Epson® ELPDC05
High Resolution Document Camera

User's Guide

Important Safety Information

WARNING: Never open any cover on the document camera. Dangerous electrical voltages inside the document camera can severely injure you. Do not attempt to service this product yourself. Refer all servicing to qualified service personnel.

WARNING: The document camera and its accessories come packaged in plastic bags. Keep plastic bags away from small children to avoid any risk of suffocation.

WARNING: Never attempt to replace the lamps. Refer all lamp servicing to qualified service personnel.

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*C*ontents

Welcome

Your versatile Epson® ELPDC05 High Resolution Document Camera can be connected to most types of projectors and display devices. From boardrooms to auditoriums to courtrooms, you can show fine detail with a large variety of presentation materials. You can even display three-dimensional objects with perfect illumination and depth of focus.

Your document camera captures images at a resolution of 1024×768 pixels, with a maximum shooting area of 13.7×10.2 inches (350×260 mm). With its $18\times$ zoom capability and true XGA resolution, even 10 point type can be read clearly. For added versatility, the document camera provides built-in white balance for enhancing contrast, gamma selection for projecting in low light environments, and flicker correction for crisper images. Even x-rays display with great clarity.

You can connect the document camera to a wide range of computers, including IBM® compatible PCs and laptops, Apple® Macintosh,® Power Macintosh® series (including G3 and G4 systems), PowerBook® computers, many iMac® and iBook® series systems, and high-end workstations such as the Sun® SPARCstation.™

Getting the Most from Your Document Camera

Depending on your presentation, you can take advantage of any or all of these options:

- Connecting to a projector or TV/computer monitor
  The document camera requires an output device, such as a projector or TV/computer monitor, to display its image. To connect the document camera to these devices, see page 16.

- Connecting to a laptop or desktop computer
  You can connect up to two video output sources, such as laptops or desktop computers. This is especially useful if your projector has only one video input port. See page 18 for more information.

- Using the remote control
  The remote control lets you enlarge or reduce, brighten, focus, and otherwise modify your displayed image. In addition, you can control the lamps, switch the video source from the document camera to a computer, save and recall both images and document camera settings, and pause the display. See Chapter 2 for details.

Using Your Documentation

This book contains all the information you need to set up and use your document camera. Please follow these guidelines as you read through it:

- Warnings must be followed carefully to avoid bodily injury.

- Cautions must be observed to avoid damage to your equipment.

- Notes contain important information about your document camera.

Getting More Information

Need tips on giving presentations or more information about your document camera? Here's where you can look for help:

■ http://www.presentersonline.com
Includes a library of articles covering presentation tips, tricks, and technology. The site provides templates, clip art, and sound clips, as well as Presenters Services to use on the road. Even more resources and services are available if you register to join the Presenters Club®—and it's free.

■ http://support.epson.com
Download FAQs and e-mail your questions to Epson support.

If you still need help after checking this *User's Guide* and the sources listed above, you can use the Epson PrivateLine® Support service to get help fast. Call (800) 637-7661 and enter the PIN on the card included with your document camera. Or take advantage of Epson's electronic support services 24 hours a day. See page 48 for more information.

Registration

To register, simply fill out and return the enclosed registration card, or register online at www.epson.com/webreg. Registering allows Epson to better understand and meet your needs. If you want, you can also receive special updates on new accessories, products, and services.

1Setting Up the Document Camera

This chapter explains how to set up the document camera for a video presentation. You'll find instructions for:

- ■ Unpacking the document camera

- ■ Installing batteries in the remote control

- ■ Positioning the document camera

- ■ Unfolding the document camera

- ■ Connecting to a projector or TV/computer monitor

- ■ Connecting to a computer

- ■ Connecting a mouse to the document camera

- ■ Adjusting the document camera's DIP switches

Unpacking the Document Camera

After unpacking the document camera, make sure you have all the items shown below:
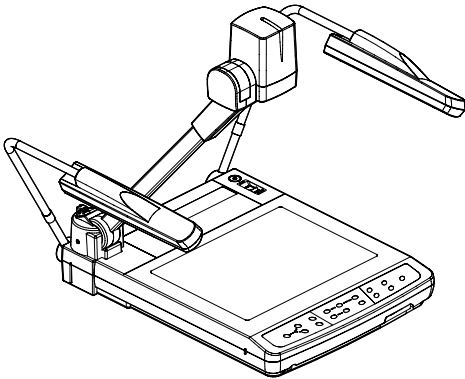
Document camera
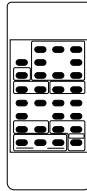
Remote control

Batteries
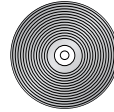
Epson Utility Software CD-ROM
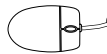
Mouse
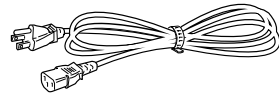
Power cord
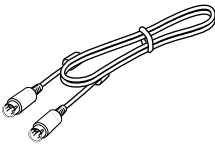
S-video cable
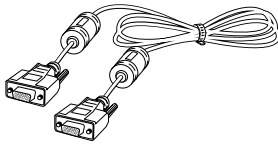
RGB video cable

RCA cable
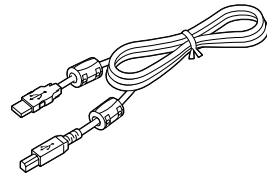
USB cable

Save all the packaging in case you need to ship the document camera later. Always use the original packaging (or equivalent) when you need to send the document camera to another location. For transportation instructions, see page 42.

Installing Batteries in the Remote Control

Before using the remote control, install its batteries.

1. Press down on the battery cover and slide it off.

2. Insert two AAA batteries as shown.

3. Replace the battery compartment cover.

Positioning the Document Camera

Before connecting the document camera, you need to decide where to place it. Follow these guidelines:

- Place the document camera on a sturdy, level surface.

- Make sure there is plenty of space for ventilation around and under the document camera.

- Make sure the document camera is within 10 feet (3 m) of a grounded electrical outlet or extension cord, and within 5 feet (1.5 m) of your output source.

- Make sure you are within 23 feet (7 m) of the document camera to use the remote control.

- With the control panel facing you, place the document camera directly in front of you. Otherwise, items you place on the stage may appear upside-down.

Most presenters find it convenient to place the document camera in front of the audience. This lets the presenter stand in the front of the room, face the audience, and remain close enough to the equipment to be able to control it.

caution

Don't hold or lift the document camera by the camera head arm or lighting unit arms; this may damage them.

Unfolding the Document Camera

Follow these steps to unfold the document camera:

1. Raise the arm for the left lighting unit until it stops. Then raise the right lighting unit.
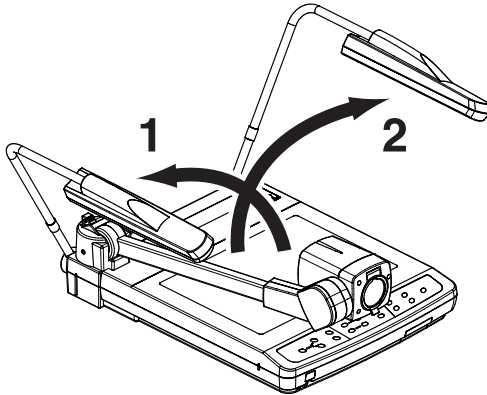
2. Position the lighting units so that they face the stage (downward).

3. Press the camera arm release button as you raise the camera arm. When the camera arm stops, release the button to lock the arm into place.

Camera arm release button
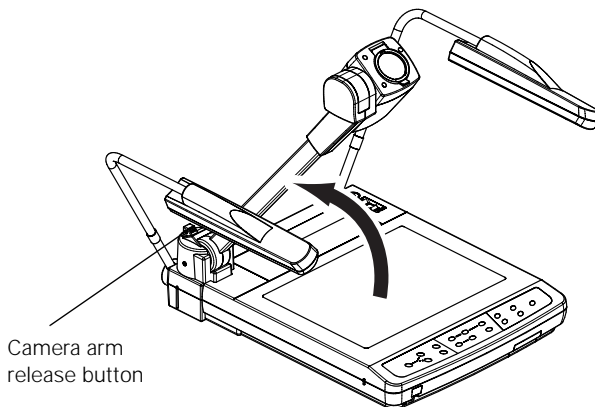
4. Rotate the camera head so that the lens faces the stage (downward).
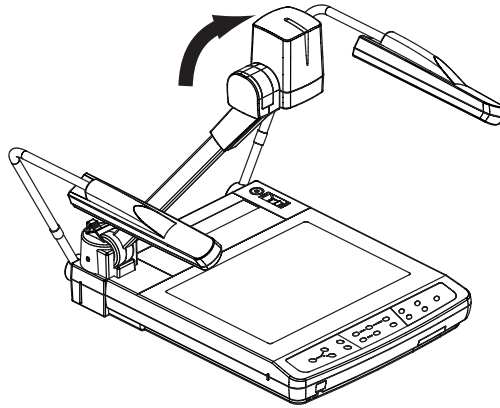
Connecting to a Projector or TV/Computer Monitor

You can connect the document camera to any projector or monitor that has a standard RGB video, composite video, or S-video input port. Epson projectors support these connections. Most computer monitors support only RGB video, while many television monitors support composite video. Follow the instructions below to connect the document camera to your display device.

Connecting the RGB Video Cable

Before you start, make sure your document camera and projector or computer monitor are turned off.

1. Connect one end of the RGB video cable to the document camera's RGB OUT port.

RGB OUT port   Projector

or
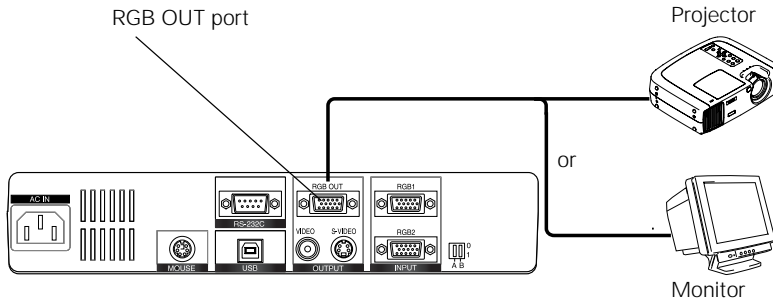
Monitor

2. Connect the other end to the RGB video input port on the projector or computer monitor.

3. Tighten the screws on the connectors.

Connecting the RCA Cable

Before you start, make sure your document camera and projector or TV are turned off.

1. Connect one end of the RCA cable to the document camera's VIDEO OUTPUT port.

Projector

or

VIDEO OUTPUT port   TV
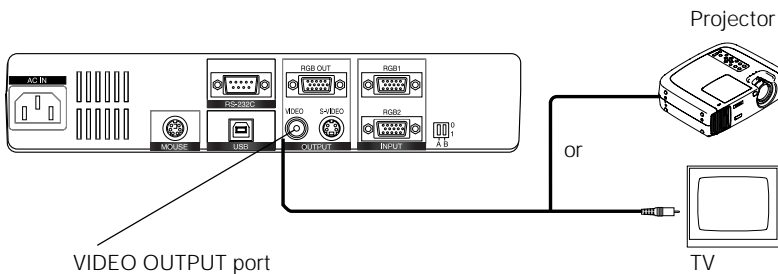
2. Connect the other end to the RCA input port on the projector or TV.

Connecting the S-Video Cable

Before you start, make sure your document camera and projector or TV are turned off.

1. Connect one end of the S-video cable to the document camera's S-VIDEO OUTPUT port.
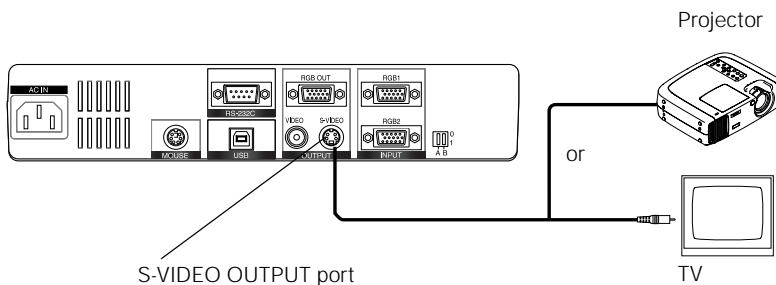
S-VIDEO OUTPUT port

2. Connect the other end to the S-video input port on the projector or TV.

Connecting to a Computer

The document camera comes with two RGB video input ports. These can be used to connect up to two laptops or desktop computers to the document camera.

This is especially useful if your projector has only one input port. You can connect one or two computers to the document camera's RGB input port(s) as described below, and connect the document camera to the projector's input port as described on page 16. This way, you can use the camera's remote control to switch between picture sources. Follow the instructions on page 24 to switch between the sources.

Before you start, make sure your document camera and computer(s) are turned off.

1. Connect one end of the RGB video cable to the RGB1 INPUT port on the document camera.

RGB input ports

Laptop
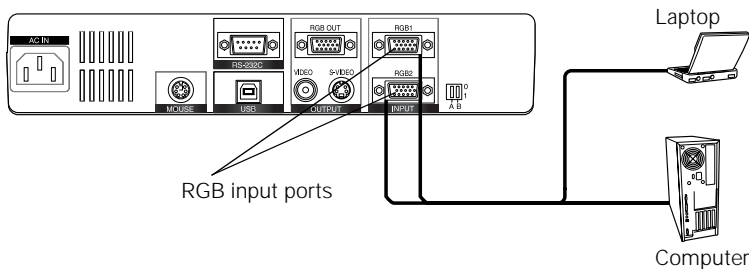
Computer

2. Connect the other end of the RGB video cable to your computer's RGB video output (monitor) port.

3. Tighten the screws on the connectors.

4. To connect a second computer, repeat the preceding steps, except connect the RGB video cable to the RGB2 INPUT port on the document camera.

Connecting a Mouse

The mouse included with your document camera functions as a pointing device. It also gives you access to the document camera's on-screen display, which controls many of the features that are selectable from the remote control. (See page 30 for details about using the on-screen display.)

1. Make sure your document camera is turned off.

2. Connect the mouse cable to the MOUSE port on the back of the document camera.

MOUSE port
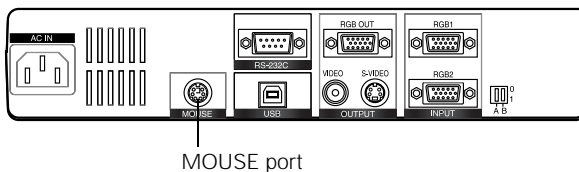
Adjusting the Camera DIP Switches

The document camera has two DIP switches that control special settings. Refer to the table below to make sure they are set correctly for your configuration.
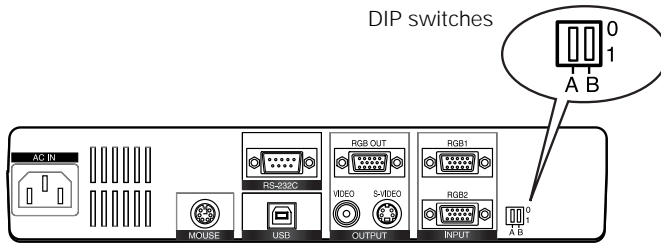
DIP Switch	0	1	Function
A	NTSC*	PAL	Selects the TV video output format. Select **NTSC** for US model TV sets and **PAL** for European TV sets.
B	Overscan	Underscan*	Selects how much of the document stage is projected. When overscan is selected, slightly more area is projected since the document camera's effective pixels, 1034 × 779, are utilized.

* Default setting

2Using the Document Camera

Once you have set up the document camera, you're ready to turn it on, adjust the image, and give your presentation. This chapter covers the following:

- Turning on the document camera and other equipment
- Switching between picture sources
- Adjusting the lighting
- Adjusting the image
- Using the pointer
- Adjusting settings with the on-screen display
- Projecting film and slides
- Saving settings and images
- Using the camera head as a conventional video camera
- Using the Image Mate software
- Turning off and storing the document camera

Turning On Your Equipment

Make sure your document camera and other equipment are set up and connected correctly, as described in Chapter 1. Always turn on your projector or monitor first. Then turn on your document camera, as described below, followed by any other equipment you've connected to it.

If you have one or two computers connected to the document camera's RGB INPUT ports, you may have to switch between sources to see the desired image. See page 24 for details.

Turning On the Document Camera

Follow these steps to plug in and turn on the document camera:

1. Connect one end of the power cord to the document camera's power inlet.

Power inlet
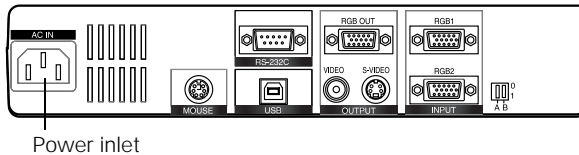
2. Connect the other end to a grounded electrical outlet.

3. Turn on the projector or monitor.

4. Turn on the document camera. After a moment, the upper lamps turn on.

On/Off switch
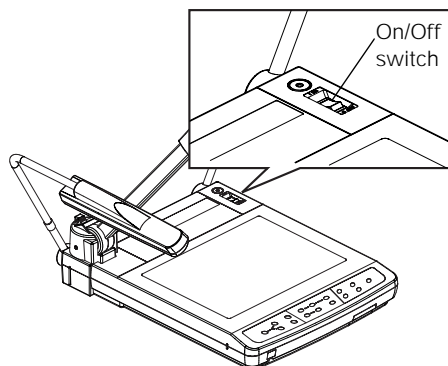
5. Place your presentation material on the stage. You should see an image on screen.

Once you see your image, turn to page 25 for instructions on making adjustments.

If your image doesn't appear, see the next section for help.

When you're done with your presentation, turn off the document camera as described on page 37.

What To Do If You See a Blank Screen

If an image doesn't appear, try the following:

■ Make sure the cables are connected correctly, as described in Chapter 1.

■ Make sure everything is turned on.

■ If you are using a video source, such as a laptop or desktop computer, you may need to switch video sources. Press the RGB1 or RGB2 buttons as described on page 24.

■ If an image still doesn't appear, refer to Chapter 4 for more help.

Switching Between Picture Sources

If you have an external video source connected to the document camera, such as a laptop or desktop computer, you can switch between the video source and the camera.

■ If you've connected a computer to the RGB1 INPUT port on the document camera, press the RGB1 button on the remote control.

■ If you've connected another computer to the RGB2 INPUT port, press the RGB2 button to access that source.

■ Press the Main button to switch back to the document camera.

Select the image source
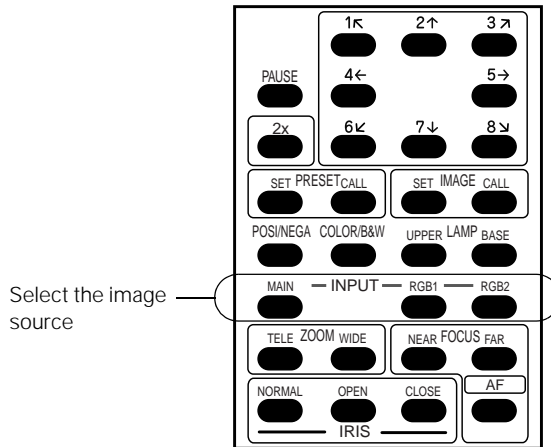
Adjusting the Lighting

If you are presenting printed material or three-dimensional objects, the two upper lamps provide ample light. If the ambient lighting in the room is sufficient, however, you may obtain a better image with the upper lamps off.

In addition, you may want to turn the upper lamps off and the base lamp on if you're projecting film or slides.

Turning the Lamps Off and On

Press the UPPER LAMP button on the remote control to turn off the lamps. Press it again when you want to turn the lamps back on. There will be a slight delay before the lamps turn back on.

Press the BASE LAMP button on the remote control to turn the base lamp on. Press it again to turn the base lamp off.
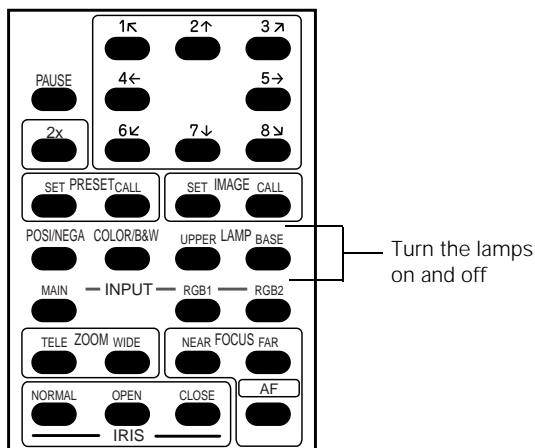
note

You can also press the LAMP *button on the document camera to move through this sequence: upper lamps off and base lamp on, upper and base lamps off, upper lamps on and base lamp off.*

Turn the lamps on and off

Adjusting the Image

Once you see your image, you may need to make certain adjustments:

- ■ To zoom or focus the image, see the next section

- ■ To double the size of the projected image, see page 27

- ■ If the image is too light or dark, see page 27

- ■ To increase the contrast between the image and its background, see page 28

- ■ If the image has a color cast, see page 28

- ■ To rotate the image, see page 28

- ■ To reduce noise in the image, see page 28

- ■ To switch to a black and white image, see page 29

- ■ To freeze the image, see page 29

Zooming and Focusing Your Image

Use the Tele button on the document camera or remote control to enlarge the image, and use the Wide button to reduce it. The document camera will automatically focus the image.

note

The auto focus function works up to a height of approximately 3.9 in. (10 cm) above the stage surface.

If you change items on the stage, press the AF button on the remote control or the AUTO FOCUS button on the document camera to focus the image. The indicator light on the document camera flashes until the image is focused.

The following objects may not focus well using the auto focus feature:

- Objects with little contrast

- Objects with a bright background or excessive contrast

- Objects with fine repeated patterns or stripes

- Objects that glitter or reflect bright light

- Objects with varying depths of field

To manually focus these objects, use the NEAR or FAR button on the remote control. Additionally, use these buttons if you want to focus on a particular part of a three-dimensional object on the stage.

Manually focus the image

Enlarge or reduce the image

Automatically focuses the image

Enlarge or reduce the image   Automatically focuses the image

Doubling the Size of the Image

You can instantly double the size of the displayed image by pressing the 2x button on the remote control, or pressing the right mouse button if a mouse is attached to the document camera's MOUSE port (see page 19). To return the image to its original size, press the 2x button or the right mouse button again.

Adjusting the Brightness

The document camera is initially set to auto iris. You can manually adjust the iris to control the amount of light that reaches the camera.

If the screen looks dark, press and hold the OPEN button on the remote control to open the iris so that more light reaches the camera. If the screen looks too bright, press and hold the CLOSE button. To return to the auto iris default setting, press the NORMAL button.

To lock the brightness setting, press the AUTO/MANUAL button on the document camera. The button's indicator light comes on when the camera is locked in manual mode. You can then use the OPEN and CLOSE buttons to adjust the brightness. Press the AUTO/MANUAL button again to unlock manual mode. (The NORMAL button on the remote control has no effect while manual mode is locked.)

Doubles the size of the image

Adjust brightness

Adjust brightness when setting is locked

Locks and unlocks the brightness setting
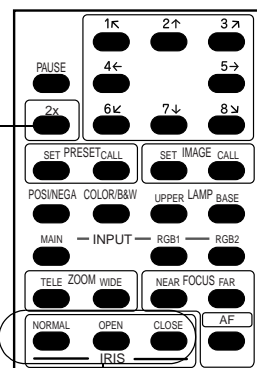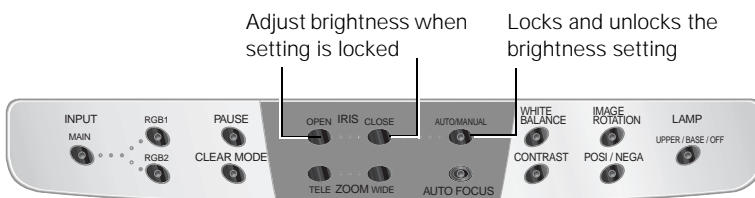
Increasing Image Contrast

Some images display best when the contrast between the image and its background is increased. To increase contrast, press the CONTRAST button on the document camera. To turn contrast off, press the button again.

Corrects
color shifts

Rotates the
image 90°

Reduces noise in the image

Increases or
decreases contrast
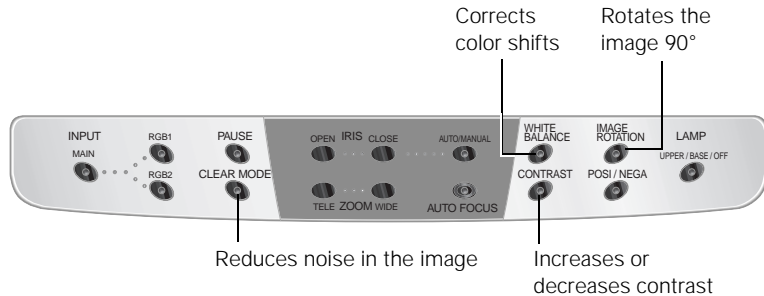
Adjusting the White Balance

Normally, the document camera automatically adjusts the screen's white balance. However, it may be necessary to correct for color shifts in different lighting conditions.

If the displayed image has a color cast, press the WHITE BALANCE button on the document camera once to correct the color shift. If you later want to return to automatic white balance adjustment, press the button a second time. (See page 30 for manual white balance adjustments using the document camera's on-screen display.)

Rotating the Image

You can rotate the image by 90° in a counterclockwise direction each time you press the IMAGE ROTATION button on the document camera. For instructions on rotating the image using the on-screen display, see page 30.

Reducing Noise in the Image

To reduce noise in the projected image, press the CLEAR MODE button on the document camera. To exit this mode, press the button again.

Switching between Color and Black and White

Sometimes you may want to switch to a black and white image. For example, a black and white display allows you to project text without color interference, resulting in a sharper image.

To switch from color to black and white, press the COLOR/B&W button on the remote control. Press it again when you want to switch back to color.

Switches between color and black and white display
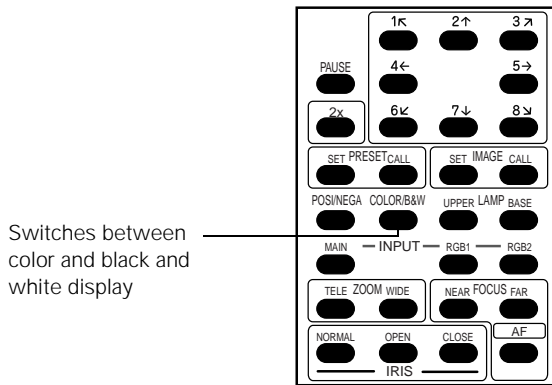
Freezing the Image

During a presentation, it may be necessary to change the material you are displaying. Press the PAUSE button before switching your material. This freezes the image on screen, allowing you to change your material. When you are ready to display the next item, press the Pause button again.

Freezes the image
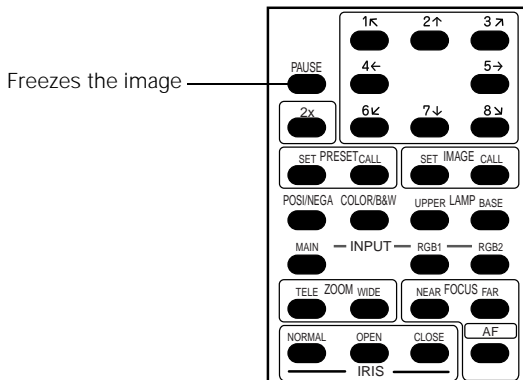
note
The pause feature only works when the document camera is in the MAIN *display mode. It does not work when the document camera is in the* RGB1 *or* RGB2 *display modes.*

Using the Pointer
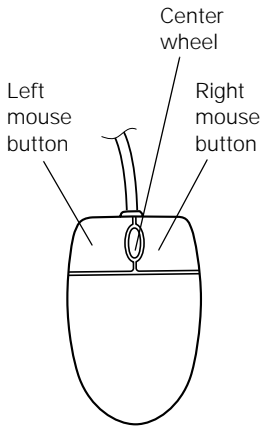
The pointer lets you direct attention to specific sections of your presentation material. You can choose from two types of pointers in four colors.

To display the pointer, connect the mouse that came with the document camera to the MOUSE port (see page 19) and press either the left mouse button or the center wheel.

The mouse allows you to move the pointer as you would on a computer. You can also do the following:

■ With the pointer displayed, click either the left mouse button or the center wheel to see the on-screen display menu. Click again to clear the menu. Click a third time to clear the pointer.

■ Click items on the on-screen display menu to activate them.

■ Click the right mouse button to double the size of the displayed image.

For information on selecting different types of pointers, see page 31.

note

The pointer feature only works when the document camera is in the MAIN *display mode. It does not work when the document camera is in the* RGB1 *or* RGB2 *display modes.*

Adjusting Settings with the On-Screen Display

The on-screen display allows access to many of the settings available with the document camera's remote control. To access the on-screen display, you must have the mouse connected to the document camera's MOUSE port (page 19). When you click either the left mouse button or the center wheel, the on-screen display menu and pointer appear (you may have to click twice).

The table below lists the various functions and their descriptions. To select an item, point and click the left mouse button or center wheel.

Icon	Name	Function
	Upper Lamps On/Off	Turns the upper lamps on and off. (It may take a few seconds for the lamps to come on again.)
	Base Lamp ON/OFF	Turns the base lamp on and off. (The first time you click the icon, it turns the base lamp on and the upper lamps off.)
	Color/B&W	Switches the display from color to black and white.
	Pause On/Off	Freeze and unfreeze the displayed image.
	Auto Focus	Automatically brings objects on the stage into focus.
	Zoom Tele/Wide	Enlarge and reduce the displayed image.
	Focus Near/Far	Manually focus objects that cannot be focused automatically.
	Iris Open/Close	Increase and reduce image brightness.
	Pointer	Changes the shape and color of the on-screen pointer.

Icon	Name	Function
	White Balance	Displays the white balance adjustment menu.
	White Balance Automatic	Automatically adjusts the white balance and corrects color casts.
	White Balance One Touch	Click once to correct color shift for the current lighting environment.
	White Balance Manual	Enables manual white balance adjustment. Click the arrows below to adjust the colors individually to compensate for color casts.
	Image Rotation	Rotates the image 90° in a counterclockwise direction each time it is clicked.
	Positive/Negative Film Display	Switches between screen settings (gamma, white balance, and contrast) designed to display positive film, and settings designed for negative film.
	Aperture Selection On/Off	Turn image enhancement (contour) on and off. This setting is on by default.
	Gamma Selection	Changes the gamma setting. The default gamma setting is 0.6.
	Save Settings	Saves changes made to the document camera settings.
	Restore Defaults	Restores settings to factory defaults.

Projecting Transparencies

The document camera enables you to project both positive and negative film with great clarity. Follow these steps:

1. Place your film or slides on the document camera's stage with the dull side facing up.

2. Do one of the following to turn the upper lamps off and the base lamp on:

   ■ Press the UPPER LAMP button on the remote control, and then the BASE LAMP button.

   ■ Press the LAMP button on the document camera.

3. If you're projecting negative film, press the POSI/NEGA button on either the remote control or document camera.

If you want to continue normal projection when you're done, turn the base lamp off and the upper lamps on again. If you were projecting negative film, press the POSI/NEGA button again to return to normal display.
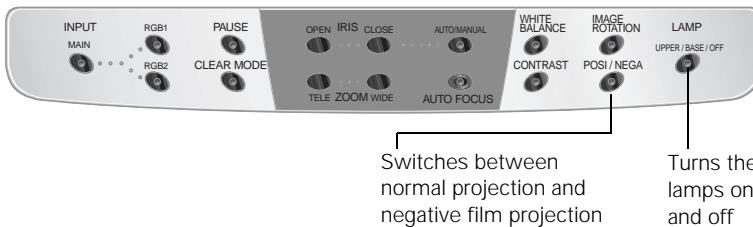
Switches between normal projection and negative film projection
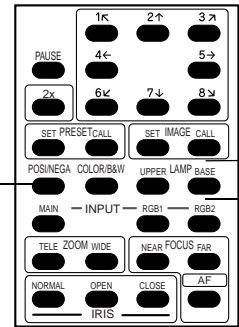
Turn upper lamps off and base lamp on

note
It may take a few seconds for the base lamp to come on.

Switches between normal projection and negative film projection

Turns the lamps on and off

Saving Settings and Images

You can save up to eight groups of document camera settings for later use. That way, if you want to present the same type of materials (for example, negative film), you can quickly recall your settings with a simple push of a button.

You can also recall up to eight individual images captured by the document camera.

Saving and Recalling Camera Settings

To save your settings, press the PRESET SET button on the remote control, then press one of the numbered buttons between 1 and 8. The message PRESET *x* WRITE appears on the screen (where *x* is the number assigned to the group).

To recall a group of saved settings, press the PRESET CALL button on the remote control, then press the number of the group you want to use. The message MOVE *x* appears (where *x* is the number of the group) and the appearance of the screen changes to show your settings.

Saving and Recalling Images

To save a copy of the projected image, press IMAGE SET on the remote control, then press one of the numbered buttons between 1 and 8. The message MEMORY STATUS appears, followed by IMAGE *x* WRITE, where *x* is the number assigned to the image.

To recall a saved image, press IMAGE CALL on the remote control, then the number of the image you want to display. The saved image appears on the screen.

Assign a number to saved settings and images
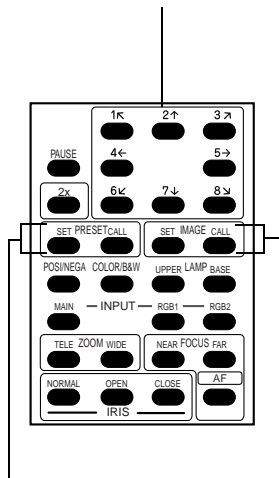
Press to save and recall settings

Press to save and recall images

Using the Camera Head as a Conventional Video Camera

By rotating the camera head to a horizontal position, you can use the document camera as a conventional video camera. To view walls or distant objects, flip down the close-up lens. The document camera can resolve images from 1.6 feet (0.5 m) to infinity.

Camera head in horizontal position

Close-up lens
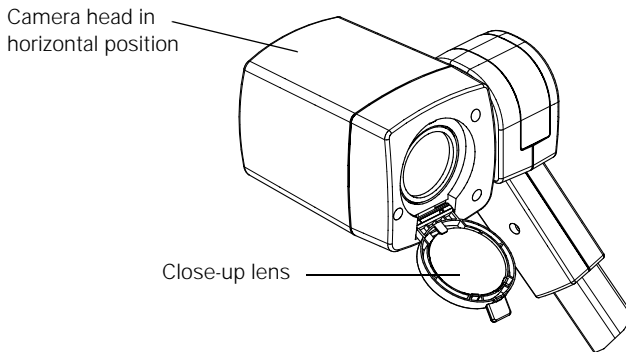
Using the Image Mate Software

The Image Mate® software allows you to transfer images from the document camera to a computer running Windows.® You can also use the virtual remote control feature to control the document camera and change its settings.

Installing the Software

Follow these steps to install the Image Mate software:

1. Insert the Epson Utility Software CD-ROM in your drive.

2. Open the CD-ROM window.

    ■   For Windows XP, click Start > All Programs > My Computer, then double-click the CD-ROM icon.

    ■   For other Windows systems, double-click My Computer on your desktop, then double-click the CD-ROM icon.

3. Double-click Setup-exe and follow the on-screen instructions.

4. When you see the license agreement, click Agree, then Next to continue.

5. When installation is complete, click Finish.

Viewing the On-Screen Manual

To view the on-screen manual, do the following:

1. Insert the Epson Utility Software CD-ROM in your drive.

2. Open the CD-ROM window.

3. If you have Adobe® Acrobat® Reader® installed on your computer, go to step 6.

   If you don't have Adobe Acrobat Reader installed, double-click the Acrobat folder.

4. Double-click the US folder, then double-click ar500enu.exe. Acrobat Reader installs on your computer.

5. Close the US folder, then close the Acrobat folder.

6. Double-click the US folder. Then double-click manual.pdf.

The manual opens on your desktop. Use the arrows at the top of the screen to navigate the manual, or click the Bookmarks tab to see a list of topics, then click the topic you want to view.

Click to view a list of topics   Or use the arrows to navigate
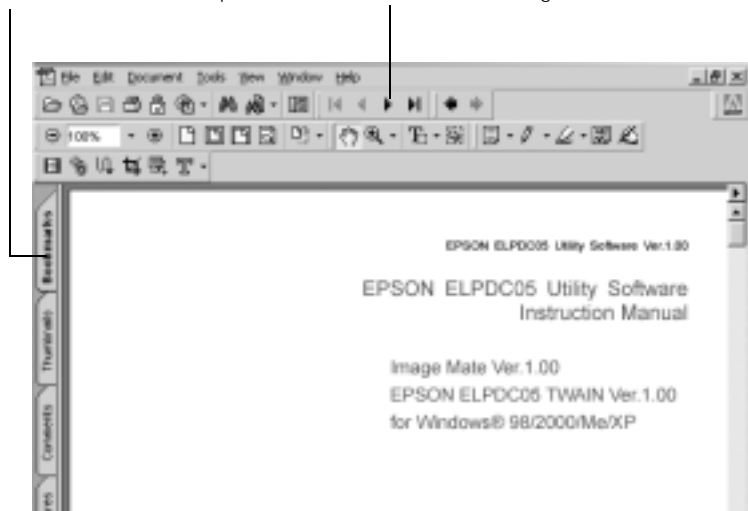
Turning Off and Storing the Document Camera

When you've finished using the document camera, follow these steps to turn off and store it. If you're using a monitor or projector, shut it down last.

1. Turn off the document camera.

2. Unplug the power cord and disconnect any attached video cables.

3. If the close-up lens is flipped down, close it.

4. Place the remote control inside the remote control storage compartment and close the tray.

Turn off the camera

Place the remote control in its storage compartment
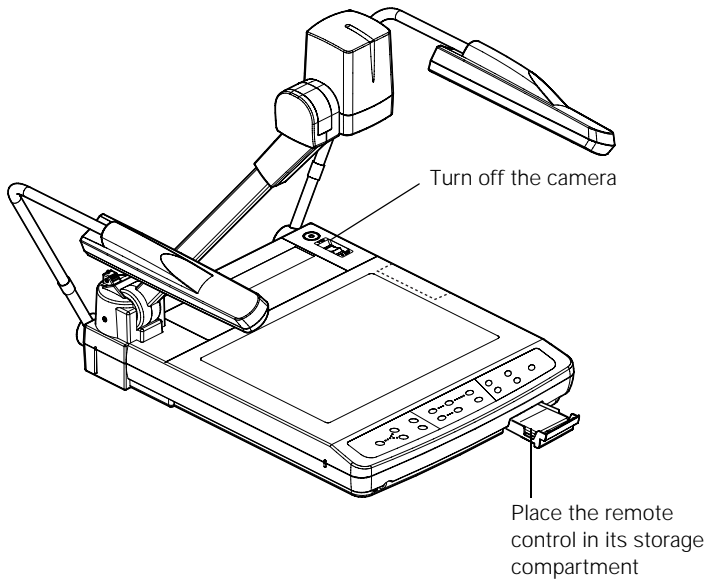
5. Rotate the camera head to its storage position.

6. Press the camera arm release button as you carefully lower the camera arm onto the stage.

Camera arm
release button
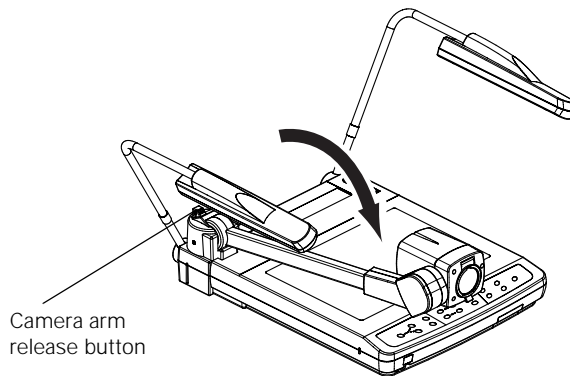
7. Lower the arm for the right lighting unit, and then lower the arm for the left lighting unit.
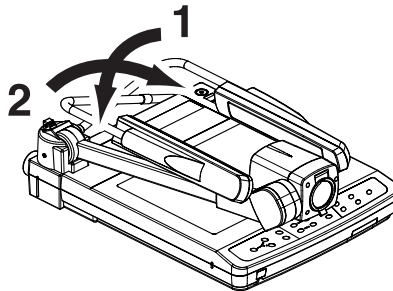
3 Maintaining and Transporting the Document Camera

Your document camera needs little maintenance. All you need to do on a regular basis is keep the lenses and stage clean. Any dirt or smears on the lenses or stage may show up on your displayed image.

You should not replace the lamps or any other parts. If any part needs replacing, contact your dealer or a qualified servicer.

This chapter covers the following:

■   Cleaning the lenses

■   Cleaning the document camera case

■   Transporting the document camera

Cleaning the Lenses

Clean the lenses whenever you notice dirt or dust on the surface.

■ Use a canister of compressed air to remove dust.

■ To remove dirt or smears on the lenses, use lens-cleaning paper. If necessary, moisten a soft cloth with lens cleaner and gently wipe the lens surface.

■ Clean both sides of the close-up lens.

Main lens

Close-up lens
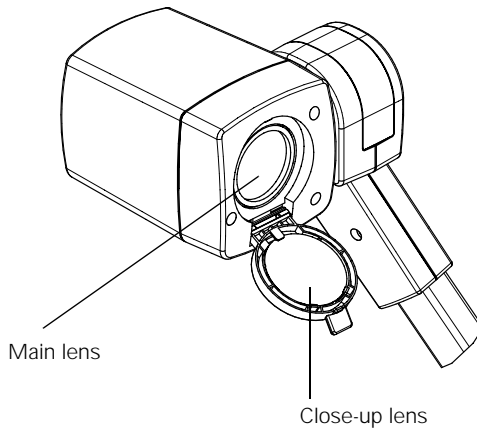
Cleaning the Document Camera Case

Before you clean the case, first turn off the document camera and unplug the power cord.

■   To remove dirt or dust, wipe the case with a soft, dry, lint-free cloth.

■   To remove stubborn dirt or stains, moisten a soft cloth with water and a neutral detergent. Then wipe the case.

■   Do not use wax, alcohol, benzene, thinner, or other chemical detergents. These can damage the case.

■   Take special care when cleaning the stage, or you may scratch it. Scratches on the stage may appear on your image.

Stage

Transporting the Document Camera

The document camera contains many glass and precision parts. If you need to transport it, follow these guidelines to prevent damage to the document camera:

■   When shipping the document camera for repairs, use the original packaging material if possible. If you do not have the original packaging, use equivalent materials, placing plenty of cushioning around the document camera.

■   When transporting the document camera a long distance, pack it in a sturdy box, using cushioning around the document camera.

■   When hand-carrying the document camera, use the carrying handle.

■   When transporting the document camera, leave the remote control inside the remote control storage compartment.

note

Epson shall not be liable for any damages incurred during transportation.

Carrying handle

Remote control storage compartment
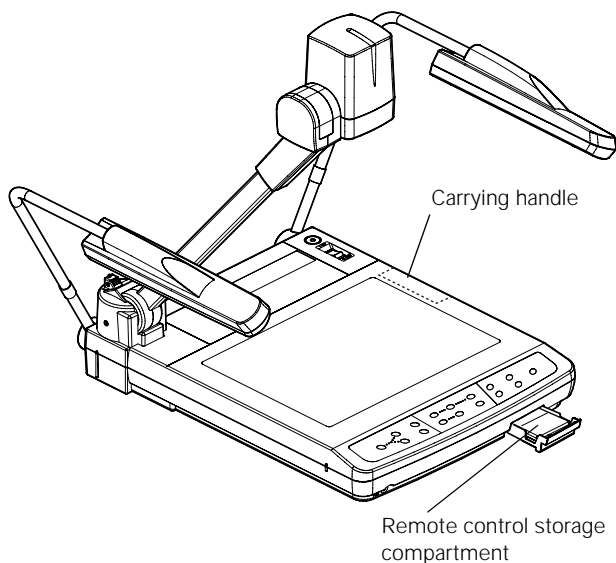
4 *Solving Problems*

This chapter helps you solve problems with your document camera, and tells you how to contact technical support for problems you can't solve yourself. This chapter explains the following:

- Solving problems with the image

- Solving problems with the remote control

- Contacting technical support

Solving Problems with the Image

No image appears on the screen.

- Check that all cables are properly connected (see Chapter 1) and everything is turned on.

- Make sure the power switch is turned on.

- Make sure the projector or computer is not in sleep mode. Check the projector documentation, or try pressing a key on the computer keyboard.

- The document camera may have been turned on too quickly after it was turned off. Turn the document camera off, wait a few seconds, and then turn it on again.

- The wrong source may be selected. Try pressing the Main, RGB1, or RGB2 button on the remote control or document camera.

- You may need to change the NTSC or PAL DIP switch setting on the document camera. See page 20 for instructions.

The image contains static or noise.

- If you're using cables that are longer than 6 feet (2 m), or an extension cable, the image quality may be reduced. Try using the cables supplied with the document camera. If longer cables are required, consider using a distribution amplifier such as the one available from Epson (ELPDA01).

- Keep your projector, computer, and video cables away from the power cord as much as possible to prevent interference.

- The camera's DIP switches may be set incorrectly. Try adjusting the switches as described on page 20.

- Try pressing the CLEAR MODE button on the document camera, especially if you're taking pictures of three-dimensional objects.

- If you notice a decline in the projected image quality when the image is displayed simultaneously on your laptop computer and projector, turn off the laptop's LCD display.

- For best image quality when projecting a computer image, connect your projector or monitor to the document camera's RGB OUT port.

The image is blurry.

- There may be dirt on the lenses. Clean the lenses as described on page 40.

- Try pressing the AF (Auto Focus) button on the remote control, or the AUTO FOCUS button on the document camera.

- Some objects do not focus well automatically (see page 26). Manually focus these objects using the Near and Far buttons.

- The presentation material may be too close to the lens. Make sure the close-up lens is closed.

- The presentation material may be too far from the lens. Open the lens by flipping it down.

- Make sure there is no condensation on the lenses. You may need to wait before using the document camera after moving it from a cold environment to a warm environment.

The image is too dark.

- Make sure the document camera's upper lamps are on. Press the UPPER LAMP button on the remote control, if necessary.

- Press the IRIS OPEN button on the remote control or document camera to open the iris on the camera lens.

- If you're displaying the image on a TV or computer monitor, adjust the monitor brightness controls.

- Use the on-screen display to adjust the gamma setting (see page 32).

The colors don't look right.

- Try adjusting the white balance (see page 28).

- If you're projecting an image from a computer, check your computer's display settings to correct the color balance.

The image is garbled.

■   Make sure your computer and/or projector or monitor are securely connected at both ends to the document camera.

■   Check the DIP switches on the document camera. If video output is set to NTSC and the document camera is connected to a monitor that supports PAL, the image may appear garbled. See page 20 for instructions on adjusting the DIP switches.

A color image displays in black and white.

■   Try pressing the COLOR/B&W button on the remote control to switch to color mode.

■   Check the DIP switches on the document camera. If video output is set to NTSC and the document camera is connected to a monitor that supports PAL, the image may display in black and white. See page 20 for instructions on adjusting the DIP switches.

Solving Problems with the Remote Control

■ Make sure you are within 23 feet (7 m) of the document camera, and within range of the document camera's sensor (approximately 30° to the left or right and 15° above or below).

■ The remote control batteries may not be installed correctly or may be low on power. Try changing the batteries as described on page 13.

■ Dim the room lights and turn off any fluorescent lighting. Make sure the document camera is not in direct sunlight. Strong lighting, especially fluorescent lights, may affect the document camera's infrared receivers.

■ Turn off any nearby equipment that emits infrared energy, such as a radiant room heater.

■ If the NORMAL button on the remote control does not return the screen to the auto iris default setting, try pressing the AUTO/MANUAL button on the document camera. When this button's indicator light is on, the document camera is locked in manual mode and the remote control's NORMAL button has no effect.

Where To Get Help

Epson provides technical assistance through electronic support services 24 hours a day, as listed in the following table:

Service	Access
World Wide Web	From the Internet, you can reach Epson's product support at **http://support.epson.com**. After selecting your product, you can access troubleshooting information, download product documentation, and receive technical advice through e-mail.
Presenters Online	Access tips, templates, and training for developing successful presentations at **http://www.presentersonline.com**.

Telephone Support Services

To use the Epson PrivateLine Support service, call (800) 637-7661 and enter the PIN on the Epson PrivateLine Support card included with your document camera. This is the fastest way to speak to a live representative, and it's free. This service is available 6 AM to 6 PM, Pacific Time, Monday through Friday, for the duration of your warranty period.

You may also speak with an Epson document camera support specialist by dialing one of these numbers:

- U.S.: (562) 276-4394, 6 AM to 6 PM, Pacific Time, Monday through Friday

- Canada: (905) 709-3839, 6 AM to 6 PM, Pacific Time, Monday through Friday

Toll or long distance charges may apply.

Before you call, please have the following information ready:

- Product name (Epson ELPDC05 High Resolution Document Camera)

- Product serial number (located on the rear panel of the document camera)

- Computer configuration, if applicable

- Description of the problem

5 *Technical Specifications*

General

CCD	1/3 inch (848,676 progressive scan)
Resolution	1024 × 768 pixels (Effective resolution, or overscan, is 1034 × 779 pixels)
Lens	F=2.8, f=4.7 to 84.6 mm
Frame speed	20 frames per second
Shooting area	13.7 × 10.2 in. (350 × 260 mm) max. 1.0 × 0.8 in. (25 × 19 mm) min.
Limit of focus adjustment	3.9 in. (100 mm) from the stage surface using the close-up lens 1.6 feet (0.5 m) to infinity with the camera positioned horizontally and without using the close-up lens
Zoom	18× optical with double speed function
Focus	Automatic/manual
Iris	Automatic/manual
White balance	Automatic/manual
Gamma selection	ON (γ=0.3/0.4/0.5/0.6/0.7/0.8/0.9) OFF (γ=1.0)
Image rotation	90°/180°/270°
Frequency selection	50 or 60 Hz
Video output	NTSC or PAL

Lamps

Upper	High frequency fluorescent, 6 W × 2
Base	High frequency fluorescent

Remote Control

Range	23 feet (7 m)
Angle from IR receiver	Approx. 30° to the right or left, and 15° up or down
Batteries	Alkaline AAA (2)

Dimensions

Weight	21.6 lb (9.8 kg)
Folded (h × w × d)	7.1 × 15.7 × 21.3 in. (181 × 400 × 542 mm)
Unfolded (h × w × d)	21.9 × 27.4 × 21.3 in. (555 × 697 × 542 mm)

Electrical

Rated frequency	50/60 Hz
Power supply	100 to 240 VAC
Power consumption	100 to 240 VAC; 55 W
Rated current	0.8 A to 0.4 A

Environmental

Temperature	Operating: 41 to 104 °F (5 to 40 °C) Storage: 14 to 140 °F (−10 to 60 °C)
Humidity	Operating: 30 to 85% RH, non-condensing
	Storage: 20 to 90% RH, non-condensing

Safety

United States	FCC 47CFR Part 15B Class B (DoC)
	UL1950 3rd Edition
Canada	ICES-003 Class B
	CSA C22.2 No.950-95 (cUL)

Compatible Video Formats

The document camera supports NTSC and PAL video standards, as well as the monitor display formats listed below.

Mode	Refresh Rate (Hz)	Resolution
VGA1	84.889	640 × 350
VGA2	85.08	640 × 400
VGA3	85.039	720 × 400
VGA—60	59.94	640 × 480
VGA—72	72.809	640 × 480
VGA—75	75	640 × 480
VGA—85	85.008	640 × 480
SVGA—56	56.25	800 × 600
SVGA—60	60.317	800 × 600
SVGA—72	72.188	800 × 600
SVGA—75	75	800 × 600
SVGA—85	85.061	800 × 600
XGA—60	60.004	1024 × 768
XGA—70	70.069	1024 × 768
XGA—75	75.029	1024 × 768
XGA—85	84.997	1024 × 768
SXGA1	75	1152 × 864
SXGA2	60	1280 × 960
SXGA3	85.003	1280 × 960
SXGA—60	60.02	1280 × 1024

Mode	Refresh Rate (Hz)	Resolution
SXGA—75	75.025	1280 × 1024
SXGA—85	85.024	1280 × 1024
UXGA—60	60	1600 × 1200
UXGA—65	65	1600 × 1200
UXGA—70	70	1600 × 1200
UXGA—75	75	1600 × 1200
UXGA—85	85	1600 × 1200
MAC 13	66.667	640 × 480
MAC 16	74.55	832 × 624
MAC 19	74.927	1024 × 768
MAC 21	75.062	1152 × 870
PC98	56.42	640 × 400

6 Notices

This chapter includes safety instructions and other important information about your Epson document camera.

Important Safety Instructions

Follow these safety instructions when setting up and using the document camera:

■ Before setting up the document camera, read all safety and operating instructions. Keep the instructions for future reference.

■ Be sure to adhere to all warnings in the documentation and on the document camera.

■ Carefully follow the instructions in this guide to set up and use the document camera.

■ Turn off and unplug the document camera before cleaning. Clean with a damp cloth only. Never use liquid or aerosol cleaners, or solvents or harsh chemicals like benzene or paint thinner, as these may damage the document camera.

■ Never point the lens into the sun, as this may damage the document camera.

■ Use only attachments and accessories recommended by Epson.

■ Never use the document camera near water—for example, near a bath tub, kitchen sink, laundry tub, or swimming pool. Avoid humid environments, such as a wet basement.

■ Do not place the document camera near a radiator or heating vent or in direct sunlight. Avoid placing it near equipment that generates heat.

■ Avoid locations that are subject to shocks or vibrations, dust, or rapid changes in heat or humidity.

■ Place the document camera on a flat, stable surface that extends beyond its base in all directions.

- Do not block or cover openings in the base, or insert objects through the slots. These openings are provided for ventilation to protect the document camera from overheating. Never place the document camera on a bed, sofa, rug, or similar surface. Do not place the document camera in a built-in installation, such as a bookcase or rack, unless proper ventilation is provided and the guidelines in this manual are followed.

- Place the document camera near a wall outlet where the plug can be easily unplugged.

  Placez l'appareil près d'une prise de courant où la fiche peut être débranchée facilement.

- Use only the type of power source indicated on the document camera label.

- Connect the document camera to a properly grounded power outlet. Avoid using outlets on the same circuit as air control systems or other high-load devices that regularly switch on and off.

- If you use an extension cord with the document camera, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord's ampere rating. Also, make sure the total ampere rating of all devices plugged into the wall outlet does not exceed the wall outlet's ampere rating. Overloading extension cords, power strips, or wall outlets can result in fire or electric shock.

- Follow the instructions in this manual to install batteries in the remote control. Never expose batteries to heat or flame, and never mix old and new batteries or batteries of different types. Do not use rechargeable Ni-Cd batteries, and do not try to recharge or short-circuit the batteries. Replace batteries as soon as they run out. If the batteries leak, wipe away battery fluid with a soft cloth. If fluid gets on your hands, wash them immediately. Dispose of used batteries according to local regulations.

- This product may be equipped with either a polarized 2-wire AC line plug (a plug having one blade wider than the other) or a 3-wire grounding type plug (a plug having a third grounding pin). The 2-wire polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. The 3-wire grounding type plug will fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding type plug.

- Do not let the power cord become damaged or frayed. Place the document camera in a location where people are unlikely to walk on the power cord, and the cord is not pinched by items placed upon or against it.

- Unplug the document camera and disconnect the cable when not in use, or when there is a lightning storm. This will prevent damage to the product due to power surges and lightning.

- Take care when using a cart to move the document camera that the cart doesn't overturn or the document camera fall off.

- Refer all servicing to qualified service personnel. Do not attempt to take apart the document camera or open its cabinet, as this may expose you to high voltage or other dangers.

- Unplug the document camera and refer servicing to qualified service personnel under the following conditions: if the power cord or plug is damaged; if liquid has entered the product; if the product has been dropped or the case damaged; if the product does not operate normally or exhibits a distinct change in performance. Adjust only those controls that are covered by the instructions in this manual.

- This product includes a lamp component that contains mercury (Hg). Please consult your state and local regulations regarding disposal or recycling. Do not put in the trash.

- To make sure that only Epson replacement parts are used, refer all servicing to Epson-authorized servicers. Substitution of unauthorized parts may result in fire, electric shock or other hazards.

- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

- Handling the cord on this product or cords associated with accessories sold with this product will expose you to lead, a chemical known to the state of California to cause birth defects or other reproductive harm. Wash hands after handling.

Remote Control Information

You can operate the document camera by remote control via a line-of-sight infrared (IR) receiver on top of the camera arm. The document camera may not respond to remote control commands under the following conditions:

- There is an object between the remote control IR emitter and the IR receiver on the document camera.

- Ambient light is too bright.

- Certain types of fluorescent lighting are used.
- A strong light source shines into the IR receiver.
- Other equipment that emits infrared energy, such as a radiant room heater, is in the room.

These conditions commonly cause problems for most infrared-controlled equipment. Try the following if you experience problems:

- The remote control batteries may be low on power; replace them.
- Dim the ambient lighting and/or turn off any fluorescent lights.
- Close any window coverings and/or move the document camera out of direct sunlight.
- Turn off other equipment that emits infrared energy.

If the remote control still does not work properly, you can always use the buttons located on the document camera control panel, even in an environment containing one of the conditions listed above.

Declaration of Conformity

According to 47CFR, Part 2 and 15 Class B Personal Computers and Peripherals; and/or CPU Boards and Power Supplies used with Class B Personal Computers

We: Epson America, Inc.
Located at: 3840 Kilroy Airport Way
                 MS: 3-13
                 Long Beach, CA 90806

Telephone: (562) 290-5254

Declare under sole responsibility that the product identified herein, complies with 47CFR Part 2 and 15 of the FCC rules as a Class B digital device. Each product marketed, is identical to the representative unit tested and found to be compliant with the standards. Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quantity production and testing on a statistical basis as required by 47CFR §2.909. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Trade Name: Epson

Type of Product: Image Presentation Camera

Model: ELPDC05

FCC Compliance Statement

For United States Users

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for this equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

For Canadian Users

This digital apparatus does not exceed the Class B limits for radio noise emissions from a digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Class B prescrites dans le règlement sur le brouillage radioeléctrique édicté par le Ministère des Communications du Canada.

Warranty

Epson America, Inc. Limited Warranty

What Is Covered: Epson America, Inc. ("Epson") warrants to the first end user customer of the Epson product enclosed with this limited warranty statement that the product, if purchased and used in the United States or Canada, conforms to the manufacturer's specifications and will be free from defects in workmanship and materials for a period of two (2) years from the date of original purchase (except that the warranty period is 90 days for lamps). For warranty service, you must provide proof of the date of original purchase.

What Epson Will Do To Correct Problems: Should your Epson product prove defective during the warranty period, please bring the product securely packaged in its original container or an equivalent, along with proof of the date of original purchase, to your Epson Dealer or Epson Customer Care Center. Epson will, at its option, repair or replace on an exchange basis the defective unit, without charge for parts or labor. When warranty service involves the exchange of the product or of a part, the item replaced becomes Epson property. The exchanged product or part may be new or previously repaired to the Epson standard of quality. Exchange or replacement products or parts assume the remaining warranty period of the product covered by this limited warranty. However, each replacement lamp carries the limited 90-day warranty stated above.

What This Warranty Does Not Cover: This warranty covers only normal use in the United States and Canada. For lamps, 24-hour-per-day use causes unusual strain and is not considered normal use. This warranty is not transferable and will not apply to products purchased from an end user. This warranty does not cover consumables (e.g., fuses), other than lamps. Epson is not responsible for warranty service should the Epson label or logo or the rating label or serial number be removed or should the product fail to be properly maintained or fail to function properly as a result of misuse, abuse, improper installation, neglect, improper shipping, damage caused by disasters such as fire, flood, and lightning, improper electrical current, software problems, interaction with non-Epson products, or service other than by an Epson Authorized Servicer. Postage, insurance, or shipping costs incurred in presenting your Epson product for carry-in warranty service are your responsibility. If a claimed defect cannot be identified or reproduced in service, you will be held responsible for costs incurred.

THE WARRANTY AND REMEDY PROVIDED ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME LAWS DO NOT ALLOW

THE EXCLUSION OF IMPLIED WARRANTIES. IF THESE LAWS APPLY, THEN ALL EXPRESS AND IMPLIED WARRANTIES ARE LIMITED TO THE WARRANTY PERIOD IDENTIFIED ABOVE. UNLESS STATED HEREIN, ANY STATEMENTS OR REPRESENTATIONS MADE BY ANY OTHER PERSON OR FIRM ARE VOID. EXCEPT AS PROVIDED IN THIS WRITTEN WARRANTY, NEITHER EPSON AMERICA, INC. NOR ITS AFFILIATES SHALL BE LIABLE FOR ANY LOSS, INCONVENIENCE, OR DAMAGE, INCLUDING DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OR INABILITY TO USE THE EPSON PRODUCT, WHETHER RESULTING FROM BREACH OF WARRANTY OR ANY OTHER LEGAL THEORY. IF THE REMEDY ABOVE FAILS, EPSON'S ENTIRE LIABILITY SHALL BE LIMITED TO A REFUND OF THE PRICE PAID FOR THE EPSON PRODUCT COVERED BY THIS LIMITED WARRANTY.

In Canada, warranties include both warranties and conditions.

Some jurisdictions do not allow limitations on how long an implied warranty lasts and some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction.

To locate an Authorized Epson Servicer nearest you, call the Epson Connection℠ at (562) 276-4394 in the U.S. and (905) 709-3839 in Canada or write to: Epson America, Inc., P. O. Box 93012, MS: 6-33, Long Beach, CA 90809-3012.

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Document Camera

Infrared sensor

Camera head

Lighting arm (R)

Lighting unit (R)

Lighting unit (L)

Lighting arm (L)

On/Off button

Carrying handle

Stage

Camera arm
release button

Control panel

Remote control
storage compartment

Remote Control

Pauses the image

Doubles image size

Save and recall camera settings

Optimizes display of positive or negative film

Switches the display from color to black and white

Zoom the image in and out

Increase or reduce image brightness

Position the image on the screen; also number saved images or settings

Save and recall images

Turn lamps on and off

Select the video source

Manually focus the image

Automatically focuses the image

1↖ 2↑ 3↗

PAUSE 4← 5→

2× 6↙ 7↓ 8↘

SET PRESET CALL   SET IMAGE CALL

POSI/NEGA COLOR/B&W   UPPER LAMP BASE

MAIN — INPUT — RGB1 — RGB2

TELE ZOOM WIDE   NEAR FOCUS FAR

NORMAL OPEN CLOSE   AF

— IRIS —