

THUNDER™
Real-Time Global Collaboration Solution
THUNDER Pro Hardware Installation Guide

Part number 370-0195-04
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WELCOME

Welcome to THUNDER, the real-time global collaboration solution for sharing data and information in any format with groups and teams in any location. THUNDER is a network-enabled system that provides remote conferencing, “war room” reuse, computer desktop sharing, emailed notes, and interactive presentations.



THUNDER DOCUMENTATION

This manual provides instructions for installing the hardware components of THUNDER Pro and is one of a set of documents that support THUNDER A/V installers and IT system management. The A/V installer should use this manual to start installing THUNDER Pro hardware, then provide the *THUNDER System Manager Guide* to the local IT professional and complete the installation together. All documentation is available on-line at: www.polyvision.com/thunder.

- The best way to get a quick understanding of how THUNDER works is to press the Help button on the easel toolbar.

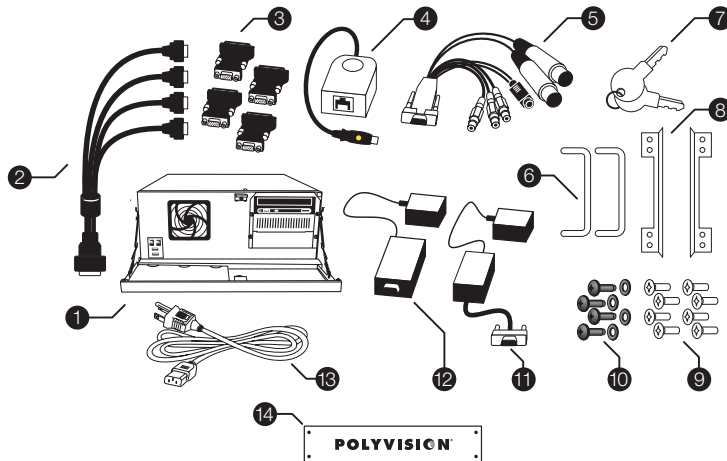


- *THUNDER Installation Quick Start*: A one page quick reference for A/V professionals who install THUNDER hardware and route cables.
- *THUNDER Hardware Installation Guide (this guide)*: provides instructions for installing THUNDER hardware and routing cables.
- *THUNDER System Manager Guide*: Provides instructions for IT professionals and facility managers who configure and manage THUNDER systems.
- *THUNDER User Guide*: Provides instructions for using THUNDER.
- *RoomWizard Installation Quick Reference*: Provides instructions for installing the RoomWizard appliance.
- *RoomWizard System Manager Guide*: Provides instructions for configuring RoomWizard. (Available on-line at www.polyvision.com.)

GETTING STARTED

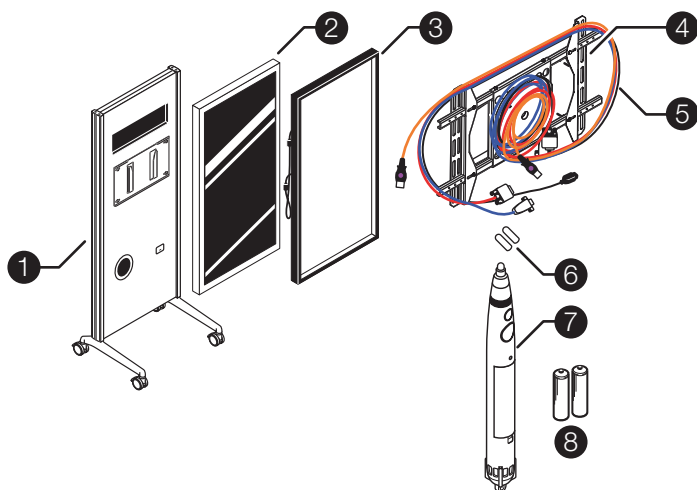
WHAT COMES WITH THE CORE THUNDER HARDWARE

The core THUNDER hardware consists of the THUNDER server, easel, keyboard, and RoomWizard. Additional hardware is required to complete the installation. The THUNDER server includes these components:



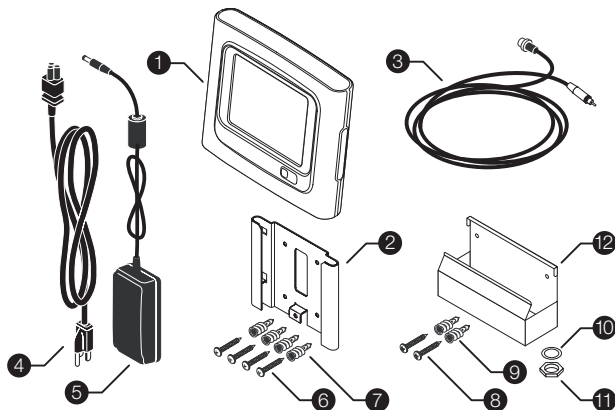
- 1 THUNDER server preloaded with THUNDER software
- 2 8-inch (203 mm) projector video output cable
- 3 Four DVI-to-VGA adapters
- 4 USB-to-Cat-5 converter
- 5 Breakout cable for NTSC or PAL video and audio input
- 6 Two rack mount handles
- 7 Server access key
- 8 Left and right rack mount ears
- 9 Eight fasteners for rack mount ears
- 10 Four fasteners and washers for rack mount handles
- 11 VGA-to-Cat-5 converter
- 12 RS232-to-Cat-5 converter
- 13 6-foot (1829 mm) power cable for THUNDER server
- 14 rack plate

The THUNDER easel includes these components:



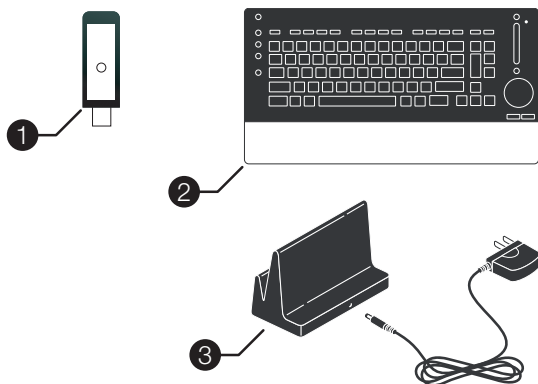
- 1 THUNDER easel
- 2 Plasma monitor
- 3 Touch-screen frame
- 4 Plasma monitor rotating mounting bracket with six screws
- 5 Cable bundle on bracket including power, USB, video, and serial cables
- 6 Two replacement stylus tips
- 7 Stylus
- 8 Two AAA stylus batteries

The THUNDER RoomWizard components include:



- 1 RoomWizard room-scheduling appliance
- 2 RoomWizard mounting bracket (refer to separate documentation for installation instructions)
- 3 DC power extension cable
- 4 Power cable
- 5 AC power supply
- 6 Four mounting screws
- 7 Four self-drilling anchors
- 8 Two mounting screws
- 9 Two self-drilling anchors
- 10 Washer
- 11 Panel nut
- 12 Power supply mounting bracket

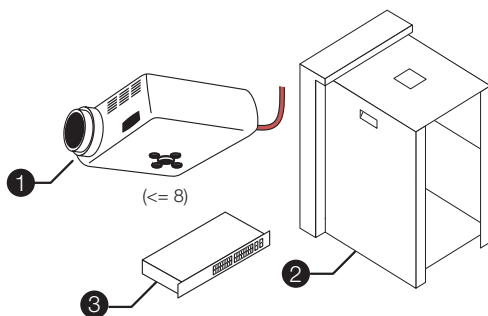
THUNDER keyboard components include:



- 1 Mini-USB receiver
- 2 Wireless keyboard
- 3 Charging base with power cable

OTHER REQUIRED EQUIPMENT

These items are also required, but not provided by PolyVision:



- 1 Three to eight projectors between XGA (1024 x 768) and 1600 x 1200 resolution (additional video output card required when more than four projectors are used)
- 2 Rack for the THUNDER server and other THUNDER-related devices
- 3 24-port network switch
- 4 In-wall wiring (not shown)
- 5 Junction boxes, cover plates, etc. (not shown)

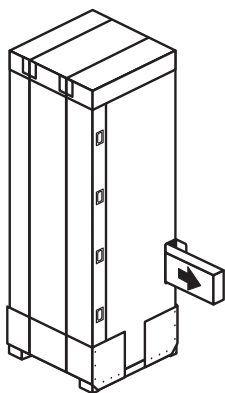
UNPACKING THE THUNDER SYSTEM

The plasma monitor provided with THUNDER arrives in its own box.

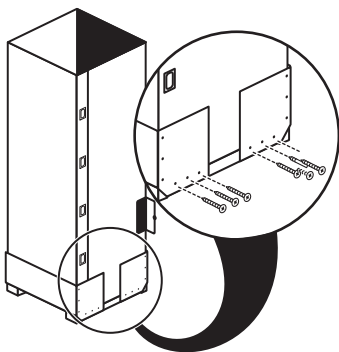
The other core THUNDER system components are packaged together and shipped on a wooden pallet with a wooden skirt to protect vulnerable components.

To unpack THUNDER:

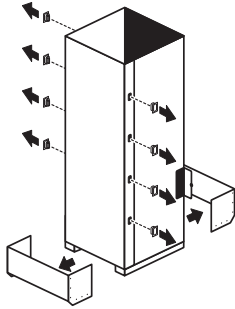
- 1 Remove boxes from the mail slot opening on one side of the carton.



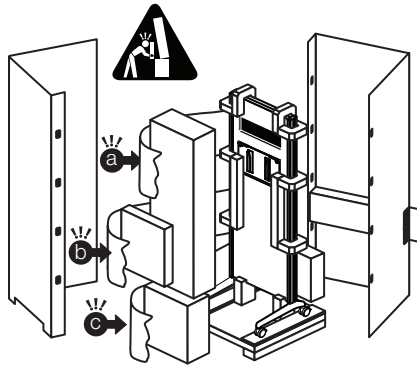
- 2 Remove the straps and lid.
- 3 Remove the wooden skirt that encloses the lower third of the THUNDER packing crate.



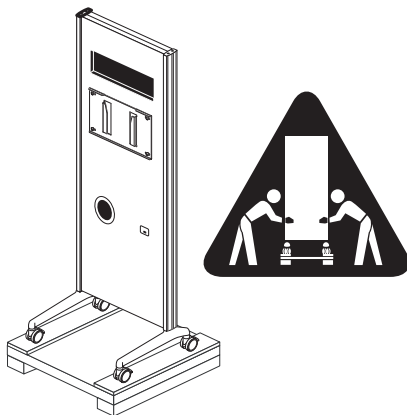
- 4 Release the clasps on two vertical edges of the cardboard.



- 5 Remove individual component packages in three sections from the top down.



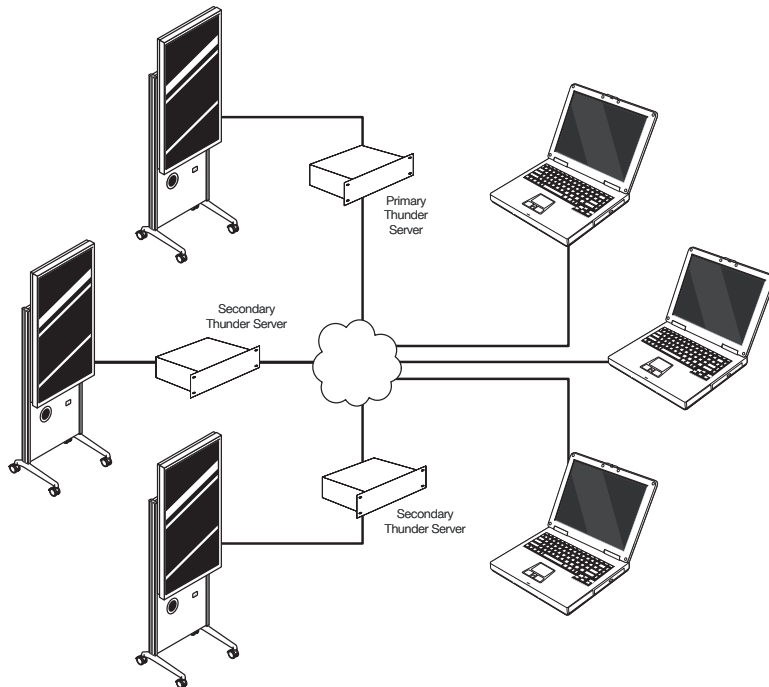
- 6 Remove the easel.



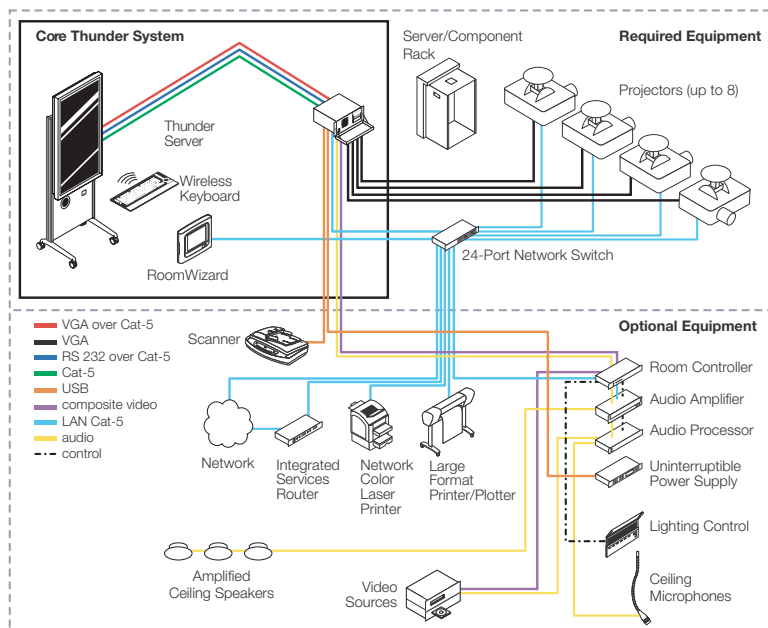
Make sure that you remove all components before discarding the packaging.

THUNDER SYSTEM OVERVIEW

THUNDER integrates digital media and content into a meeting, creates projected images that are shared among groups, and enables complete creative flexibility. Following a meeting, content is seamlessly archived, emailed to all participants, and ready at the touch of an icon for immediate retrieval, whenever desired and from any location.



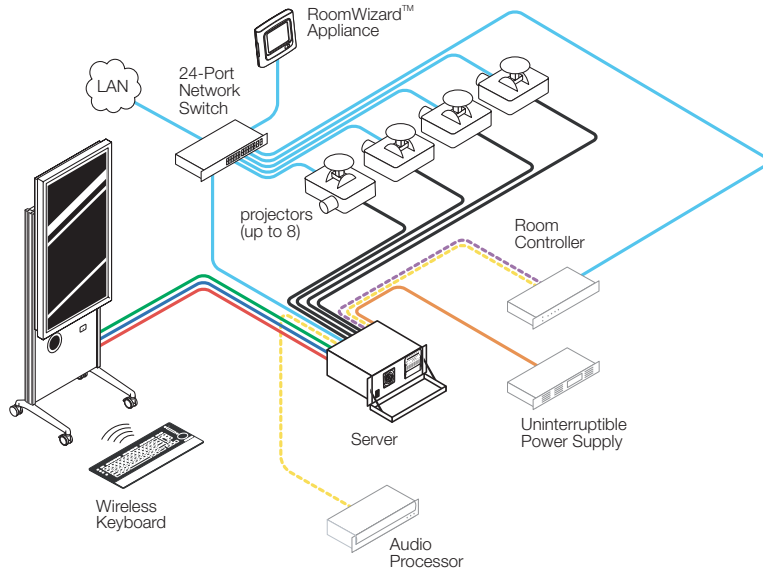
THUNDER is a powerful system. The core components that Polyvision supplies with every installation are the easel (including plasma monitor and touch-screen adapter), the THUNDER server (including Windows XP as well as THUNDER software), the wireless keyboard, and RoomWizard.



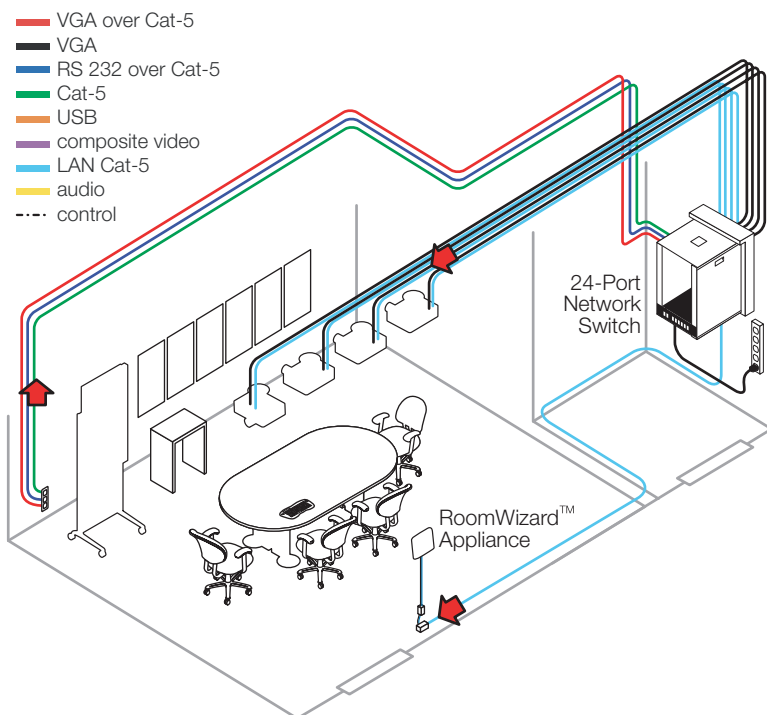
Other equipment is required for the THUNDER system. Your system must include the projectors, rack, and 24-port network switch.

Options that maximize THUNDER's usability include network connection, scanner, room control system, audio processor, audio amplifier, amplified speakers, and uninterruptible power supply (UPS), router, printer, large format printer, plotter, video source, lighting control, and microphone.

The THUNDER server collects and distributes information from all parts of the system. The easel, scanner, projectors, UPS, room control system, and 24-port switch connect directly to the server. LAN connection also provides system upgrades, backups, and for integration with RoomWizard.



INSTALLATION OVERVIEW



When you install the THUNDER system, proceed in the following sequence of steps:

- 1 Plan your installation thoroughly before you begin, especially the location of the THUNDER server and how you will route cables within the walls or ceiling. Refer to “Planning Your Installation” on page 18
- 2 Mount the equipment in the rack. Refer to “Mounting the THUNDER Server” on page 23. Install the 24-port network switch and optional room controller, audio processor, audio amplifier, uninterruptible power supply, amplified audio speakers, and other equipment.
- 3 Install projectors and route VGA cables to the THUNDER server and LAN cables to the 24-port network switch. Refer to “Install the Projectors” on page 24.

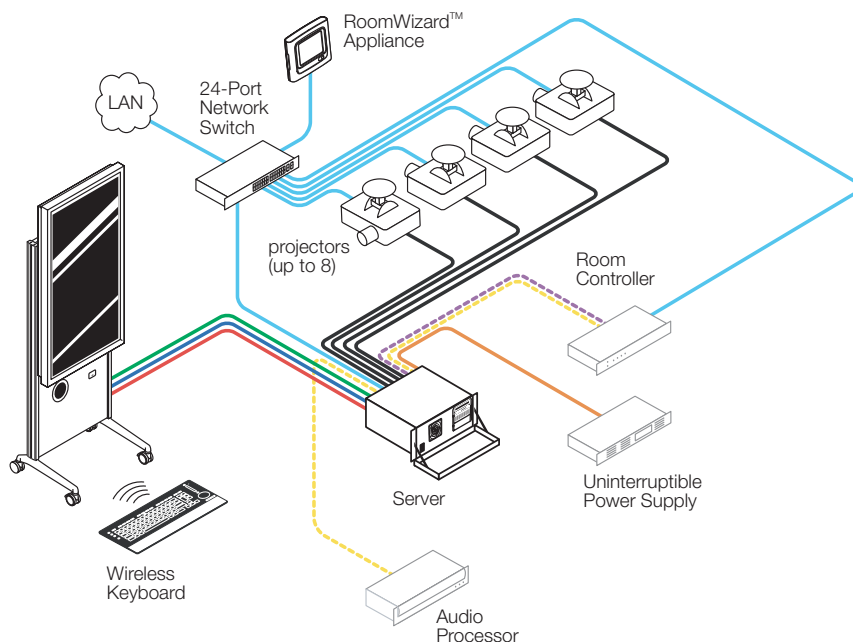
- 4 Install the RoomWizard room reservation system. Refer to “Install the RoomWizard Appliance” on page 25.
- 5 Install the USB scanner, if used. Connect it to the THUNDER server. Refer to “Install a USB Scanner” on page 27.
- 6 Attach the rotating bracket to the back of the plasma monitor. Refer to “Installing the Rotating Plasma Mount” on page 31.
- 7 Connect the power, video and serial cables to the plasma monitor. Refer to “Installing the Rotating Plasma Mount” on page 31.
- 8 Mount the plasma monitor to the easel and route internal cables. Refer to “Mount the Plasma Monitor on the Easel” on page 34.
- 9 Attach the touch-screen frame to the plasma monitor. “Install the Touch-Screen Frame on the Plasma Monitor” on page 36.
- 10 Connect cables in the easel. Refer to “Cable Connections in the Easel” on page 39.
- 11 Install the wireless keyboard. Refer to “Install the Wireless Keyboard” on page 45.
- 12 Connect cables to the THUNDER server. Refer to “Cable Connections in the THUNDER Server” on page 50.
- 13 Get the local system manager involved. With the system manager, boot THUNDER for the first time, configure THUNDER settings, configure network settings, enter software keys, and test the system. Refer to “A/V Installer Handoff to System Manager” on page 53 and to the *THUNDER System Manager Guide*.
- 14 Sign off that the installation was completed successfully.

PLANNING YOUR INSTALLATION

As you plan your installation, carefully consider the locations of components. Cable routing to the THUNDER server is a critical consideration and should be determined first. Plan the location of the server anywhere within the meeting room or an adjacent room and mounted to a wall or (better) in a rack. Locate the server:

- Within 6 feet (1829 mm) of a power outlet.
- Within 75 feet (22 meters) of the furthest projector
- Where cables can be routed through the walls and ceiling from other components. Refer to “Routing Cables” on page 19.
- With easy access to both the front and back of the server when the rack is open.

ROUTING CABLES



PREPARE TO ROUTE CABLES

Before routing cables, consider the following:

- When planning the location of projectors and projected images, make sure that you allow enough space for the presenter to stand next to the THUNDER easel. Generally, five feet (1500 mm) of extra space works well between the easel and the first projected image.
- Projectors need not all point to the same wall or projection surface.
- Run cables through ceilings and walls when possible. Plenum rated cables (not provided) are required in most locations. Cat-5 cables are often the easiest to use. For projector VGA connections, consider the use of VGA-to-Cat-5 converters.

- The THUNDER server must be mounted securely in the rack with easy access to both the front and rear of the server.
- Locate the THUNDER server rack fairly close to the projectors (less than 50 feet [15 m] when possible, and no more than 75 feet [22 meters]) to reduce the length of cables connecting them. Long cables degrade video signal quality.
- Terminate all Ethernet cables to the 24-port network switch or (better) to an Ethernet patch panel.
- A USB scanner can be connected to the THUNDER server. If the USB cable that connects the scanner to the server exceeds 15 feet (4500 mm), a USB-to-Cat-5 extender is required.
- The RoomWizard appliance usually mounts outside the main entrance of the meeting room where you install the THUNDER system. Refer to RoomWizard documentation for installation and system configuration details.

ROUTE CABLES

Prior to installing components, route cables within walls and ceiling as follows:

- 1 Route two Cat-5 cables from each projector location to the rack, one for network and one for VGA. (Alternatively, route one Cat-5 cable and one VGA cable.)
- 2 Install drywall trim rings (or junction boxes) and cover plates for most connections.
- 3 If you are using a Cat-5 patch panel, route Ethernet cables from the RoomWizard appliance to your patch panel and from the THUNDER server to your patch panel. The 24-port network switch in the THUNDER rack is connected to the patch panel using patch cables (all the Ethernet-based peripherals). Otherwise, route Ethernet cables directly to the 24-port network switch.
- 4 Route the USB cable from the scanner toward the THUNDER server. If the cable length exceeds 15 feet (4572 mm), an active USB-to-Cat-5 extender is required.
- 5 Route the USB-over-Cat-5, VGA-over-Cat-5, and RS232-over-Cat-5 cables between the easel and the THUNDER server. These cables can be up to 100 feet (30.48 m) in length.

- 6 Route cables from an in-room video source, speakers, or room control panels to the rack, as necessary.

The following table lists each THUNDER connection.

CABLE PURPOSE	FROM	TO	CABLE TYPE	CABLE LENGTH PROVIDED
plasma video	server VGA-to-Cat-5 converter	easel	VGA-over-Cat-5	not provided
plasma control	server RS232-to-Cat-5 converter	easel	RS232-over-Cat-5	not provided
keyboard & touch-screen	server USB-to-Cat-5 converter	easel	USB-over-Cat-5	not provided
power	server VGA-to-Cat-5 converter	wall outlet	power supply & cord	6 feet (1829 mm)
power	server RS232-to-Cat-5 converter	wall outlet	power supply & cord	6 feet (1829 mm)
power	server	wall outlet	power cord	6 feet (1829 mm)
power	easel	wall outlet	power cord	6 feet (1829 mm)
projector RGB	server VGA-to-Cat-5 converter	projector's VGA-to-Cat-5 converter	VGA over Cat-5	not provided
Ethernet	projectors	24-port network switch	Cat-5	not provided
Ethernet	server	24-port network switch	Cat-5	not provided
power	RoomWizard	wall outlet	power supply and power cord	6 feet (1829 mm) input and 3.5 feet (1067 mm) output
Ethernet	RoomWizard	24-port network switch	Cat-5	not provided

Other optional THUNDER server inputs and outputs are listed below:

CABLE PURPOSE	CABLE TYPE	FROM	TO	CABLE LENGTH PROVIDED
line out for sound effects & remote audio	stereo 1/8 inch mini to tinned wires	green server audio output jack	audio processor input 1	not provided
NTSC/PAL video input	shielded composite video	room controller video out 1	server video input cable	not provided
audio input from video source	two XLR to tinned wire	audio processor output 2	server XLR inputs	not provided
USB from UPS	USB	UPS USB port	server USB port	not provided

INSTALLING THE THUNDER SERVER

PREPARE TO MOUNT THE THUNDER SERVER

Locate and have ready to use:

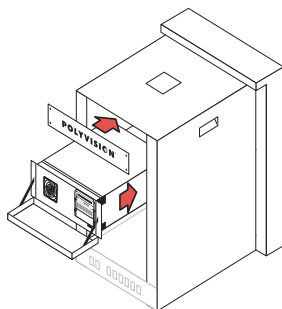
- THUNDER server (provided)
- rack
- rack plate (provided)
- Phillips screwdriver
- server rack mounting ears, handles, screws, and washers (provided)

Install the ears and handles on the server using the screws and washers provided.

MOUNTING THE THUNDER SERVER

To mount the THUNDER server:

- 1 Install the rack.
- 2 Position the server in the rack.

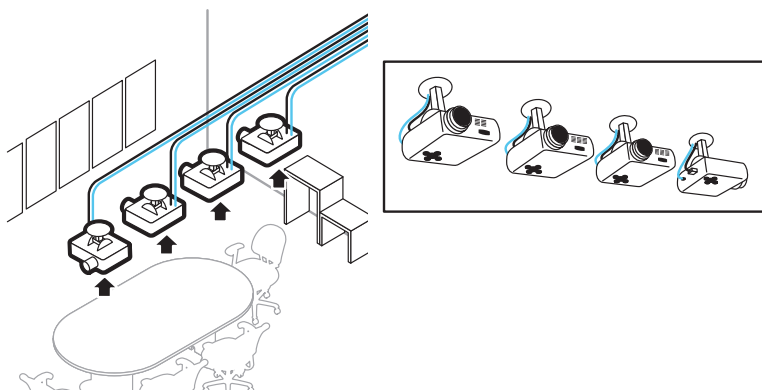


- 3 Install the PolyVision plate on the rack.

INSTALLING THE PROJECTORS, ROOMWIZARD, USB SCANNER, AND OTHER OPTIONS

INSTALL THE PROJECTORS

Projectors enable the everyone in the THUNDER room to see THUNDER pages displayed on a wall or screen while they continue to create new pages. Each projector can display two vertically oriented pages or one horizontal page.



The THUNDER server includes one video card and outputs for up to four XGA projectors. The server supports the addition of an optional video card with up to four more projector video outputs. (Contact PolyVision to obtain one.)

Before you install projectors, consider the following:

- Projectors should be mounted to the ceiling facing one or more walls or projection screens. Choose a projector spacing that matches the size of the projected image you want. For instance, for images five feet (1524 mm) wide (two 2.5 feet [762 mm] portrait images), mount the projectors five feet (1524 mm) apart. The goal is to make the projected areas adjacent to each other and aligned in a row.

- The distance from the projectors to the projection surface varies by projector model. An excellent projection distance calculator is available at:
www.projectorcentral.com/projection-calculator.cfm
- You can locate projected images on more than one wall in a room. To do so increases the immersive nature of THUNDER.
- Make sure that you allow enough space for the presenter to stand next to the THUNDER easel. Generally five feet (1500 mm) of extra space works well between the easel and the first projected image.
- Thunder projectors can be shared with other video sources. Refer to the *Thunder System Manager Guide*.

To install projectors:

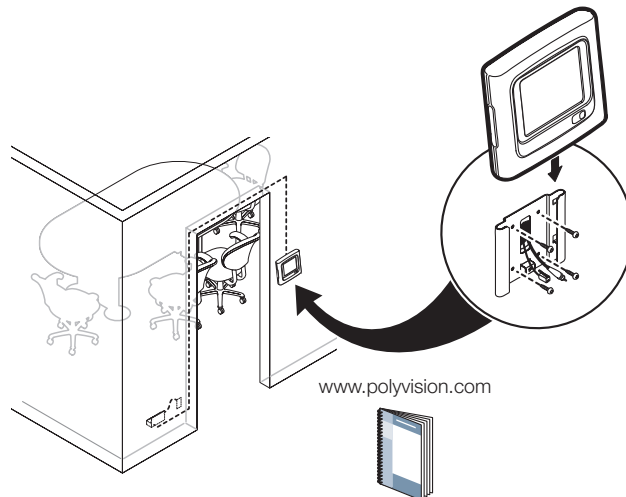
- Refer to the documentation provided with your projectors.

INSTALL THE ROOMWIZARD APPLIANCE

The THUNDER system includes RoomWizard, a self-contained web-based reservation system for meeting rooms and other shared spaces.

RoomWizard's One-Click Publishing feature supports emailing THUNDER pages to meeting participants who are registered as meeting participants.

The RoomWizard touch-sensitive "information appliance" mounts outside the meeting room and connects to power and your LAN.



PolyVision provides several installation options for RoomWizard, including a wire management kit. Refer to separate documentation provided on-line at www.polyvision.com:

- *Designing a RoomWizard System*: a one page quick reference guide that introduces strategies for using RoomWizard's modular approach.

To install and configure RoomWizard:

- 1 Refer to mounting instructions that are included in the RoomWizard box.
- 2 Refer to configuration instructions in the *RoomWizard System Manager Guide*.

INTEGRATING ROOMWIZARD AND THUNDER

Both THUNDER and RoomWizard connect and interact via the LAN; there is no other physical connection between them. To complete RoomWizard installation, work closely with the IT system manager to configure RoomWizard's One-Click Publishing option as described in the *RoomWizard System Manager Guide*.

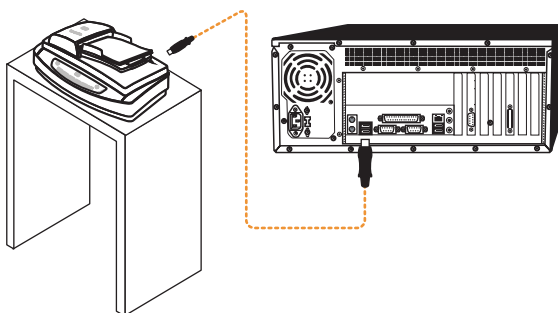
INSTALL A USB SCANNER

Installing a USB scanner enables users to scan color pages that then appear on the THUNDER easel.

Connect the scanner to the THUNDER server. Locate a scanner within 15 feet (4572 mm) of the server, or if that is not possible, provide an active USB extension such as a USB-to-Cat-5 converter pair.

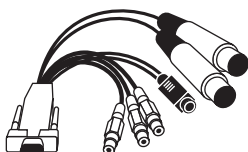
To install the scanner:

- 1 Unpack the scanner and place it in the planned location.
- 2 Route the scanner USB cable to the THUNDER server.
- 3 Follow installation instructions that are included with the scanner.



INSTALL AN EXTERNAL VIDEO SOURCE

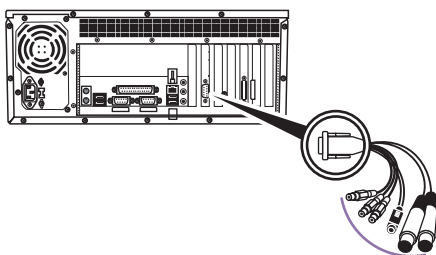
THUNDER can display video from a DVD, VCR, or other video device. The THUNDER server provides you with a video input cable that supports composite or S-video, and RCA or XLR audio inputs. A single audio and single video input is provided on the server. With a room controller containing a video switch, any number of video sources can be used but only one can be live at a time.



Use the RCA composite input for connection to the video source. Use the server's dual XLR inputs for incoming audio from the video's audio source.

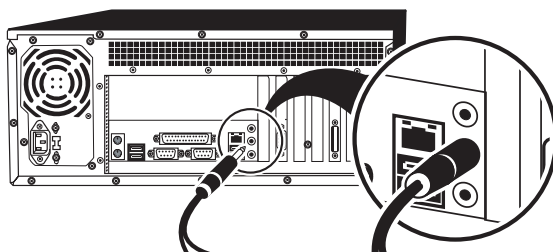
To install an external video source:

- 1 Install the video source(s).
- 2 Route two XLR to tinned wire cables or two RCA cables from the audio source to the dual XLR or RCA inputs on the server.
- 3 Route a shielded cable from the video source to the yellow RCA input on the server. Alternatively, route an S-video cable from the video source to the S-video input on the server.



CONNECT AUDIO OUTPUT

The THUNDER server supports the direct connection of an audio line out connector to an audio processor or amplifier for in-room speakers. Install flush-mounted speakers for best results.

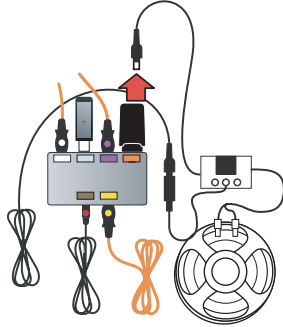


To install amplified audio speakers:

- 1 Install an audio processor, amplifier, and speakers.
- 2 Route an 1/8 inch mini stereo to tinned wire cable from the green audio out connector on the server to the audio processor or amplifier.

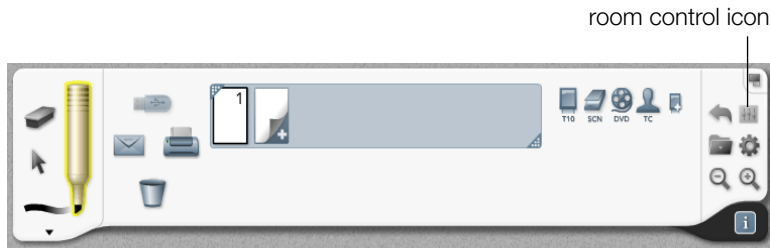
A USB-driven speaker is mounted in the Thunder easel. If an external audio processor is used, the easel speaker should be disabled. To disable the easel speaker:

- Remove the 1/8 inch mini plug from the USB speaker driver located in the Thunder easel.

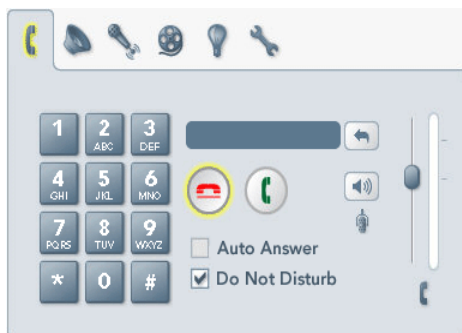


USING THUNDER WITH A ROOM CONTROL SYSTEM

THUNDER optionally integrates with a Crestron-brand MP2E room control system via an Ethernet connection to the THUNDER server.



The controller is programmed so users have access to room control features from the THUNDER easel. THUNDER users can make and receive phone calls, control the volume of input and output devices, control wireless microphone settings, select video outputs, choose lighting scenes, and view system diagnostics. Refer to the *THUNDER User Guide* for information about the features that users can control.



Refer to documentation that comes with your Crestron MP2E room control system for installation instructions. Refer to the *THUNDER System Manager Guide* for information about integrating the room control system with THUNDER.

NOTE:

If no Crestron room control system is installed, the room control icon in the THUNDER easel toolbar is not functional.

ASSEMBLING THE EASEL

PREPARE TO INSTALL THE EASEL

Locate and have ready to use:

- Easel (provided)
- Plasma rotating mount kit (provided)
- Plasma monitor (provided)
- Plasma monitor power cable (provided)
- Touch-screen frame (provided)
- Self-adhesive cable clip (provided)
- Cable ties (provided)

INSTALL THE PLASMA MONITOR

WARNING

The plasma monitor is heavy and should always be carried by two or more persons to avoid injury.

INSTALLING THE ROTATING PLASMA MOUNT

The rotating mount both supports the plasma monitor on the easel and enables rotation between portrait and landscape orientation.

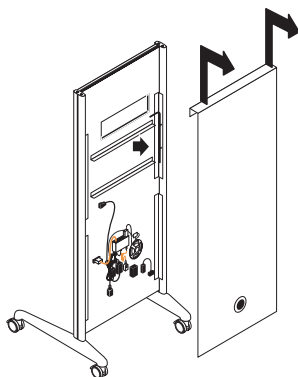
To fasten the rotating mount to the plasma monitor:

- 1 Place the plasma monitor face down on a protected surface.
- 2 Center the rotating mount in the back of the plasma monitor with the six threaded screw holes in the back of the plasma monitor matching the screw holes in the flange.

NOTE:

Do **not** remove the cables from the rotating mount prior to attaching it.

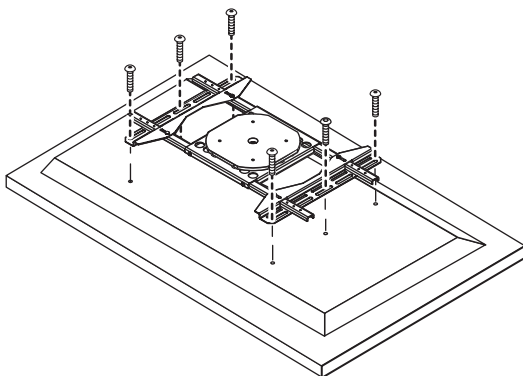
- 3 A long-handled Allen wrench (provided) must be used to fasten the rotating mount to the plasma monitor. To locate the long-handled Allen wrench, lift the easel back from the easel front. The long-handled Allen wrench is fastened to the inside easel front along the right edge.



WARNING

*Do **not** move the positions of the screws on the plasma mount. The plasma mount is configured at the factory to fit the plasma display. Moving the screw positions could result in serious injury.*

- 4 Secure the rotating mount to the plasma monitor using three screws (provided) on each side.



NOTE:

*The THUNDER server is already configured to work with your plasma monitor. After the THUNDER system is powered on, work with the system manager to configure the plasma monitor. Refer to the **THUNDER System Manager Guide**.*

CONNECT CABLES TO THE PLASMA MONITOR

WARNING

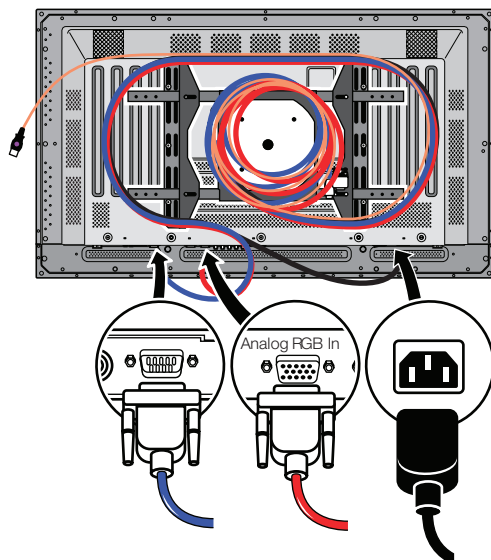
To prevent cables from chafing when users rotate the plasma monitor between portrait and landscape orientation, carefully route and secure cables as described below. Improper installation which causes damage is not covered by the warranty.

Four plasma monitor cables are bundled together and cable tied to the rotating mount:

- **Power:** routes from the plasma monitor to a power connector within the easel.
- **Serial:** routes from the plasma monitor to an RS232-to-Cat-5 converter within the easel. Cat-5 cable carries the serial data from a Cat-5-to-RS232 converter on the server.
- **Video:** routes from the plasma monitor to a VGA-to-Cat-5 converter within the easel. Cat-5 cable carries the video data from a Cat-5-to-VGA converter on the server.
- **USB:** routes from the touch-screen frame to the USB hub within the easel. A USB-to-Cat-5 converter and Cat-5 cable carries the USB data to a Cat-5-to-USB converter on the server.

To connect cables to the plasma monitor:

- 1 Before mounting the plasma monitor, plug in the power, serial, and video cables to the plasma monitor connectors. Do not connect the USB cable; it is connected in a later step.



MOUNT THE PLASMA MONITOR ON THE EASEL

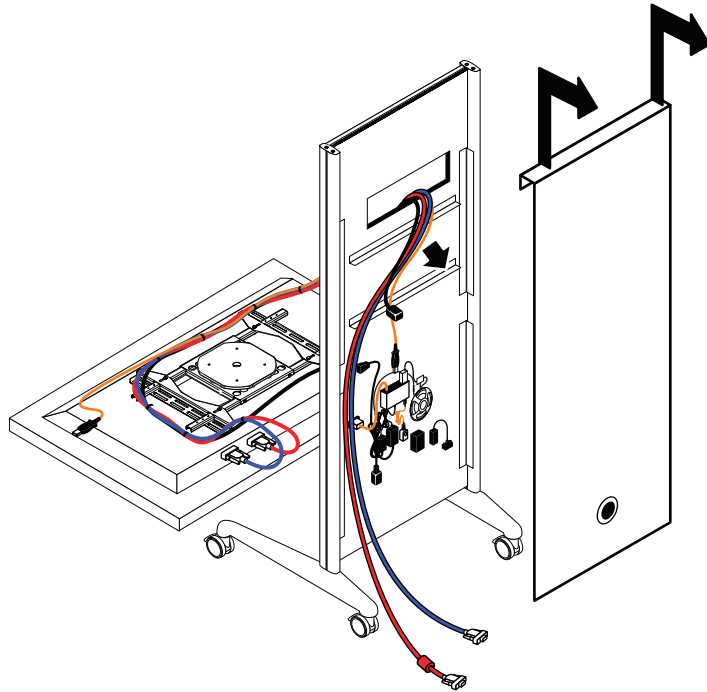
The plasma monitor's cable bundle routes into the easel and the plasma monitor mounts to the easel bracket.

WARNING

The plasma monitor is heavy and should always be carried by at least two persons to avoid injury.

To mount the plasma monitor to the easel:

- 1 Lift the easel back from the easel front, if necessary.

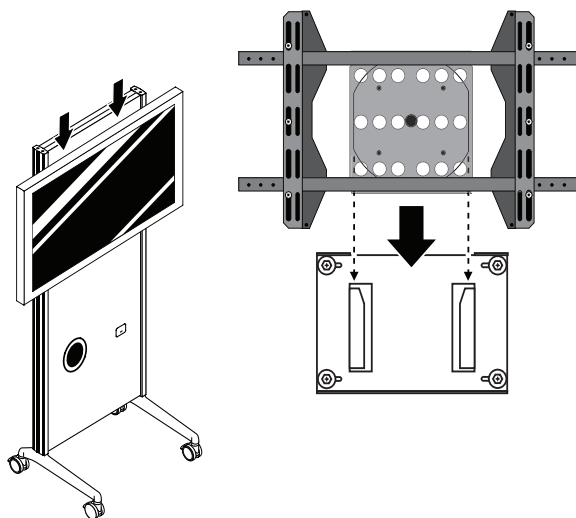


- 2 The cable bundle is coiled and cable tied to the rotating mount. To route the cable bundle remove only the twist ties that are keeping the cables coiled on the rotating mount. Do **not** remove cable ties ("zip" ties) that secure the cables together or the clamps that secure the cable bundle to the mounting bracket in four places.
- 3 Route the cable bundle from the plasma through the slot in the easel front.
- 4 Find one or more assistants to help you lift the monitor.

WARNING

The plasma monitor is heavy and should always be carried by two or more persons to avoid injury.

- 5 Lift the monitor in landscape orientation and slide the rotating mount brackets on the plasma monitor into matching brackets on the easel. Make certain that the plasma display is properly seated before letting go of it.



WARNING

Use care to avoid chafing the cable bundle between the plasma monitor and the easel.

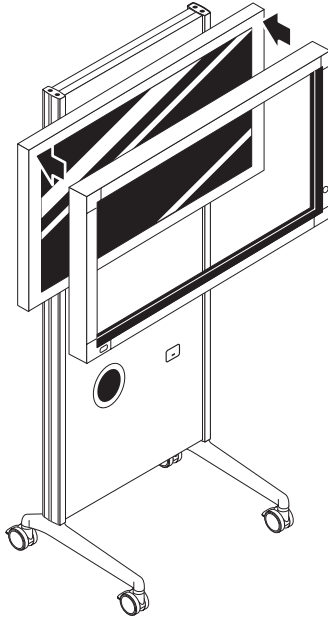
INSTALL THE TOUCH-SCREEN FRAME ON THE PLASMA MONITOR

The touch-screen frame fits over the plasma monitor after the plasma monitor is mounted to the easel.

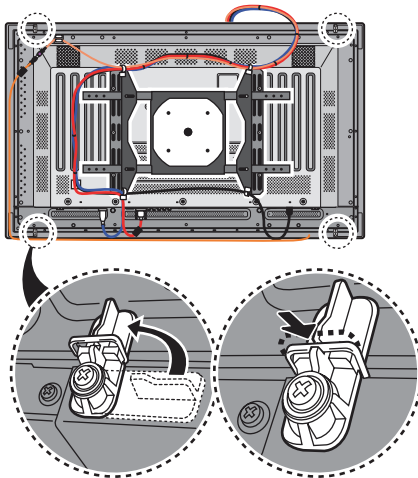
To install the touch-screen frame:

- 1 Leave the touch-screen frame's USB cable attached to the retainers along the back edge of the frame.

- 2 Slide the touch-screen frame over the front of the plasma monitor.



- 3 Secure the touch-screen in place by rotating the locking fixtures.



- 4 To lock each fixture in place, press each metal stopper in, towards the plasma monitor.

CONNECTING THE TOUCH-SCREEN USB CABLE

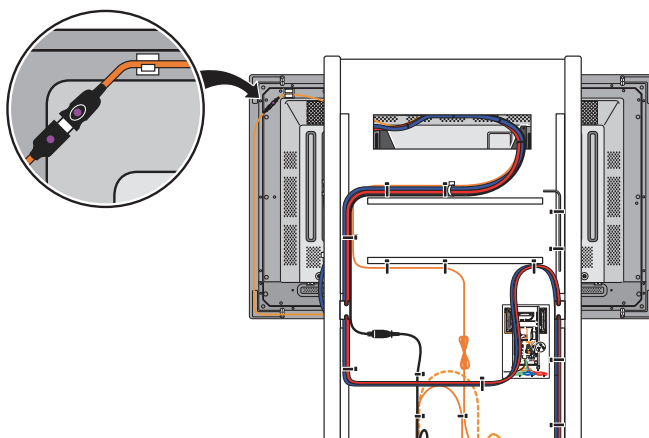
The touch-screen frame's USB cable connects to the USB extension that is one of the cables bundled on the rotating mount.

To connect the touch-screen USB cable:

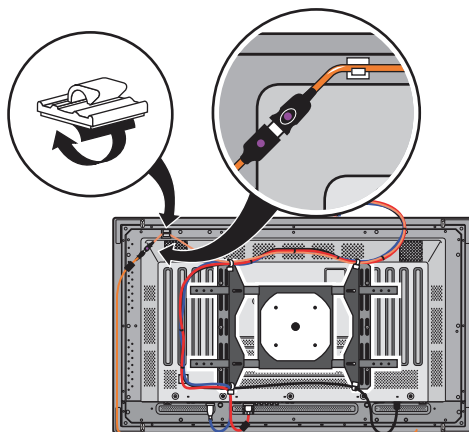
- 1 Assure that the touch-screen's USB cable is clipped securely along the lower and left edge of the rear frame using the built-in clips. They should remain clipped securely as they were during shipping.

The touch screen's USB cable terminates at the upper left edge of the plasma monitor (viewed from behind the easel) in a position that allows it to connect to the USB extension cable that is bundled on the rotating mount.

- 2 Locate the connector on USB extension and connect it to the touch-screen USB cable.



- 3 Locate the provided self-adhesive cable clip, remove the backing, and fasten it to the plasma monitor adjacent to the USB extension connector.



- 4 Fasten the USB extension to the cable clip.

CABLE CONNECTIONS IN THE EASEL

Cables provided by Polyvision include a color dot or band at the connector ends that match a color dot or band at the location where they are plugged in. Where cables are not provided, color dots appear at the easel connection.

Connections inside the easel include:

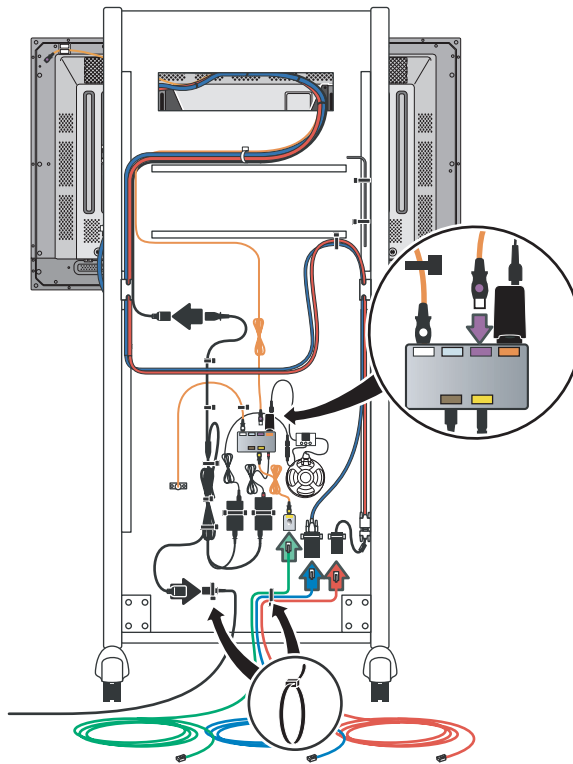
- USB from the touch-screen frame (violet)
- Video from the plasma monitor (red)
- RS232 from the plasma monitor (blue)
- Power from the plasma monitor (black)
- Power from the wall outlet
- mini-USB receiver from the wireless keyboard (gray dot on USB Hub)
- USB-over-Cat-5 from the THUNDER server (green dot at easel connection)
- RS232-over-Cat-5 from the THUNDER server (blue dot at the easel connection)

- VGA-over-Cat-5 from the THUNDER server (red dot at the easel connection)

TOUCH-SCREEN USB CABLE CONNECTION

To connect the touch-screen frame to power and data:

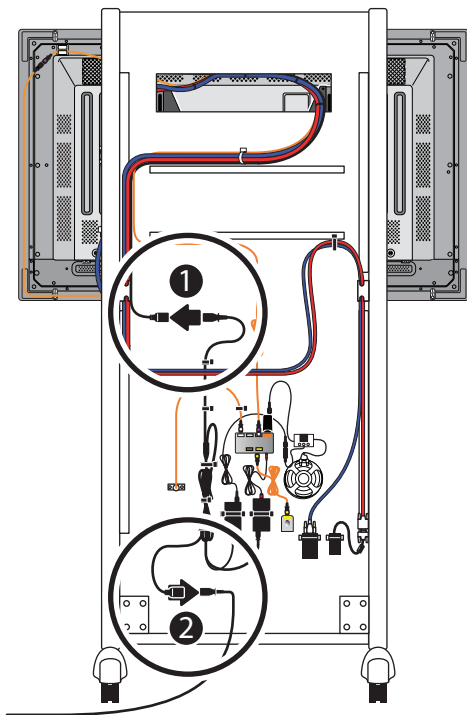
- Connect the USB extension cable from the plasma cable bundle to the USB hub in the easel matching the violet color dots on the cable and hub.



POWER CONNECTIONS IN THE EASEL

To connect power to the easel and to the plasma monitor:

- 1 Connect the power cable from the plasma monitor bundle to the power extension on the easel.



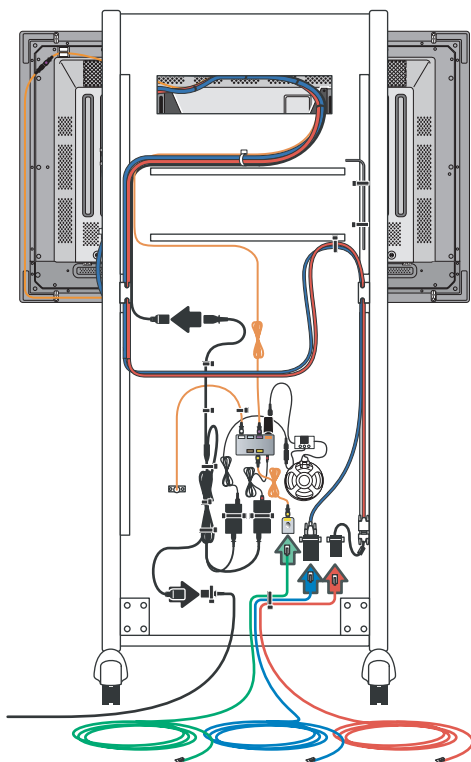
- 2 Locate the power cable that was packaged with the plasma monitor and connect it to the power connector near the bottom of the easel.

CAT-5 CABLE CONNECTIONS IN THE EASEL

USB, serial, and video over Cat-5 cables connect the THUNDER server to the easel.

To connect Cat-5 cables to the easel:

- 1 Route the USB-over-Cat-5 cable (green), RS232-over-Cat-5 cable (blue), and VGA-over-Cat-5 cable (red) from the wall through the grommet in the easel back.
- 2 Connect the USB-over-Cat-5 cable (green) routed from the THUNDER server to the USB-to-Cat-5 converter on the easel.
- 3 Connect the RS232-over-Cat-5 cable (blue) routed from the THUNDER server to the RS232-to-Cat-5 converter on the easel.
- 4 Connect the VGA-over-Cat-5 cable (red) routed from the THUNDER server to the VGA-to-Cat-5 converter on the easel.

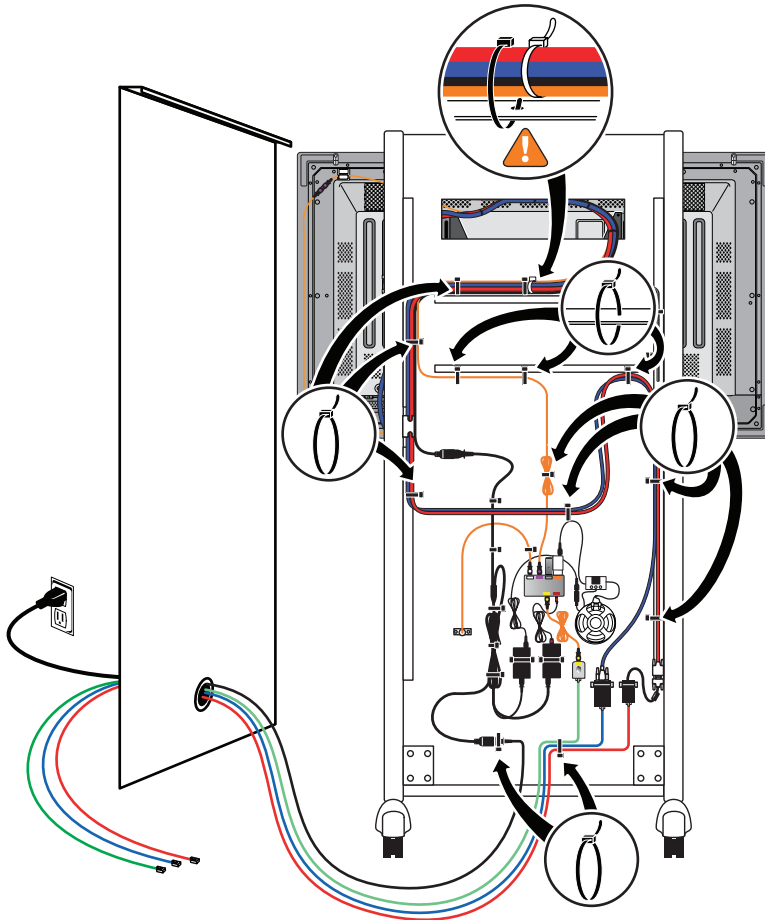


CABLE TIES WITHIN THE EASEL

When cable connections are complete, secure the cables within the easel using cable ties provided.

WARNING

Completing this step properly is essential to assure that cables are not damaged when the easel is rotated between portrait and landscape orientation. Cables which are damaged by improper installation are not covered by the warranty.



WARNING

*It is essential to secure the plasma cable bundle to the easel at the location of the **white** cable tie on the cable bundle.*

To secure the cable bundle:

- 1 Locate the only **white** cable tie on the cable bundle from the plasma monitor.
- 2 At the location of the **white** cable tie, secure the cable bundle to the **center hole** in the upper horizontal brace on the easel by adding a new black cable tie.
- 3 On the left end of the top horizontal brace, secure the cable bundle with a second cable tie.
- 4 Route the cables along the left edge of the easel.
- 5 Secure the cable bundle to the left edge of the easel using cable ties and the pre-installed cable-tie locations.
- 6 Secure the USB extension from the cable bundle to the lower easel brace with two cable ties.
- 7 Secure the remaining excess USB cable in a bundle with two cable ties to the two pre-installed cable-tie locations.
- 8 Secure the power cord with one cable tie at the bottom of the easel for strain relief.
- 9 Secure the VGA-, RS232-, and USB-over-Cat-5 cables with one cable tie at the bottom of the easel for strain relief.

ROUTE CABLES THROUGH THE EASEL GROMMET

The easel back includes a grommet for cables routed from the easel.

- 1 Assure that the USB-, RS232-, and VGA-over-Cat-5 cables route through the grommet in the easel back.
- 2 Also route the power cable through the grommet in the easel back.
- 3 Connect the power cable to a power outlet.

INSTALL THE WIRELESS KEYBOARD

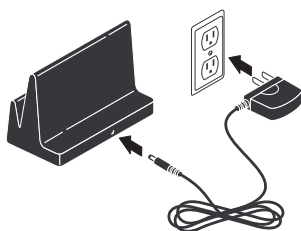
The THUNDER wireless keyboard is an essential input device for system management and also enables THUNDER users to name sessions or type during the control of remote participants' computers.

NOTE:

The easel must be connected to power for installation of the wireless keyboard.

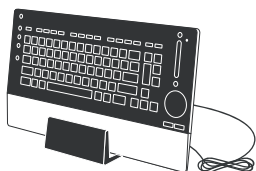
To install the wireless keyboard:

- 1 Plug the power cable into the back of the charging base and into a wall outlet.

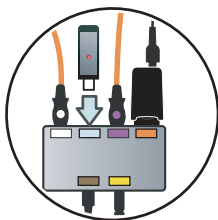


- 2 Assure that the easel power cable is connected to an outlet.

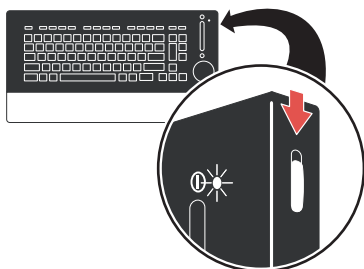
- 3 Place the keyboard in the charging base.



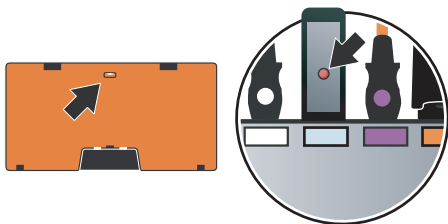
- 4 Connect the mini-USB receiver to the USB hub inside the back of the easel.



- 5 Once charged, remove the keyboard from the charging base and power on the keyboard by sliding the switch down.



- 6 To activate the keyboard on first use, press the red button on the mini-USB receiver, then press the orange button on the back of the keyboard.

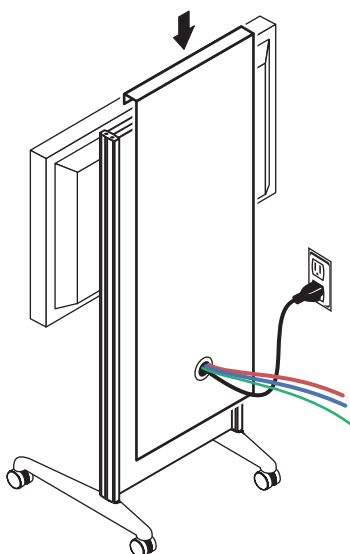


REPLACE THE EASEL BACK

The internal easel cable connections are complete.

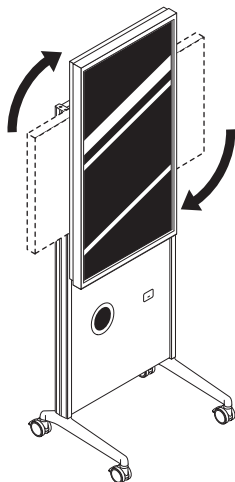
To replace the easel back:

- Carefully lower the easel back onto the easel front, ensuring that no cables are pinched.



ROTATE THE PLASMA MONITOR TO PORTRAIT ORIENTATION

Portrait orientation is standard for the plasma monitor. Slowly rotate the plasma monitor from landscape to portrait orientation in a clockwise direction. While doing so, check to be sure that no cables are pinched between the plasma monitor and the easel.

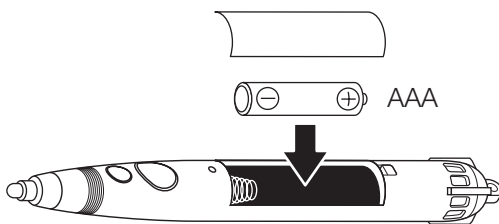


ADD BATTERY TO THE STYLUS

The stylus operates on one AAA battery.

To add the battery:

- 1 Lift off the battery compartment cover.
- 2 Add one AAA battery.



- 3 Replace the cover.

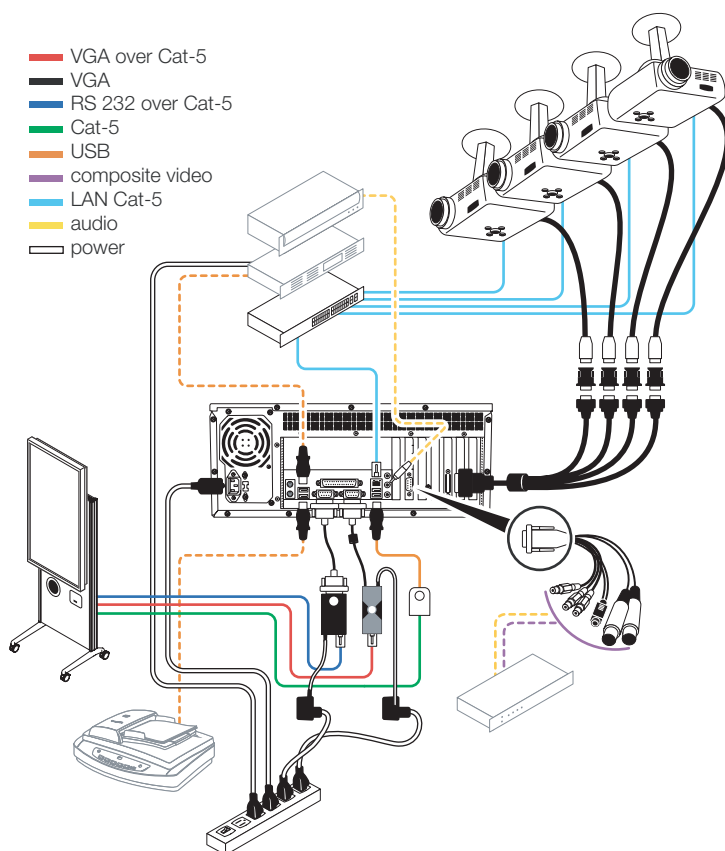
CONNECTING CABLES TO THE THUNDER SERVER

PREPARE TO CONNECT CABLES

After all cables have been routed, you can connect cables to the THUNDER server. Refer to “Planning Your Installation” on page 18 to properly route the cables to the server. Locate and have ready to use:

- Cat-5-to-USB converter (provided)
- Cat-5-to-RS232 converter (provided)
- Cat-5-to-VGA converter (provided)
- USB-over-Cat-5 cable from easel
- RS232-over-Cat-5 cable from easel
- VGA-over-Cat-5 cable from easel
- projector video splitter cable with four adapters (provided)
- video input cable (provided)
- 6-foot (1829 mm) server power cable (provided)
- Ethernet cable from 24-port network switch or patch panel
- up to four Cat-5 cables for video from projectors (up to eight with optional added video card)
- USB cable from scanner (optional)
- 1/8-inch mini line out cable to audio processor or amplified speaker (optional)
- video and audio cables from video source (optional)
- USB cable from uninterruptible power supply (optional)

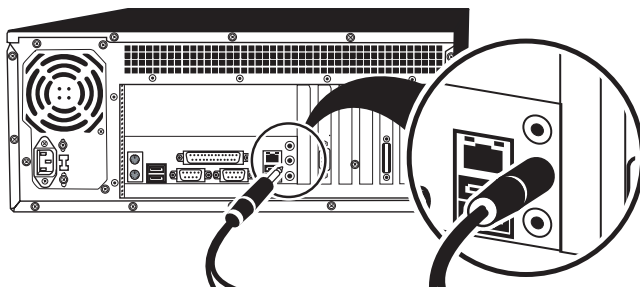
CABLE CONNECTIONS IN THE THUNDER SERVER



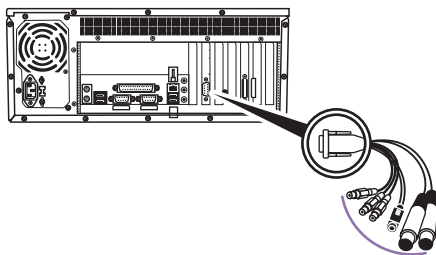
Connect cables, including options as appropriate, to the THUNDER server as follows:

- 1 Access the rear of the THUNDER server.
- 2 Secure the projector video splitter cable to the video card in the back of the THUNDER server by tightening the screws.
- 3 Attach four DVI to VGA adapters to the projector video splitter cable, if necessary.

- 4 Connect video cables routed from up to four projectors (or eight if the optional Thunder 4 PJ expansion card is installed) to the projector splitter cable or DVI to VGA adapters. (Typically, VGA-to-Cat-5 converters are used, which must be powered from the rack side.)
- 5 Connect the USB-over-Cat-5 cable from the easel to the Cat-5-to-USB converter and connect the converter to a USB port on the server.
- 6 Connect an Ethernet cable from the 24-port switch or patch panel to the server.
- 7 Connect the RS232-over-Cat-5 cable from the easel to the Cat-5-to-RS232 converter, connect the converter to the DB9 RS232 connector on the server, and connect the converter to a power source.
- 8 Connect the VGA-over-Cat-5 from the easel to the Cat-5-to-VGA converter, connect the converter to the center video port on the server, and connect the converter to a power source.
- 9 Connect the USB cable from a scanner (if installed) to a USB port on the server.
- 10 Connect the USB cable from the UPS (if installed) to a USB port on the server.
- 11 Connect the power cable to the server and to the wall outlet.
- 12 Connect the center line out audio jack on the server to the audio processor or amplifier for in-room speakers (if installed).



- 13 Connect the video input cable to the video input port (DB-9), then connect audio and video from a video source to the video input cable. Use either the RCA composite video input or S-video input and either the XLR inputs or RCA inputs.



A/V INSTALLER HANDOFF TO SYSTEM MANAGER

The remaining installation steps require close coordination between the A/V installer and the local IT system manager. After all the THUNDER Pro components are installed and the cables connected, the A/V installer and IT system manager work together to configure and test individual components until the system is up and running.

The remaining installation steps are covered in the *THUNDER System Manager Guide*.

WARRANTY

WHAT IS COVERED

PolyVision THUNDER™ System Components

PolyVision Corporation warrants to the original customer or other end-user purchaser that this product is free from defects in material and workmanship for a period of one year from the date of purchase. During the warranty period, the product will be repaired or replaced at PolyVision's option, without charge for either parts or repair labor.

The Pioneer® plasma display monitor is warranted directly by Pioneer Electronics under the terms stated in the documents accompanying your monitor.

All other system components are warranted under the terms and conditions stated herein. In the event that a conflict exists between the warranty on a component of this system and this warranty, the THUNDER system warranty shall take precedence.

This warranty applies only to the first end-user purchaser and only when the product is used in a country for which it is labeled for sale

WHAT IS NOT COVERED

- 1 Any product that is sold or used outside of North America and Europe unless the product was specifically labeled for sale in that country.
- 2 Any product on which the serial number has been defaced, modified, or removed.
- 3 Damage, deterioration, or malfunction resulting from, but not limited to:
 - Accident, misuse, abuse, neglect, fire, water, lightening or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
 - Use of unintended writing implements such as (but not limited to) ball point pens, pencils, fountain pens, or non-dry-erase markers.
 - Use of non-approved cleaning materials or solvents.
 - Repair or attempted repair by anyone not authorized by PolyVision.
 - Any damage incurred in shipping.
 - Removal or installation of the product.
 - Any other cause that does not relate to a product defect.
- 4 Cartons, carrying cases, pens, external cabinets, easels, or any accessories used in connection with the product.
- 5 Removal and/or installation charges.

HOW TO GET WARRANTY SERVICE

If you experience a problem with this product, contact your local dealer or PolyVision Product Support (800.620.POLY in the USA, or +32 (0)89 32 31 30 in Europe) to resolve the problem

LIMITATION OF DAMAGES AND IMPLIED WARRANTIES

POLYVISION WARRANTS THAT THE PRODUCT WILL OPERATE SUBSTANTIALLY IN CONFORMITY TO THE POLYVISION DOCUMENTATION AND PUBLISHED SPECIFICATIONS FOR A PERIOD OF ONE YEAR AFTER PURCHASE, PROVIDED IT IS USED IN ACCORDANCE WITH POLYVISION'S USER INSTRUCTIONS. POLYVISION'S SOLE AND EXCLUSIVE LIABILITY, AND YOUR EXCLUSIVE REMEDY, FOR ANY BREACH OF THIS WARRANTY IS THAT, IF THE BREACH IS REPORTED TO POLYVISION IN WRITING WITHIN THE WARRANTY PERIOD, POLYVISION WILL CORRECT THE NONCONFORMITY, EITHER BY CORRECTING THE PRODUCT OR (WHERE APPROPRIATE) DOCUMENTATION; REPLACING THE PRODUCT; OR, WHERE POLYVISION DETERMINES THAT CORRECTION OR REPLACEMENT IS NOT FEASIBLE, REFUNDING THE FEE ACTUALLY PAID FOR THE PRODUCT. NO OTHER REMEDY SHALL BE AVAILABLE TO YOU. EXCEPT AS EXPRESSLY SET FORTH HEREIN, POLYVISION MAKES NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. POLYVISION DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. POLYVISION SHALL HAVE NO LIABILITY BEYOND THE OBLIGATIONS SET FORTH ABOVE. IN NO EVENT SHALL POLYVISION BE LIABLE FOR ANY INDIRECT DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL, OR OTHERWISE (AND EXPRESSLY INCLUDING LOST PROFITS AND LOSS OF DATA) OR FOR ANY DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THIS PRODUCT UNDER THIS OR RELATED AGREEMENTS, WHICH DAMAGES ARISE OUT OF THE USE OF THE HARDWARE, IRRESPECTIVE OF WHETHER POLYVISION SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES AND IRRESPECTIVE OF THE CAUSE OF DAMAGE, INCLUDING NEGLIGENCE. SOME STATES OR COUNTRIES RESTRICT THE RIGHT TO EXCLUDE CERTAIN WARRANTIES, THEREFORE, THE ABOVE EXCLUSIONS MAY NOT APPLY TO YOU.

HOW STATE LAW RELATES TO THE WARRANTY

In the USA, this warranty gives you specific legal rights, and you may also have other rights, which vary from state to state. PolyVision Corporation products are warranted in accordance with the terms of the applicable PolyVision Corporation limited warranty.

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