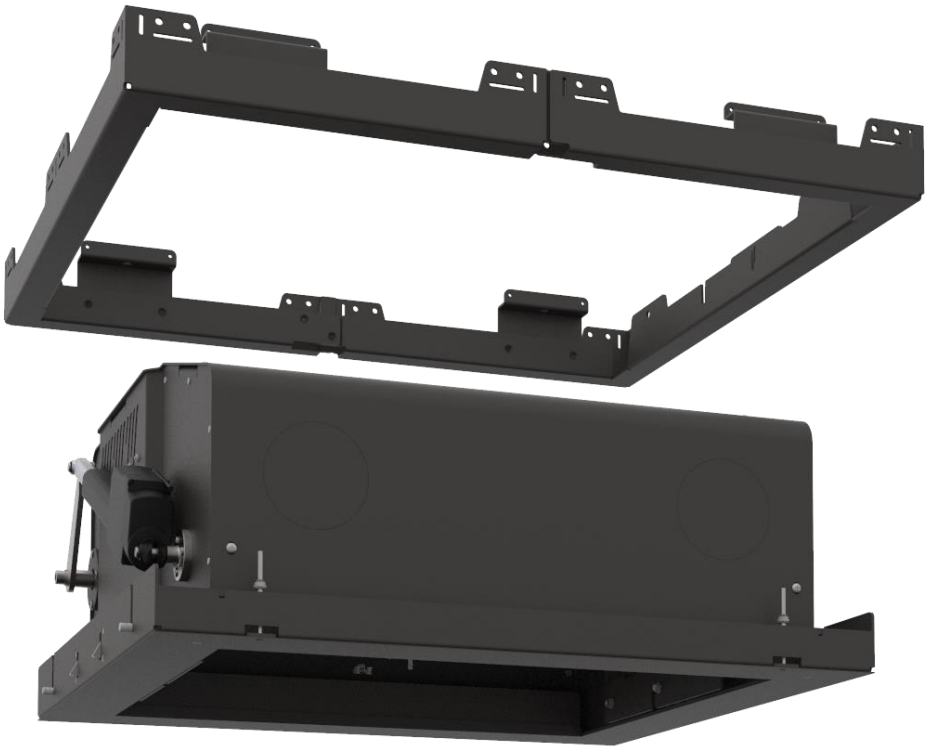
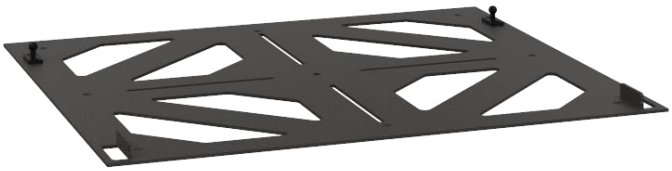



NEXUS 21



NEXUS 21

TECHNOLOGY IN MOTION

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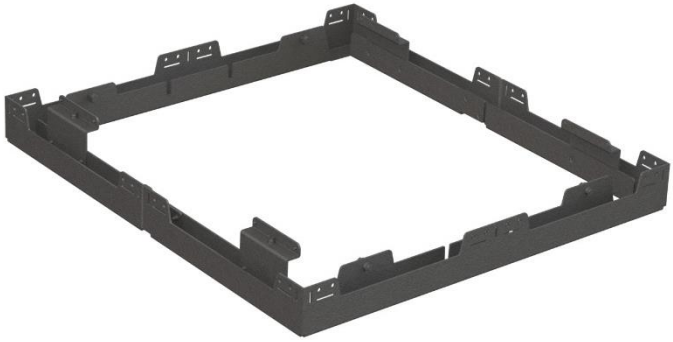
Revised: 3/13/18

Below is a parts list describing all of the items included with the Model E-500 System. You may also wish to refer to the dimensional diagram shown on pages 22-24.

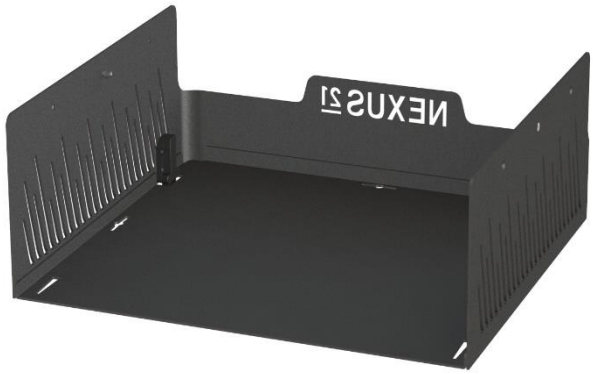
Before beginning assembly and installation, please make sure that you have all items included on the list. If any parts are missing or damaged, please contact Nexus 21 using the contact info shown at the top of this page.

Parts List

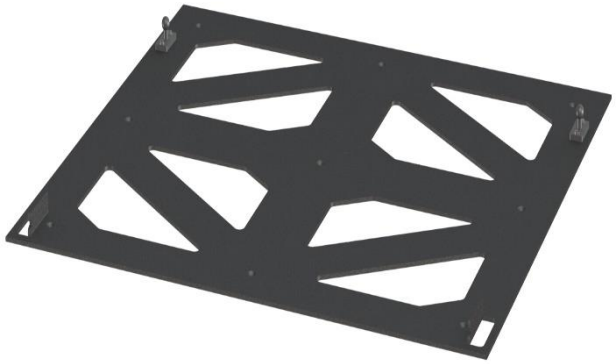
E-500 Lift Mechanism



Installation Bracket (Pre-Framed)

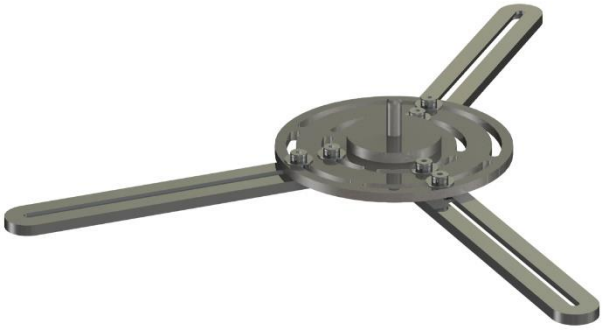


Carrier Shroud



Interface Plate

Universal Adjustment Bracket



Universal Mounting Bracket

Parts List Continued

Hardware

1. Eight (8) -- 5 x 14mm FHMS (Flat Head Machine Screw)
2. Four (4) – Set Screws
3. Four (4) – Fine Adjustment Screws
4. Sixteen (16) -- #8 – ½" FHWS (Flat Head Wood Screw)
5. One (1) – 3mm T-Handle

SAFETY INFORMATION

SEVERE PERSONAL INJURY AND PROPERTY DAMAGE CAN RESULT FROM IMPROPER INSTALLATION OR ASSEMBLY. READ THE FOLLOWING WARNINGS BEFORE BEGINNING:

WARNINGS:

1. Do not use this product for any application other than those specified by Nexus 21.
2. Do not exceed the weight capacity. This can result in serious personal injury or damage to the equipment. It is the installer's responsibility to ensure that the total combined weight of all attached components does not exceed that of the maximum figure stated.
3. Follow all technical specifications and instructions during the installation.
4. Only use attachments/accessories specified by the manufacturer.
5. Close supervision is necessary when this system is being used by, or near, children, or disabled persons.
6. It is the responsibility of the installer to warn all potential users of the dangers of interfering with the mechanism during operation.
7. Read all technical instructions fully before installation and use. It is the installer's responsibility to ensure that all documentation is passed on the users and read fully before operation.
8. Failure to provide adequate structural strengthening, prior to installation can result in serious personal injury or damage to the equipment. It is the installer's responsibility to ensure the structure to which the Lift System is affixed can support four times the weight of the system.
9. Risk of electric shock. Do not attempt to open the Control Box.
10. To reduce risk of fire or electric shock, do not expose parts to rain or other liquids.
11. Protect the power cord from being walked on or pinched.
12. Keep all documentation.
13. Heed all warnings.
14. Clean only with a dry cloth.
15. Refer all service questions to Nexus 21 if the system does not operate normally.

Nexus 21 disclaims any liability for modifications, improper installations, or installations over the specified weight range. Nexus 21 will not be liable for any damages arising out of the use of, or inability to use, Nexus 21 products. Nexus 21 bears no responsibility for incidental or consequential damages. This includes, but is not limited to, any labor charges for the servicing of Nexus 21 products performed by anyone other than Nexus 21.

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Types of Controls for Nexus 21 Lift Systems

All Nexus 21 Systems come standard with a **wireless remote control** and receiver. We offer a choice of two different types of remotes: IR and RF (both of which are explained in detail below). Our standard control type is RF, so unless you specifically requested the IR version when you made your purchase, you probably received the RF controls with this Lift System. The method of installation for each type of remote control is slightly different, so you should now identify which type of remote you have by reading below, and then follow the instructions for that type of remote.

NOTE: If you will be using a system with a home control system (like the ones made by companies such as Crestron or Control 4) the most common form of control is to WIRE IT DIRECTLY to the relays of your home control system. This direct-wire method is called **Integration by Contact Closure**, and is accomplished by using the Contact Closure Hardware that is supplied with the IR Control Kit to connect the Lift to your home control system.

Identifying the System Control Type

IR (Infrared) – This control option allows you to utilize a 3rd party universal style remote control to raise and lower the TV Lift. Your universal remote will "learn" the IR codes from the provided IR Handset, which will enable you to control the lift. The universal remote will then communicate with the "eye" located on the IR Receiver via your 3rd party emitter (or flasher). Instructions for setting the travel limit for the system are on Page 21.

NOTE: If you are NOT planning on using a 3rd party Universal Remote, switch to the RF setup. (There is no charge for swapping)

These are the parts included with IR controls:

Contact Closure Hardware

IR Receiver

IR Handset

Height Limit Insert

RF (Radio Frequency) - This system utilizes a wireless remote-control handset that sends a radio signal to the RF Receiver. The radio signal can go through ceiling material and does not require line-of-sight. Instructions for setting the travel limit for the system are on Page 21.

TIP: Planning to integrate the TV Lift with your UNIVERSAL REMOTE CONTROL? The RF version of the Nexus 21 controls won't do it. Switch to IR.

These are the parts included with RF controls:

Backup Switch

RF Receiver

RF Handset

Height Limit Insert

Integration by Contact Closure – To direct-wire the TV Lift controls to a home control system (Crestron, Control 4, AMX, etc.) you will use the Contact Closure Hardware. You won't use any Nexus 21 receiver or handset for this type of control because you will use the handset or control pad that comes with your home control system. **Instructions for setting up the System using Contact Closure are on "Page 25".**

Safety & Reference Information

SAFETY NOTICE:

- For proper support, this System MUST NOT be attached to any material that is less than ¾" thick.
- This System is ONLY designed and rated for VERTICAL, NON-INVERTED USE. **DO NOT MOUNT THIS LIFT SYSTEM UPSIDE DOWN or SIDEWAYS (HORIZONTALLY)!**
- This installation is to be completed by a licensed installer or contractor
- All electrical hookups must be installed per authorized building codes

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All information provided below is located within the Model E-500-Dimensional-Drawing for more information pertaining to the specifications listed below, refer to the dimensional drawing located at the end of this manual.

Dimensional Drawing PDF's are available upon request.

All measurements are shown in inches with Centimeters shown inside [ ]

Minimum Framing Dimensions for the E-500 System are as follows:

Minimum Framing Width = 32.125" [81.6]
Minimum Framing Length = 29.875" [75.9]
Minimum Installation Height = 13.5" [34.3]

Ceiling Cutout & Ceiling Panel Dimensions for the E-500 System are as follows:

Ceiling Cutout Width = 28.875" [74]
Ceiling Cutout Length = 26.625" [68]

Ceiling Panel Width = 28.625" [72.7]
Ceiling Panel Length = 26.375" [67]

Maximum Weight Capacities for the E-500 System are as follows:

Maximum Projector Weight = 70 lbs. [31.75 kg]
Maximum Ceiling Panel Width = 30 lbs. [13.6 kg]

Total Combined Weight of Projector & Ceiling Panel cannot exceed 100 lbs. [45.3 kg]

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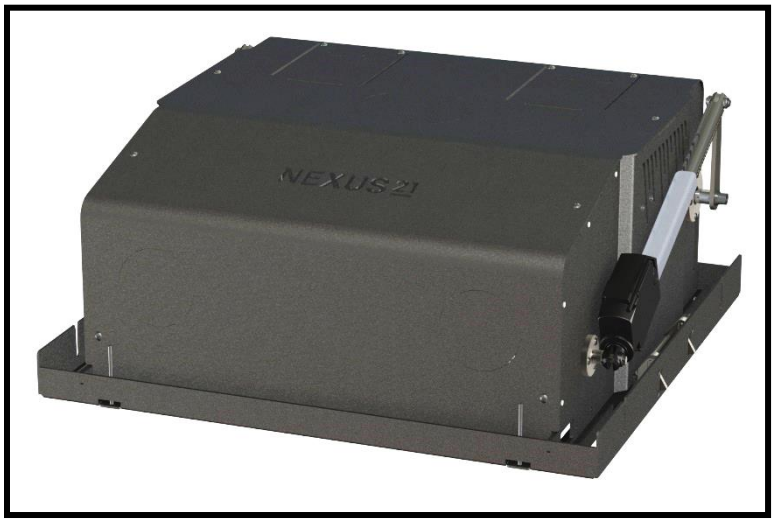
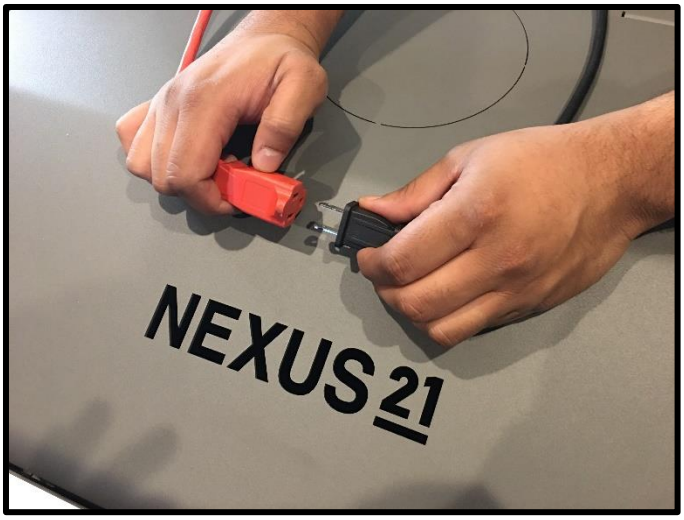
Before You Begin



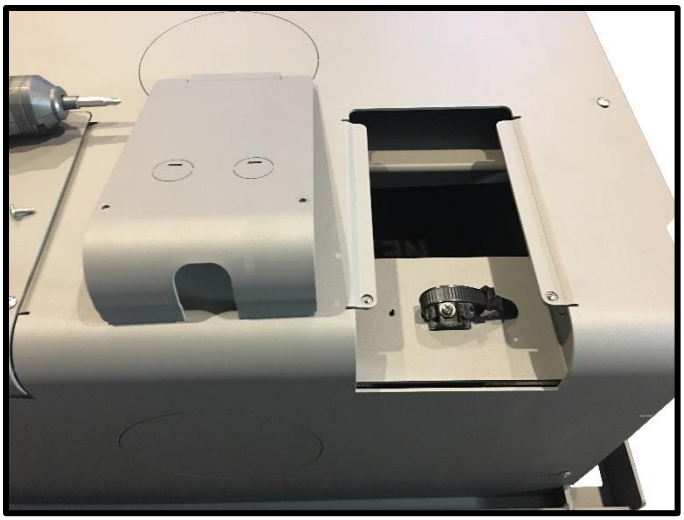
For these steps you will need the following:

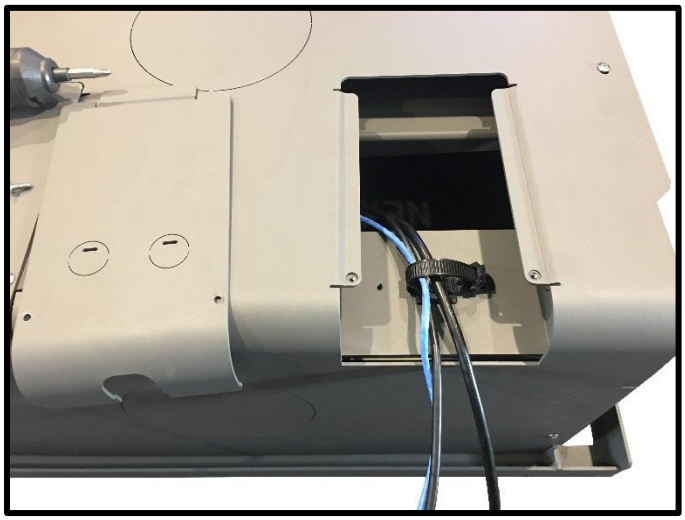
- **E-500 Actuation System**
- **Integration Cables**
- **Audio Video Cables**
- **Phillips Bit or Screw Driver**

Step 1: Connect the Power Cord for the E-500 to an Outlet or Receptacle located above the Installation Bracket.



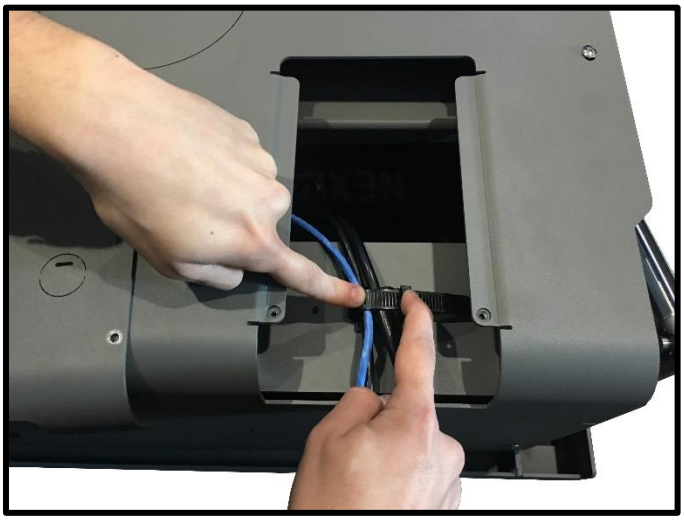
Step 2: Remove the Left Cable Terminal Cover by removing both of the Phillips Screws.





Step 3: Pass all AV, Integration, and Power Cables for Projector and E-500 Lift System through Cable Outlet inside the terminal.

Note: If you purchased the lift with the CSI Kit, make sure to manage the cable for Contact Closure or the IR Receiver as well.

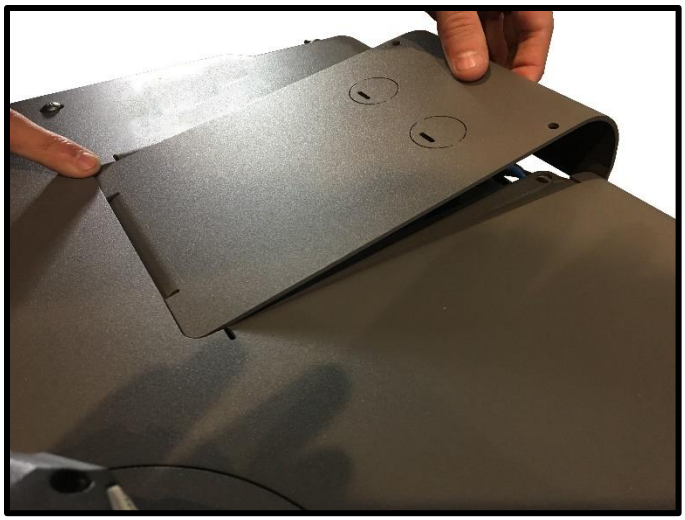


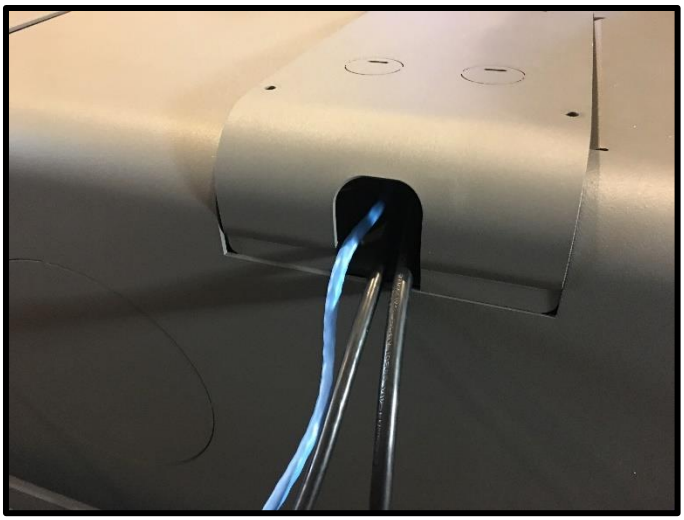
Step 4: Cinch the cables within the terminal using the Cable Strap. Do not completely fix the cables in place. Slack will be need to manage the cables further in a later step.

Note: Leave about 2 ft of cable length inside the Actuation System to allow for further cable management.

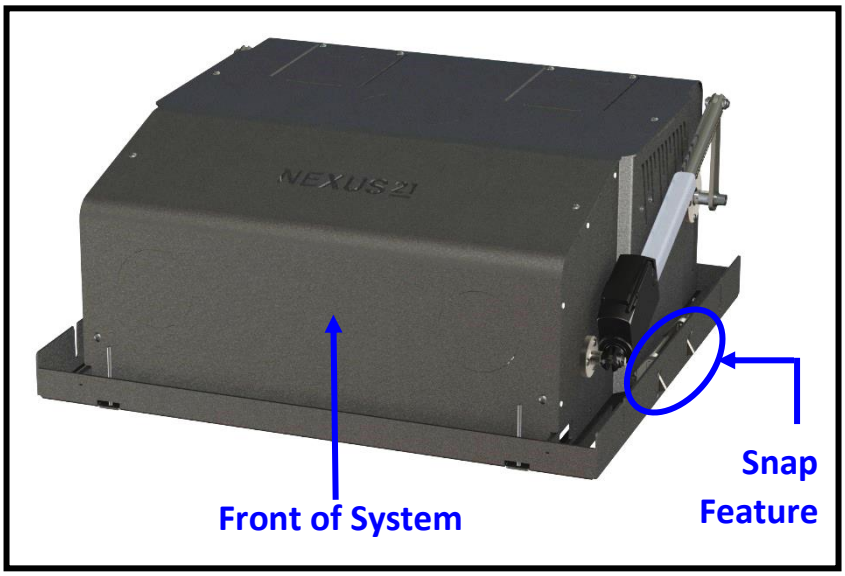
Step 5: Re-attach the Left Cable Terminal Cover by sliding the back end in first, pushing the front end down, then using both of the Phillips Screws to fasten it into place.

Note: You may need to gently pull on the Dust Cover to completely seat the Terminal Cover





Installing the Actuation System

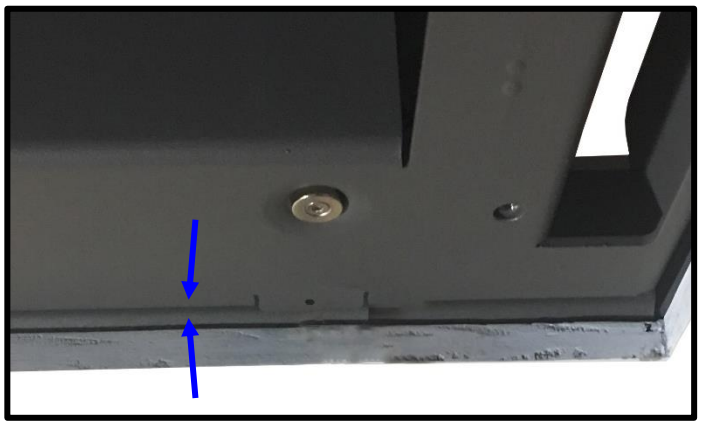


For these steps you will need the following:

- **E-500 Actuation System**
- **(Pre-Framed) Installation Bracket**
- **(4) Fine Adjustment Screws**
- **3mm Allen Key or T-Handle (Provided)**

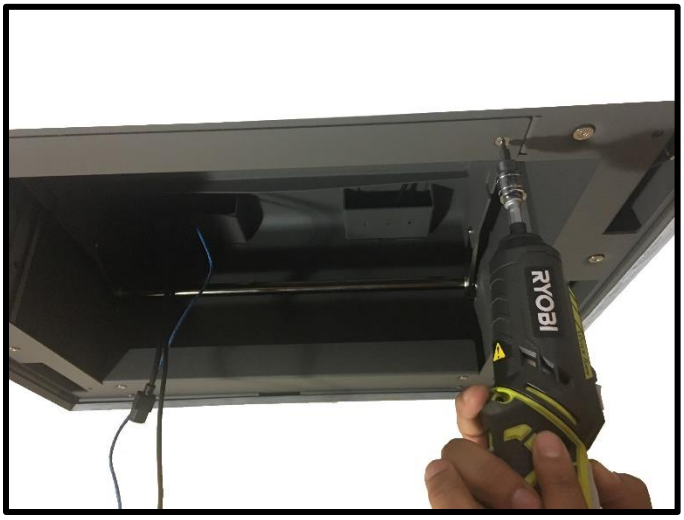
Step 6: Take a moment to locate the Snape Feature on each side of the Actuation System. Now press and snap the Actuation System into place within the Installation Bracket. Ensure the front of the Actuation System faces in the direction of the projector screen and the front of the Installation Bracket.

Important Note: Ensure both of the Snap Features engage before letting go of the Actuation System. When the Snap Features are fully engaged, the Actuation System will be flush with the bottom face of the Installation Bracket.



Step 7: Place the (4) Fine Adjustment Screws through the underside of the Actuation System into the Installation Bracket and partially fasten them using a 3mm T-Handle or Allen Key.

Note: Do not completely fasten these screws as adjustments will be covered in a later step.

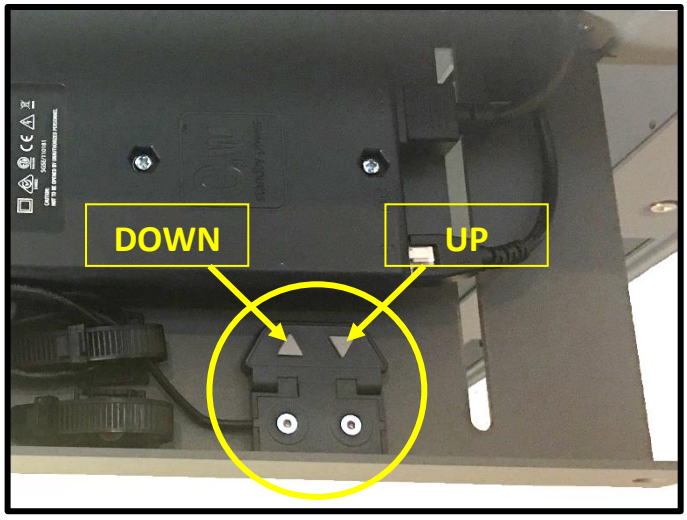


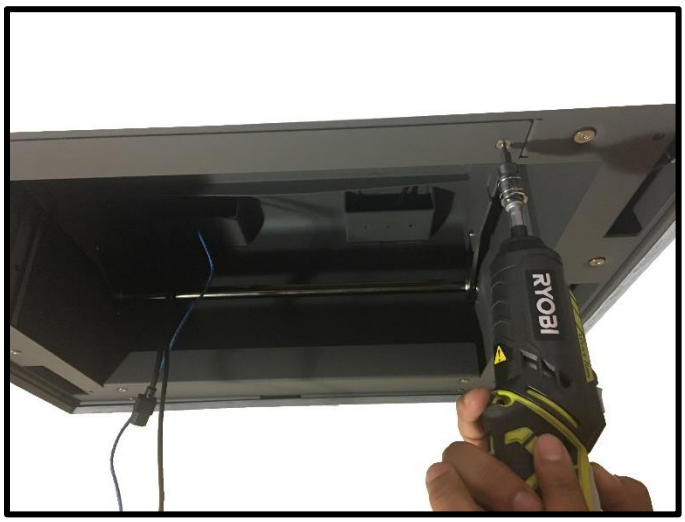
Step 8: Locate the Control Panel at the front of the system then, using a 3mm T-Handle or Allen Key, remove both of the Control Panel Screws to lower and expose the Wired Backup Switch.

Step 9: Using the Wired Backup Switch, run Crossmember into the DOWN position.

Important Note: At this point, if you are using IR or Contact Closure, disconnect Backup Switch and connect IR Receiver or Contact Closure Integration Cable in its place.

Ensure the Universal Remote being used for Control System is useable at this point, since it will be used to operate the system remotely in a later step.





Step 10: Raise the Control Panel back into place then, using a 3mm T-Handle or Allen Key, fasten both of the Control Panel Screws.

Projector Mounting

For these steps you will need the following:

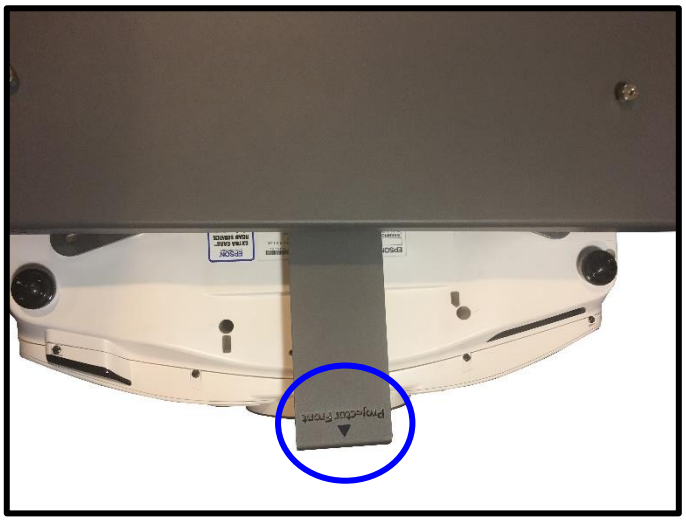
- **Universal Adjustment Bracket**
- **Universal Mounting Bracket**
- **Carrier Shroud**
- **Projector**
- **Projector Mounting Hardware (Not Included)**
- **(1) M8 Nyloc Nut (Already Attached)**
- **(4) 5 x 14mm FHMS Screws**
- **(1) Flat Washer (Already Attached)**
- **3mm Allen Key or T-Handle (Provided)**

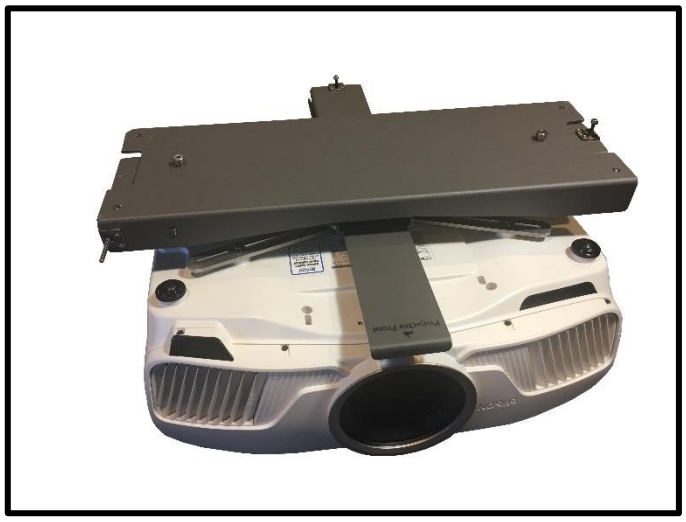
Step 11: Remove the M8 Nyloc Nut from the Adjustment Bracket then attach the Projector to the Mounting Bracket and center the Mounting Bracket on the Projector.

Important Note: Due to the large variety of Projectors, we are unable to provide the hardware required to mount the Projector to the Mounting Bracket. Contact the Projector manufacturer or reference the User Guide for screw sizing.

Step 12: Slide the Adjustment Bracket onto the Mounting Bracket then fasten the two together, using (1) 8mm Nyloc Nut and Flat Washer with a 13mm Crescent Wrench.

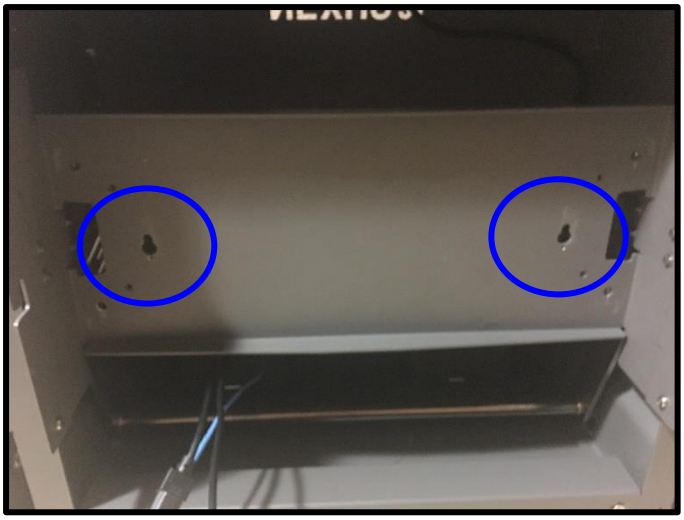
Note: Ensure the front of the Projector sits behind the locating flange on the Adjustment Bracket before completely fastening the two together.





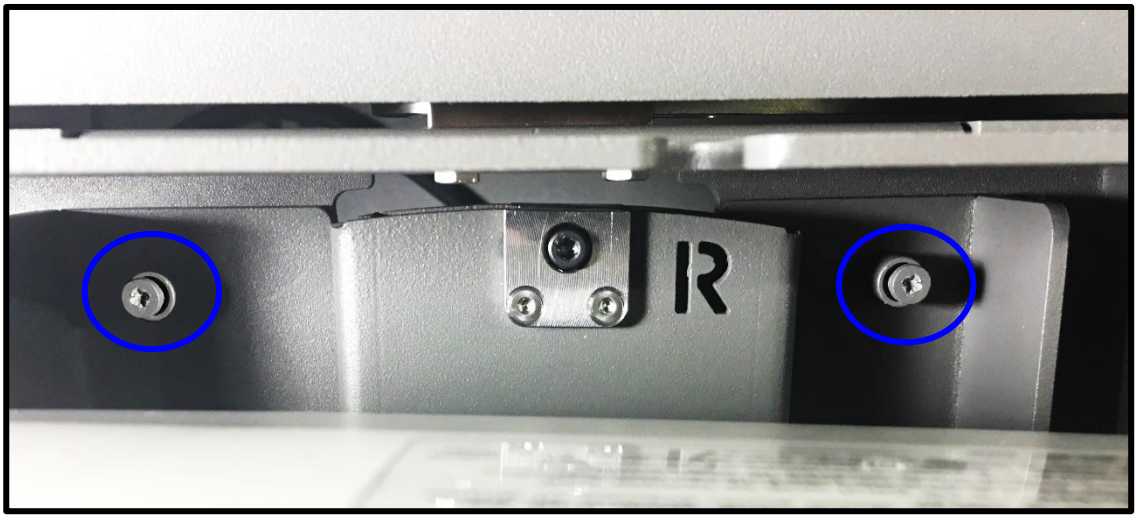
Step 13: Press and slide the Shoulder Bolts, located on the Top of the Mounting Assembly, in to the Keyed Holes of the Crossmember inside of the Actuation System. Reference the Arrows in the image below for the direction.

Important Note: Slowly remove pressure on the Projector to ensure the Mounting Assembly is within the keyed holes. Once the Mounting Assembly is in place, do not bump or move it until the next step is complete.

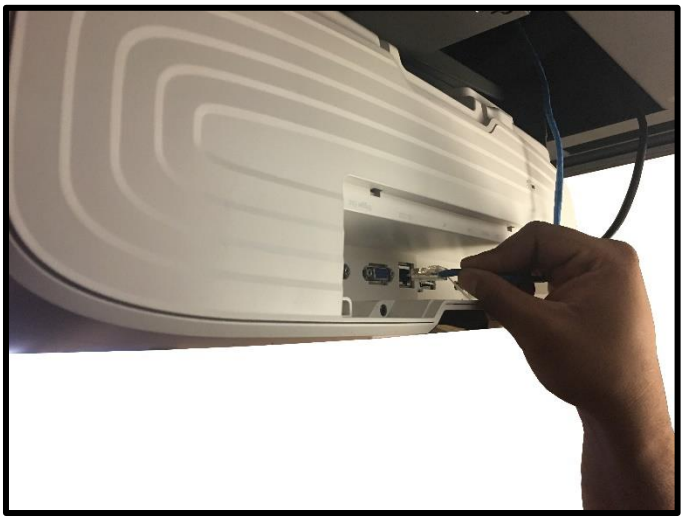


Step 14: Using the (4) Pre-Installed 3mm Hex Screws located on the Adjustment Bracket, fasten the Mounting Assembly to Crossmember. Again do not bump or move the Mounting Assembly until this step is complete.

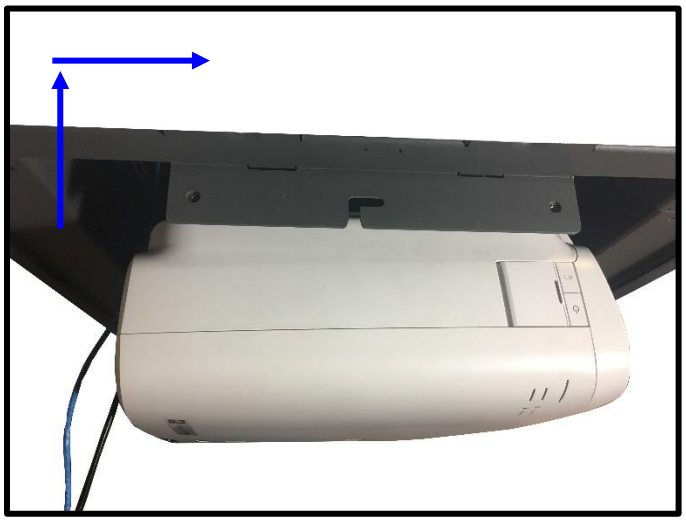
Note: Use the provided 3mm T-Handle to ensure the screw heads do not strip.



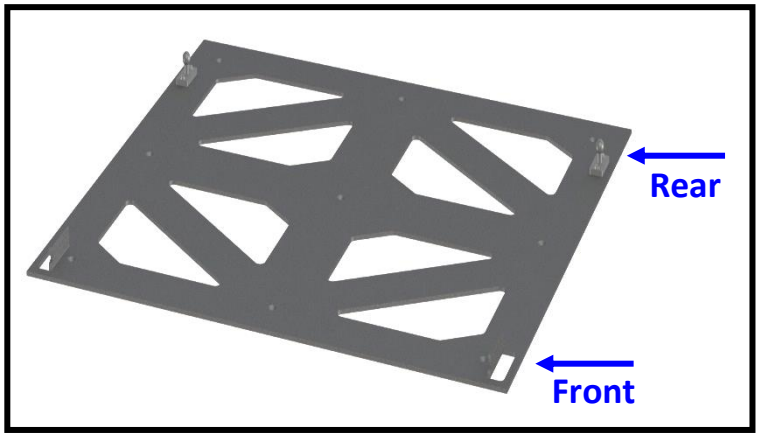
Step 15: Connect and manage any cables for integration or the projector and feed any excess cable back up and through the Left Cable Terminal.



Step 16: Press and slide the Carrier Shroud into the L shaped slots located on the left and right side of the Crossmember then fasten the Carrier Shroud to the Crossmember using (4) 5 x 14mm FHMS Screws, (2) per side. Reference the arrows shown in the images below for direction.



Ceiling Panel Attachment

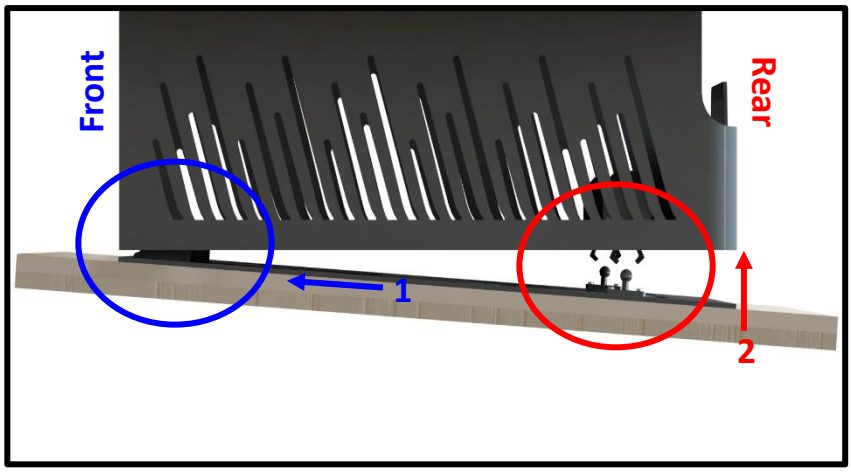


For these steps you will need the following:

- **Interface Plate**
- **Trim Ring**
- **Ceiling Panel**
- **(9) Wood Screws**
- **(4) Set Screws**
- **(4) 5 x 14mm FHMS Screws**

Step 17: Center and attach the Ceiling Panel to the Interface Plate using the provided Wood Screws or appropriate hardware/adhesive.

Note: Ensure the Front of the Ceiling Panel and Interface Plate coincide with one another. The front of the Interface Plate has the Slotted Holes while the rear has the Pins.

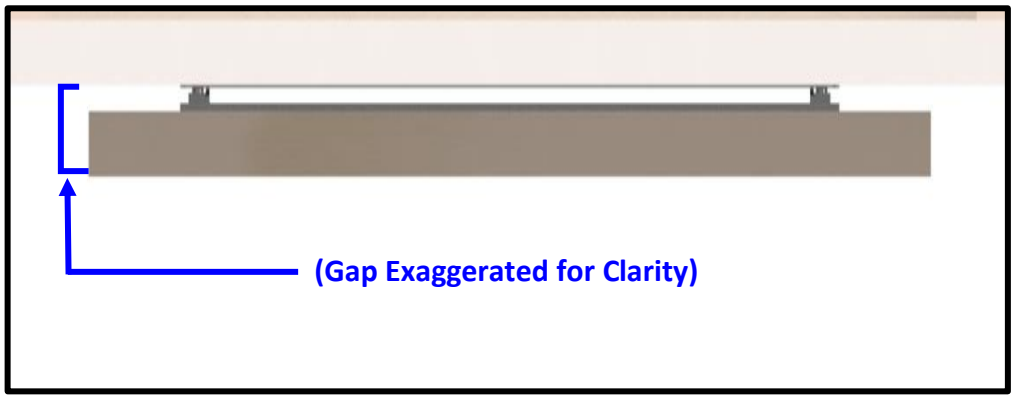


Step 18: Slide the Metal Tabs of the Interface Plate into the Slotted Holes on the Carrier Shroud, then press the Interface Pins into the Latches on the Carrier Shroud. Reference the arrows shown in the image to the right for direction.

Step 19: Using your remote, run the E-500 into the UP position to measure the flushness of the Ceiling Panel relative to the surrounding ceiling.

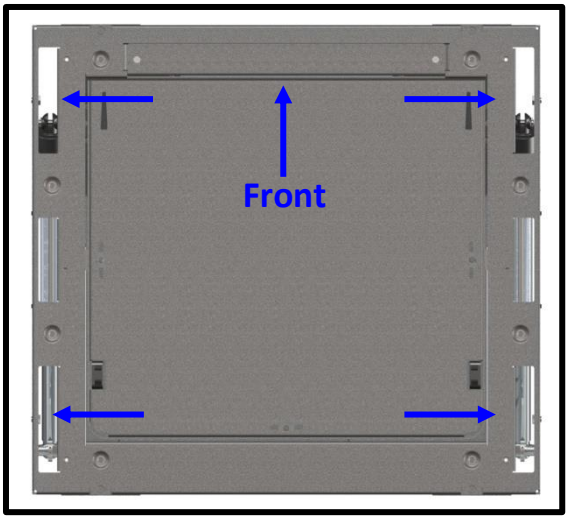
Note: If adjustments are needed, run the system down, remove the Interface Plate then tighten the Fine Adjustment Screws to move the Ceiling Panel UP, and loosen the Fine Adjustment Screws to move the system DOWN.

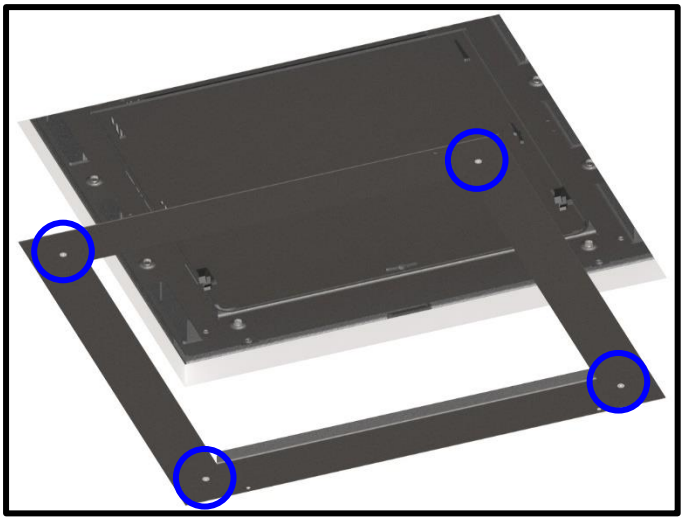
Important Note: You must adjust the Fine Adjustment Screws in a Star Pattern and in Increments. Do not fully adjust each screw individually as this may potentially cause the system to wedge itself inside the Installation Bracket.



Step 20: Once the Ceiling Panel is flush, remove the Ceiling Panel, run the lift into the UP position, and fasten the (4) Set Screws located in the four corners of Actuation System.

Note: These Set Screws ensure the position of the system does not move or shift during operation.

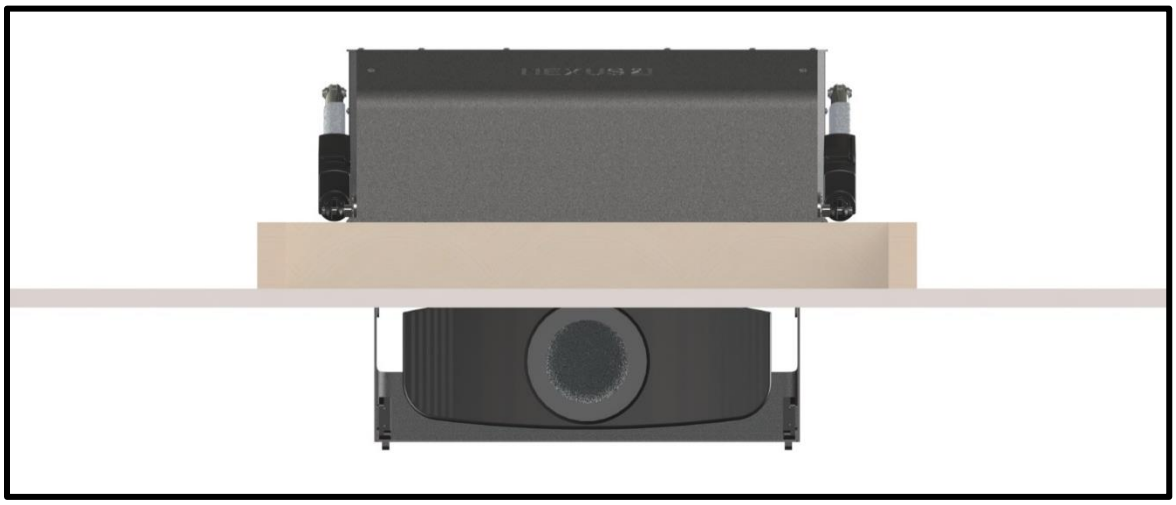


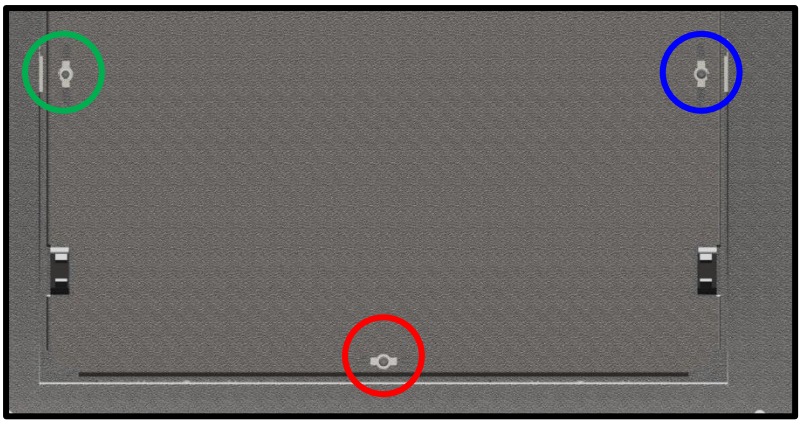


Step 21: With the Ceiling Panel still removed, place the Trim Ring on to the underside of the unit, and fasten it using (4) 5 x 14mm FHMS Screws.

Projector Adjustment

Step: Run the system down to expose the projector.

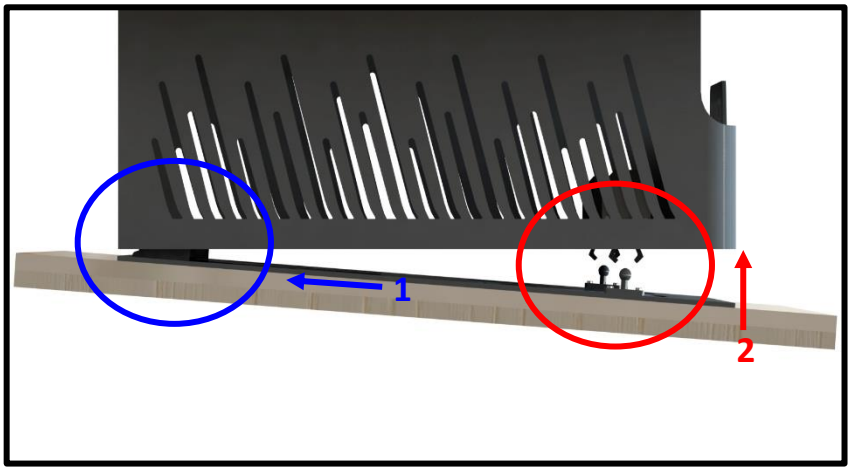




Step 22: Adjust **Roll**, **Pitch**, and **Yaw** for Projector by placing a 3mm T-Handle or 3mm Allen Bit through the slotted holes on the underside of the Carrier Shroud.

Note: Roll is to the Right, **Pitch** is in the Center, and **Yaw** is to the Left. You may also remove the Carrier Shroud to gain more access to the adjustments.

Step 23: Re-attach the Interface Plate by sliding the Metal Tabs of the Interface Plate into the Slotted Holes on the Carrier Shroud, and pressing the Interface Pins into the Latches on the Carrier Shroud.



Setting a Travel Limit

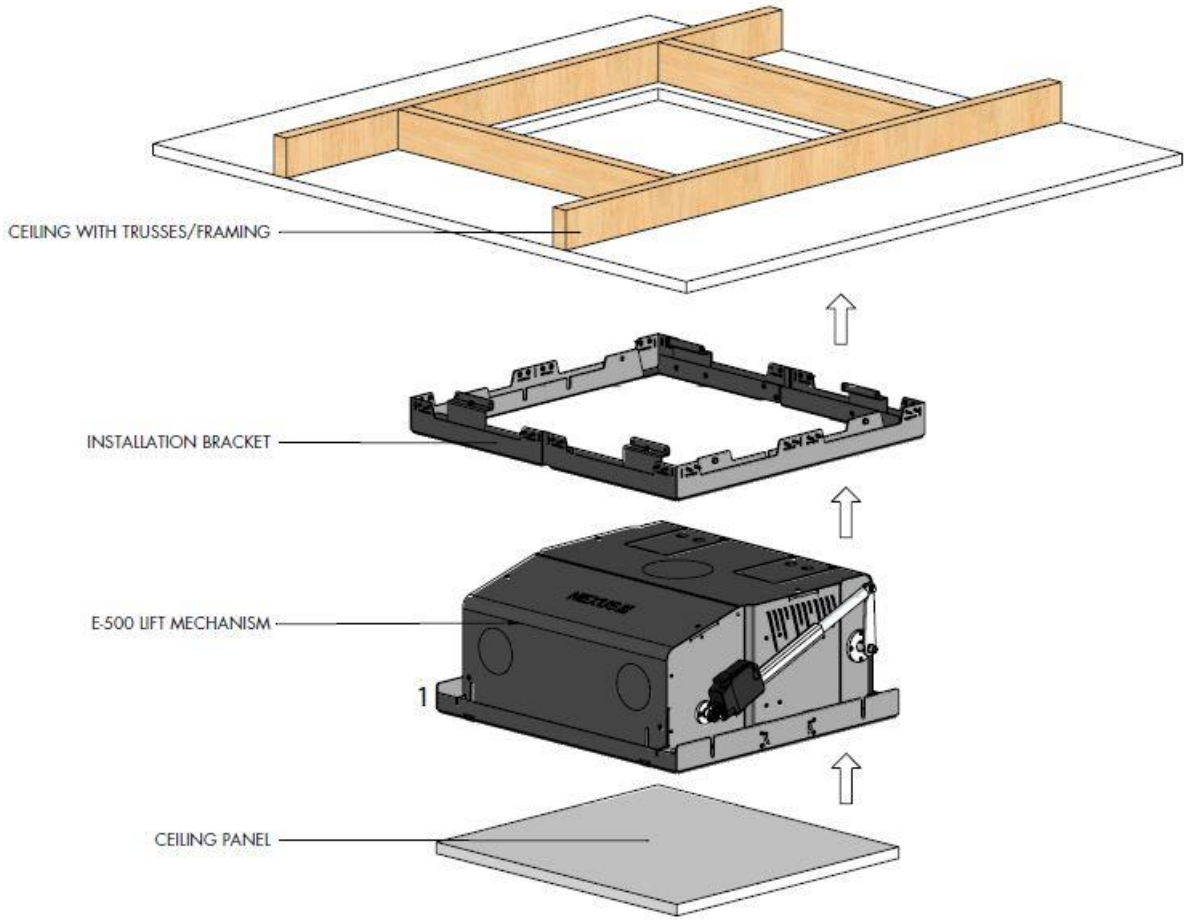
The E-500 System has 8” of travel [extension, drop, or stroke], if your installation requires less than the maximum travel of the system, follow the steps below to limit it:

1. Tap the EXTEND button to drop the Projector down to your desired position.
2. Tap the RETRACT button to stop the system once it reaches your desired position.
3. Plug the Travel Limiter into an available RJ45/Phone port on either the Control Box or RF Receiver.
   Note: If you are using Contact Closure or IR, you can disconnect the Wired Backup Switch and place the Travel Limiter in its place.
4. Fully retract the system by pressing the RETRACT button then extend it again to test the position.

About Upper Limits:

The Upper Limit for the E-500 is mechanically limited to a maximum of 1.25” via the Fine Adjustment Screws. If you are having an issue where further adjustment is required, contact Technical Support at 480-275-8613 for assistance.

MODEL E-500 DIAGRAM EXPLODED VIEW



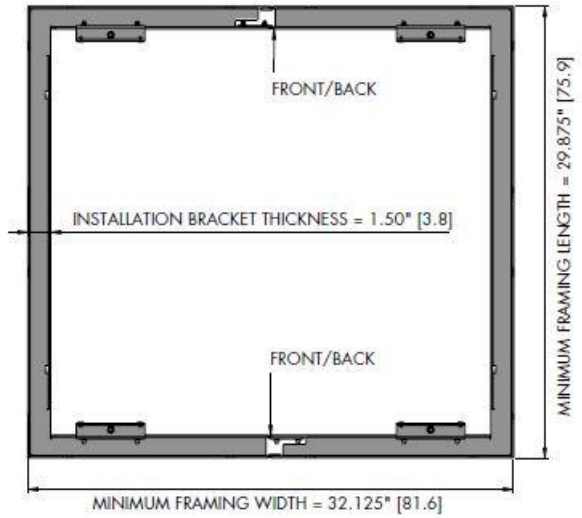
QUICK REFERENCE DIMENSION GUIDE
MAX PROJECTOR SIZE (W x L x H) = 22" [55.9] x 20" [50.8] x 8" [20.3]

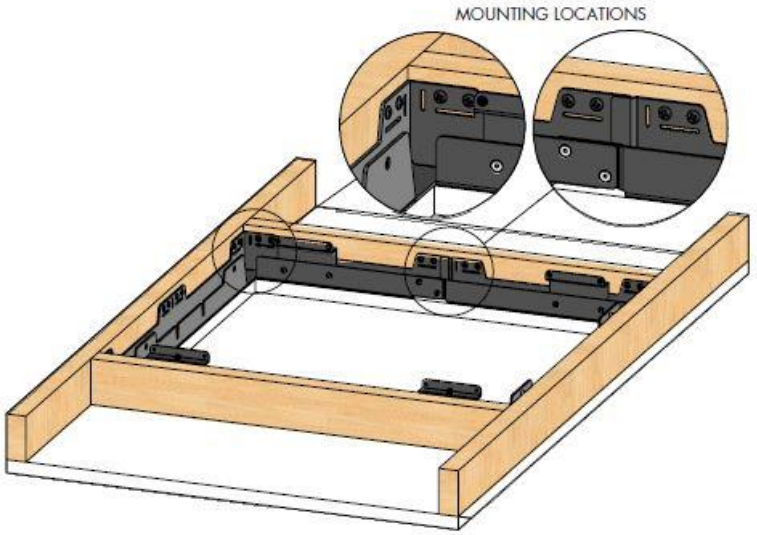
NOTES:
1. NEXUS 21 RECOMMENDS THIS INSTALLATION BE COMPLETED BY A LICENSED INSTALLER OR CONTRACTOR
2. ELECTRICAL HOOKUP MUST BE INSTALLED PER AUTHORIZED BUILDING CODES
3. ALL MEASUREMENTS SHOWN IN INCHES WITH CENTIMETERS SHOWN INSIDE [ ]
4. FOR THIS MODEL, THE LENGTH OF ITS TRAVEL [EXTENSION LENGTH OR STROKE] IS 8" [20.3]
5. THE COMBINED WEIGHT OF THE PROJECTOR AND CEILING PANEL CANNOT EXCEED **100 LBS [45.3 kg]**
6. THIS MODEL IS CAPABLE OF HANDLING A MAX PROJECTOR SIZE OF (W x L x H) 22" [55.9] x 20" [50.8] x 8" [20.3]

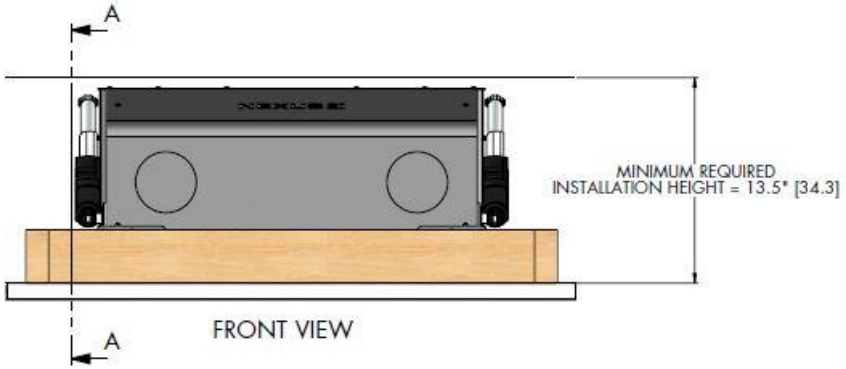
NEXUS 21

UPDATED 01/26/18

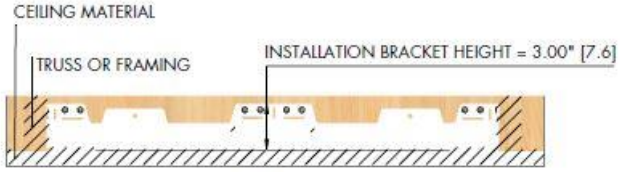
MODEL E-500 DIAGRAM FRAMING DIMENSIONS







FRONT VIEW



SIDE VIEW - A

QUICK REFERENCE DIMENSION GUIDE
MINIMUM FRAMING DIMENSIONS (W x L x H) = 32.125" [81.6] x 29.875" [75.9] x 13.5" [34.3]

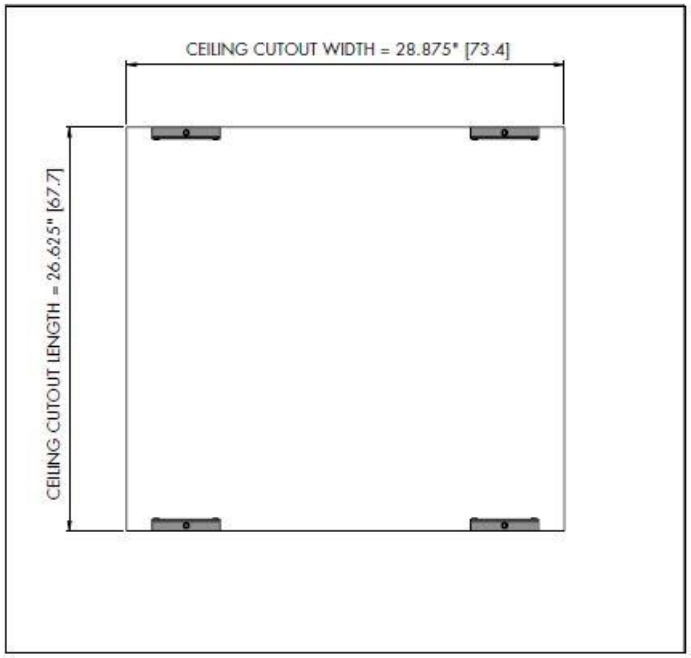
NOTES:
1. ALL MEASUREMENTS SHOWN IN INCHES WITH CENTIMETERS SHOWN INSIDE [ ]
2. MOUNTING LOCATIONS SHOWN CAN BE FOUND ON ALL SIDES AND CORNERS OF THE INSTALLATION BRACKET
3. INFORMATION PERTAINING TO THE CEILING CAN BE FOUND ON THE THIRD PAGE OF THIS DIAGRAM
4. COLORS SHOWN IN THIS DIAGRAM ARE FOR CLARITY ONLY, MECHANISM IS GREY POWDER COATED STEEL AND ALUMINUM
5. FRAMING TO BE DONE BY A LICENSED CONTRACTOR AND ELECTRICAL HOOKUP INSTALLED PER AUTHORIZED BUILDING CODES

NEXUS 21

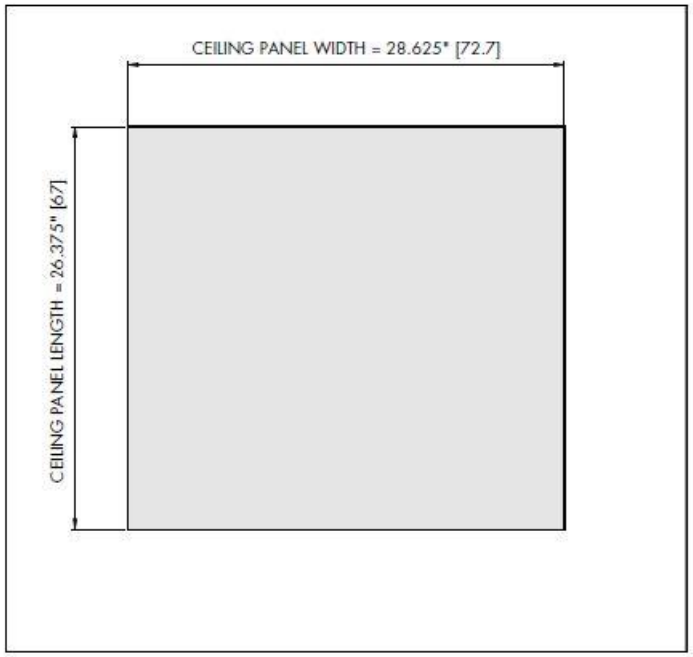
UPDATED 01/26/18

MODEL E-500 DIAGRAM CEILING CUT-OUT & PANEL DIMENSIONS

VIEW FROM BELOW CEILING



WITHOUT CEILING PANEL
[USE FOR CEILING CUT-OUT DIMENSIONS]



WITHOUT CEILING PANEL
[USE FOR CEILING PANEL DIMENSIONS]

QUICK REFERENCE DIMENSION GUIDE
CEILING CUT-OUT DIMENSIONS (W x L) = 28.875" [74] x 26.625" [68]
CEILING PANEL DIMENSIONS (W X L) = 28.625" [73] x 26.375" [67]

NOTES:
1. ALL MEASUREMENTS SHOWN IN INCHES WITH CENTIMETERS SHOWN INSIDE [ ]
2. DEVIATION FROM CEILING CUTOUT DIMENSIONS WILL PREVENT INSTALLATION OF THE MECHANISM
3. CEILING PANEL ATTACHES TO PROVIDED INTERFACE PLATE
4. INTERFACE PLATE ALLOWS CEILING PANEL TO BE REMOVABLE WITH PUSH TO RELEASE LATCHES
5. WEIGHT OF THE CEILING PANEL CANNOT EXCEED **30 LBS [13.6 kg]**

NEXUS 21

UPDATED 01/26/18

Control System Integration Info

Connecting the Nexus 21 Lift System to Other Control Systems

Use these instructions if you need to wire the Lift System directly to a Home Control System, like those made by Crestron, AMX, Control 4, RTI, etc. A common term for this method of integration is "connection by contact closure."

Contents of Contact Closure Hardware Pack:

Step 1: Contact Closure Hardware Pack

This pack contains the following parts:

1 – *Contact Closure Cable*, RJ-45 to Relays

1 – *Height limit Insert*

Contact Closure Cable, RJ-45 to Relays

Height Limit Insert

Step 2: Connecting the Lift System to the Control System

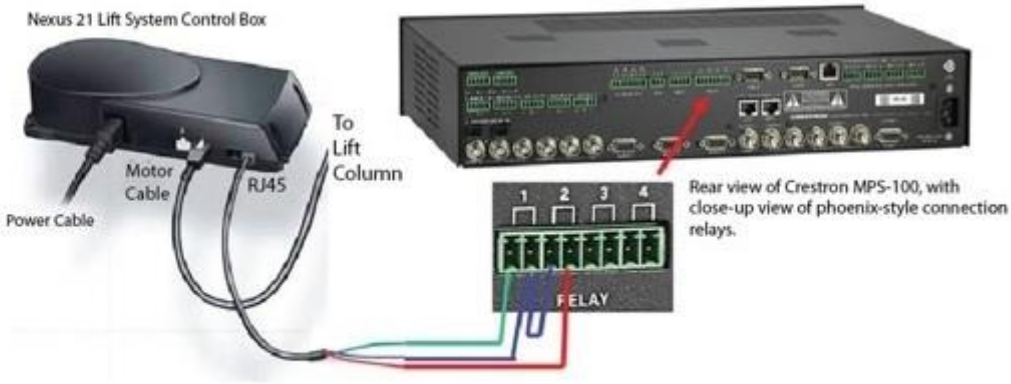
Using the *Contact Closure Cable* to connect the three wires directly to the relays on your control module (see image below). Then connect the RJ-45 plug on the *Contact Closure Cable* to the Nexus 21 system, using either one of the two RJ-45 ports on the side of the Nexus 21 *Control Box*.

Close-up View of RJ-45 Pins

The colored wires function as follows:
BLUE = common (Pin 4 from RJ45) GREEN = Extend (Pin 5 from RJ45) RED = Retract (Pin 8 from RJ45)

Wire combinations for the relays:
The lift system uses two relays. One for "extend" and one for "retract." The common wire runs between both relays, by using the BLUE common wire, together with a jumper wire you supply.

Relay 1 Extend: BLUE common wire with GREEN normally open.
Relay 2 Retract: BLUE common wire (use jumper) with RED normally open.



Rear view of Crestron MPS-100, with close-up view of phoenix-style connection relays.

Step 3: Setting a Height Limit for the Lift System

Begin with the Height Limit Insert UNPLUGGED. Then send the "UP" command from your control system and run the Lift System up to your desired height. Once the Lift System is at the desired height, send the "DOWN" command to stop the lift at the point. Now PLUG the Height Limit Insert into the available RJ45 port on the Nexus 21 Control Box. The Lift will now remember the height and always stop at that point. To change, unplug the Height Limit Insert and repeat Step 3.

For technical support or to ask questions, call Nexus 21 Customer Service, toll-free at (866) 500-5438.

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NEXUS 21

TECHNOLOGY IN MOTION

866-500-5438