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The information contained in this user guide is preliminary, and the products described herein are subject to change without prior notice.



The symbols  and  are used in this publication to indicate Warning and Note respectively.

1 INTRODUCTION

Congratulation on purchasing this state of the art LCD projector. The unit can be connected to most computer and video sources for the best projection results.

The ability to display a multitude of colors simultaneously, makes it the ideal choice for presenting computer generated text and graphics, as well as displaying live video.

Applications include presentations, software training, educational use, advertising, information boards and other situations where a small or large audience shares information.

Please spend some time reading this manual to get familiar with the product, so that you can get the most out of your new LCD projector.



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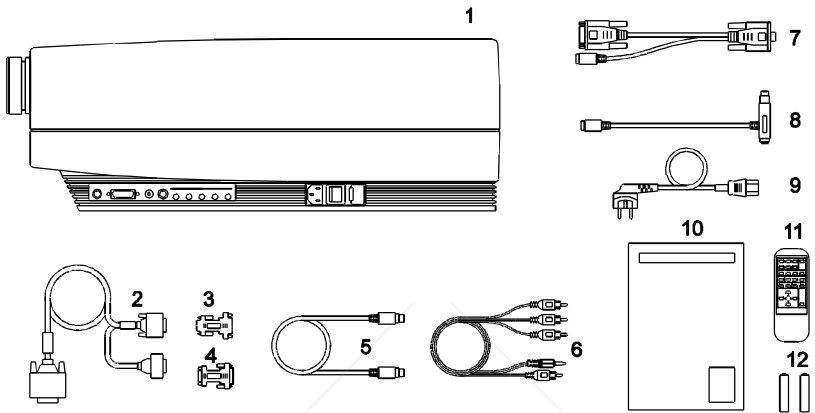
2 MAIN FEATURES

The unit employs the following important features that in total provide you with a highly functional and powerful projector :

- **High brightness illumination system**
- **PC, MAC and SVGA compatible**
- **Built in NTSC/PAL/SECAM video interface**
- **Correct PAL/SECAM aspect ratio**
- **16.7 million colors**
- **BatMouse™, remote control mouse**
- **On Screen Display (OSD)**
- **On Screen Pointer**
- **Menu Control**
- **User settings memorized**
- **Correct VGA text**
- **Motorized lamp changer**
- **Compact housing**
- **Low weight**
- **Intelligent Safecool system**
- **False light blocking**
- **4 meter Y-split computer cable**

3 SUPPLIED MATERIAL

A complete set includes the following components :



- | | |
|---------------------------|------------------------------|
| 1. LCD Projector | 7. Mouse Adapter PC |
| 2. VGA-Cable | 8. Mouse Adapter Mac |
| 3. Cable-Adapt. MAC mon. | 9. Power Cord |
| 4. Cable-Adapt. MAC comp. | 10. User Guide |
| 5. Mouse Cable | 11. BatMouse, Remote Control |
| 6. AV Cable | 12. Batteries |

4 OPTIONAL MATERIAL

Optional cables and adapters are available for special computer sources. Consult your dealer for further information.

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5 SETTING UP THE LCD PROJECTOR

Switch off all equipment before connecting the components. Be aware of static electricity that may build up, especially in the dry season and when operating on synthetic carpets. Discharge any static electricity by touching a metallic surface before you start.



Check for correct mains voltage before powering the projector (see label close to mains input connector).



Do not cover the air inlet in front or the air outlet on top of the projector housing as this will block the cooling. A thermal safety switch will cut off the illumination system if the ventilation is reduced.

Place the LCD projector on a table at a suitable distance from the projection screen in order to get the desired size of the projected image on the wall. Adjust the projection lens for a sharp image by turning the focusing wheel on the lens barrel. Project on a flat surface screen with high reflectivity to get a bright and undistorted, rectangular image. Best results are obtained in a dimmed room with no direct sunlight shining in.



Switch off all equipment before you connect the LCD projector to the computer, mouse and video source as outlined in the following chapters. Then apply power first to the LCD projector, then to the computer and video source for correct operation.

5.1 COMPUTER

Connect the LCD projector, computer and monitor as show in the rear foldout page (see *Connection Layout*).

Connect cable (2) between the LCD projector and the computer. Use the Y-split on the computer end to connect the monitor.

If you have a Macintosh, EGA, CGA or NEC computer, insert applicable adapters (3) and (4) as described in the table below.

If needed, connect sound to the COMPUTER AUDIO input.

APPLICABLE ADAPTERS :

COMPUTER	ADAPTER
VGA	None
EGA/CGA	EGA/CGA (option)
MACII c../v../LC/ Quadra/Powerbook/ Duo etc.	MACII (640 x 480) (included)
NEC 9801	NEC 9801(option)

TO SET UP FROM THE BATMOUSE REMOTE CONTROL:

STEP	OPERATION
1	Press RESET for default settings
2	Press MENU, then select TUNE and adjust with cursor keys
3	In the menu, select POSITION, press the LEFT key, then adjust with cursor keys
4	Press MENU again to close the menu
5	Adjust CONTRAST and BRIGHTNESS as desired

5.2 MOUSE

See the rear foldout when setting up.

Connect the mouse to the LCD projector using the appropriate adapter (5) as described in the table below. Then connect the adapter (5) to the mouse cable (1) at the computer end. Finally, connect the mouse cable (1) to the LCD projector.

For the computer to recognise the mouse, connect the mouse before power is applied.

A Y-split is provided with the PC and MAC adapters that enables parallel use of the local computer mouse and the remote mouse. The local and remote mice should however not be operated simultaneously, as this may lead to unpredictable positioning of the mouse pointer.

If you have a Macintosh, make sure to connect your Mac mouse adapter via the keyboard.

The optional PS/2 adapter does not have a Y-split.

APPLICABLE ADAPTERS:

MOUSE	ADAPTER
Microsoft 2 key compatible (9 pin serial port)	PC *)
PS/2 compatible mouse	PS/2
Macintosh ADB-bus mouse	MAC

*) Please note that some computers using the Microsoft 2 key mouse may not allow the Y-split mouse adapter to work. A special straight PC adapter is available for this purpose.

USING THE BATMOUSE:

STEP	OPERATION
1	Control mouse pointer directly with the cursor keys
2	Press LEFT to activate (emulates the left mouse key)
3	Press DRAG to tag an object, move it using the cursor keys, then press DRAG again (or wait 5 seconds) to release the object (Drag-and-Drop).
4	Press RIGHT if your application requires emulation of the right mouse key.

The centre key of three-key mice is not supported.

If double-click does not work properly, try to adjust the double-click rate within the computer application in use. To activate the pull-down menus on a Macintosh computer, use the DRAG key instead of the left mouse key!

5.3 AUDIO AND VIDEO

Connect the LCD projector to a video source as shown in the rear foldout.

Use a TV set as a local video monitor if desired (the data monitor may not be used as a video monitor).

Connect the AV cable (6) to the AUDIO and VIDEO connectors on the LCD projector. Then connect the AV cable to the audio out connectors and video out connector on the video source. Connect sound to the correct AUDIO channel (S-VIDEO or VIDEO).

S-VIDEO, often referred to as S-VHS, may be connected using an optional S-VIDEO cable.

Connect external speakers (8) as shown. The internal speaker is switched off when external speakers are connected.

For added boost, an external amplifier may be connected to the speaker output (8).

Connect the microphone (7) to the projector as shown.

APPLICABLE CABLES:

SOURCE	CABLE
S-VIDEO	S-VIDEO (4 pin mini DIN connector)
VIDEO	AV cable (RCA jacks)
AUDIO (COMPUTER, S-VIDEO, VIDEO)	AV cable (RCA jacks and 3.5 mm jack)
MICROPHONE	Microphone cable (3.5 mm jack)
SPEAKER	Speaker cable (3.5 mm jack)

TO SET UP FROM THE BATMOUSE:

STEP	OPERATION
1	Press S-VIDEO or VIDEO depending on input used
2	If necessary, press MENU, then POSITION correctly
3	If necessary, in the MENU under PICTURE, adjust COLOR saturation and TINT (only NTSC)
4	Adjust CONTRAST, BRIGHTNESS and VOLUME

6 USING THE LCD PROJECTOR

The LCD projector has a set of connectors and controls that you need to know in order to operate the device correctly.

6.1 OPTICS

The projection lens is mounted in the front of the projector. The optical system is designed with a 12 degree keystone correction so that the projected image is shifted upwards on the wall. This in effect enables the placement of the projector on a flat table, still getting a rectangularly projected image on the wall.



Avoid scratching and bumping the lens, as this will reduce the quality of the projected image. Always re-cap the lens when not in use!

6.2 ILLUMINATION SYSTEM

The LCD projector uses a 400W halogen lamp for illumination. An additional lamp (spare lamp) is included in case the main lamp goes out. The two lamps are mounted in a motorized lamp changer. If one lamp fails, the other lamp can be shifted in place for continuous operation by pressing the LAMP CHANGER button on the control panel.

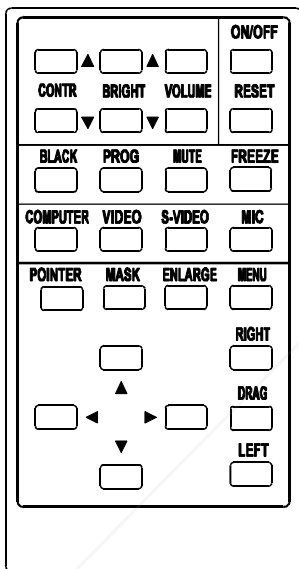


Always replace a defective lamp with a new one after the projector has cooled down, since the internal lamp house is hot when in use.

6.3 REMOTE CONTROL

The infrared BatMouse remote control (RC) is the main user interface to the device. The RC is used to set the LCD projector correctly (to get the best possible viewing conditions) and to control the presentation.

The figure shows the different keys of the BatMouse.



Set-up should be done once with the application(s) you are running most frequently. Allow some minutes for the equipment to warm up before adjusting. Most settings will automatically be memorized individually for each source for future use.



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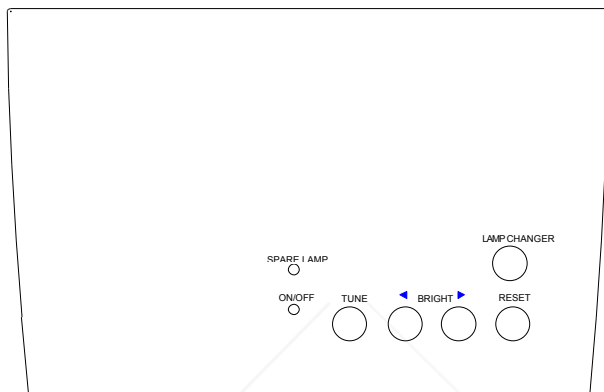
The 'MEM' column in the tables below indicates whether the setting is memorized for each source. A short-form description is outlined in the table below. For a detailed overview, please see the *Features* section.

BATMOUSE KEYS :

CONTROL	FUNCTION	MEM
CONTR	Contrast (ratio between light and dark colors)	YES
BRIGHT	Brightness (whiteness)	YES
VOLUME	Sound volume control	YES
ON/OFF	Turns the projector on/off	-
RESET	Defaults to standard settings	-
BLACK	Blackens the screen	NO
PROG	This key may be programmed to one of the menu controls	YES
MUTE	Switches sound on and off	NO
FREEZE	Holds the image displayed	NO
COMPUTER	Selects computer as source	YES
VIDEO	Selects composite video as input source	NO
S-VIDEO	Selects S-VIDEO as input source	NO
MIC	Toggles microphone on and off	NO
POINTER	Applies a cursor controlled pointer	NO
MASK	Applies a black overlay on the displayed image, controlled by the vertical cursor keys	NO
ENLARGE	Doubles the image vertically	NO
MENU	Invokes the menu system	NO
CURSORS	The four cursor keys control the computer mouse	-
RIGHT	This key emulates the right mouse key	-
DRAG	This key emulates the drag function	-
LEFT	This key emulates the left mouse key and is also used to execute menu commands	-

6.4 CONTROL PANEL

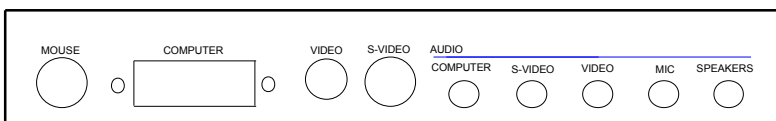
The control panel keyboard consists of a subset of the remote control keys. For a detailed overview, please see the *Features* section.



CONTROL	FUNCTION
TUNE	Adjusts the stability of the image
BRIGHT	Adjusts the brightness (whiteness) of the image
RESET	Defaults to factory settings
LAMP CHANGER	Change to spare lamp
SPARE LAMP	Spare lamp indicator
ON/OFF	Activity indicator

6.5 CONNECTORS

All connectors are positioned on the left hand side of the LCD projector (seen from the rear). See the technical data section for pinouts of the various connectors.



Do not connect any other devices with similar plugs to the connectors of the LCD projector, as this voids any warranty and may cause permanent damage to the device.

CONNECTOR	FUNCTION
MOUSE	Universal mouse connector
COMPUTER	Combined connector for analog and digital RGB
S-VIDEO	S-VIDEO (S-VHS) video input
VIDEO	Composite video input
AUDIO COMPUTER	COMPUTER channel stereo sound input
AUDIO S-VIDEO	S-VIDEO channel stereo sound input
AUDIO VIDEO	VIDEO channel stereo sound input
MICROPHONE	Microphone input
SPEAKER	Stereo speaker output

7 FEATURES

The LCD projector has a variety of different features implemented. This chapter explains each feature in detail.

7.1.1 INTELLIGENT SAFECOOL SYSTEM

The fan operates as long as the LCD projector is switched on. This ensures a continuous protection against high temperature inside the projector. The cooling system is designed to minimize stray light and noise.

7.1.2 MOTORIZED LAMP CHANGER

The projector is equipped with two 400W halogen lamps. If one lamp fails during a presentation, the spare lamp can be shifted in position and switched on. Press the LAMP CHANGER button on the control panel to change lamp. This ensures continuous operation during a presentation. A LED on the control panel lights when the spare lamp is in use, indicating that the defective lamp should be replaced.



Always replace the defective lamp as soon as the projector has cooled down after use



To avoid burns, do not open the rear door to replace a defective lamp until the unit has cooled down after operation. The interior of the projector is heated during use.

7.1.3 SET-UP MEMORY

The user controlled set-up, that usually is done when the projector is connected to a new computer, is automatically memorized for future use. The set-up information is stored in a non-volatile memory approximately 5 seconds after the last key is pressed.

The memory can store 40 different sources/modes. Several sources are predefined, while the remaining are available for customer set-up of sources. See the *Technical Data* section for compatibility.

Custom sources are stored only if their sync pattern differs from any of the previous selections. The projector automatically selects a new memory location.

Most settings are stored individually for each mode, including contrast, brightness, tune etc. See the remote control table in the *Remote Control* section.



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7.1.4 SVGA

SVGA in 800x600 mode is compressed both horizontally and vertically to 640x480 resolution. This feature is convenient when displaying irregular images (like pictures, scanned images and coarse graphics).

Regular images (patterns, text and fine line graphics) may look distorted due to the downsizing. In this case, we recommend setting up the computer in 640x480 mode for a precise image.

7.1.5 VGA TEXT

VGA text is compressed correctly from 720x400 to 640x400 mode when the image is positioned correctly. The characters maintain their shape, as every ninth pixel is dropped horizontally between each character. Selecting MCGA in the menu will deactivate the text compression. This is useful for 320x200x256 MCGA images.

7.1.6 BUILT IN SPEAKERS

Stereo speakers are built into the LCD projector that provide ample sound for small and medium sized rooms. External speakers may be used for better freedom in positioning of the speakers. An external amplifier may also be connected to the speaker outputs for added boost to the external speakers.

7.1.7 MULTISTANDARD TV SYSTEMS

The LCD projector incorporates a unique multistandard video decoder that works with all major TV systems. NTSC, PAL and SECAM are automatically detected. See the *Technical Data* section for TV system compatibility. (The PAL M and N systems are not supported).

7.1.8 PAL/SECAM ASPECT RATIO

The NTSC system maps directly to a 640 x 480 resolution display. The PAL and SECAM systems need aspect ratio conversion to fit correctly. The LCD projector automatically adapts to NTSC, PAL and SECAM formats and adjusts the aspect ratio accordingly.

7.1.9 ON SCREEN DISPLAY (OSD)

The OSD is an information system that in plain text echoes your RC and MENU selections on screen in real time. The OSD information is displayed in the lower left corner of the screen. The OSD feature may be set visible or hidden through the menu system.

See also the *Menu System* section.

7.1.10 MOUSE

The remote control (RC) employs a unique mouse functionality that enables full mouse control of your PC, PS/2 or Macintosh computer. By default, the cursor keys of the remote control emulate the mouse.

The LEFT and RIGHT keys emulate the left and right keys on a standard two-key mouse. For Macintosh computers, the right key is not used.

The DRAG key is used to emulate the click-and-hold action. To move an object, position the mouse cursor, press DRAG to tag the object, position the object as desired using the cursor keys, then press DRAG again to release the object. DRAG is automatically released 5 seconds after the last key is pressed. The DRAG key is used to activate the pull-down menus on the Macintosh.

7.1.11 POINTER

The pointer is a red spot applied to the projected image, and can be moved freely around using the cursor keys. Activating POINTER will deactivate the MOUSE function (as the same cursor keys are used). The POINTER is a toggle function.

The pointer may be used with any application, including live video, for focusing attention.

The pointer may not be used when the MENU is active. The pointer must also be switched off when controlling the mouse.

7.1.12 MASK

The MASK is a black (opaque) overlay on the image displayed. The MASK may be positioned vertically using the cursor keys. The MASK key is a toggle function. Other cursor controlled features like POINTER and MOUSE does not work when MASK is active.

7.1.13 ENLARGE

The ENLARGE function doubles the image vertically. Pressing the ENLARGE button repeatedly will display the enlarged upper part, enlarged lower part and then go back to normal (not enlarged). ENLARGE is not active when displaying S-VIDEO, VIDEO or SVGA. Pressing RESET will bring ENLARGE back to normal.

7.1.14 FREEZE

Press the FREEZE button on the RC to lock the image displayed. This feature is useful if you want to make changes locally on your computer that should not be presented to the audience. It is also useful for freezing live video images when showing video. Press FREEZE once more to resume on-line operation. Any other key pressed will also release FREEZE.

7.1.15 BLACK

Use the BLACK key on the RC, if you temporarily want to suspend the display of images. The BLACK key is a toggle function, and the screen goes black when activated. Blanking the image is done using the ON/OFF key. Any key pressed will release BLACK.

7.1.16 PROG

This key may be programmed to one of the menu functions of your choice. In the menu, select option and then press PROG. This option is now memorized, and available (when not in the menu) directly from the PROG key on the remote control, until a new programming is performed.

7.1.17 CONTRAST

The contrast of an image is defined as the relation between dark and light colors. An image of high contrast is often regarded as 'hard', as compared to the 'soft' feeling of a low contrast image. Low contrast is recommended for long term viewing, while high contrast is used to enhance details. Use the CONTR keys on the remote control (RC) to adjust the contrast. Also see *Brightness*. The contrast setting is stored individually for each mode.

7.1.18 BRIGHTNESS

The brightness is the amount of white in an image. The brightness is adjusted to the ambient lighting conditions. Usually, a bright, low contrast image is preferred. Use the BRIGHT keys to adjust brightness. See also *Contrast*. The brightness setting is stored individually for each source.

7.1.19 VOLUME

The sound volume is controlled using the VOLUME up and down keys.

7.1.20 MUTE

The sound is switched on and off using the MUTE key. Pressing VOLUME up or down will also release MUTE.

7.1.21 COMPUTER

The computer image is displayed when pressing the COMPUTER key. This is the power on default setting.

7.1.22 S-VIDEO

The S-VIDEO source is selected with this key.

7.1.23 VIDEO

The composite video source is selected with this key.

7.1.24 MIC

The MIC key toggles the microphone input on and off. When on, the MIC is overlaid the AUDIO input (unless sound is muted).

7.1.25 MENU

The menu system is invoked using the MENU key. The menu system gives access to basic setup functions that are rarely used. See the separate *Menu System* chapter for details.

7.1.26 ON/OFF

The switch is located next to the mains input. There is also an ON/OFF key on the RC. This key is used to blank the screen.

7.1.27 RESET

This feature enables standard settings of most controls (see the 'MEM' column in the remote control description, where YES also indicates a standard setting). RESET will only reset the active mode.



A fundamental master reset may be performed by pressing all four RESET, BRIGHTNESS and TUNE buttons simultaneously for approx. 5 seconds, wait until the image reappears, then switch off the power. Repower the unit again. All settings will then return to factory defaults. Do not perform a master reset unless it is really required. This operation will also erase all custom sources and modes that have been memorized.

8 MENU SYSTEM

The menu system was developed to gain access to functions not often used, as opposed to frequently used features that are directly available through the RC.

Press the MENU key on the RC to invoke the menu system. When the menu is active, the cursor keys are used to navigate between options (and can therefore not be used for mouse control etc. at the same time). The LEFT key is used to activate an option.

The PROG key may be assigned to any of the menu options.

Toggle functions (like OSD ON/OFF) are tagged when active and untagged when not active.

Increase/decrease functions (like TUNE and FREQUENCY) are adjusted using the cursor keys. OSD is used to indicate the actual setting.

The MENU key is toggling the menu on and off. The menu is also switched off after one minute of no action. The last position in the menu is maintained during a session, but it is reset during power off. Most selections are memorized, unless otherwise noted.

The main menu selections SETUP, SOUND and PICTURE are explained in detail below.

Features only available with some sources are shown in light *italic* characters in the menu illustrations, while generally available functions are shown in bold characters.

8.1 THE SETUP MENU SELECTIONS

SETUP	SOUND	PICTURE
TUNE		
POSITION		
INVERSE		
FREQUENCY		
MAC LC		
LANGUAGE		
TIMER >	SET	
OSD HIDE	START/STOP	
ABOUT	VISIBLE	

8.1.1 TUNE

This feature is used to stabilize the image. An untuned image can be seen as sideways instability or 'swimming'. The TUNE function has no effect in VIDEO mode.

8.1.2 POSITION

Due to minor variations in graphic cards, the horizontal and vertical position may need adjustment. Select POSITION, then press LEFT and use the cursor keys.

VGA text mode (720 x 400) is correctly displayed when the image is positioned correctly.

8.1.3 INVERSE

This option inverts the image. This setting is not memorized.

8.1.4 FREQUENCY

This setting is usually not changed by the user. It is however provided in case of adaptation to special graphic cards that are close to one of those in the compatibility list. Generally, an incorrect frequency setting can be observed as an image too wide or too narrow, combined with vertical, unstable bands.

In SVGA mode (compressed 800 x 600) the frequency is set to fit the 800 pixels wide image in 640 positions horizontally.

8.1.5 MAC LC

The MACII series of computers are equipped with slightly different graphic interfaces that need manual setup on the RC to work correctly. Default is the MACII standard interface of 640 x 480 resolution. Pressing the MAC key toggles between the MACII LC 640 x 480 mode and the standard mode. An erroneous setting will typically be seen as an image too wide or too narrow, as well as vertical unstable bands.

8.1.6 LANGUAGE

A selection of languages is available for the menu options.

8.1.7 TIMER

The timer facilitates time control of a presentation. The timer may be set, started, stopped and hidden/displayed. An audible sound indicates timeout (unless sound is muted).

SET

Select SET, then adjust time using the cursor keys.

START/STOP

Select START/STOP to start or stop the timer.

VISIBLE

This function toggles between hide and display of the timer. Visible is default at power-up.

8.1.8 OSD HIDE

The OSD may be switched on or off as desired. This setting only affects the remote control operations, not the menu system. This setting is not memorized.

8.1.9 ABOUT

The LOGO image is displayed when ABOUT is selected. ABOUT is a toggle function. This setting is not memorized.

The LOGO is the image that is shown at power up and when a computer is not connected or not switched on.

The menu software revision is displayed in the OSD field when ABOUT is selected.

8.2 THE SOUND SELECTIONS

SETUP	SOUND	PICTURE
-------	-------	---------

MONO
TREBLE
BASS
BALANCE

8.2.1 MONO

Select MONO if the audio source is not stereo, in order to get sound in both speakers.

8.2.2 TREBLE

Select TREBLE, then adjust using cursor keys.

8.2.3 BASS

Select BASS, then adjust using cursor keys.

8.2.4 BALANCE

Select BALANCE, then adjust using cursor keys.

8.3 THE PICTURE SELECTIONS

SETUP	SOUND	PICTURE
		PALETTE > REAR MCGA COLOR TINT
		v 16.7M 32K 512

8.3.1 PALETTE

Usually, the palette is set to display the maximum number of colors available, regardless of application. Some uses may however be better off with a reduced set of colors, or if special effects like 512 colors on live video is desired.

Select between 16.7 M, 32K or 512 colors.

8.3.2 REAR

The REAR mode is used for rear projection , i.e. projection from the back of a screen, mirroring the image.

8.3.3 MCGA

Select MCGA if desired when displaying MCGA (320 x 200) graphics. Deselect MCGA when displaying DOS text. Only applicable in TEXT or MCGA mode.

8.3.4 COLOR

Adjust COLOR saturation using the cursor keys. Only applicable when video is connected.

8.3.5 TINT

This controls the hue of an image, and is only active in NTSC-video.

9 PRACTICAL HINTS AND TIPS

This is a list of what to do when things go wrong. Check the symptoms carefully if you experience any problem. The cure may be at your hands!

Always press the RESET key and observe that the LED on the LCD projector is flashing. This indicates that the LCD projector receives signals from the remote control.

The projected image is completely white

- Check if the cables are connected
- Check the ON/OFF key on the remote control

The LCD projector does not work

- Check if the fuse is broken
- Check if the mains cable is attached

The projected image is completely black

- Check the ON/OFF switch
- Check the BLACK switch
- Check COMPUTER/S-VIDEO/VIDEO source selection
- Check if the SPARE LAMP indicator is on. Both lamps may be defective
- The unit may be overheated due to blocked ventilation system. Wait until the unit has cooled down before resuming operation

The LCD image is too dark or too light

- Check the CONTRAST and BRIGHTNESS settings
- Try the RESET key

Some colors are unstable or flickering

- Try to adjust the CONTRAST, BRIGHTNESS or possibly TUNE

The whole LCD image appears unstable or misplaced

- Try to adjust the TUNE or POSITION
- Alternatively, you are most probably connected to an incompatible computer or video card. See the Features section for frequency adjustment and positioning

The cooling fan is not working

- *Is the unit switched on?*
- *If the fan is defective, a safety system will shut down the lamp to avoid overheating. A return for repair is then necessary*

Text is not displayed correctly

- *Try to position the image horizontally*
- *Check the MCGA setting in the menu*

The remote control is not working

- *Check if the batteries need replacement*
- *Be sure to point at the projection screen or directly at the IR eye in the front of the LCD projector*
- *You may be too far away from the projector (max. distance 7 m/23 feet)*

Only the LOGO is displayed

- *Check if the selected source is connected and powered on*
- *Select the source from the RC*

There is no sound

- *Check that the source is connected to the correct sound input connector*
- *Check if audio is connected*
- *Check if a cable unintentionally has been connected to the speaker output*

The mouse is not working

- *Remember to connect the mouse cables before the computer is switched on*
- *Check if the mouse cable and adapter are properly connected*
- *“Try some cheese!”*

Video is black and white only

- *Check the COLOR setting in the PICTURE menu*
- *Check if the projector is compatible with the TV system of your country, see Technical Data*

10 MAINTENANCE

From time to time, the housing and lens may be cleaned with a dampened, non-abrasive cloth, possibly using a mild detergent to remove spots.

Always be careful with the lens surface and use the lens cap for added protection when the projector is not in use.

10.1 LAMP REPLACEMENT

The lamps are replaced by opening the rear door of the housing.

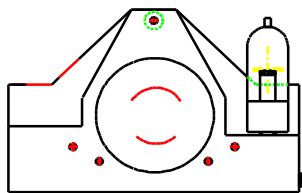


Always replace the defective lamp as soon as the projector has cooled down after use. Make sure to use the correct lamp, see Technical Data section.



To avoid burns, do not open the rear door to replace a defective lamp until the unit has cooled down after operation. The interior of the projector is heated during use.

When the housing has cooled down, open the rear door. The defective lamp is positioned vertically either to the right or to the left. See figure. Remove the old lamp and replace with a new one.



Never touch the glass bulb of a new lamp. This will shorten the lifetime of the lamp. Keep the plastic bag on the lamp until fully inserted, then remove it.

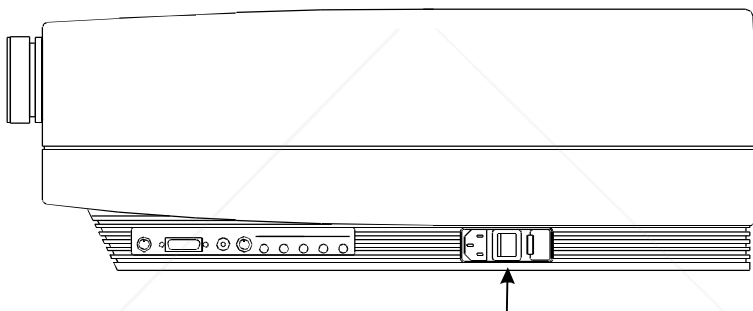
10.2 FUSE REPLACEMENT

The mains fuse is located at the mains input, as an integral part of the connector and switch assembly. See the figure.



A defective fuse may indicate a permanent electrical failure. If a new fuse breaks immediately, please return the unit for repair. Do not attempt to open the unit, as this will void any warranty and possibly cause injury.

Release the fuse holder and replace the broken fuse with a new one. Make sure to use a fuse of correct rating, see *Technical Data* section. There is room for a spare fuse in the holder.



11 SERVICE



This product contains no user serviceable parts. Attempts to modify mechanics or electronics inside the housing will violate any warranties, and may be hazardous.

If for any reason the product fails to work properly, first check the previous chapter on hints and tips. If things still do not work, please contact your dealer for technical support. Prepare a list of the symptoms you observe to make the diagnosing easier for your dealer. Remember to include all cables when returning the goods.

If a problem cannot be solved by the dealer, please see the *Service Information* section.

12 TECHNICAL DATA

The technical data may change without prior notice in order to improve the product performance.

The LCD projector is designed for indoor use and should not be operated outside the general environmental limits, as this may lead to permanent damage and violation of any warranties.

GENERAL ENVIRONMENTAL LIMITS:

STORAGE TEMPERATURE	-20 ~ 60° C (-4 ~ 140 F)
STORAGE HUMIDITY	10 ~ 90 percent relative humidity, non condensing
OPERATING TEMPERATURE	10 ~ 40° C (50 to 104 F)
OPERATING HUMIDITY	20 ~ 80 percent relative humidity

Allow for a slow acclimatization, after storing at extreme temperatures and humidities, to avoid condensation. Should condensation appear, operate for some time, as the heat generated will evaporize the water.

POWER SUPPLY



Check that the mains voltage shown on the label next to the mains connector matches the actual mains voltage in use.

	US VERSION	EUR VERSION
MAINS VOLTAGE	115 VAC 60 Hz	230 VAC 50 Hz
FUSE	6.3 A/250 V	4 A/250 V
CURRENT	5 A	2.5 A

12.1.1 DISPLAY UNIT

SIZE	560 x 265 x 210 mm (LWH) 22.0 x 10.4 x 8.3 inch (LWH)
WEIGHT	7500 grams 4.9 pounds
PROJECTION LENS	215 - 225 mm VARIOFOCUS
ANTI KEYSTONE	12 degrees
PROJECTION LAMP	400W 36V EVD halogen (Osram part no. HLX 64663)
LCD CELL	Active matrix TFT stripe configuration
COLOR RESOLUTION	16.7 million
RESPONSE TIME	30 ms
CONTRAST RATIO	100:1
PIXEL RESOLUTION	640 x 480 x 3 (RGB)
LCD DIAGONAL	8.4 "
MOUSE COMPATIBILITY	Microsoft two key compatible serial (9 pin) PS/2 compatible two key Macintosh ADB compatible one key
VIDEO FREQUENCY	25 ~ 35 MHz
HORIZONTAL SYNC	15 ~ 40 kHz
VERTICAL SYNC	60 ~ 76 Hz (VGA) 56 ~ 60 Hz (SVGA) 50 ~ 60 Hz (VIDEO) 66 Hz (MACII)
NTSC SYSTEM	M, 4.43 NTSC
PAL SYSTEM	B, G, H, D, I
SECAM SYSTEM	B, G, H, D, I, K1, L
COMPUTER INPUT	0 ~ 0.7 Vpp
VIDEO INPUT	0 ~ 0.7 Vpp
S-VIDEO INPUT	0 ~ 0.7 Vpp
AUDIO INPUT	1 V RMS
MICROPHONE INPUT	10 mV RMS (electret)
SPEAKER OUTPUT	2x5 W in 4 ohms
DEFECTIVE PIXELS	Maximum 25 (black, red, green or blue)
APPROVALS	IEC 60950, FCC, Class A, Subpart J, Part 15, pending

12.1.2 REMOTE CONTROL

Infrared wireless remote control.

BATTERIES	2 pcs LR03/AAA 1.5V penlight
RANGE	7 m 23 feet

12.1.3 COMPATIBILITY

The unit is predefined for the following interfaces. In addition, the user can configure the projector for other interfaces with a total maximum of 40 definitions altogether (predefined and user defined).

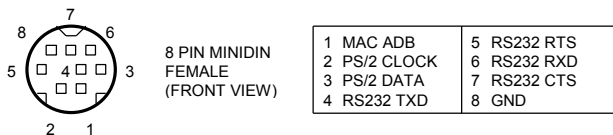
MODE	V FREQ	RESOLUTION
VGA, MCGA	60,70,72	640 x 480 640 x 400 640 x 350 720 x 400 (text, compressed)
SVGA	56,60,72	800 x 600 (compressed)
EGA	60	640 x 200 640 x 350
CGA	60	640 x 200
MACII	66	640 x 480
NEC 9801	60	640 x 400
NTSC	60	640 x 480
PAL	50	640 x 480 (aspect ratio corrected)
SECAM	50	640 x 480 (aspect ratio corrected)

13 CONNECTORS

The pinouts of all external connectors are described.

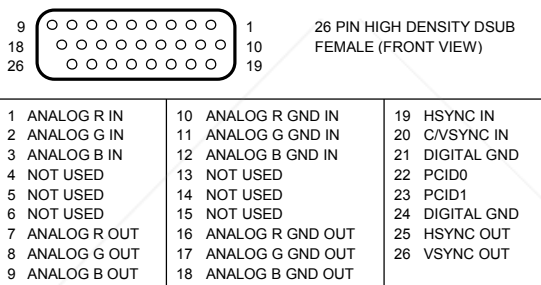
13.1.1 MOUSE

This connector is used for mouse control.



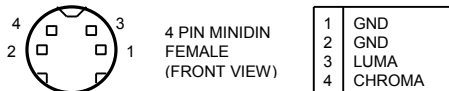
13.1.2 COMPUTER

This connector relays all sync and data signals from the computer to the projector and back again to the CRT monitor.



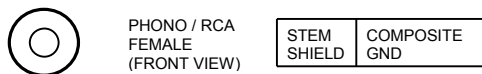
13.1.3 S-VIDEO

This connector is used as S-VHS video input.



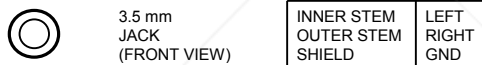
13.1.4 VIDEO

This connector is used as composite video input.



13.1.5 AUDIO (COMPUTER, S-VIDEO, VIDEO)

Three similar connectors are used for stereo sound line input for COMPUTER, S-VIDEO and VIDEO channels respectively



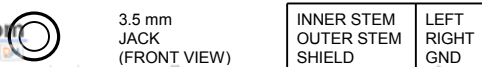
13.1.6 MICROPHONE

This connector is used for mono microphone input.



13.1.7 SPEAKER

This connector is used for stereo sound output.



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14 FCC STATEMENT

This equipment has been certified to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class A limits may be attached to a computer that complies with Class A limits. When connecting to a peripheral device, a shielded input/output cable is required to ensure compliance with FCC rules. The shielded cable that must be used is supplied with the equipment. Operation with non-certified peripherals or non-shielded cables is likely to result in interference to radio and TV reception.

14.1.1 INSTRUCTIONS TO USER

This equipment generates and uses radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or 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 the receiving antenna.

Relocate the computer with respect to the receiver.

Plug the equipment to a different outlet so that equipment and receiver are on different branch circuits.

Fasten cables using mounting screws to ensure adequate EMI control.

You may require the following booklet from the Federal Communications Commission (FCC) : "How to identify and resolve radio and TV interference problems", available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

15 ENVIRONMENTAL STATEMENT

This product is manufactured to minimize the stress and pollution of the surroundings. Where possible, recyclable materials are used.

<i>ITEM</i>	<i>RECYCLING / HANDLING</i>
PACKAGING	Only recyclable materials are used
MECHANICS	Only recyclable plastics and metal is used. Metal parts are painted aluminium and steel.
ELECTRONICS	No CFC is used during manufacture. No components that require special handling are used.
LCD MODULE	The liquid does not contain toxic or cancer causing materials. No special ventilation is needed when handling a broken cell. Use gloves and wash your hands afterwards to avoid any irritation to skin. The module is largely made up of glass, so handle broken units carefully to avoid wounds.

16 SERVICE INFORMATION

In cases where a problem cannot be solved by the assistance of your dealer, please call the following number to get an **RMA** (Return Authorization Number) :

+47 69 34 01 55 (Norway)

To return the defective unit, package well (preferably using the original packaging material), enclose a copy of your sales receipt and a description of the problem you experience, and ship **prepaid** to :

ASK AS
Customer Service Department
RMA
N-1602 FREDRIKSTAD
NORWAY



Be sure to include your RMA number on the outside of the shipping box, as units without this number will be returned *to sender without processing*.



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17 CONNECTION LAYOUT

The foldout shows how to connect the LCD projector to the different audio, video and computer sources.



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