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PROJECTOR OWNER'S MANUAL

Dukane

8932

Need a replacement lamp for this projector?

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DUKANE

ImagePro 8932

LCD PROJECTOR

USERS GUIDE



MODEL 28A8932

FCC Warning

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.

Canada

This Class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Safety Certifications

UL, CUL, TÜV, NOM, IRAM

EN 55022 Warning

This is a Class A product. In a domestic environment it may cause radio interference, in which case the user may be required to take adequate measures. The typical use is in a conference room, meeting room or auditorium.

Remote Control Warning

Laser radiation class II product; wavelength 670nm; maximum output 1mW.
Remote control complies with applicable requirements of 21 CFR 1040.10 and 1040.11. Remote control complies with applicable requirements of EN 60 825-1: 1994 +A11.

Trademarks

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SAFETY INSTRUCTIONS

Please read and follow all safety instructions provided BEFORE using your new projector. Failure to comply with safety instructions may result in fire, electrical shock, or personal injury and may damage or impair protection provided by equipment. Please save all safety instructions.

Safety Definitions:

- **Warning:** Statements identify conditions or practices that could result in personal injury.
- **Caution:** Statements identify conditions or practices that could result in damage to your equipment.

Safety Symbols:



Attention: For information about usage of a feature, please refer to the User's Guide.



Warning: Hot surface. Do not touch.



An arrow pointing to the lamp door on the projector.



Warning: Laser radiation. Do not stare into laser beam.



Safety Terms:

- **Warning:** Don't look directly into the lens when the lamp is turned on.



• **Warning:** To replace the lamp, turn the projector off by unplugging the power cord. To avoid burns, wait 30 minutes before opening the lamp door. Follow all instructions provided in this User's Guide.



• **Warning:** Please use the power cord provided. Connect the power cord to a receptacle with a protective safety (earth) ground terminal.

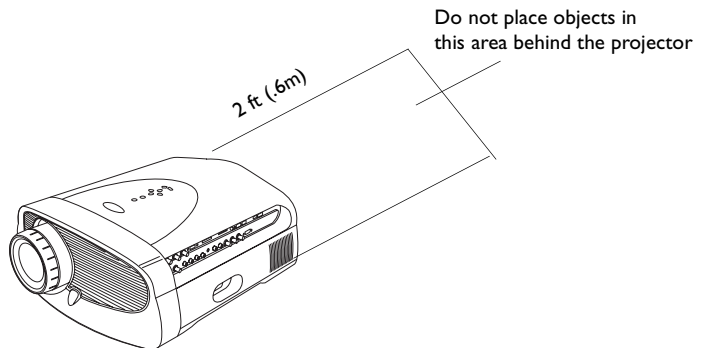


• **Warning:** Visible laser radiation. Do not stare into beam.

- **Warning:** Refer all service to qualified service personnel. Servicing your own projector will void the warranty. See the following page for the customer service contact information.
- **Caution:** Don't block ventilation openings.
- **Caution:** Don't set liquids on the projector. Spilled liquids may damage your projector.
- **Caution:** Don't place the projector on a hot surface or in direct sunlight.
- **Caution:** Do not drop the projector. Transport the projector in a
 - ☐ Vendor approved case.
- **Caution:** For ceiling mount installations, please use a vendor
 - ☐ approved mount recommended as an optional accessory
 - ☐ (p-50) and follow all instructions provided with it.
 - ☐

Important Operating Considerations

Do not place the projector on a tablecloth or other soft covering that may block the vents. In the unlikely event of the bulb rupturing, thoroughly clean the area behind the projector and discard any edible items placed in that area.



Customer Service

If you need assistance, call Dukane Customer Support at:
630-584-2300 or Toll-Free at 1-800-676-2487

INTRODUCTION

The Dukane ImagePro™ 8932 XGA multimedia projector is specifically designed for fixed installations. The projector features an M1-DA connector for easy, built-in digital/analog and USB connectivity. It allows four computer, three video, and three audio inputs, one audio output, and RS-232 control.

Image Resolution

The native resolution of the 8932's projected image is XGA 1024x768. Screen resolutions between 1024x768 and 1280x1024 are compressed to 1024x768. The projector cannot compress screen resolutions above 1280x1024. If your computer's screen resolution is higher than 1280x1024, reset it to a lower resolution before you connect the projector.

Compatibility

The projector is compatible with a wide variety of computers and video devices, including:

- IBM-compatible computers, including laptops, up to 1280x1024 resolution.
- Apple® Macintosh® and PowerBook® computers up to 1280x1024 resolution.
- Most standard VCRs, DVD players, HDTV sources, camcorders and laser disc players.
- Selected workstations (contact your dealer for details).

Unpacking the Projector

The projector comes with the items shown in figure 1. Check to make sure all are included. **Contact your Dukane dealer immediately if anything is missing.**



NOTE: The ImagePro 8932 automatically expands 640x480 and 800x600 images to 1024x768. You can display these images at their native resolutions by turning off the Auto Resize feature. See "Resize" on page 32 for more information



NOTE: The projector is compatible with 1080i HDTV format.



NOTE: The projector is compatible with many third-party controllers and amplifiers, including AMX, Crestron, and Extron. Call your dealer for details.



NOTE: The contents of your shipping box may vary depending on the projector configuration you've ordered.

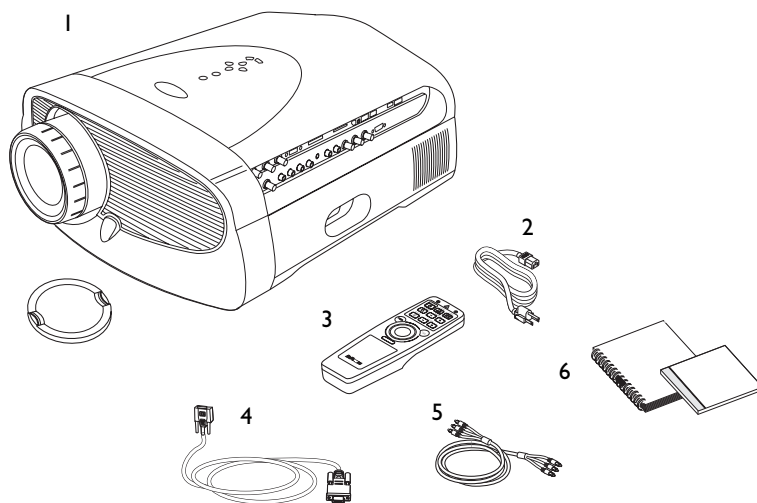


FIGURE 1

- | | |
|-------------------------|------------------------|
| 1. Projector + lens cap | 4. VESA computer cable |
| 2. Power cord | 5. Audio/Video cable |
| 3. Remote control | 6. User's Guide |

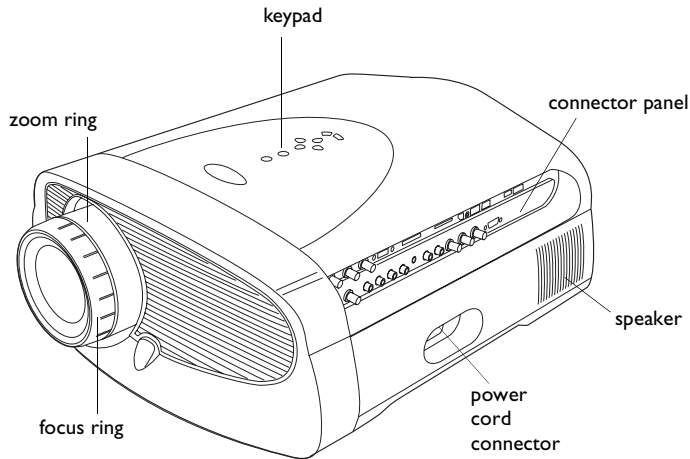


FIGURE 2

Side view of projector

Usage Guidelines

- Do not look directly into the projection lens when the lamp is turned on. The bright light may harm your eyes.
- Do not block the grills on the projector. Restricting the air flow can cause it to overheat and turn off. If this happens, you must wait a minute before attempting to turn it back on.
- Handle the projector as you would any product with glass components. Be especially careful not to drop it.
- Avoid leaving the projector in direct sunlight or extreme cold for extended periods of time. If this happens, allow it to reach room temperature before use.
- Transport the projector in a vendor-approved hard or soft case.

If You Need Assistance

The first place to look for help is in this manual. Be sure to check the guidelines in "Troubleshooting" on page 45.

If those sources don't answer your question, call Dukane Customer Support at **630-584-2300 or Toll-Free at 1-800-676-2487**

Our World Wide Web address is **www.dukane.com**

Warranty

This product is backed by a limited Five-Year Warranty. The details of the warranty are printed at the back of this manual.

SETTING UP THE PROJECTOR

- 1 Place the projector on a flat surface.
- The projector must be within 10 feet (3 m) of your power source and within 6 feet (1.8 m) of your computer.
 - If you want to project from behind a translucent screen, set up the projector behind your screen. See “Rear Projection” on page 36 to reverse the image.
 - If you are installing the projector on the ceiling, refer to the installation guide that comes with the Ceiling Mount Kit for more information. To turn the image upside down, see “Ceiling Projection” on page 36. The Ceiling Mount Kit is sold separately; see “Optional Accessories” on page 50.
- 2 Position the projector the desired distance from the screen.
- The distance from the lens of the projector to the screen and the zoom lens setting determine the size of the projected image. Table 1 shows example projected image sizes and minimum and maximum distances to the screen.

The formulas for distance to the screen are:

$$\text{Max distance (ft)} = \text{diagonal image size (ft)} \div .49$$

$$\text{Min distance (ft)} = \text{diagonal image size (ft)} \div .69$$

*Table 1:
Diagonal Image Size and Width at Maximum and Minimum Distance
to Screen-Standard Lens*

Diagonal Image Size (inches)	Image Width (inches)	Distance to screen	
		Maximum distance (feet)	Minimum Distance (feet)
300	240	51	36
240	192	41	29
180	144	31	22
144	115	24	17
120	96	20	14
96	77	16	12
72	58	12	9
60	48	10	7
48	38	8	6

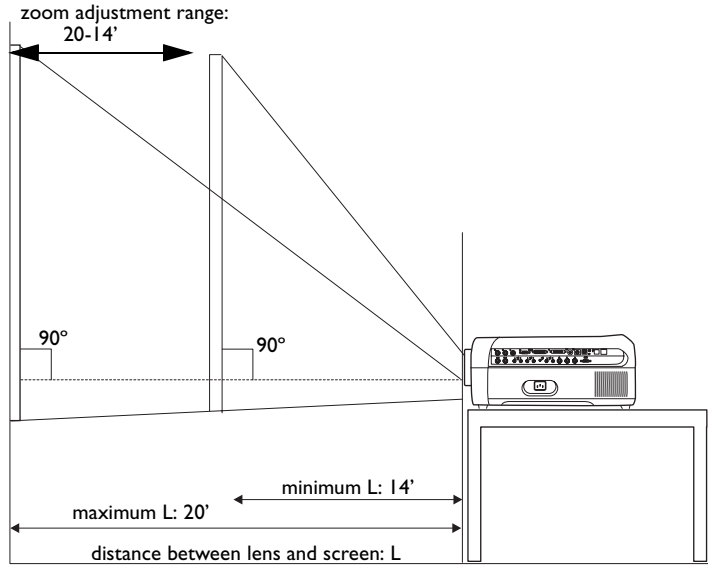


FIGURE 3

Projected image size for 10' diagonal image size

The projector is equipped with a lens shift feature that allows you to adjust the projection height (move the image along the wall) without moving the projector, while still maintaining a perfectly square image. Turn the lens shift knob on the side of the projector to make this adjustment (Figure 4).

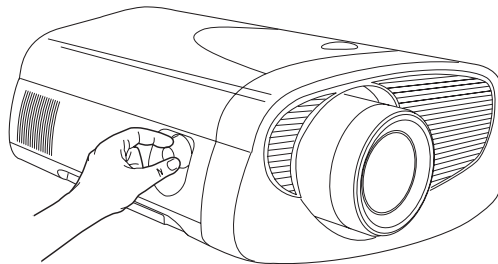


FIGURE 4

Adjusting the lens shift

The bottom of the image can move from half way below the projector's lens (Figure 5) to parallel with the lens (Figure 6).

Example: With a 10' image, at the lowest projection angle, the bottom of the image is 5' below the projector's lens; at the highest projection angle, the bottom of the image is parallel with the lens.

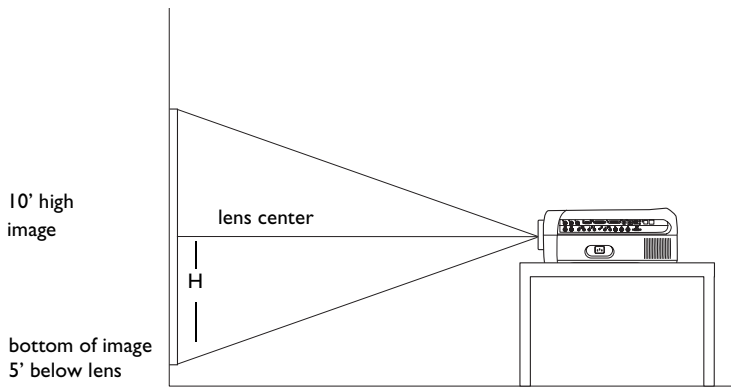


FIGURE 5

Lowest image projection angle

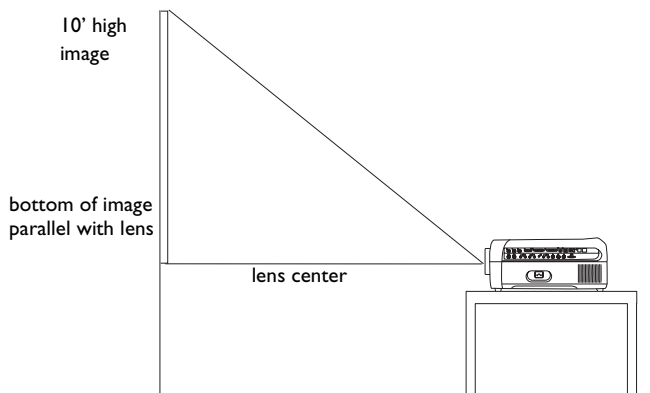


FIGURE 6

Highest image projection angle

Once you know the diagonal image size, you can figure out the width and height using these formulas:

$$\text{width (inches)} = \text{diagonal (inches)} \times 0.8$$

$$\text{height (inches)} = \text{width (inches)} \times 0.75$$

The following tables give the lens shift values for desktop and ceiling-mounted setups for various image sizes. The lower lens shift position represents the highest the projector can be above the bottom of the screen; the upper lens shift position represents the lowest the projector can be below the bottom of the screen.

*Table 2:
Lens Shift Positions for Desktop Setup*

Diagonal Image Size (inches)	Distance from lens center to lower edge of screen (H)	
	Lower lens shift position (inches)	Upper lens shift position (inches)
300	90	0
240	72	0
180	54	0
144	43	0
120	36	0
96	29	0
72	22	0
60	18	0
48	14	0

When the projector is ceiling mounted, use the upper edge of the screen as the base line.

*Table 3:
Lens Shift Positions for Ceiling-Mounted Setup*

Diagonal Image Size (inches)	Distance from lens center to upper edge of screen (H)	
	Lower lens shift position (inches)	Upper lens shift position (inches)
300	90	0
240	72	0
180	54	0
144	43	0
120	36	0
96	29	0
72	22	0
60	18	0
48	14	0

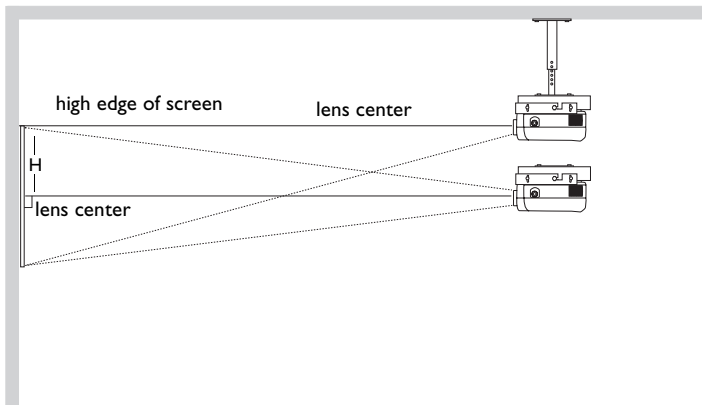


FIGURE 7

Lens shift with ceiling-mounted projector

- 3 Make sure the projector is unplugged and your computer is turned off.

Now you're ready to connect your equipment.

Steps for connecting the different types of equipment are listed on the pages listed below.

Equipment you want to connect	Page
Computer with VESA cable	page 11
USB type B mouse	page 11
Computer with BNC cables	page 11
Computer with MI-DA cable	page 12
RS-232 cable	page 12
Video player	page 13
External speaker	page 15
Remote cable	page 15



NOTE: The Cable Hub connector is used with the optional Cable Hub, a connection hub containing mouse, audio, monitor and computer connectors. It is optimized for ceiling-mounted installations, and can be used with a 60' extension cable. See "Optional Accessories" on page 50. This input is designated Computer Cable Hub.

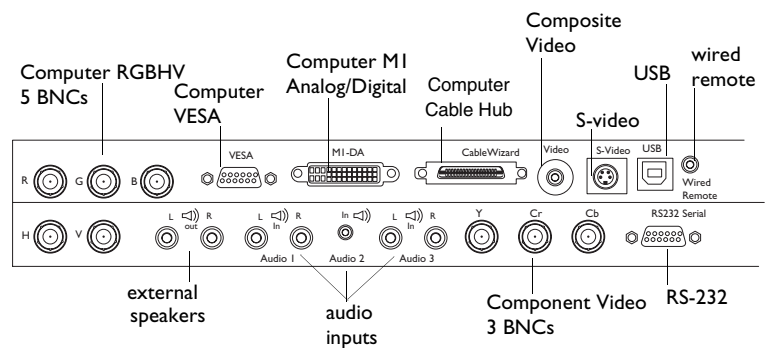


FIGURE 8

Connector panel



NOTE: Make sure all equipment is turned off before connecting equipment.

The projector has the following audio/video inputs:

Source	Video	Audio
Computer RGBHV	3 Single-ended analog RGB + 2 H&V sync (5 BNCs)	Left and right line-level (2 RCAs)
Computer VESA	VESA Single-ended analog RGB (HD-15)	Left and right line-level (2 RCAs)
Computer M1	M1-DA Single-ended analog or digital	Left and right line-level (2 RCAs)
Computer Cable Hub	Cable Hub Analog RGB	Combined with Cable Hub
Component Video	Base-band component video (BNC)	Left and right line-level (2 RCAs)
Composite Video	Base-band composite video (RCA)	Left and right line-level (2 RCAs)
S-Video	S-video Y/C (4-pin circular)	Left and right line-level (2 RCAs)

Connecting a Computer Using a VESA Cable

This input is designated Computer VESA.

- 1 Plug one end of the supplied VESA cable into the video connector on your computer. Plug the other end into the VESA connector on the projector.

- 2 If you want audio with your presentation, plug an audio cable (not supplied) into the audio connector on your computer.

Plug the other end into a  In connector on the projector.

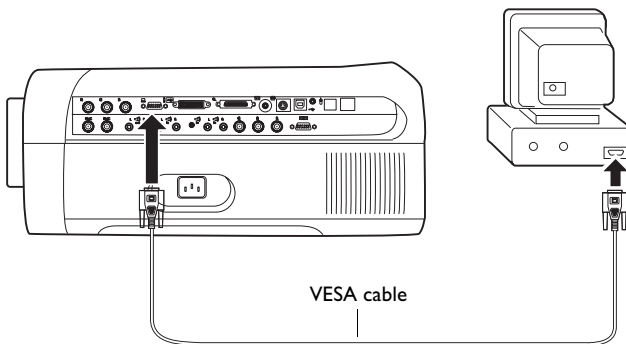


FIGURE 9

Connecting the projector to a computer using a VESA cable

Connecting a USB type B mouse

You can control the computer's mouse with the projector's keypad or remote by connecting a USB mouse cable to the USB connector on the projector (Figure 8 on page 10) and on your computer. This feature is available for PC Computer RGBHV and VESA sources only. It is not supported on the Macintosh platform. See page 37 for menu options that apply to a USB type B mouse.

Connecting a Computer using BNC Cables

Connect the BNC cables to the appropriate RGBHV connectors on the projector (Figure 8 on page 10) and on your computer.

This input is designated Computer RGBHV.



NOTE: If you are connecting an older Macintosh computer that has a 2-row 15-pin connector, you must use a Mac adaptor between the computer and the projector. See "Optional Accessories" on page 50.



NOTE: When all 5 BNCs are connected, the projector handles separate sync on H and V. When 4 BNCs are connected, the projector handles a composite sync on H. When 3 BNCs are connected, the projector handles a composite sync on G.



NOTE: Many laptop computers do not automatically turn on their external video port when a secondary display device such as a projector is connected. Refer to your computer manual for the command that activates the external video port. Activation commands for some laptop computers are listed in the Appendix of this manual on page 52.



NOTE: The USB mouse is supported for use with Windows 98, Windows 2000, and Apple OS 8.5 and higher only.



NOTE: You do not need to restart your computer after connecting a USB mouse to use it (it is hot-pluggable).

Connecting a Computer with an M1-DA Cable

See “Optional Accessories” on page 50 to order this cable. This input is designated Computer M1 Analog or Computer M1 Digital.

- 1 Plug the  end of the M1-DA computer cable into the M1-DA connector on the projector.
- 2 Plug the  end of the M1-DA computer cable into the video connector on your computer.

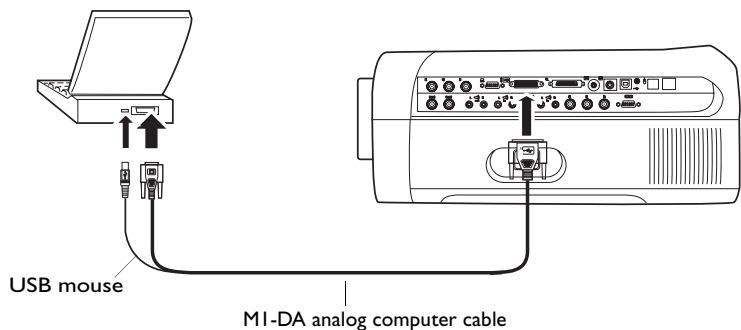


FIGURE 10

Connecting the projector to a computer using the M1-DA cable

Do you want to control the computer's mouse from the projector's remote or keypad?

- 1 Plug the  end of the M1-DA computer cable into a USB mouse connector on your computer.

Do you want to play your computer's audio on the projector?

- 1 Plug an audio cable (not supplied) into the audio connector on your computer.
- 2 Plug the other end of the audio cable into a  In connector on the projector.

Connecting a Computer with an RS-232 Cable

You can control the projector from an LCD control panel by connecting an RS-232 cable to the projector (see Figure 8 on page 10). See “RS232 Terminal Specifications” on page 59 for details.

Connecting a Video Player

There are 3 video inputs: Composite video, S-video, and Component video. For Composite and S-video, follow these instructions:

- 1 If your video player uses a round, one-prong composite video connector, you'll need only the A/V cable that shipped with the projector.
 - If your video player uses a round, four-prong S-video connector, you'll need an S-video cable in addition to the A/V cable. The S-video cable is sold separately. (See "Optional Accessories" on page 50.)
- 2 Plug the A/V cable's yellow connector into the "video-out" connector on your video player (Figure 11). This connector may be labeled "To Monitor."
- If you're using an S-video cable, connect it to the "S-video out" connector on the video player (Figure 12).
- 3 Plug the other yellow connector into the composite video connector on the projector.
 - If you're using S-video, plug the other end of the cable into the "S-video" connector on the projector (Figure 12).

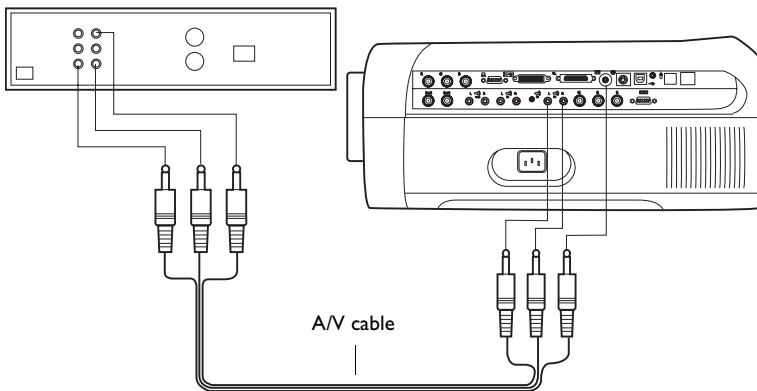


FIGURE 11

Connecting the projector to a video player using the standard A/V cable



NOTE: HDTV sources are connected to the projector using the computer inputs, not the video inputs. All analog computer inputs can display HDTV. See the previous pages for computer connection instructions.

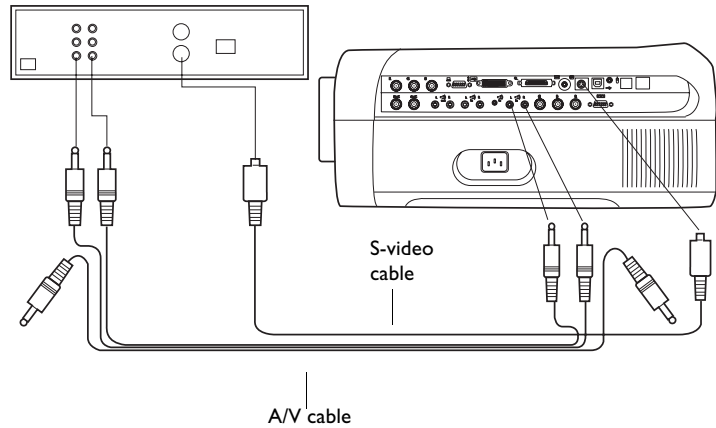


FIGURE 12

Connecting the projector to a video player using an S-video cable and the A/V cable

- 4 Plug the A/V cable's white connector into the left "audio out" connector on your video player. Plug the cable's red connector into the right "audio out" connector on the video player (Figure 11 and Figure 12).
- 5 Plug the A/V cable's other white and red connectors to the left and right  In ports on the projector.

The projector is compatible with these major broadcast video standards: NTSC, NTSC 4.43, PAL, PAL-M, PAL-N, PAL-60, and SECAM. It automatically adjusts to optimize its performance for the incoming video. The input signal for SECAM video is similar to other video signals and cannot be automatically detected, therefore SECAM must be chosen manually. See "Video Standard" on page 35 for details.

Connecting a Video Player using BNC Cables

Connect the BNC cables and audio cables to the appropriate connectors on the projector (Figure 8 on page 10) and on your video player.

This input is designated Component Video.



CAUTION: Your video player may also have a "Video Out" connector for a coaxial cable connection. **DO NOT** use this to connect to the projector.

Connecting External Speakers

To connect one or two external speakers, plug the speaker cable into the  out (audio out) connectors on the projector. The external speaker's volume is controlled by the projector; see "Volume + or -" on page 26.

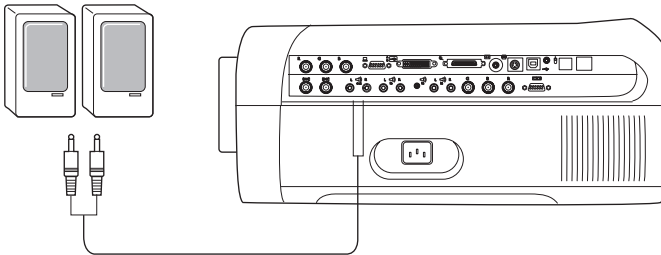


FIGURE 13

Connecting external speakers

Connecting the Remote Control Cable

If the projector cannot receive the remote's signal, as may be the case if you're using rear projection, connect the remote directly to the projector with the optional remote cable. See "Optional Accessories" on page 50.

- 1 Plug the remote cable into the wired remote connector on the projector.
- 2 Plug the other end into the connector on the remote.

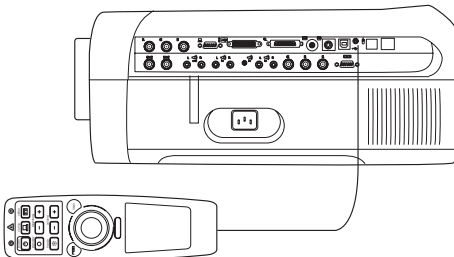


FIGURE 14

Connecting the remote control cable



NOTE: For more information on using the remote, see page 22.



NOTE: Always use the power cord that shipped with the projector.



NOTE: The first time you connect your computer to the projector, the computer may display a message stating that new hardware was found. The Add New Hardware Wizard may appear. Use the Wizard to load the correct driver (the computer considers the projector a Plug and Play Monitor).



NOTE: With some computers, the order in which you power up the equipment is very important. Most computers should be turned on last, after all other peripherals have been turned on. Refer to your computer's documentation to determine the correct order.

Powering up the Projector and Adjusting the Image

- 1 Remove the lens cap.
- 2 Plug the power cord into the side of the projector, then plug it into your electrical outlet. A surge-protected power strip is recommended.
 - The Power LED on the top of the projector (Figure 20 on page 24) lights green.
- 3 Press the power button.
 - The Power LED blinks green until the lamps turns on, then it lights solid green.
 - The startup screen appears.
- 4 If you connected a video player, turn it on.
 - The video image should display on the projection screen. If a computer source is active, press the **source** button on the keypad (page 26) or the **video** button on the remote to display your video image. You can select a default source to determine which source the projector examines first during power-up for active video; see "Default Source" on page 36.
 - Use the **volume** buttons to adjust the volume.
- 5 Turn on your computer.
 - The computer image should display on the projection screen. If a video source is active, press the **source** button on the keypad or the **computer** button on the remote to display your computer's image. Make sure your laptop's external video port is activated; see "Portable and Laptop Activation Chart" on page 52 for details.
 - If necessary, make adjustments to the image using the projector's on-screen menus. To open the menus, press the **menu** button on the keypad or remote, then select the Display or Image menu. For more information about the menus, see page 27.

Turning Off the Projector

If you want to blank the screen for a short period of time, press the **standby** button on the keypad or remote. This blanks the screen for fifteen minutes, but keeps the projector running. (You can change the amount of time the projector stays in standby mode; see “Standby Time” on page 35 for details.) After the standby time, the projector shuts off. To exit standby mode, press the **standby** button again.

To completely power off the projector, press the Power button. The lamp turns off and the LED blinks orange while the fans continue to run to cool the projector. After the projector is cooled, the projector turns off and the LED lights solid green.



.....

NOTE: Lamp life will be extended if you turn the projector off, then wait 1 minute while the lamp cools before unplugging the projector.

USING THE PROJECTOR

This section describes how to use and make adjustments to the projector. It also provides a reference to the keypad and remote buttons and the options available from the on-screen menus.

Basic Image Adjustment

- 1** Make sure you have powered up your equipment in the right order (page 16).
- 2** If the image doesn't display completely, zoom the image (page 20), adjust the height of the projector (page 20) or center the image by adjusting its horizontal or vertical position (page 34). Be sure the projector is at a 90 degree angle to the screen.
- 3** If the image is out of focus, rotate the focus lens (page 20).
- 4** If the image appears to shimmer or if it has blurry vertical bars after you have adjusted the focus, turn Auto Image (page 32) off and then back on to reset the automatic sync and tracking. If that doesn't clear up the image, turn Auto Image off and adjust the sync (page 33) and/or the tracking (page 33) manually.
- 5** If the colors don't look right, adjust the brightness (page 28).

Adjusting the Projector

To focus the image, rotate the focus ring (Figure 15) until the image is clear. To zoom the image, rotate the zoom ring. This adjusts the image size without affecting focus.

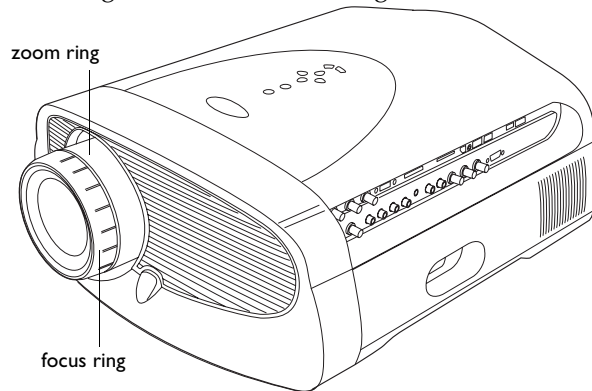


FIGURE 15

Focus ring and zoom ring

The projector is equipped with a projection angle lens shift knob that provides adjustment from horizontal. This allows you to adjust the projection height without moving the projector (see page 8 for lens shift values). It also has a height-adjustment foot, an elevator button, and a leveling knob.

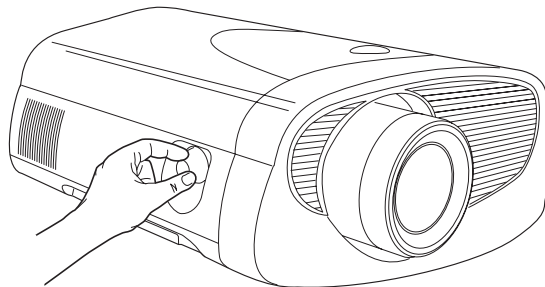


FIGURE 16

Adjusting the lens shift

To adjust the height of the projector, press and hold the elevator button, raise the projector to the desired height, then release the button to lock the foot into position. Rotate the leveling knob, if necessary, to adjust the angle of the projected image.

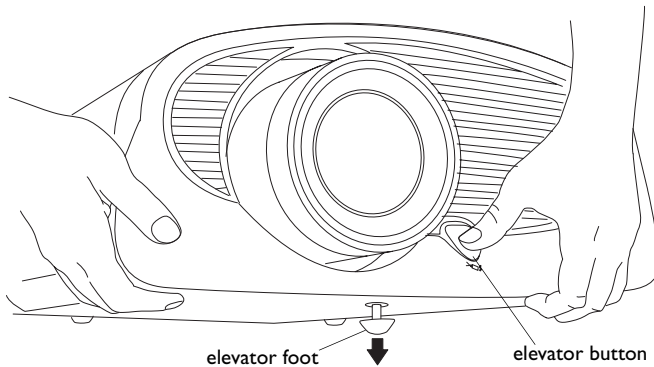


FIGURE 17

Adjusting the height of the projector

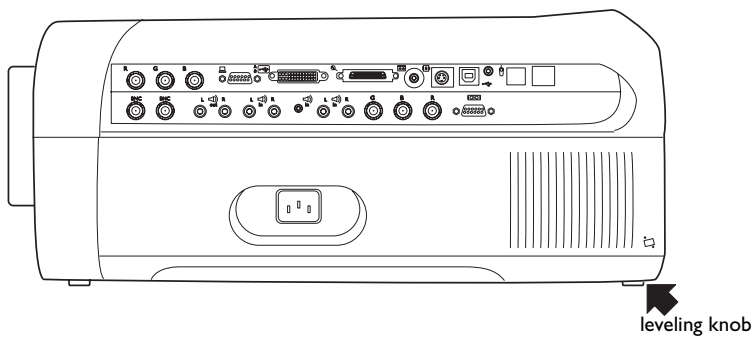


FIGURE 18

Leveling knob



NOTE: *If you can't aim the remote control at the projector so that its signal is received — for example, when using rear projection or in a large auditorium— connect it directly to the projector with the optional remote control cable.*

Using the Remote Control

To control the computer's mouse from the projector's remote or keypad, you must connect either the USB connector on the M1 computer cable to the computer (see page 12) or a type B USB mouse cable to your computer and the projector (see page 11). This feature is not supported on the Macintosh platform.

Point the remote control at the projection screen or at the top of the projector. The range for optimum operation is about 25 feet. If you point the remote at the projection screen, the distance to the screen and back to the projector must be less than or equal to 25 feet. For best results, point the remote directly at the front or the rear of the projector.

The projector ships with a full-feature remote (see page 24 for a description of the buttons) which includes a laser pointer. The remote has a disk mouse and two mouse buttons, one on the top of the remote and one on the bottom (Figure 19).

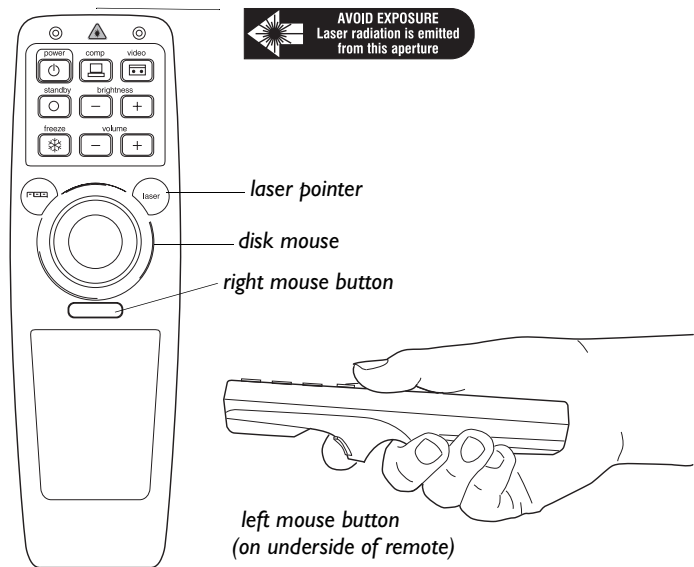


FIGURE 19
Remote control

Press anywhere on the edge of the disk mouse to move the cursor on the screen. You can move the cursor at any angle by pressing the corresponding edge of the disk. The mouse button on the top of the remote simulates your computer's right mouse button; the button on the bottom simulates your computer's left mouse button. When you press the disk mouse, the remote lights up. The light goes off about 10 seconds after you stop pressing buttons.

To use the laser pointer, press and hold the laser button. The laser goes off when the button is released.

If you are creating presentations in Microsoft® PowerPoint®, you can use the remote's mouse buttons to navigate through your presentation while in Slide Show mode. To configure PowerPoint for this, choose Options from the Tools menu, click the View Tab, de-select the "Popup Menu on Right Mouse Click" option in the Slide Show section, then click OK. Then, when you're in PowerPoint's Slide Show mode, a left click advances to the next slide and a right click returns to the previous slide (other PowerPoint modes are not affected).



NOTE: In some cases, you can use the projector's Controls menu to configure the mouse for PowerPoint. See page 37 for details.

Using the Keypad and Remote Buttons

While the menus are displayed, the volume, source, and standby buttons on the keypad act as menu navigation buttons. See “Using the On-Screen Menus” on page 27 for details.

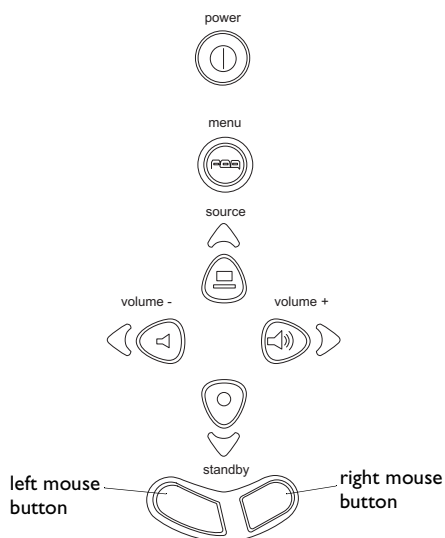


FIGURE 20

Keypad buttons



FIGURE 21

Remote buttons

Brightness + or - (remote only)

Adjusting the brightness lightens or darkens the image.

- To darken the image, press -.
- To lighten the image, press +.

Freeze (remote only) ❄️

The **freeze** button halts, or “freezes” the projected image. Use this button to freeze a frame of video (the video continues to run but the projected image is frozen). You can also freeze an image from a computer source on the screen, allowing you to perform other operations on the computer without the audience seeing them. Press **freeze** again when you want the image to return to normal.

Laser (remote only)

The laser button activates a laser beam that can be used as a pointing device. To use the laser, press and hold the laser button. The laser goes off when the button is released.



Menu

Press **menu** to open the on-screen menus. Press **menu** again to close the menus. When you close the menus, the projector saves any changes you made. For more information about the on-screen menus, see page 27.

Power

The **power** button turns the projector on and off. When you plug the projector in, the Power LED lights. When you press the **power** button, the LED blinks green, then turns solid green and the lamp turns on.

When you press the **power** button while the projector is on, the lamp turns off and the LED blinks orange while the fans continue to run to cool the projector. After the projector is cooled, the projector turns off and the LED lights solid green.

Standby ○

When you press **standby**, the display and audio turn off and a blank screen is displayed for 15 minutes. You can change the amount of time the projector stays in standby mode; see “Standby Time” on page 35 for details. While the projector is in standby, the keypad and remote buttons do not affect the projector and the LED lights orange.

- If you press **standby** again within the standby time, the projector returns to normal operations immediately.
- If you don't press **standby** again, the projector turns off after the standby time.

Source (keypad only) or**Comp and Video (remote only)**

When you have more than one source (computer and video) connected to the projector, select between them by pressing the **source** button on the keypad or the **comp** or **video** button on the remote. Press **comp** to display your computer image. Press **comp** again to toggle among the computer sources. The sources switch in this order:

- Computer RGBHV
- Computer VESA
- Computer M1 Analog/Digital
- Computer CableWizard

Press **video** again to toggle among the video sources. The video sources switch in this order:

- Component Video
- Composite Video
- S-Video

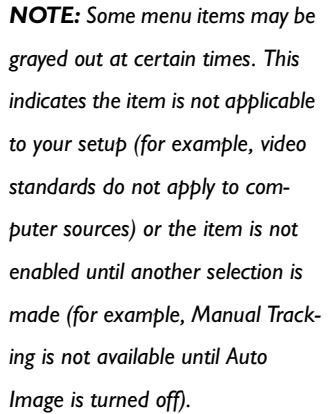
Volume + or -

- To increase the volume, press **+**.
- To decrease the volume, press **-**.

Volume adjustments are saved for each source you have connected.

The projector has six drop-down menus that allow you to make image adjustments and change a variety of settings. Most of these adjustments aren't available directly from the keypad.

The diagram illustrates the navigation of a vintage television's menu system. On the left, a schematic of the physical control panel shows a central square area with four buttons: 'source' (top, with a circle icon), 'volume -' (left, with a speaker icon), 'volume +' (right, with a speaker icon), and 'standby' (bottom, with a circle icon). Arrows indicate the flow from the physical buttons to the corresponding menu options on the right. The menu interface, titled 'Display', lists various settings: Brightness, Contrast, Tint, Color, Color temperature, Sharpness, Blank screen (set to 'blue'), and Reset all. Each setting has a horizontal bar representing its current value, except for 'Blank screen' which is a text field and 'Reset all' which is a button.



Keypad navigation buttons and drop-down menu

To access another menu, use the left and right navigation buttons to move to the desired menu.

Display Menu

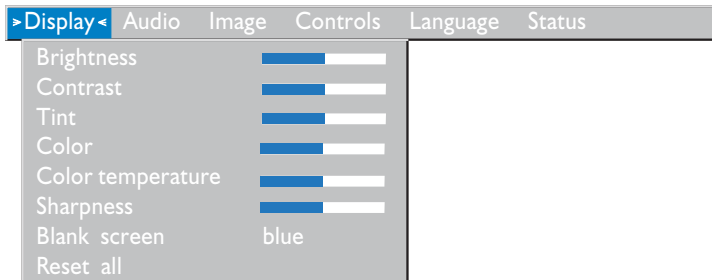


FIGURE 23

Display menu

Brightness

Adjusting the brightness changes the intensity of the image.

- Press the left mouse button to darken the image.
- Press the right mouse button to lighten the image.

Contrast

The contrast controls the degree of difference between the lightest and darkest parts of the picture. Adjusting the contrast changes the amount of black and white in the image.

- Press the left mouse button to decrease the contrast.
- Press the right mouse button to increase the contrast, making the blacks appear blacker and the whites appear whiter.

Tint

The tint adjusts the red-green color balance in the projected image. Changing the Tint setting has no effect on PAL or SECAM video sources.

- Press the left mouse button to increase the amount of green in the image.
- Press the right mouse button to increase the amount of red in the image.

Color

The color setting adjusts a video image from black and white to fully saturated color.

- Press the left mouse button to decrease the amount of color in the image.
- Press the right mouse button to increase the amount of color in the image.

Color Temperature

The **Color Temperature** setting adjusts the amount of red in the projected image.

- Press the left mouse button to decrease the amount of red in the image.
- Press the right mouse button to increase the amount of red in the image.

Sharpness

This setting adjusts the sharpness of a video image.

- Press the left mouse button to decrease the sharpness.
- Press the right mouse button to increase the sharpness.

Blank Screen

Blank Screen determines what color is displayed when there is no active source and when the projector is in standby. Click the left or right mouse button to toggle between blue and black.

Reset All

Click the left or right mouse button to reset all the options (except Language, Video Standard, Audio Source, Plug and Play, Rear Projection, Standby Time, and projection modes) in all the menus to their original settings.

Audio Menu

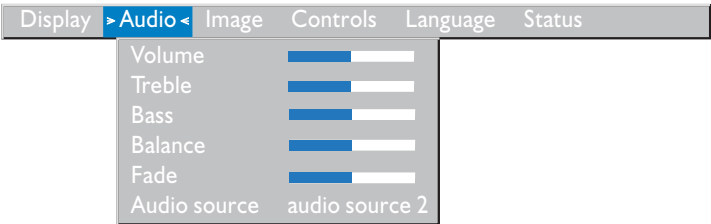


FIGURE 24

Audio menu



NOTE: Changing the volume using the menu is the same as changing it using the remote or keypad.

Volume

- Press the left mouse button to decrease the volume.
- Press the right mouse button to increase the volume.

Volume adjustments you make are saved for each source.

Treble

The treble setting controls the high frequencies of your audio source.

- Press the left mouse button to decrease the treble.
- Press the right mouse button to increase the treble.

Treble adjustments you make are saved for each source.

Bass

The bass setting controls the low frequencies of your audio source.

- Press the left mouse button to decrease the bass.
- Press the right mouse button to increase the bass.

Bass adjustments you make are saved for each source.

Balance

The **Balance** setting controls the balance between the left and right speakers. The **Balance** setting applies to all sources you have connected.

- Press the left mouse button to increase the amount of sound coming from the left speaker; press the right mouse button to increase the amount of sound coming from the right speaker.

Fade

The **Fade** setting controls the balance between the internal and external speakers. The setting appears gray and won't highlight if external speakers aren't connected.

- Press the left mouse button to increase the amount of sound coming from the internal speaker; press the right mouse button to increase the amount of sound coming from the external speakers.

Audio Source Select

This setting allows you to match a computer or video input to an audio input. The projector has four computer and three video inputs, but only four audio inputs.

Select among audio sources 1, 2, and 3, and Cable Hub. (The Cable Hub computer input does not have a separate audio input. Audio is transmitted in the Cable Hub computer input.) By default, the RGBHV and M1-DA sources are assigned to audio input 1, the VESA source to audio 2, the Cable Hub source to Cable Hub, and all video sources to audio 3. (Figure 8 on page 10 shows the labeled audio inputs on the connector panel.) To change these assignments, make the desired source active (for example, the VESA input), then select an audio source.



.....
NOTE: Audio cables must be connected in order to hear sound from the projector.

Image Menu

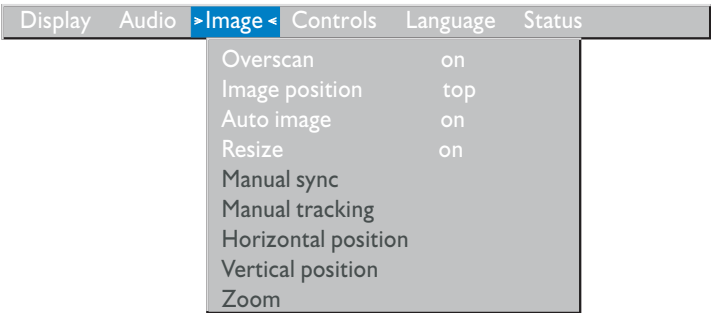


FIGURE 25

Image menu



NOTE: Some screen savers interfere with the operation of Auto Image. If you're experiencing problems, try turning your screen saver off, then turning Auto Image off and back on.

Overscan

This option crops all the edges of the image to remove noise generated on the edges by your source. This option is available for video sources only.

Image Position

This setting allows you to re-position a 16x9 or native mode video image. Select among top, bottom, and center by highlighting Image Position in the menus and clicking either mouse button to cycle through the options.

Auto Image

The projector automatically adjusts tracking, signal synchronization and vertical and horizontal position for most computers (Auto Image does not apply to video sources). If you want to adjust these features manually, you must turn off **Auto Image** first by highlighting Auto Image in the Image menu and clicking the left or right mouse button to select "off".



NOTE: When you connect an HDTV source, the projector automatically displays the image in 16x9 format.

Resize

This option works differently for computer and video sources. For computer sources, **Resize** automatically resizes the image by scaling it up or down. It only affects computer images that are not the projector's native resolution. When **Resize** is on, the projector makes the best fit of the image to the computer screen. If you turn **Resize** off (by highlighting it in the Image menu and clicking the left or right mouse button to select "off"), the image may be either cropped or too small for the screen.

For video sources, **Resize** allows you to select from among four different re-sizing options. The default is **Standard**, which resizes the image from its original version to fit a standard 4x3 aspect ratio screen. **Widescreen Letterbox** preserves the 16x9 aspect ratio of the original theater version, but the image is placed in a 4x3 space, so black bars appear at the top and bottom of the image. **Enhanced Widescreen** also preserves the aspect ratio of the original theater version and is designed to be used with content that is Enhanced for Widescreen TVs. This option yields more detail than Widescreen Letterbox. **Native** reduces the Standard size to match the height of Enhanced Widescreen.

Manual Sync

The projector adjusts signal synchronization automatically for most computers. But if the projected computer image looks fuzzy or streaked, try turning **Auto Image** off then back on again. If the image still looks bad, try adjusting the signal synchronization manually:

- 1 Turn Auto Image off.
- 2 Highlight Manual sync, then press the left or right mouse button repeatedly until the image is sharp and free of streaks.

Manual Tracking

The projector adjusts tracking automatically to match the video signal from your computer. However, if the display shows evenly spaced, fuzzy, vertical lines or if the projected image is too wide or too narrow for the screen, try turning **Auto Image** off then back on again. If the image is still bad, try adjusting the tracking manually:

- 1 Turn Auto Image off.
- 2 Highlight Manual tracking, then press the left or right mouse button repeatedly until the fuzzy vertical bars are gone.



NOTE: The **Manual Sync**, **Manual Tracking**, **Horiz. Position** and **Vert. Position** options are available only for computer sources. The projector sets these options automatically for video sources.

Horizontal position

Follow these steps to manually adjust the horizontal position:

- 1 Turn Auto Image off.
- 2 Highlight Horizontal position, then press the left mouse button to move the image right or press the right mouse button to move the image left.

Positioning adjustments are saved when you power off the projector.

Vertical position

Follow these steps to manually adjust the vertical position.

- 1 Turn Auto Image off.
- 2 Highlight Vertical position, then press the left mouse button to move the image down or press the right mouse button to move the image up.

Positioning adjustments are saved when you power off the projector.



NOTE: The Zoom feature is only available when a computer source is active. It is not available for video sources.

Zoom

This option allows you to digitally zoom a computer image. Highlight Zoom, then press either mouse button. A rectangle appears on the screen. Use the arrow buttons on the keypad or the disk mouse on the remote to move the rectangle to the area you want to zoom, then click the right mouse button (not the left mouse button). The image is zoomed. To zoom further, press the right mouse button, move the rectangle to the desired area, then press the right mouse button again. You can zoom three times. To return the image to normal view, press the left mouse button. The zoom rectangle appears. To cancel zoom, press the left mouse again or activate the menu.

Controls Menu

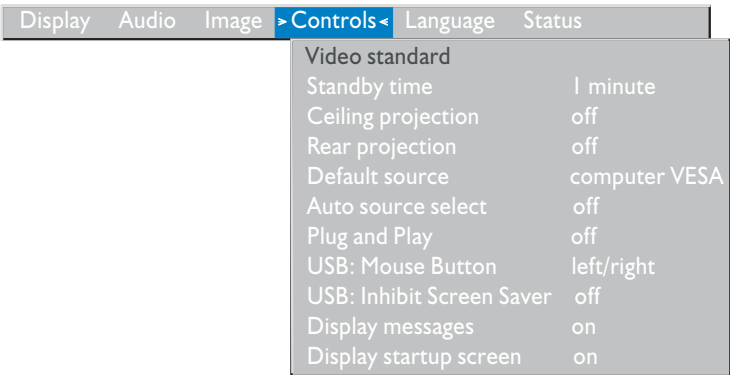


FIGURE 26

Controls menu

Video Standard

When Video standard is set to Auto, the projector attempts to pick the video standard (NTSC, NTSC 4.43, PAL, PAL-M, PAL-N, PAL-60, or SECAM) automatically based on the input signal it receives. (The video standard options may vary depending on your region of the world.) The input signal for SECAM video is similar to other video signals and cannot be automatically detected, therefore SECAM must be chosen manually. If the projector is unable to detect the correct standard, the colors might not look right or the image might appear “torn.” If this happens, manually select a standard by clicking the left or right mouse button and cycling through the standards.

Standby Time

This option lets you select how long the lamp stays on and the blank screen is displayed when the projector enters standby mode before the projector turns off. Select among instant, 1, 5, 10, 15 and 30 minutes and 1 and 2 hours by clicking the left or right mouse button and cycling through the options.



NOTE: If you already know the video standard used in your geographical area, it's often best to manually select it.

Ceiling Projection

When you turn **Ceiling Projection** on, the projector turns the image upside down for ceiling-mounted projection. Highlight Ceiling Projection, then click the left or right mouse button to turn this feature on and off.

Rear Projection

When you turn **Rear Projection** on, the projector reverses the image so you can project from behind a translucent screen. Highlight Rear Projection, then click the left or right mouse button to turn this feature on and off.

Default Source

Default Source toggles among Computer RGBHV, Computer VESA, Computer M1 Analog, Computer M1 Digital, Computer Cable Hub and Component Video, Composite Video, and S-video. This determines which source the projector checks first for active video during power-up. Highlight Default Source and click the left or right mouse button to toggle among the options.

Auto Source Select

This setting toggles between On and Off. When this feature is Off, the projector defaults to the source selected in Default Source. To display another source, you must manually select one by pressing the **source** button on the keypad or the **computer** or **video** button on the remote. When this feature is On, the projector automatically finds the active source, checking the default source first. Highlight Auto Source Select and click the left or right mouse button to turn this feature on and off.

Plug and Play

This setting toggles between On and Off. When it is On, most new computers will automatically recognize the projector, then set the monitor resolution and refresh rate accordingly. You need to set the Plug and Play setting to Off for the projector to display properly on some older computers. The Plug and Play setting does not affect video images.

If the projector's display constantly changes between the computer image and the message, "Perfecting the image", you may need to turn Plug and Play Off.

USB: Mouse Button

This setting toggles between Left/Right and Page up/Page down. Use Page up/Page down if you want to use the remote or keypad mouse buttons to advance slides in PowerPoint. A type B USB mouse cable must be connected to use this feature. See page 11 for details. This feature is available for PC Computer RGBHV and VESA sources only. It is not supported on the Macintosh platform.

USB: Inhibit Screen Saver

This setting toggles between On and Off. When it is On, your computer's screen saver will not be activated. A type B USB mouse cable must be connected to use this feature. See page 11 for details. This feature is available for PC Computer RGBHV and VESA sources only. It is not supported on the Macintosh platform.

Display Messages

This setting toggles between On and Off. When this feature is On, status messages such as "No signal detected" or "Standby Active" appear in the lower-right corner of the screen. Click the left or right mouse button to turn this feature off and not see status messages.

Display Startup Screen

This setting toggles between On and Off. When this feature is On, the startup screen appears when the projector starts up and remains until an active source is detected. The startup screen contains contact information. Click the left or right mouse button to turn this feature off and display a plain black or blue screen instead of the startup screen.

Language Menu

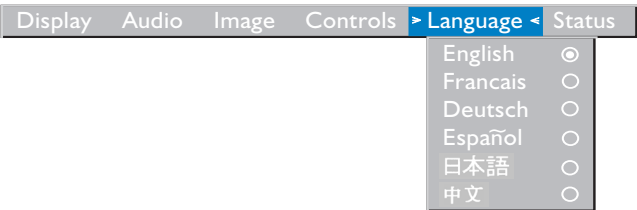


FIGURE 27

Language menu

You can display the on-screen menus in English, French, German, Spanish, Chinese or Japanese.

- Move the cursor to the language you want, then click the left or right mouse button. The menus redraw immediately.

Status Menu

This is a read-only window for informational purposes. To display the status window, select Show status from the menu, then click the left or right mouse button. To remove the window, click the left or right mouse button.

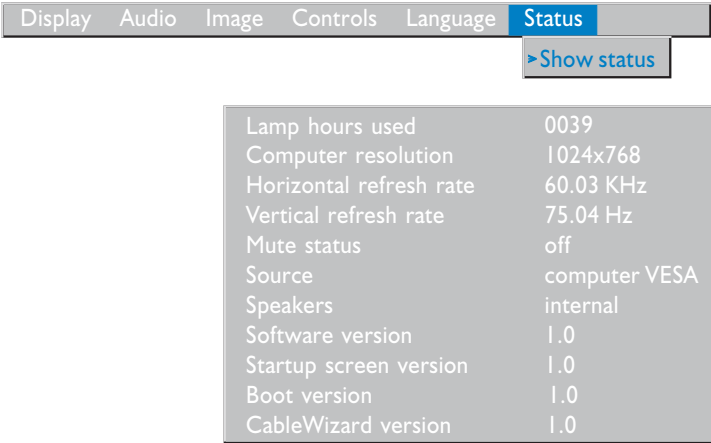


FIGURE 28

Status menu

Lamp hours used

Indicates how many hours the current lamp has been in use. The counter starts at zero hours and counts each hour the lamp is in use. After 1,900 hours, the message “Change Lamp” temporarily appears on the screen when the projector is turned on. Change the bulb when the brightness is no longer acceptable. See “Replacing the Projection Lamp” on page 41 for details.

Computer resolution

Shows your computer’s resolution setting. To change this, go to your computer’s Control Panel and adjust the resolution in the Display tab. See your computer’s user’s guide for details.

Horizontal refresh rate

The time period that one horizontal line is displayed.

Vertical refresh rate

The time period that one video frame is displayed.

Mute status

Indicates if the audio is muted. Mute is only available on the optional remote.

Source

Indicates the active source: Computer RGBHV, Computer VESA, Computer M1 Analog or Computer M1 Digital, Computer Cable Hub, Component Video, Composite Video, or S-Video.

Speakers

Indicates if external speakers are connected.

Software version

Indicates the projector’s software version. This information is useful when contacting Technical Support.

Startup screen version

Indicates the projector’s startup screen version. This information is useful when contacting Technical Support.

Boot version

Indicates the projector’s boot software version. This information is useful when contacting Technical Support.

Cable Hub Version

Indicates the Cable Hub's software version. This information is useful when contacting Technical Support.

MAINTENANCE & TROUBLESHOOTING

This section describes how to:

- clean the lens
- replace the projection lamp
- replace the batteries in the remote
- use the security lock feature
- troubleshoot the projector

Cleaning the Lens

Follow these steps to clean the projection lens:

- 1 Apply a non-abrasive camera lens cleaner to a soft, dry cloth.
 - Avoid using an excessive amount of cleaner.
 - Abrasive cleaners, solvents or other harsh chemicals might scratch the lens.
- 2 Lightly wipe the cleaning cloth over the lens in a circular motion.
- 3 If you don't intend to use the projector immediately, replace the lens cap.

Replacing the Projection Lamp

The lamp hour counter in the Status menu counts the number of hours the lamp has been in use. After 1,900 hours, the message "Change Lamp" temporarily appears on the screen when the projector is turned on. Replace the lamp when the brightness is no longer acceptable. You can order new lamp modules from your Dukane dealer. See "Accessories" on page 50 for information.

Follow these steps to replace the projection lamp:

- 1 Turn off the projector by unplugging the power cord.
- 2 Wait 30 minutes to allow the projector to cool thoroughly.
- 3 Use a screwdriver to remove the seven screws on the back of the projector (Figure 29).



WARNING: To avoid burns, allow the projector to cool for at least 30 minutes before you open the lamp module door. Never extract the lamp module while the lamp is operating.



WARNING: Be extremely careful when removing the lamp module. In the unlikely event that the bulb ruptures, small glass fragments may be generated. The lamp module is designed to contain these fragments, but use caution when removing the lamp module.

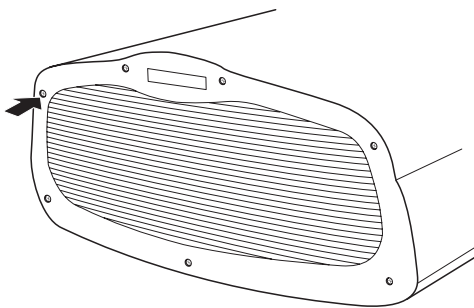


FIGURE 29

Removing the screws on the lamp door



CAUTION: Never operate the projector with the lamp door open or removed. This disrupts the air flow and causes the projector to overheat.

- 4 Loosen the three captive screws on the outside of the module.

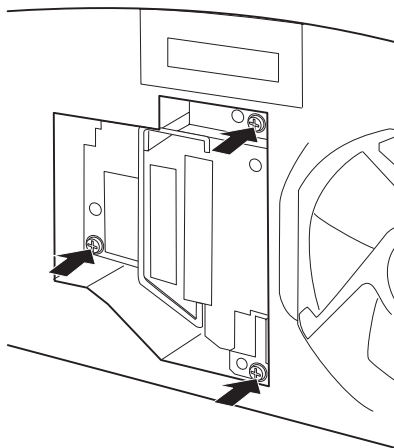


FIGURE 30

Loosening the screws on the lamp module

-
- 5 Lift and grasp the metal handle and pull the module out (Figure 31). Dispose of the lamp module in an environmentally proper manner.

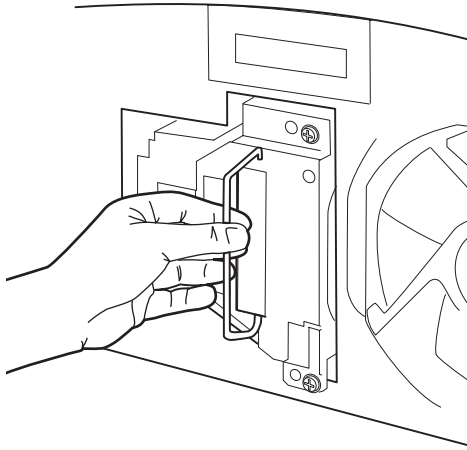


FIGURE 31

Removing the lamp module

- 6 Install the new lamp module, being sure to align the connectors properly.
- 7 Push the module in until it is flush with the case of the projector.
- 8 Tighten the three screws on the outside of the module.
- 9 Replace the lamp door and re-install the seven screws.
- 10 Plug in the power cord and press the power button to turn the projector back on. The lamp hour counter in the Status menu is automatically reset to zero.



WARNING: Do not drop the lamp module or touch the glass bulb! The glass may shatter and cause injury.

Replacing the Batteries in the Remote Control

The life of the batteries depends on how often and how long you use the remote. Symptoms of low battery charge include erratic responses when using the remote and a reduced range of operation.

Follow these steps to replace the batteries:

- 1 Turn the remote face down in your hand.
- 2 Slide the battery cover off the end of the remote.
- 3 Remove the old batteries and dispose of them in an environmentally proper manner.
- 4 Install two new AA alkaline batteries. Make sure you install each in the correct direction.
- 5 Slide the battery cover back on the remote.

Using the Security Lock

The projector has a security connector for use with a PC Guardian Cable Lock System (Figure 32). See “Optional Accessories” on page 50 for ordering information. Refer to the information that came with the lock for instructions on how to use it to secure the projector.

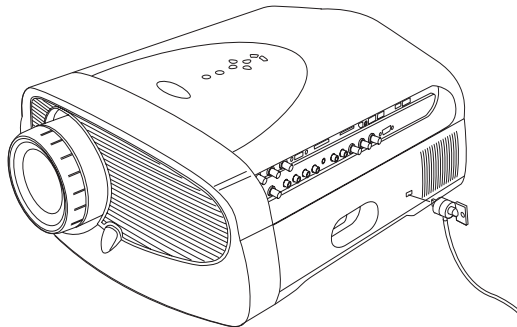


FIGURE 32

Installing the security lock

Troubleshooting

Problem: Nothing on projection screen

- Make sure that the power cord is properly connected to a fully functional AC electrical outlet. Make sure that the power cord is also properly connected to the projector.
- If the projector is plugged into a power strip, make sure the power strip is turned on.
- Make sure you have removed the lens cap on the projection lens at the front of the projector.
- Make sure the lamp is switched on.
- Check the projector's lamp to ensure that it is securely connected in the lamp module. See "Replacing the Projection Lamp" on page 41.
- Make sure that the cables do not have any bent pins.

Problem: Color or text not being projected

- You might need to adjust the brightness up or down until the text is visible. Refer to "Brightness" on page 28 for more information.

Problem: The screen resolution is not right

- Make sure the computer's video card is set for a resolution of no greater than 1280x1024.

Problem: Image isn't centered on the screen

- Move the projector to reposition the image.
- Reposition the image using the software. Refer to "Horizontal position" on page 34 and "Vertical position" on page 34.
- Be sure the projector is at a 90 degree angle to the screen.

Problem: Only the start-up screen displays

- Verify that the cables are connected correctly. See page 12 through page 14 for connection procedures.
- Verify that the proper input source is connected and active. See "Source (keypad only) or Comp and Video (remote only)" on page 26.

- You might need to turn everything off and power up the equipment again in the proper order. Refer to your computer's documentation to determine the correct order.
- Make sure your laptop's external video port is turned on. See the "Portable and Laptop Activation Chart" on page 52 or your computer's manual for details.
- Make sure your computer's video board is installed and configured correctly.
- Make sure your computer has a compatible video board. The projector isn't CGA, EGA or SXGA compatible.

If you're using Windows 98:

- 1 Open "My Computer" icon, the Control Panel folder and then the Display icon.
- 2 Click the Settings tab.
- 3 Verify that the Desktop area is set to 1280x1024 or less.

Problem: Image is too wide or narrow for screen

- Adjust the zoom or projector placement.
- Adjust the resolution of your video card if it's greater than 1280x1024.

Problem: Image is out of focus

- Turn the projection lens to focus the image.
- Make sure the projection screen is at least 3.3 feet (1 m) from the projector.
- Check the projection lens to see if it needs cleaning.

Problem: Image and menus are reversed left to right

- Rear projection mode is probably turned on. Turn Rear Projection off in the Controls menu. The image should immediately return to forward projection. See "Rear Projection" on page 36.

Problem: the projector displays vertical lines, “bleeding” or spots

- Adjust the brightness. See “Brightness” on page 28.
- Check the projection lens to see if it needs cleaning.

Problem: no sound

- Adjust volume.
- Verify audio/input connections. Make sure you have selected the proper audio source. See “Audio Source Select” on page 31.
- Adjust audio source.

Problem: Image is “noisy” or streaked

Try these steps in this order.

- 1 Deactivate the screen saver on your computer.
 - 2 Turn **Auto Image** off and then back on again. See “Auto Image” on page 32.
 - 3 Turn **Auto Image** off and adjust the synchronization and tracking manually to find an optimal setting. See “Manual Sync” on page 33 and “Manual Tracking” on page 33.
- The problem could be with your computer’s video card. If possible, connect a different computer.

Problem: Projected colors don’t match the computer or video player’s colors

- Just as there are differences in the displays of different monitors, there are often differences between the computer image and the projected image. Adjust the brightness, tint and/or contrast from the Display menu. See “Brightness” on page 28, “Tint” on page 28 and “Contrast” on page 28.

Problem: Lamp seems to be getting dimmer

- The lamp begins to lose brightness when it has been in use for a long time. Replace the lamp as described in “Replacing the Projection Lamp” on page 41.

Problem: Lamp shuts off

- A minor power surge may cause the lamp to shut off. Unplug the projector, wait at least a minute, then plug it back in.
- Make sure the vents are not blocked.

Before calling your dealer or Dukane Customer Support for assistance, please have the following information available:

- the projector's serial number (located on the bottom label)
- the resolution of your computer.

Call Dukane Customer Support at:

630-584-2300 or Toll-Free at 1-800-676-2487

APPENDIX

Specifications

The projector must be operated and stored within the temperature and humidity ranges specified.

Temperature

Operating	50 to 104° F (10 to 40° C)
Non-operating	-4 to 158° F (-20 to 70° C)

Humidity

Operating and non-oper.	10% to 90% relative humidity, non-condensing
-------------------------	--

Dimensions

16.5 x 8.25 x 19.5 inches (41.9 x 21.0 x 49.5 cm)

Weight

25.5 lbs. (11.5 kg) unpacked

Altitude

Operating	0 to 10,000 feet (3,048 meters)
Non-operating	0 to 20,000 feet (6,096 meters)

Optics

Focus Range	3.3 - 40 feet (10-12 m)
-------------	-------------------------

Lamp

Type	230-watt UHE lamp
------	-------------------

Input Power Requirements

100-120VAC 5A; 50/60Hz
200-240VAC 3A; 50Hz

Accessories

Standard Accessories (ship with the projector)

Laser Pro Remote Control

Projection Lamp Module (one in projector)

Shipping Box

Lens Cap

User's Guide

A/V cable

VESA cable



NOTE: Use only Dukane
approved accessories. Other
products have not been tested with
the projector.

Optional Accessories

For a complete listing of Optional Accessories:

- Contact your local Dukane Dealer
- Contact Dukane Audio Visual Products Division at:
(800) 676-2485/2486
- Check out our web site at: www.dukane.com

Portable and Laptop Activation Chart

Many laptop computers do not automatically turn on their external video port when a projector is connected. Activation commands for some laptop computers are listed in the following table. (If your computer is not listed or the given command does not work, refer to the computer's documentation for the appropriate command.) On many laptops, the activation function key is labeled with an icon, for example  or the text CRT/LCD.



NOTE: Usually, pressing the key commands once activates the external video port, pressing it again activates both the external and internal ports, and pressing it a third time activates the internal port. Refer to your computer's documentation for details on your specific model.

Computer	Key command to activate port	Key command to de-activate port
Acer	Ctrl-Alt-Esc (for setup)	Ctrl-Alt-Esc (for setup)
AST* **	FN-D or Ctrl-D Ctrl-FN-D FN-F5 type from A:/VGA/CRT FN-F12	FN-D or Ctrl-D Ctrl-FN-D FN-F5 type from A:/VGA/CRT FN-F12
AMS	FN-F2	FN-F2
AMT	setup screen	setup screen
AT&T	FN-F3 FN-F6	FN-F3 FN-F6
Advanced Logic Research	Ctrl-Alt-V	Ctrl-Alt-V
Altima	Shift-Ctrl-Alt-C setup VGA/ Conf.Simulscan	Shift-Ctrl-Alt-L setup VGA/ Conf.Simulscan
Ambra**	FN-F12 FN-F5 F2/Choose Option/F5	FN-F12 FN-F5 F2/Choose Option/F5
Amrel* **	setup menu Shift-Ctrl-D	setup menu Shift-Ctrl-D
Apple	see Mac Portable and Mac PowerBook	
Aspen	automatic	automatic
Award	FN-F6	FN-F6
BCC*	automatic	reboot computer

Computer	Key command to activate port	Key command to de-activate port
Bondwell	LCD or CRT options after bootup	reboot for LCD or CRT options to appear
Chaplet**	setup screen FN-F6 FN-F4	setup screen FN-F6 FN-F4
Chembook	FN-F6	FN-F6
Commax	Ctrl-Alt-#6	Ctrl-Alt-#5
Compaq* **	Ctrl-Alt-< FN-F4 automatic mode/? (for setup option)	Ctrl-Alt-> FN-F4 automatic mode/? (for setup option)
Compuadd* **	automatic Alt-F for screen setup option	automatic Alt-F for screen setup option
Data General	Ctrl-Alt-Command	Ctrl-Alt-Command
Data General Walkabout	2 CRT/X at DOS prompt	reboot
Datavue	Ctrl-Shift-M	Ctrl-Shift-M
DEC**	FN-F5 FN-F4	FN-F5 FN-F4
Dell**	Ctrl-Alt-< Ctrl-Alt-F10 FN-F8 (CRT/LCD) FN-D FN-F12	Ctrl-Alt-> Ctrl-Alt-F10 FN-F8 FN-D FN-F12
Digital*	automatic FN-F2	reboot FN-F2
Dolch	dip switch to CRT	dip switch to LCD
Epson	dip switch to CRT	dip switch to LCD
Everex*	setup screen option	setup screen option
For-A	Ctrl-Alt-Shift-C	Ctrl-Shift-Alt-L
Fujitsu	FN-F10	

Computer	Key command to activate port	Key command to de-activate port
Gateway	FN-F3 FN-F1/FN-F1 again simultaneous	FN-F3 FN-F1
Grid* **	FN-F2, choose auto or simultaneous Ctrl-Alt-Tab	FN-F2 Ctrl-Alt-Tab
Hitachi	FN-F7	FN-F7
Honeywell	FN-F10	FN-F10
Hyundai	setup screen option	setup screen option
IBM 970*	automatic	warm reboot
IBM ThinkPad**	reboot, enter setup menu FN-F7, select choice from setup menu FN-F1, select choice FN-F5, select choice PS/2 SC select choice (CRT, LCD, etc.)	FN-F2
Infotel	FN-F12	FN-F12
Kaypro	boot up, monitor plugged in	unplug monitor
Kris Tech	FN-F8	FN-F8
Leading Edge	FN-T	FN-T
Mac Portable 100	no video port: not compatible	
Mac PowerBook 140, 145, 150, 170	no video port: requires a 3rd-party interface	
160, 165, 180, 520, 540, 5300	Control Panel folder; PowerBook Display folder; Activate Video Mirroring	warm reboot
210, 230, 250, 270, 280, 2300	requires Apple Docking Station or Mini Dock	
Magitronic	FN-F4	FN-F4
Mastersport	FN-F2	FN-F1

Computer	Key command to activate port	Key command to de-activate port
Micro Express*	automatic	warm reboot
Micron	FN-F2	FN-F2
Microslate*	automatic	warm reboot
Mitsubishi	SW2 On-Off-Off-Off	SW2 Off-On-On-On
NCR	setup screen option	setup screen option
NEC* **	setup screen option CRT at the DOS prompt FN-F3	setup screen option LCD at the DOS prompt FN-F3
Olivetti*	automatic FN-O/*	automatic FN-O/*
Packard Bell* **	FN-F0 Ctrl-Alt-<	FN-F0 Ctrl-Alt->
Panasonic	FN-F2	FN-F2
Prostar	Ctrl-Alt-S at bootup	Ctrl-Alt-S at bootup
Samsung*	setup screen option	setup screen option
Sanyo	setup screen option	setup screen option
Sharp	dip switch to CRT	dip switch to LCD
Sun SPARC-Dataview	Ctrl-Shift-M	Ctrl-Shift-M
Tandy**	Ctrl-Alt-Insert setup screen option	Ctrl-Alt-Insert setup screen option
Tangent	FN-F5	FN-F5
Texas Instruments*	setup screen option	setup screen option
Top-Link* **	setup screen option FN-F6	setup screen option FN-F6
Toshiba* **	Ctrl-Alt-End FN-End FN-F5 setup screen option	Ctrl-Alt-Home FN-Home FN-F5 setup screen option
Twinhead*	FN-F7 FN-F5 Automatic	FN-F7 FN-F5 Automatic
WinBook	Ctrl-Alt-F10	Ctrl-Alt-F10

Computer	Key command to activate port	Key command to de-activate port
Wyse	software driven	software driven
Zenith**	FN-F10	FN-F10
	FN-F2	FN-F2
	FN-F1	FN-F1
Zeos**	Ctrl-Shift-D	Ctrl-Shift-D
	FN-F1	FN-F1

* These manufacturers have models that automatically send video to the external CRT port when some type of display device is attached.

** These manufacturers offer more than one key command depending on the computer model.

Using Video Mirroring with a PowerBook Computer

When you turn video mirroring (called SimulScan in newer PowerBooks—see below) on, the projector displays the same information that appears on your PowerBook's built-in screen. When video mirroring is off, the projector acts like a separate display.

To turn on video mirroring for the first time:

- 1 Open the Monitors control panel; click on Monitor 2.
- 2 Set the number of colors you want.
- 3 Open the Control Strip, then click on the monitor icon.
- 4 Select "Turn Video Mirroring On."

Now you can turn video mirroring on and off from the Control Strip without having to open the Monitors control panel again.

When using video mirroring and high color graphics such as slide shows, the projected image occasionally might turn black and white. If this happens, perform the following steps:

- 1 Turn off video mirroring.
- 2 Open the Monitors control panel.
- 3 Move the white menu bar to Monitor 2 to set the projector as the primary monitor.
- 4 Restart the PowerBook.

Using SimulScan

Some newer PowerBooks display images on an external monitor or projector differently than previous ones. When using SimulScan, the projector displays the same information that appears on your PowerBook

To select SimulScan:

- 1 Open the Control Panel, then double-click Monitors and Sound.
- 2 In the Resolution list, choose the SimulScan mode, then click OK.
- 3 If this changes your display settings, a dialog box appears. Click OK to confirm the change.

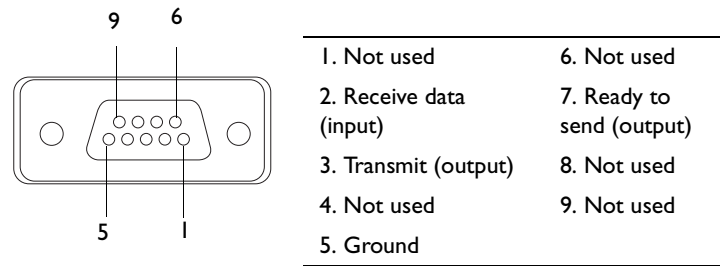
RS232 Terminal Specifications

Communication configuration

To control the projector from an LCD control panel or terminal software, connect a null modem type RS232 cable and set your computer's serial port settings to match this communication configuration:

Setting	Value
Bits per second	19,200
Data bits	8
Parity	None
Stop bits	1
Flow control	None
Emulation	VT100

Here are the pinouts of the RS232 connector (outputs and inputs are relative to the projector):



Command format

All commands consist of 3 alpha characters followed by a request, all enclosed in parentheses. The request can be a read request (indicated by a "?") or a write request (indicated by 1 to 4 ASCII digits).

A read request format: (AAA?) where

- (starts the command
- AAA denotes the command
- ? denotes the read request
-) ends the command

A read command returns the range and the current setting, for example:

Function	Command	Response
Brightness	(BRT?)	(0-22, 10)
Volume	(VOL?)	(0-80, 0)
Lamp hours	(LMP?)	(0-9999, 421)

A write request example: (AAA####) where

(starts the command
AAA denotes the command
denotes the value to be written
(leading zeros not necessary)
) ends the command



NOTE: To assure the projector can process a command, wait 3 seconds before entering the next command.

Some commands have ranges, while others are absolute. If a number greater than the maximum range is received, it is automatically set to the maximum number for that function. If a command is received that is not understood, a “?” is returned. With absolute settings, “0” is off, 1-2147483647 is on. The one exception is the Power command, where 0 is off and 1 is on.

Function	Command	Response
Brightness	(BRT 10)	Sets the brightness to 10
Freeze	(FRZ 1)	Freezes the display
Power	(PWR0)	Turns power off
Power	(PWR 1)	Turns power on
Power	(PWR9999)	?

Supported commands

Function	Command	Range
Power	PWR	0-1
Lamp Hours (Read only)	LMP	0-9999
Standby	STB	0-1
Freeze	FRZ	0-1

Brightness	BRT	0-63
Contrast	CON	0-63
Tint	TNT	0-63
Color	CLR	0-127
Contrast	CON	0-63
Reset All	RST	0-1
Auto Source Select Control	ASC	0-1
Default Source	DSC	0-9 0 = Computer RGBHV 1 = Computer VESA 2 = Computer M1 analog 3 = Computer M1 digital 4 = Computer Cable Hub 5 = Feature Card Analog (not currently available) 6 = Feature Card Digital (not currently available) 7 = Component Video 8 = Composite Video 9 = S-video
Source	SRC	0-9 (same designations as Default Source)
Volume	VOL	0-100
Mute	MTE	0-1
Balance	BAL	0-60
Fade	FAD	0-60
Image Position	IPO	0-2
Treble	TRB	0-100
Bass	BAS	0-100
Mute	MTE	0-1
Auto Image	AIM	0-1
Resize	ARZ	0-1
Manual Sync Setting	MSS	0-20
Manual Tracking Setting	MTS	800-2112
Horizontal Position Setting	HPS	0-256

USB:Inhibit Screen Saver	UIS	0-1
USB:Mouse Button	UMB	0-1
Current	USB	0-6
Vertical Position Setting	VPS	0-28
Video Standard	VSU	0-6 0 = NTSC 1 = PAL 2 = PAL-M 3 =PAL-N 4 = SECAM 5 = NTSC4.43 6 = PAL-60
Language	LAN	0-5 0 = English 1 = French 2 = German 3 = Spanish 4= Chinese 5= Japanese
Video Connection Status	VCS	0-2147483647
TV Connector Control	TVC	0-3
Color Temperature	TMP	0-25
System State	SYS	0-2147483647
Sharpness	SHP	0-10
Standby Time	SBT	0-7
Power Off Time	POT	0-7
Plug and Play	PAP	0-1
Overscan	OVS	0-1
Menu	MNU	0-1
Splash Screen	DSU	0-1
Display Message	DMG	0-1
Blank Screen Color	BSC	0-1
Audio Select	ASL	0-3
Audio Mode	AMO	0-2147483647
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LEGAL INFORMATION

FIVE-YEAR LIMITED WARRANTY

This Dukane LCD projector is warranted to the original purchaser for a period of five (5) years from the original purchase date - in normal use and service - against defects in material and workmanship. DUKANE CORPORATION EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

During the warranty period, Dukane Corporation will repair or replace (at the manufacturer's option) any such defective parts (except for the lamp, which is subject to whatever warranties the manufacturer may provide) without charge to the purchaser for parts or labor when the product is returned, prepaid and insured, with proof-of-purchase date. This remedy is void if the product has been damaged by accident, unreasonable use, neglect, improper service or other causes not arising out of defects in material or workmanship.

Dukane Corporation disclaims all liability for incidental or consequential damage of any kind, including all damages arising out of any interruptions in operation of the product and all damages to software.

No person, firm, or representative is authorized to assume any obligation or to make any warranty on behalf of the Dukane Corporation other than as stated above.

**THIS LIMITED WARRANTY IS VALID FOR U.S.A AND CANADA.
FOR OTHER LOCATIONS, LOCAL WARRANTIES APPLY.**

LAMP REPLACEMENT SERVICE & REPAIR POLICY & PROCEDURE

For service and parts, contact the Dukane AV Service Department at 1 (800) 676-2487 within the USA or 1 (630) 584-2300 worldwide. If you would like to send a facsimile (FAX), dial 1 (630) 584-5156 worldwide.

When requesting warranty service, please have the sales receipt available along with the model name and serial number.

If it becomes necessary to return the projector, use the original packing material and box (if retained) or pack securely. Dukane Corporation will not be liable for any pick-up or delivery charges or any expenses incurred for service calls or service supplied by anyone other than the Dukane AV Service Department.

Audio Visual Products

Dukane Corporation
Audio Visual Products Division
2900 Dukane Drive
St. Charles, IL 60174-3395
E-mail: avsales@dukane.com

Phone: (630) 584-2300
Orders: (800) 676-2485
Information: (800) 676-2486
Fax: (630) 584-5156
Parts & Service: (800) 676-2487
Fax: (630) 584-0984

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