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CopyCam®
Image Capturing System

Installation and Operation Guide

PolyVision®
A Steelcase Company

CopyCam®

Installation and Operation Guide

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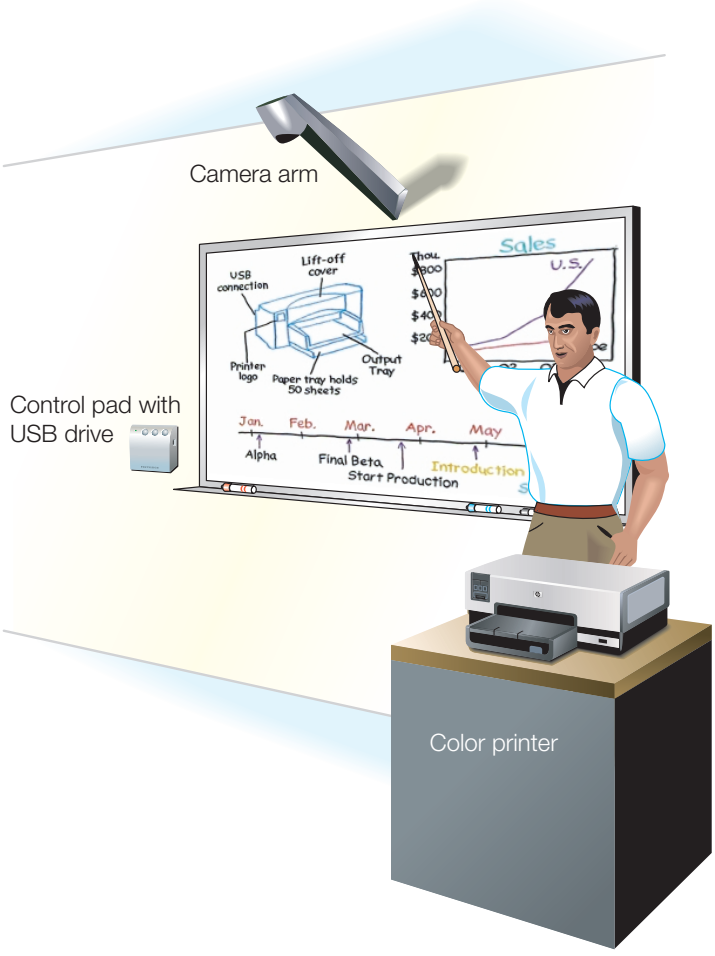
WELCOME

Welcome to CopyCam®, your quick and easy tool to capture information from a whiteboard or chalkboard.

This manual provides instructions for installing and operating your CopyCam Pro or CopyCam E system. A typical CopyCam Pro setup is shown below.



About This Manual

This manual describes how to install and operate two models of CopyCam: CopyCam E and CopyCam Pro.

CopyCam E saves images from your whiteboard or chalkboard to the built-in CopyCam web server connected to your LAN.

CopyCam Pro provides three ways to capture and save images from your whiteboard or chalkboard: printed from a network printer, saved to a USB flash memory drive, or to the built-in CopyCam web server connected to your LAN.

CopyCam Quick Start

Step 1: Write on the board.

Step 2: Press a button on the control pad.

Step 3: You're done!

CopyCam captures the board and you can continue your meeting or class without interruption.

What to Expect

In good lighting conditions, CopyCam captures the board just five seconds after you press one of the control pad buttons. In poor light, it might take a few seconds longer.

NOTE:

To avoid shadows across the image, be sure you stand away from the board when you press the control pad button.

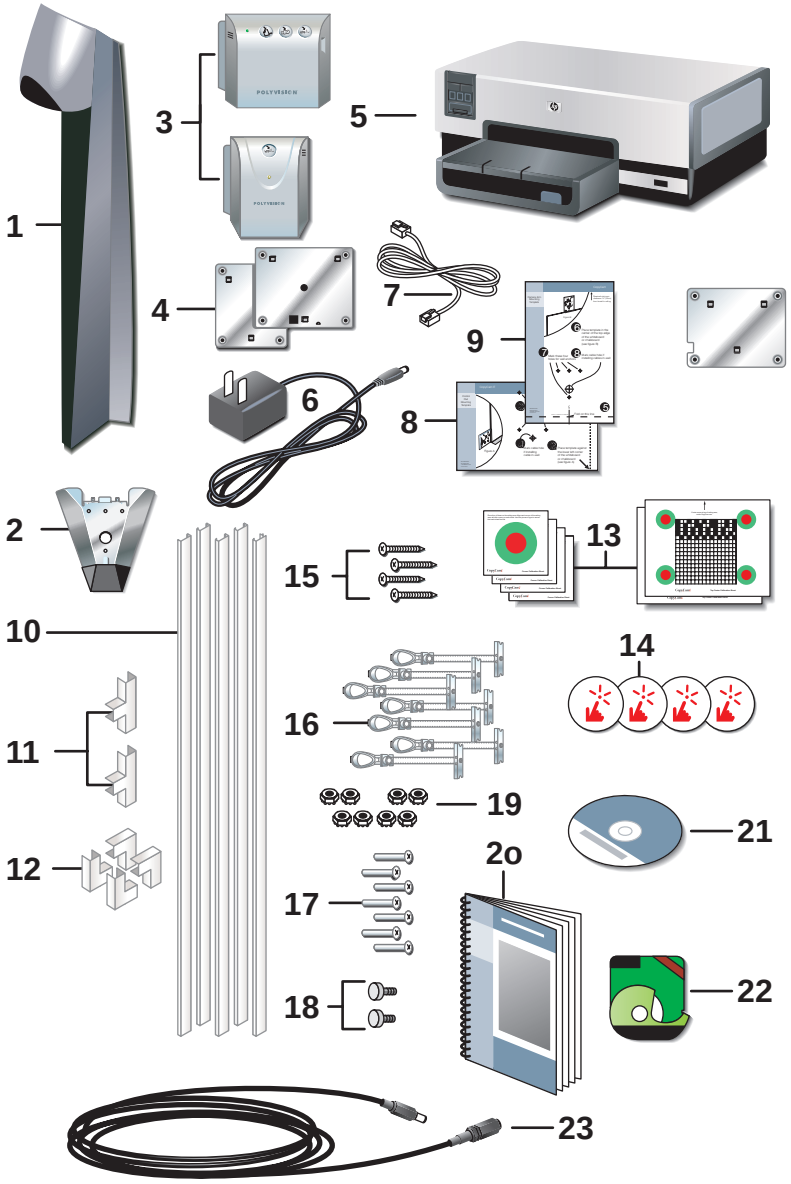
A voice message from the control pad quietly says "captured." At the same time, the control pad LED changes from blinking yellow to solid yellow to indicate that you can erase the board and continue writing. Refer to "LED and Voice Status Messages" on page 55 for a summary of all status messages.

CopyCam Pro: When you use the printer, it can take up to 45 seconds before a copy starts printing, but you can continue with your presentation during that time. When you save to the USB drive, it can take up to a minute to save the file, but you can continue with your meeting during that time as well.

CopyCam Installation

What Comes in the Box

1. camera arm
2. camera arm mounting plate
3. CopyCam Pro or CopyCam E control pad
4. CopyCam Pro or CopyCam E control pad mounting plate
5. color printer with power cable and two starter ink cartridges (CopyCam Pro only)
6. power adapter and cord
7. RJ12 control pad cable
8. camera arm positioning template
9. control pad positioning template
10. five 4' (1200mm) sections of cable raceway (for concealing cables)
11. two cable raceway tees
12. four cable raceway elbows
13. five calibration sheets (four corner sheets, one whiteboard sheet)
14. four border buttons
15. four #8 x 1.5" (38mm) drywall screws
16. seven toggle bolts
17. seven toggle bolt screws (10-24 x 1.25" [32mm])
18. two arm-securing thumb screws
19. eight kep nuts
20. Installation and Operation Guide (this guide)
21. configuration CD-ROM
22. adhesive tape
23. 17 foot power extension cord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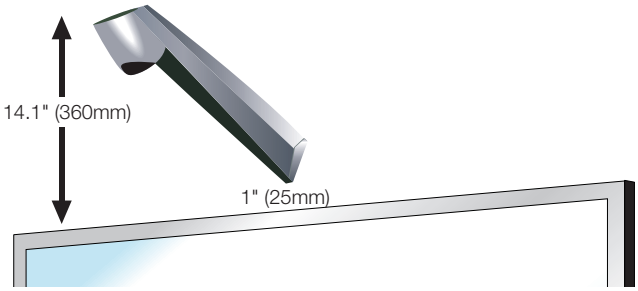
Camera Arm Spatial Requirements

CopyCam components use space above the board and to the left of the board.

WARNING

A minimum of 14.1" (360mm) above the board is required for installation of the camera arm, as shown below. If you do not have at least 14.1" (360mm) of clearance, do not attempt to install CopyCam. Consider the possibility of moving your board down, or, with a false ceiling, of raising the ceiling.

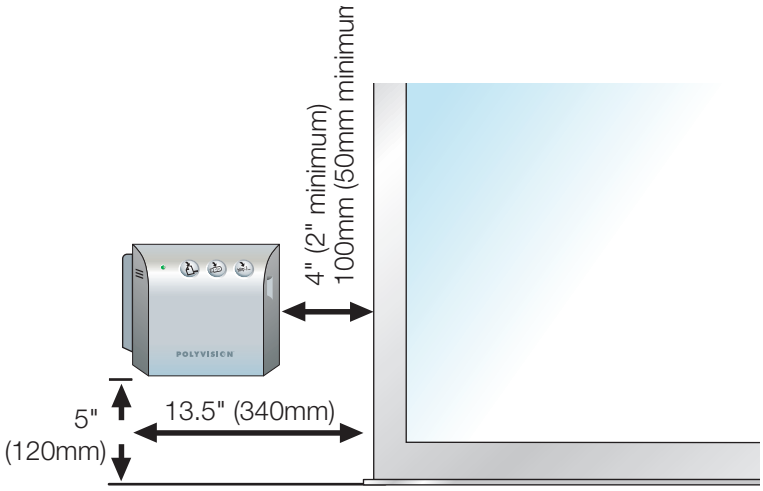
Remove projection screens, maps or other devices above the board that can interfere with the camera arm position. CopyCam must have a clear view of the entire board.



Your whiteboard cannot be recessed or stand away from the wall more than 4" (100mm) from the camera arm mounting bracket. The camera arm mounting bracket must meet the wall at a location that is within 4" (100mm) of the surface of the whiteboard in order to focus properly.

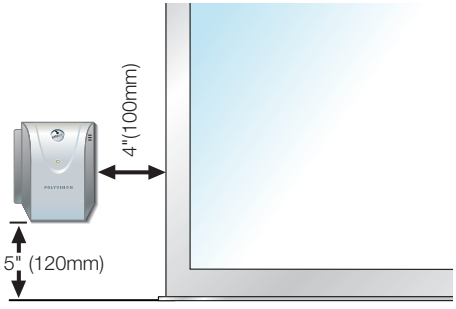
CopyCam Pro Control Pad Spatial Requirements

The CopyCam Pro control pad includes a USB drive that the user accesses from the right. The preferred location for the control pad is four inches (100mm) to the left of the board, and about five inches (120mm) above the bottom of the board, as shown below.



CopyCam E Control Pad Spatial Requirements

The preferred location for the CopyCam E control pad is four inches (100 mm) to the left of the board, and about five inches (120mm) above the bottom of the board, as shown below.

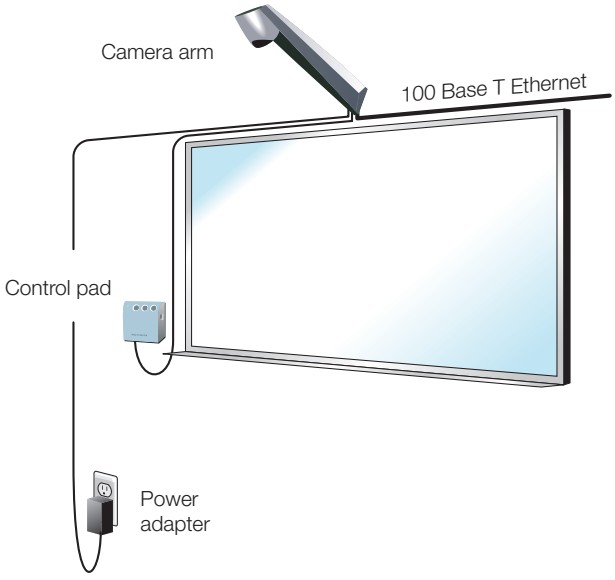


Mounting the Control Pad and Camera Arm

Expect to spend about two hours on this installation.

Planning for Wiring

CopyCam has three cable connections that converge in the camera arm, as shown below for CopyCam Pro.



The power adapter and its cable connect to the camera arm via a 17 foot extension cord.

CopyCam wiring can be either:

- against a wall, the typical approach for adapting an existing facility, or
- within a wall, a potential for new construction or renovation

NOTE:

Use the positioning templates provided to assure proper location of the control pad and camera arm. Failure to do so may result in inhibited access to the USB drive in the CopyCam PRo control pad, or in incomplete copies of the board.

Instructions below provide details for routing cables against the wall. Refer to “Routing Cables Within the Wall” on page 22 for differences when installing cables within a wall.

Preparing to Install the Control Pad

WARNING

You must fasten the brackets to the wall so they are secure. CopyCam mounts to any kind of wall construction. Instructions and wall fasteners are provided to help you install CopyCam when walls have metal or wood studs. Be sure to locate studs and use them to drive mounting screws whenever possible.

Locate and have ready to use:

- control pad positioning template
- control pad
- control pad mounting plate
- two #8 x 1.5" (38mm) drywall screws (provided)
- four toggle bolts (provided)
- four toggle bolt screws (provided)
- power drill with 1/2" (12mm) bit
- power screwdriver with phillips bit, or phillips screwdriver
- pencil
- tape measure (optional)

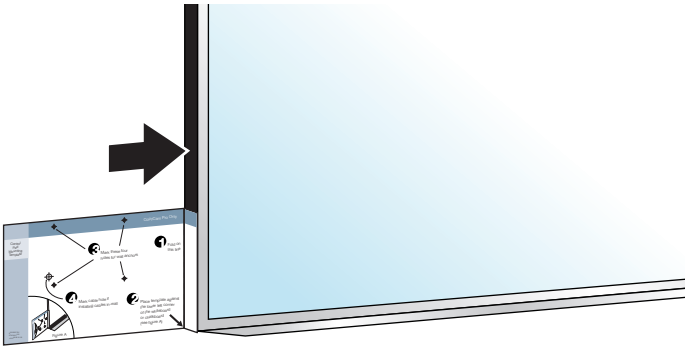
Installing the Control Pad Mounting Plate

These instructions guide you through installing CopyCam on a sheetrock wall. If your wall material is some other substance, such as concrete or brick, use these instructions as a guideline but install appropriate anchors to secure the unit to the wall.

To position the control pad mounting plate:

1. Identify which side of the control pad mounting template is appropriate for your installation: CopyCam Pro or CopyCam E.
2. Punch holes in the control pad positioning template at the locations of the four screws.

3 Fold the control pad positioning template along the dotted line to form a shelf, as shown.



4 Position the folded control pad positioning template on the LEFT BOTTOM edge of the board, as shown. This indicates the ideal position and the minimum distance from the board.

5 If possible, locate a metal or wooden stud that is nearest this position.

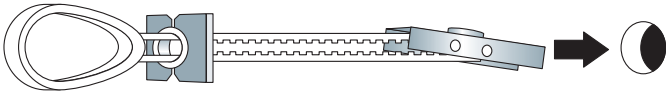
6 Mark the four screw hole positions on the wall using an awl, a pencil, or marker so that at least one fastener will attach to the stud, if possible.

7 Remove the template.

To install the control pad mounting plate:

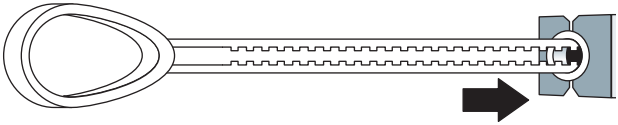
1 At positions that do NOT align with a stud, drill 1/2" (12mm) holes at the marked positions, using caution not to make the holes too large, and install a toggle bolt (provided) at each position as follows:

   a Tilt the metal piece so it is flat against the long axis of the two plastic cords and push it through the 1/2" (12mm) hole, as shown below.

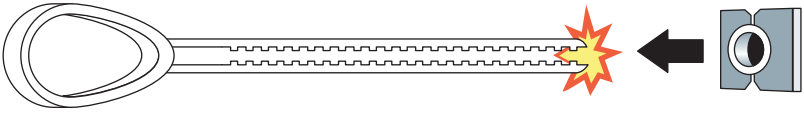


b Pull back on the toggle bolt to pull the metal piece tight against the interior of the wall.

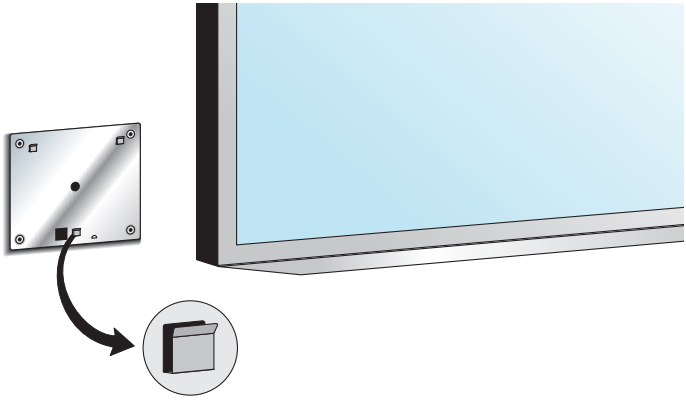
c Slide the plastic cap tight against the exterior of the wall.



d Snap off the finger hold and plastic cords flush with the wall.



2 Position the control pad mounting plate over the 4 mounting holes with the tabs pointing up, as shown below.



3 Drive the toggle bolt screws (provided) through the mounting plate and toggle bolt, and if a stud was located, drive a #8 x 1.5" (38mm) drywall screw (provided) through the mounting plate and wall into the stud.

NOTE:

The control pad mounting plate has feet that hold it slightly away from the wall.

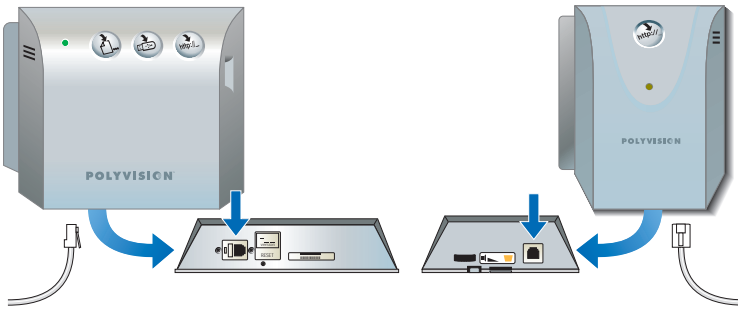
Connecting and Routing the Control Pad Cable

The CopyCam control pad has one cable:

- RJ12 cable to the camera arm

To connect the RJ12 cable to the control pad:

1. Locate the cable end with the orange tape near the connector.
2. Connect that end of the cable to the control pad on the left side of the control pad bottom.



Allow the cable to hang from beneath the control pad until you are ready to route it to the camera arm.

When routing cables within the wall, refer to “Routing Cables Within the Wall” on page 22.

Locking the Control Pad in Place

The control pad slides down onto its mounting plate and snaps into place.

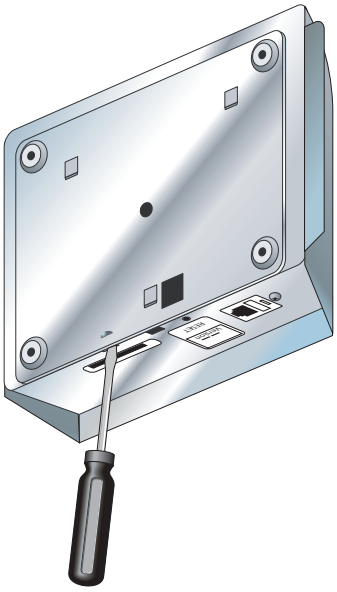
To lock the control pad in place:

1 Lower the control pad onto the tabs on the mounting plate, as shown. The control pad will snap into place.

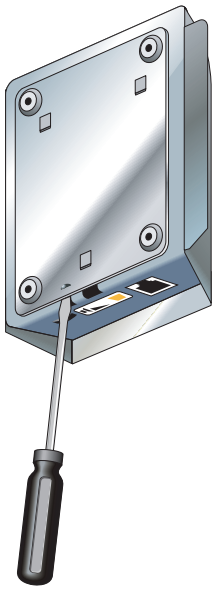
Removing the Control Pad From its Mounting Plate

If you want to remove the control pad from the mounting plate:

1 Locate the release latch at the bottom of the control pad, as shown.



CopyCam Pro



CopyCam E

2 Gently press up on the release latch with a small, flat blade screwdriver until the latch releases.

3 Slide the control pad up off the mounting plate.

Preparing to Install the Camera Arm

WARNING

You must fasten the brackets to the wall so they are secure. CopyCam mounts to any kind of wall construction. Instructions and wall fasteners are provided to help you install CopyCam when walls have metal or wood studs. Be sure to locate studs and use them to drive mounting screws if possible.

Locate and have ready to use:

- camera arm positioning template
- camera arm
- two #8 x 1.5" (38mm) drywall screws (provided)
- three toggle bolt screws (provided)
- two camera arm-securing thumb screws (provided)
- eight kep nuts (provided)
- power drill with 1/2" (12mm) bit
- power screwdriver with phillips bit or phillips screwdriver
- pencil
- tape measure
- ladder

Installing the Camera Arm Mounting Plate

These instructions guide you through installing CopyCam on a sheetrock wall. If your wall material is some other substance, such as concrete or brick, use these instructions as a guideline but install appropriate anchors to secure the unit to the wall.

Install the camera arm mounting plate one inch (25mm) above the board.

NOTE:

The position of the camera arm is critical to the proper function of the CopyCam lens and camera. Use the camera arm positioning template during installation to ensure that the camera will properly focus on the full board (up to 4' x 8' [1200 mm x 2400 mm]). Refer to “Camera Arm Spatial Requirements” on page 6.

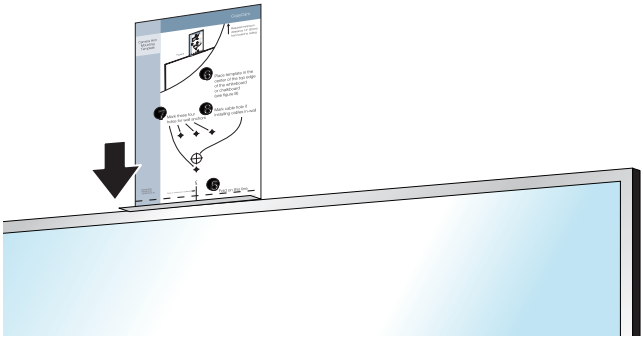
To position the camera arm mounting plate:

1 Measure and mark the top center of the horizontal dimension of the board or imaging area.

2 Locate metal or wooden studs in the wall nearest that location.

3 Punch holes in the camera arm positioning template at the positions of the four screw holes.

4 Fold the template along the dotted line to form a shelf, as shown.



5 Rest the folded camera arm positioning template on the top edge of the board, aligning the center line with the center line of your board.

6 Mark the four screw hole positions using an awl, a pencil, or marker.

7 Remove the template. Note if any of the screw positions align with a stud.

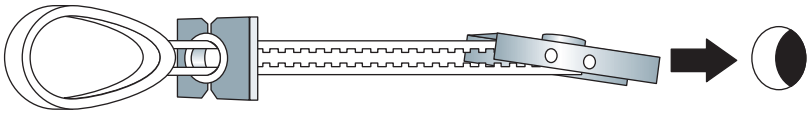
To install the camera arm mounting plate:

NOTE:

Three toggle bolts are included for installation of the camera arm. Use the outside three holes if you must use toggle bolts.

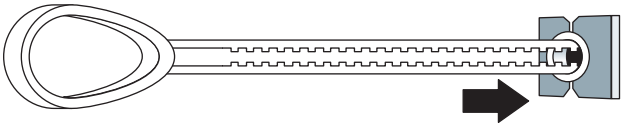
1 At positions that do NOT align with a stud, drill 1/2" (12mm) holes at the marked positions, using caution not to make the holes too large, and install a toggle bolt (provided) at each position as follows:

a Tilt the metal piece so it is flat against the long axis of the two plastic cords and push it through the 1/2" (12mm) hole.

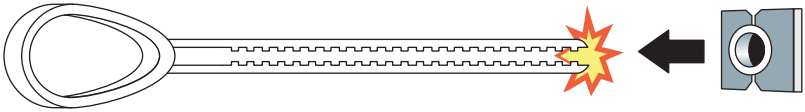


b Pull back on the toggle bolt to hold the metal piece tight against the interior of the wall.

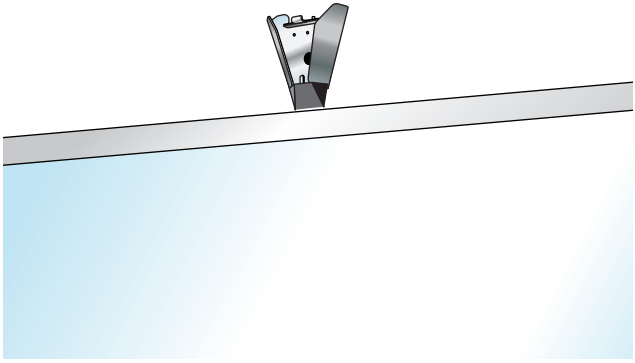
c Slide the plastic cap tight against the exterior of the wall.



d Snap off the finger hold and plastic cords flush with the wall.



2 Position the camera arm mounting plate over the mounting holes.



3 Drive the toggle bolt screws (provided) through the mounting plate and toggle bolt, and if a stud was located, drive a #8 x 1.5" (38mm) drywall screw (provided) through the mounting plate and wall into the stud.

Cable Routing and Connections in the Camera Arm

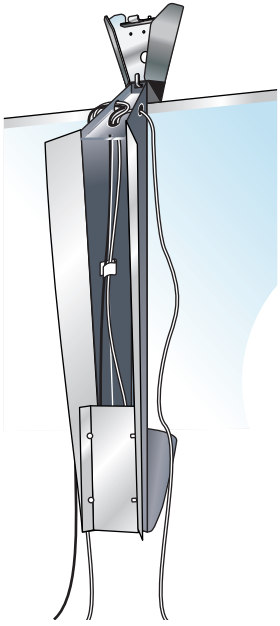
As illustrated in the section titled “Planning for Wiring” on page 8, the camera arm has three cable connections:

- RJ45 ethernet cable to Local Area Network (LAN) (optional)
- RJ12 cable from control pad
- power extension cord from power adapter

The camera arm allows for routing cables against the wall or through the wall. For routing cables within the wall, refer to “Routing Cables Within the Wall” on page 22.

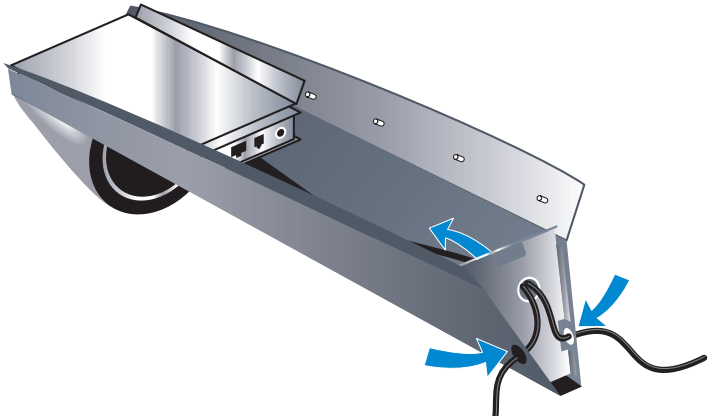
To connect cables in the camera arm:

1 Hang the camera arm from the hook at the bottom of the mounting plate.

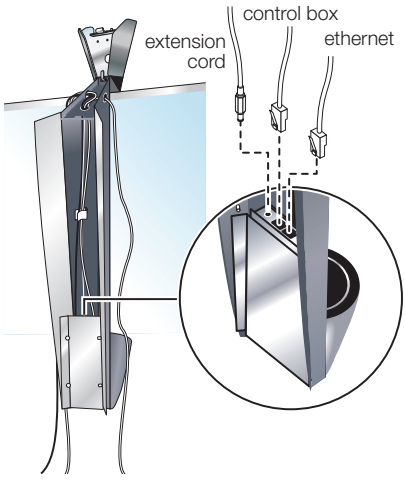


2 Connect the power adapter cable to the 17 foot power extension cord.

3 Locate the cable ends and route them through the exit holes in the end of the camera arm and up to the cable connectors. Cable exit holes are available on either side of the camera arm.



4 Plug cables into the cable connectors in the camera arm.



5 Secure the cables to the body of the camera arm (for strain relief) using the plastic clip provided inside the arm. For additional strain relief, add cable ties to the end of the arm closest to the wall mounting plate.

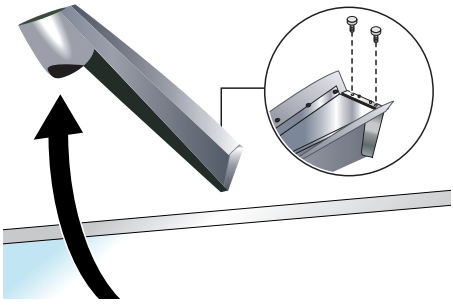
6 Secure the camera arm cover using the eight kep nuts provided. Note that the narrow end of the camera arm lid should be closest to the top of the arm.

Locking the Camera Arm in Place

The camera arm tilts up and locks into position for fastening with two screws (provided).

To lock the camera arm in place:

1. Determine if there is excess cable, and if there is, push it into the camera arm cavity through the exit hole at the end of the arm.
2. Tilt up the arm, lifting it slightly so that it slides over the pins on the top of the mounting plate. It should support its own weight at this point. Be sure cables are not pinched between the arm and the mounting plate.



3. Fasten the arm in place using the two arm-securing thumb screws provided.

Concealing Cables that are Routed Against the Wall

A cable raceway is provided to conceal cables along one edge of the board.

To conceal cables:

1. Route cables tightly against the edge of the board.
2. Conceal cables using the cable raceway, elbows, and couplers provided.
3. If necessary, stow any excess cable in the camera arm cavity by removing the camera arm cover and pulling cable through the exit hole.

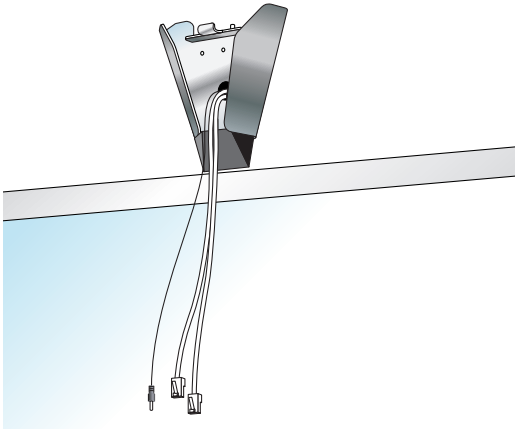
This completes the installation of CopyCam built-in components. If you are installing CopyCam Pro, turn to “CopyCam Pro: Installing and Testing the Printer” on page 42 to install the printer. If you are installing CopyCam E, turn to “Calibrating CopyCam” on page 24.

Routing Cables Within the Wall

If you are routing CopyCam cables within the walls, the instructions for mounting the control pad and camera arm differ in the sequence that you perform steps. Refer to instructions provided in “Mounting the Control Pad and Camera Arm” on page 8, but proceed in the following sequence:

1. Position the control pad and camera arm positioning templates. Refer to “To position the control pad mounting plate:” on page 9 and “To position the camera arm mounting plate:” on page 16.
2. Mark the wall anchor positions and the cable exit hole positions on the wall.
3. Drill holes. (In some cases, adding conduit within the wall can help to route the RJ12 cable between the control pad and the camera arm mounting plate exit holes. Boxes are not recommended.)
4. Drill a hole in the wall for the power cord to exit near an outlet.
5. Install the control pad mounting plate and camera arm mounting plate. Refer to “To install the control pad mounting plate:” on page 10 and “To install the camera arm mounting plate:” on page 16.

6 Route the RJ12 cable from the back of the control pad into the wall and up to the camera arm mounting plate exit hole. If necessary use a fish tape to fish the cable end through the wall to the camera arm mounting plate exit hole.



7 Leave about 24 inches (500mm) of cable extending from the camera arm mounting plate exit hole for later connection to the camera arm, as shown.

8 Mount the control pad to its mounting plate. Refer to “Locking the Control Pad in Place” on page 13.

9 Route power and optional ethernet cables to the camera arm mounting plate exit hole.

10 Hang the camera arm from the hook on the mounting plate as pictured on page 18.

11 Route the cables through the center cable exit hole of the camera arm.

12 Connect the three cables in the camera arm and cable tie the cables in the cavity of the camera arm. Refer to “Cable Routing and Connections in the Camera Arm” on page 18.

13 Place the camera arm cover over the camera arm and secure using the eight kep nuts provided.

14 Tilt up and lock the camera arm in place, using the two arm-securing thumb screws provided. Refer to “Locking the Camera Arm in Place” on page 21.

Calibrating CopyCam

When to Calibrate CopyCam

Calibration is necessary in most CopyCam whiteboard installations. Blackboards (or any board that is not white) always require calibration.

NOTE:

To obtain the calibration sheet that is required if you have a blackboard, or, if you cannot locate the calibration sheets provided, you can download them from the PolyVision web site at: http://www.polyvision.com. You will need a color printer to print these sheets.

Conditions that are likely to require calibration include:

- boards without easily discernible borders
- CopyCam mounted above an area with no borders
- CopyCam mounted to a board that is greater than 8' (2400mm) long or 4' (1200mm) high

You need to calibrate when:

- you have a blackboard (or any board that is not white)
- images are distorted
- the voice message (from the control pad) reports “calibration needed”

How to Calibrate CopyCam

Calibrating CopyCam involves showing it the corners of your board (or 4' x 8' [1200mm x 2400mm] limit) using the five calibration sheets provided.

Materials

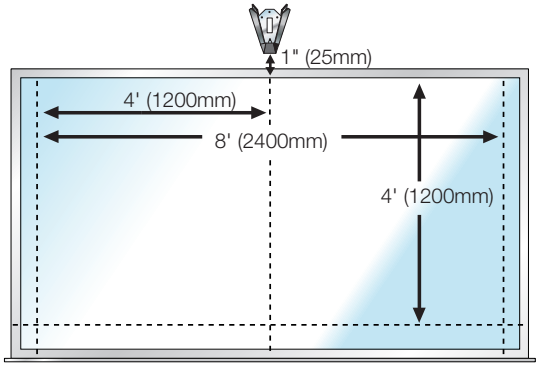
Locate and have ready to use:

- tape measure
- adhesive tape (provided)
- calibration sheets (provided for whiteboards, or download and print for blackboards)

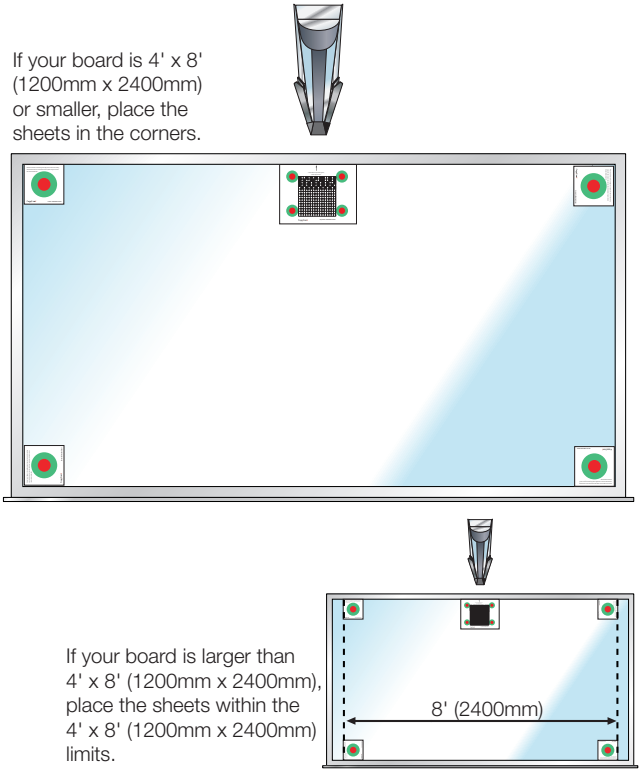
Calibrating CopyCam

To calibrate CopyCam:

1 Measure an area 4' x 8' (1200mm x 2400mm) or less, with the top centered at least one inch (25mm) below the camera arm, as shown.



2 Position the four corner calibration sheets within the 4' x 8' (1200mm x 2400mm) limit as shown below. If your board is 4' x 8' (1200mm x 2400mm) or less, put the four matching calibrations sheets in the corners.



NOTE:

To attach the sheets to the board, use low gloss tape or put tape on the BACK of each sheet. Be sure that all four corners are taped securely. Reflective tape can prevent the camera from seeing the targets.

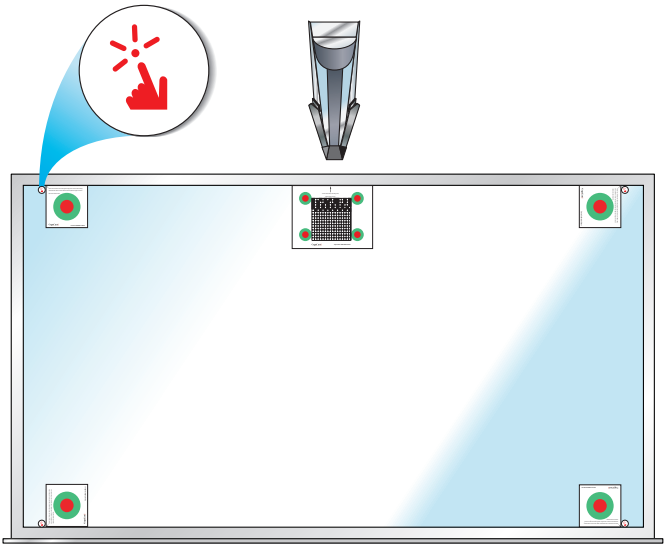
3 Position the fifth calibration sheet at the top center of the board, as shown. The calibration sheets are clearly labeled. (Remember that, if you have a blackboard or any other dark-colored board, you need to download and print the required calibration sheet from the PolyVision web site at www.polyvision.com.)

NOTE:

If the top center calibration sheet is in a shadow, calibration may fail. (The CopyCam voice message says "Calibration needed.") To give CopyCam a better view of the calibration pattern, change your lighting as needed to eliminate the shadow at the top of the board. If that is not possible, move the center target down from the top of the board slightly, being careful to keep it lined up with the center of the writing area.

4 Press any button on the control pad. CopyCam recognizes the calibration sheets and performs an internal calibration based on the dimensions specified.

5 If your board is wider than 8' (2400mm) or taller than 4' (1200mm), apply the four self-adhesive border buttons provided to mark the boundary of CopyCam captures, as shown below. These buttons remind users what part of the board is captured by CopyCam.



6 Remove the calibration sheets and set them aside in a safe place, such as tucked into this manual.

NOTE:

If CopyCam is installed with a blackboard and if white chalk is normally used, or if printing exclusively to a black and white printer such as a network laser printer, consider setting CopyCam to capture in monochrome to optimize capture quality. Refer to "Using the Settings Tab" for information about capturing in color and monochrome.

Web Configuration and Testing

CopyCam Web Server Introduction

CopyCam can save copies to the internal web server located in the camera arm. Users access copies over a Local Area Network (LAN) using any web browser.

For CopyCam Pro, using CopyCam's web server is optional. However, to change the CopyCam Pro advanced settings, you must access the CopyCam web server.

Although CopyCam does not require installing software on any end-user computer, a configuration CD-ROM is provided to help you locate the CopyCam IP address(es) on your Local Area Network.

If you misplace the CopyCam configuration CD-ROM, configuring the CopyCam web server requires Internet access to the PolyVision web site from a computer participating in the same LAN as the CopyCam installation. Find the CopyCam configuration utility under "Support/ Downloads/CopyCam" at http://www.polyvision.com.

Configuring the CopyCam Web Server

Multiple CopyCam systems may be installed on the same LAN. Your LAN can use DHCP or fixed IP protocols. DHCP allows CopyCam to obtain its LAN address automatically. If you are unsure of whether to use DHCP, check with your system administrator.

NOTE:

CopyCam must be connected to the network within three minutes after power on in order to be visible on the network.

If your LAN uses DHCP, CopyCam initiates its own configuration when you power on the system. With DHCP, CopyCam asks the network for an available IP address and assigns that address to itself.

If your LAN uses fixed IP addresses, CopyCam listens on the Ethernet network and performs "IP address squatting" to assign itself a temporary IP address. In order for you to learn the IP address it has acquired, you configure CopyCam using a web page that you open from the configuration CD-ROM provided.

To configure CopyCam:

1 On a computer connected to the same LAN and subnet as the CopyCam installation, insert the CopyCam configuration CD-ROM.

NOTE:

When you use the software on this CD-ROM, you can find only CopyCam systems that are on the same network segment (subnet) as your computer. After the IP address of your new CopyCam has been located (in step 4, below), you can browse to that address from any computer in your local area network (LAN) regardless of which segment it is on.

2 Double-click the “setup” file.

3 For DHCP-based networks: Click “Start” to locate all CopyCam systems on your LAN and display their IP addresses.
For fixed-address networks: Click “Start” then click “Start” again to locate all CopyCam systems on your LAN and display their IP addresses.

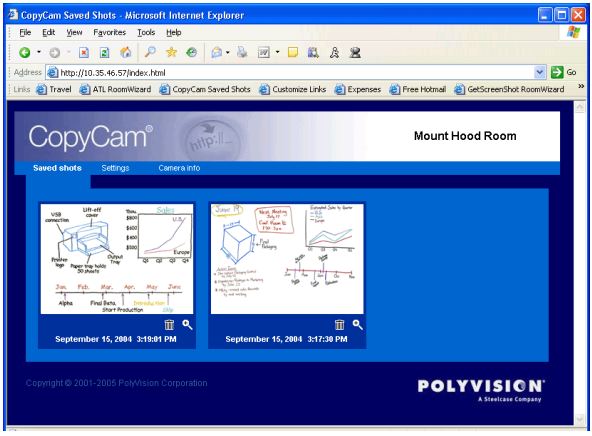
NOTE:

If you are not sure how your network is configured, ask your IT department or System Administrator.

NOTE:

If no CopyCams appear, close the window and once again double-click the “setup” file. (CopyCam performs IP address squatting only after the first time you click “Start.”)

4 Click the IP address link to the CopyCam web page. The CopyCam web page appears, as shown.



5 If you have more than one CopyCam, verify that you have linked to the correct web server by saving a copy to the web as follows:

a Go to the board and write something unique.

b Press the http:// button.

c Wait one minute.

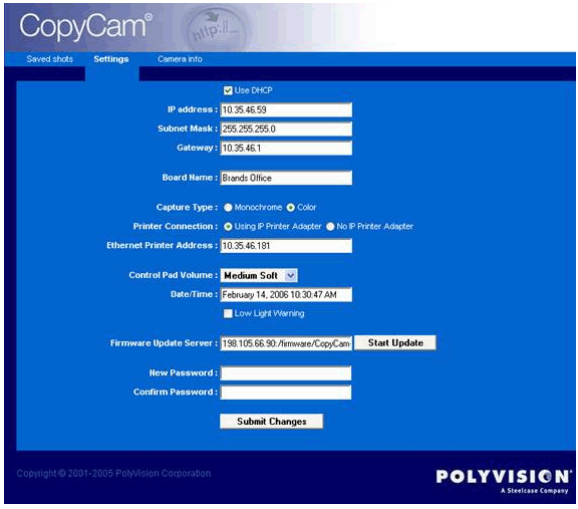
d Return to the computer.

e Click the Refresh button on your browser.

f Confirm that the copy appears on the web page.

6 In your web browser, add the CopyCam web site to Favorites or create a shortcut. (In most browsers, you can drag the address to a “Links” area, and the browser will create a shortcut for you.) Rename the shortcut so CopyCam is easier to identify.

7 Click the “Settings” tab on the CopyCam web site. In the “Settings” tab, you can see and change the IP address, and other valuable information, as shown. (Refer to “Using the Settings Tab” on page 37 for a description of each item in the “Settings” tab.)



NOTE:

If your LAN does not support DHCP (uses fixed IP addressing), you MUST change the temporary IP address to a permanent one that your system administrator assigns. If your LAN uses DHCP, your system administrator may want you to assign a permanent IP address, but it is not usually required. If it is not required, go to step 9.

8 If you must change the IP address, proceed as follows:

a Click the checkbox beside “Use DHCP” to remove the check.

b Change the IP address to a permanent IP address that has been selected by your system administrator.

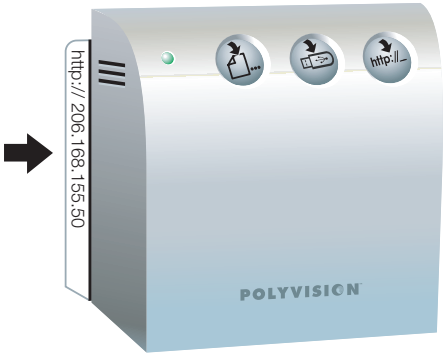
c Click the “Submit Changes” button. Settings are password protected. You see the Password dialog, shown below.

d Enter your password. The factory default user name is blank and password is “admin.”

e Click “OK.”

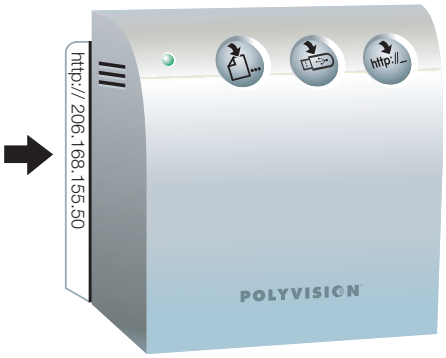
9 Make a note of the IP address for safe keeping.

10 Also write the address in the space provided on the control pad, as shown below on CopyCam Pro, so any user can easily browse to the CopyCam web site.



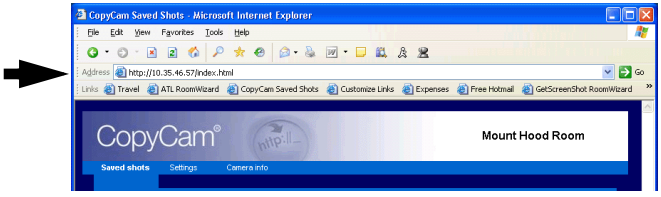
Accessing Your CopyCam Web Server

Each CopyCam has a unique web address that appears on the left edge of the control pad, as shown below. (This address should have been labeled by your installer. If it isn't, refer to "Configuring the CopyCam Web Server" on page 29 for instructions.)



To access CopyCam copies on the web:

1. Write down the CopyCam web address.
2. Turn on a computer that shares the same LAN as CopyCam.
3. Run a browser application, such as Internet Explorer or Netscape.
4. Enter the web address in the "Address" field and press Enter.



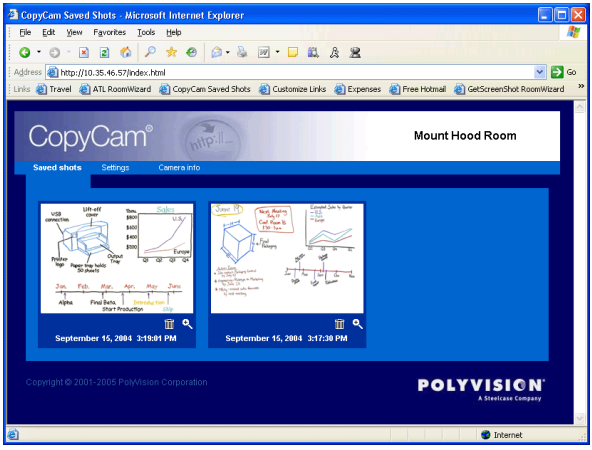
The CopyCam web site opens.

NOTE:

You can add the CopyCam web site to Favorites or create a shortcut. (In most browsers, you can drag the address to a "Links" area, and it will create a shortcut for you.) Rename the shortcut to make your CopyCam easier to identify.

Using the Saved Shots Tab

On the CopyCam web site, the “Saved Shots” tab, shown below, displays thumbnail images of each capture, including the date and time.



Click a thumbnail to see the corresponding full-size image. The full-size image opens in a new window using whatever application is available on your computer to view .png files.

The .png format images on the “Saved Shots” tab can easily be printed, inserted into documents, or sent in e-mail. If a copy on the web will be valuable in the future, preserve it by saving it to your computer or printing it from your web browser.

Saving Copies to your Computer

Copies that you save to your computer can later be printed, used in documents, sent in e-mail, or edited.

To save a copy to your computer:

1. Click a thumbnail to see the full-size image.
2. Choose “Save As” from the File menu.
3. Browse to the desired location on your computer’s hard disk or on a network drive and give the image a unique name.
4. Click “Save.”

Printing From the Web

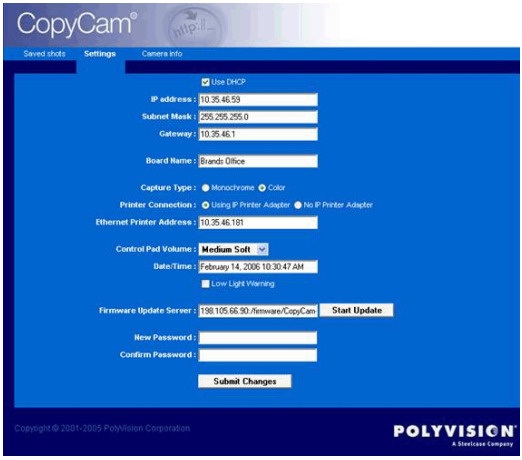
You can print one or more copies from the CopyCam web application at any time.

To print a copy from the web application with your default printer:

1. Click on a thumbnail to view the full-size image.
2. Choose “Print” from the File menu.
3. Select the number of copies to print.
4. Click “OK.”

Using the Settings Tab

The web server “Settings” tab, shown below, provides a way for you to view and change important CopyCam web settings. A description of each field is presented below.



Submit Changes

Click the “Submit Changes” button to implement changes to a setting. Settings are password protected. The first time you submit a change during an Internet browser session, the Password dialog appears, as shown below.

1 Enter your password. The user name is always blank and the factory default password is “admin.”

2 Click “OK.”

Use DHCP

Check this box if your LAN uses DHCP protocol. Remove the check mark if your LAN uses fixed IP addressing. Consult your system administrator if you are unsure.

IP Address

During configuration, the CopyCam web server IP address is determined automatically by DHCP or you may assign it here manually if the “Use DHCP” checkbox is not checked.

Subnet Mask

This network reference is determined automatically by DHCP or you may assign it manually here if the “Use DHCP” checkbox is not checked.

Gateway

CopyCam uses this gateway address only when updating firmware over the Internet. It is determined automatically through DHCP or you may assign it manually here if the “Use DHCP” checkbox is not checked.

Board Name

Enter a name that will help you identify the location of this CopyCam. This name appears at the top of the web page. For example, if your organization has CopyCams installed in two meeting rooms, choose names such as “CopyCam East” and CopyCam West” or another scheme that helps users identify each installation.

Capture Type

CopyCam normally captures images in color but it can also capture in monochrome. Changing to monochrome capture type can improve image quality when using a blackboard or when printing exclusively to black and white printers, such as network laser printers.

Printer Connection

For backwards compatibility with older CopyCam hardware configurations, choose “Using IP Printer Adapter” if your printer uses a dongle. Choose “NO IP Printer Adapter” if there is no dongle.

Ethernet Printer Address (CopyCam Pro only)

To print to the networked printer that comes with CopyCam, enter the printer IP address in this field.

Control Pad Volume

Choose the control pad voice message volume from five volume levels: off, soft, medium soft, medium loud, or loud.

Date/Time

Set the correct date and time. This information is associated with saved copies to help you identify when each copy was saved.

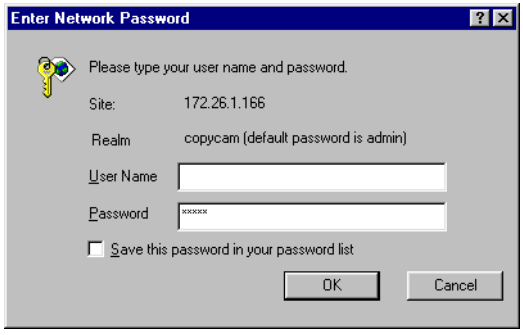
Low Light Warning

Remove the check to disable the control pad voice message that warns of low light conditions.

Firmware Update Server

To update CopyCam firmware on a computer with Internet access:

1. Enter the IP address of the PolyVision firmware server, or leave “default” in this field. (This IP address might have changed since you purchased your CopyCam. If the update fails, go to “Support” at www.polyvision.com to find the appropriate IP address and enter it in this field.)
2. Click the “Start Update” button.
3. If this is the first change you have submitted during this Internet browser session, the Password dialog appears, as shown below.



4. Enter your password. The user name is blank and the factory default password is “admin.”
5. Click “OK.”

6 CopyCam automatically connects to the IP address, downloads the update, and then upgrades the firmware. Depending on the speed of the Internet connection, this may take up to two minutes.

The control pad LED provides feedback regarding the status of the upgrade. During the upgrade, the LED goes through a pattern of blinking yellow then green, then blinking yellow and green again. At the completion of a successful upgrade, the control pad voice message says “hello” and the LED stays green.

If the upgrade fails, the control pad LED flashes red. Press any control pad button to resume use with the original firmware version.

WARNING

Do not disconnect the power while the control pad LED is flashing. Permanent damage may result.

7 After the upgrade, click the browser’s “Back” button to return to the CopyCam web page. (Do NOT click the browser’s “Refresh” button, as this will initiate the upgrade again.)

New Password

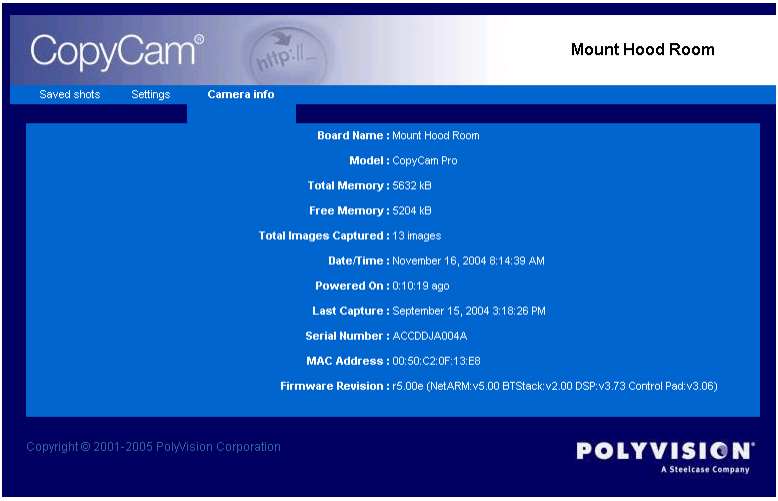
CopyCam settings are password protected. To change the password, enter a new password here, and enter it again in the next box.

Confirm Password

Enter your new password a second time here to confirm it.

USING THE CAMERA INFO TAB

The web server “Camera Info” tab provides a summary of information about CopyCam.



Board Name: The name, entered from the “Settings” tab, associated with this CopyCam.

Model: CopyCam E or CopyCam Pro.

Total Memory: The total memory in the CopyCam. This memory is used for storing copies of the board, plus the settings used to operate CopyCam.

Free Memory: The memory available to store new copies. When free memory becomes low, old copies are deleted as new copies are saved.

Total Images Captured: The total number of copies saved or printed from this CopyCam.

Date/Time: The current date and time, which can be adjusted on the “Settings” tab.

Powered On: The time of the last power on. Power on occurs when the CopyCam power adapter is plugged into a power outlet. (Images and settings are preserved during power outages.)

Last Capture: The time of the last use of CopyCam to save or print a copy of the board.

Serial Number: The CopyCam serial number. The serial number is also located on the top of the camera arm.

MAC Address: The unique ethernet hardware adapter address.

Firmware Revision: The version number of the CopyCam firmware.

CopyCam Pro: Installing and Testing the Printer

About the Color Printer...

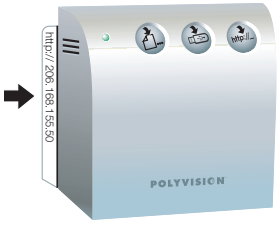
Each CopyCam Pro includes a color printer. The network printer must:

- be connected on the same LAN as CopyCam Pro.
- have its own IP address.

Installing the Printer

To Install the printer:

1. Identify a location for the printer.
2. Plug in the printer's power cord.
3. Power on the printer.
4. Add ink cartridges (provided with the printer).
5. Add paper.
6. Assign the printer an IP address on your LAN or ask your IT system manger to do so.
7. Locate the CopyCam Pro web address on the flange of the control pad and make a note of it.

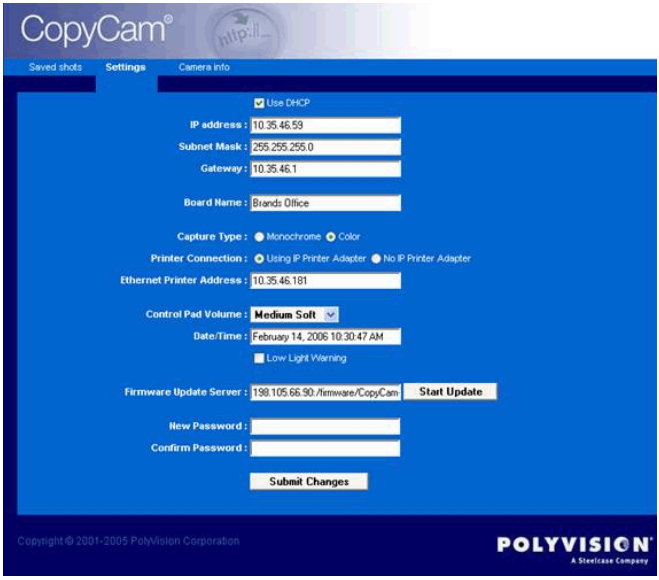


8 On a computer connected to the same LAN as CopyCam Pro, open a web browser and enter the CopyCam Pro web address in the “Address” field. If the web server is not yet configured on the LAN, refer to “Configuring the CopyCam Web Server” on page 29.

NOTE:

Every CopyCam has its own web address which is uniquely associated with one CopyCam device. The “Settings” tab you see is for only one CopyCam, even though you may have several CopyCams installed as part of your LAN.

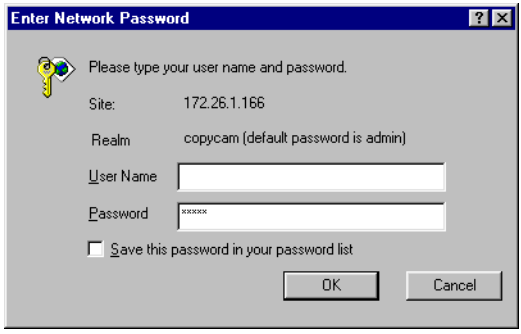
9 Click the “Settings” tab.



10 Enter the printer’s IP address in the field labeled “Ethernet Printer Address.”

11 Click the “Submit Changes” button to save the change.

12 Settings are password protected. If this is the first change during this Internet session, you will see the Password dialog shown below.



13 Enter your password. The user name is blank and the factory default password is “admin.”

14 Click “OK.” CopyCam will now print copies from the new color printer.

Testing the Printer

NOTE:

If you have a blackboard (or any board that is not white), you need to calibrate CopyCam Pro so it can detect the edges of the board. Before testing the printer, follow the steps in “Calibrating CopyCam” on page 24.

To test the printer and the CopyCam Pro installation:

1 Turn on the printer and confirm that it has paper and ink cartridges.

2 Write something on the board.

3 Press the button on the control pad. The voice message says “captured” and the printer starts printing within one minute.

Evaluating the Test Copy

CopyCam captures writing and line drawings in color under a variety of lighting conditions. Part of its function is to enhance the contrast to produce a sharp image every time. It automatically crops copies to the borders of the board, or to an area of up to 4' x 8' (120mm x 2400mm).

The first copy you make establishes the borders of the board. If the voice message reports “calibration needed,” CopyCam was unable to detect the borders. Refer to “Calibrating CopyCam” on page 24 for instructions. if the test copy never appears or results in other concerns, refer to “Troubleshooting” on page 53.

NOTE:

Your first use of CopyCam includes an automatic calibration. This calibration crops the bottom two inches (50mm) of the board image to eliminate the glare along the bottom edge caused by the eraser tray found on most boards. if you want to include the bottom two inches (50mm) of your board in captures, you need to calibrate CopyCam using the procedure described in “Calibrating CopyCam” on page 24*.*

Powering On the System

CopyCam powers on when you connect the power adapter to a wall outlet. The system initializes (reboots) in two minutes or less. CopyCam is ready to use when the power LED on the control pad turns green and the voice message says “Hello.”

Making Copies of the Board

CopyCam E makes copies of your whiteboard or chalkboard and saves them on the CopyCam web server on your local area network (LAN).

CopyCam Pro gives you a choice of three ways to make copies of your whiteboard or chalkboard:

- on the printer
- on a USB flash drive
- on the web

You can use any combination to save copies during a presentation. Refer to “CopyCam Pro: Copying in any Combination” on page 50.

What You Can Copy

CopyCam can copy writing and drawings in any color on whiteboards or chalkboards. You can use any chalk color or any marker color. CopyCam captures an area of up to 4' x 8' (1200mm x 2400mm) on a wall, whether or not there is a board there.

What You Can’t Copy

CopyCam will not produce a clean image from large blocks of solid color, photos, or 3D objects.

CopyCam Pro: Copying to the Printer

CopyCam Pro comes with its own color printer. The network printer is installed on the same LAN as CopyCam Pro.

To print a copy of the board:

1 Be sure the printer is turned on, and has paper and ink.

2 When you are ready to capture, press the button on the control pad once for each copy you want to print.

3 Continue your presentation after you hear the voice message say “captured” and the LED changes from blinking yellow to solid yellow.

CopyCam Pro: Copying to a USB Flash Drive

You can save a copy of the board to a USB drive as an image file (.png). The number of captures a USB flash drive can save depends upon the size of the drive and the complexity of the images. Files are named CCam0001.png, CCam0002.png, etc. Each copy that you save receives the next sequential number. After 1000 copies have been saved, the number wraps back to 0001. The date and time of capture are part of the file details.

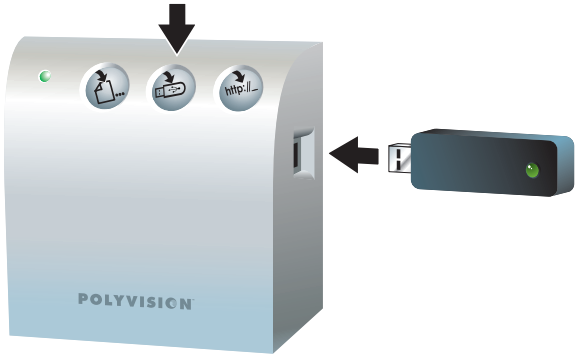
CopyCam Pro is compatible with most standard USB drives.

NOTE:

CopyCam Pro will not erase files, so be sure that the USB drive you use has sufficient space for your copies.

To copy to a USB flash drive:

1 Insert a USB flash drive in the control pad, as shown below.



2 When you are ready to capture, press to save a copy of the board to the USB flash drive.

3 Continue your meeting after you hear the voice message say “captured” and the LED changes from blinking yellow to solid yellow. The USB drive begins to write after about 30 seconds. Writing to the drive may take up to a minute.

NOTE:

If the LED blinks red, one of the following may have occurred:

- *No USB flash drive is inserted in the control pad.*
- *A bad or incompatible flash drive is inserted in the control pad.*
- *The drive is full.*

The voice message provides additional information.

To remove the USB flash drive from the control pad:

1 Wait until the LED changes to green or the voice message says “ready,” indicating that writing is complete.

2 Remove the USB flash drive.

CopyCam Pro and CopyCam E: Copying to the Web

You can copy the board as an image file (.png) to the built-in CopyCam web server. Access the copies with any computer sharing the same Local

Area Network (LAN). The computer can be a Windows-based computer, a Macintosh, or any other computer with web access. All you need is a web browser such as Internet Explorer or Netscape. Refer to “Web Configuration and Testing” on page 29 for information about how to access the web server.

The web server can hold approximately 40 copies at a time, depending on their complexity. When the web server becomes full, the oldest copies disappear as new ones are added. Copies remain on the web server until they are replaced by newer ones or until you delete them, even if there is a power outage.

To copy to the web:

1 When you are ready to copy, press the http:// button to save a copy of the board to the web.

CopyCam Pro

CopyCam E

2 Continue your presentation after you hear the voice message say “captured” and the LED changes from blinking yellow to solid yellow. When the LED changes to green and the voice message says “ready,” your copy is available on the web server.

WARNING

Copies that you save to the web can be seen (and deleted) by anyone in your organization who has access to the LAN, since the web page where copies are saved does not require a password to view. Save to the web

only when you are willing to share the information. Print or save confidential information to a USB flash drive to avoid public viewing.

CopyCam Pro: Copying in any Combination

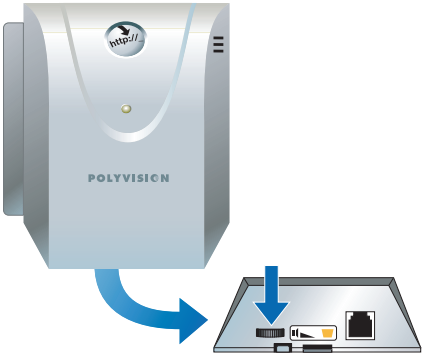
You can use the CopyCam Pro buttons in any order to print and save copies of the board. For example, if you want to print ten copies of the board during your presentation for the purpose of distributing them to your class, and you also want to save a copy on a USB flash drive to use in a word processing document, press the button ten times, then press once. CopyCam Pro captures the board once. The same image appears on both the USB flash drive and the printed pages.

CopyCam E: Controlling the Volume of Voice Messages

CopyCam provides voice messages that give you the status of your captures. Refer to “Voice Messages” on page 56 for a summary of all status messages.

To control the volume of voice messages on CopyCam E:

- Turn the thumb wheel on the left side of the control pad bottom.



NOTE:

You can also control the volume of voice messages from the Settings tab in the CopyCam web page. Refer to “Using the Settings Tab” on page 37.

Capturing in Color or Monochrome

CopyCam normally captures images in color but it can also capture in monochrome. Changing to monochrome can improve image quality of captures when using a blackboard or when printing exclusively to black and white printers.

To toggle between color and monochrome captures:

1 Locate the Enable Monochrome Capture Sheet or Enable Color Capture Sheet.

NOTE:

If you cannot locate your monochrome or color target sheets, you can download them from the PolyVision web site at: http://www.polyvision.com.

2 Tape the monochrome or color sheet to the top center of the board, directly under the camera arm.

3 Press a control pad button.

NOTE:

If you have CopyCam Pro and if you press the control pad Print button, make sure the printer is turned on.

4 After the voice prompt says “scan done,” remove the target and you are ready to capture the board.

CopyCam Maintenance

Cleaning

Wipe the control pad and camera arm cover with a soft damp cloth. Use ONLY warm soapy water. Avoid harsh cleaners or detergents.

Camera Arm Lens

The camera arm houses a sensitive camera lens. As a rule, clean ONLY if necessary. Any contact with the critical optical surface risks damage to the surface. If in doubt, do not clean.

If necessary, use soft, abrasive-free lens paper or lens cloth to clean the lens. Never use spray cleaners or solvents, as they may harm the lens.

Web Site Maintenance

Regularly save and delete image files that you save to the CopyCam web server to prevent them from being overwritten.

Printer (CopyCam Pro Only)

Refer to the printer manual for maintenance information. (Printer manuals are also available on-line at the manufacturer's web site.)

TROUBLESHOOTING

ISSUE	RESOLUTION
The printed copy is unclear, off center, or crooked.	The system may require calibration. Refer to the Installation Guide for instructions.
Copy quality on a blackboard remains poor after calibration.	• Dusty blackboards can reduce contrast for CopyCam. Be sure that your board is cleaned thoroughly before writing. • If color is not important to you, you can dramatically improve contrast by changing capture type from color to monochrome. Refer to “Using the Settings Tab” on page 37.
Writing along the bottom edge of the printed copy is unclear or whited out.	Glare from the eraser tray along the bottom edge of the board is interfering with the capture. You may need to change the lighting near your board or calibrate CopyCam with the bottom calibration sheets two inches or so above the bottom of the board. For best results, lighting should not be directly over the board.
CopyCam cannot be located from a browser.	• Confirm that the CopyCam configuration has properly obtained the CopyCam address. Try performing the network configuration again as described in “Configuring the CopyCam Web Server” on page 29. • Check the ethernet cable connection in the camera arm. • If the ethernet cable is connected to a hub, confirm that the hub’s link indicator light is on. • CopyCam must be connected to the network within three minutes after power on in order to be visible on the network.
When the button is pressed, the CopyCam Pro voice message says “printer problem.”	• Confirm that the printer is powered on and loaded with ink and paper. • Confirm that the printer address has been configured in the CopyCam Pro Settings tab in the web server. Your IT system manager may be able to help.

ISSUE	RESOLUTION
No CopyCam systems appear in the list when “Start” is pressed during configuration.	• Confirm that you are configuring the CopyCam web server from a computer that shares the same LAN segment as the CopyCam system. • Double-click “setup.html” again and click “Start” again. CopyCam may be attempting to squat on an address. • Check the ethernet cable connection in the camera arm. • If the ethernet cable is connected to a hub, confirm that the hub’s link indicator light is on. • If an incorrect network address was entered, you may need to reset the system to factory settings, which results in the loss of all settings and stored images. To reset the system: 1 Use a pointed tool such as a ball point pen to press and hold the reset switch on the bottom surface of the CopyCam. (Use caution to avoid breaking off the pointed tip.) The control pad LED will blink yellow. 2 Wait about one minute for the control pad LED to blink green once, then immediately: CopyCam Pro: simultaneously press all three control pad buttons and hold until the control pad LED turns red. CopyCam E: press the button and hold until the control pad LED turns red. 3 Release the button(s). The voice message says “Hello” when CopyCam is finished resetting.
The control pad LED is not lit.	• Confirm that the power adapter is properly connected to the wall. • Confirm that the power adapter cable is properly connected in the camera arm. • Confirm that the control pad is properly connected in the camera arm. The larger jack is reserved for the ethernet cable. The control pad cable connector looks similar but is smaller. • Confirm that the power adapter is not on a switched outlet.

ISSUE	RESOLUTION
The password for the Setup tab has been lost or forgotten.	• Reset the system to factory settings, which results in the loss of all settings and stored images. To reset the system: 1 Use a sharp tool such as a ball point pen to press and hold the reset switch on the bottom surface of the CopyCam. (Use caution to avoid breaking off the pointed tip.) The control pad LED will blink yellow. 2 Wait about one minute for the control pad LED to blink green once, then immediately: CopyCam Pro: simultaneously press all three control pad buttons and hold until the control pad LED turns red. CopyCam E: press the button and hold until the control pad LED turns red. 3 Release the button(s). The voice message says “Hello” when CopyCam is finished resetting.

LED and Voice Status Messages

CopyCam gives you both LED and voice feedback to indicate the status of your capture. The LED is located on the control pad.

LED Status Indicators

The table below explains the LED status indicators.

LED INDICATOR	SYSTEM STATUS
No light	No power.
Solid green	Unit is idle and ready to copy.
Blinking yellow	Board capture in progress, unit is powering on, or firmware upgrade in progress.
Solid yellow	Copy is being processed for the floppy disk drive, printer, or web server. You may continue writing on the board. The capture is complete.
Blinking red	System error such as missing or full USB flash drive, printer out of paper or not powered on, or calibration required. (The voice message provides additional information.)

Voice Messages

Voice messages provide additional status feedback.

The table below is a summary of voice messages for both CopyCam Pro and CopyCam E.

VOICE MESSAGE	MEANING
“Hello”	Power restored
“Save web”	button pressed
“Captured”	Board capture complete
“Ready”	Capture is complete
“Working”	Please wait while CopyCam writes a USB flash drive (CopyCam Pro only) or reboots
“Problem”	A problem occurred and CopyCam needs to reboot
“Web problem”	Web server not responding: contact Technical Support
“Low light”	Low light conditions result in longer capture time
“Hardware problem”	Hardware failure: contact Technical Support
“Calibration needed”	Cannot detect borders and calibration has not been performed. Refer to “How to Calibrate CopyCam” on page 25 for instructions to manually calibrate the system.
“Calibration problem”	Cannot detect borders and calibration has not been performed. Assure that there is adequate light and that the calibration sheets are visible to the camera. Refer to “How to Calibrate CopyCam” on page 25 for instructions to manually calibrate the system.
“Calibration done”	Calibration is complete and CopyCam is ready for use

The table below is a summary of voice messages heard only on CopyCam Pro.

COPYCAM PRO VOICE MESSAGE	MEANING
“One copy,” “Two copies,”...	button pressed
“Another copy”	button pressed
“Save disk”	button pressed
“Working”	Please wait while CopyCam writes to a USB flash drive or reboots.
“Full”	CopyCam Pro cannot capture because the printing buffer is full.
“Printer problem”	Printer is out of paper, out of ink, or unavailable.
“No printer”	Printer is not on-line or could not be found.
“No disk”	USB flash drive is missing.
“Disk full”	USB flash drive is full.
“Disk problem”	USB flash drive is incompatible or bad.

Technical Support

For technical support, contact PolyVision USA Technical Support:

- Phone: 1.800.620.POLY (7659), 678.542.3100
  Technical support representatives are available Monday through Friday from 5 AM to 5 PM Pacific time.
- Fax: 678.542.3200
- Email: support@polyvision.com
- Internet: www.polyvision.com

In the UK, contact PolyVision UK Technical Support:

- Phone: +44 (0) 7780 651428
- Fax: +44 (0) 870 4280311
- Email: uksales@polyvision.com
- Internet: www.polyvision.com/uk

Or, in other areas outside the USA, contact PolyVision Europe/Asia Technical Support:

- Phone: +32 (0)89 32 31 30
- Fax: +32 (0)89 32 31 31
- Email: business.center@polyvision.com
- Internet: www.polyvision.com

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modification of this device in any manner not approved by PolyVision Corporation may void the user's authority to operate it.

Warranty

PolyVision Corporation warrants to the original 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, and upon proof of purchase, the product will be repaired or replaced (with the same or similar model) at our option, without charge for either parts or labor. Shipping costs will apply.

Please keep your original sales receipt or delivery invoice for proof of purchase. Without proof of the purchase date, your warranty will be defined as beginning on the date of manufacture, which is recorded by serial number at the factory.

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. Some factory-reconditioned parts may be used in the assembly of this product.

WHAT IS NOT COVERED

1. Any product that is sold or used outside of the region for which it was specifically labeled.
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, lightning or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
   - Use of abrasive cleaning materials on the enclosures or lens.
   - Any damage incurred in shipping.
   - Removal or installation of the product.
   - Excessive weight applied to the product.
   - Failure to mount the product securely in accordance with the written installation instructions.
   - Any other cause that does not relate to a product defect.
4. Cartons, carrying cases, or any accessories used in connection with the product.
5. Costs of installation and adjustment. These costs are the responsibility of the consumer.
6. Shipping charges to and from our factory or authorized repair depot.

HOW TO GET WARRANTY SERVICE

If you experience a problem with this product, contact PolyVision Technical Support 1.800.620.POLY or 678.542.3100 in North America to resolve the problem. Outside North America, call +32 (0)89 32 31 30.

If the product is diagnosed as being defective, you will be directed to return the product directly to PolyVision and will be provided with a Return Materials Authorization (RMA) number from PolyVision. All products returned to PolyVision must have an RMA number assigned, regardless of reason for return. The RMA number must be clearly marked on the outside of the shipping carton; any unit without an RMA number will be returned to the sender.

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 CONSUMER 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 ONE-YEAR 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 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. Product performance is affected by system configuration. Software, the application, customer data, and operator control of products are considered to be compatible with many systems. The specific suitability of a product for a specific purpose or application must be determined by the customer and is not warranted by PolyVision Corporation.

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