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FAST TRACK
## SVGA LCD MULTIMEDIA PROJECTOR

SETTING UP

1. Place the projector on a stable, hard surface, at the desired distance from the projection screen.

2. Insert the end of the VGA cable marked 'LCD' into the computer connector port on the LCD projector. Connect the connector marked 'Monitor' onto your monitor cable, and the connector marked 'VGA', into the VGA port on the PC unit. If you do not intend to use a monitor then just leave the short cable section unconnected. For MAC computers an adapter is required in addition and the main user guide should be referred to for information.

3. Connect video sources if required, using the supplied A/V cable.

4. Connect one end of the mouse cable marked 'LCD' into the mouse port on the LCD projector and the other end marked 'MA' (Mouse Adapter) into the appropriate mouse adapter, determined by which mouse type you are using.

5. Ensure the ventilation grills on the LCD projector are not obstructed, then apply mains power to the projector. Remember to switch on the unit at the Power ON/OFF switch!

6. Apply mains power to the various items of source equipment.
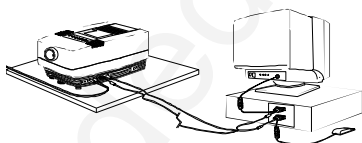
⚠ Improper use of this LCD projector may cause a risk of damage or personal injury due for example to electric shock or the strong light source. Detailed safety instructions are given in the user guide and these must be followed at all times.

USING THE REMOTE CONTROL
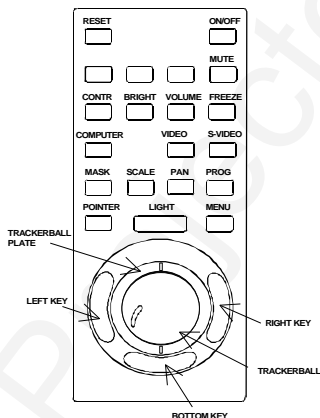
The key functions explained:

KEY	FUNCTION
RESET	Defaults to the standard settings for active source
ON/OFF	Turns the projected image ON/OFF.
CONTR	Alters the contrast of light and dark colors.
BRIGHT	Alters the brightness.
VOLUME	Volume up/down
FREEZE	Holds the image projected on the screen
COMPUTER	Computer source active.
VIDEO	Video source active.
S-VIDEO	S-video source active.
MASK	Applies mask to the image.
SCALE	Direct 1:1 mapping/scaling.
PAN	Allows panning within oversized images.
PROG	Programmed menu selection
POINTER	Applies a trackball-controlled pointer to the screen.
LIGHT	Keys are illuminated.
MENU	Activates the menu system.
TRACKBALL	Simulates the actions of the desktop mouse.
LEFT KEY	Emulates left mouse key.
RIGHT KEY	Emulates right mouse key.
BOTTOM KEY	Click-and-hold function (drag).

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1   SYMBOL DESCRIPTIONS

DANGEROUS VOLTAGE
This symbol is intended to alert the user to the presence of uninsulated "dangerous voltages" within the product housing that may be of sufficient magnitude to constitute a risk of electric shock to persons.

WARNING
This symbol is used on the product to alert the user of important operating and maintenance (servicing) instructions, and also used in the product literature to indicate important safety-related information.

HOT
This symbol is used on the product to make the user aware of hot surfaces, i.e. fan ventilation grill.

NOTE
This symbol is used in this publication to highlight information for the user.

2   SAFETY INSTRUCTIONS

Read instructions - All the safety and operating instructions should be read before the projector is operated.

Retain instructions - The safety and operating instructions should be retained for future reference

Heed warnings - All warnings on the projector and in the User Guide should be adhered to. If ignored, use of this projector may cause death, injury or material damage.

> ⚠ *The normal operating life for the lamp is 750 hours. High-pressure lamp may explode if improperly used. Refer all servicing to authorized personnel only.*

1. **Water and Moisture** - The projector is designed for indoor use only and should not be used near water and moisture.

2. **Carts and Stands** - Place the projector on a stable, hard surface in a manner that does not obstruct ventilation ports and openings in the cabinet. Unstable carts, stands, tables, etc. may cause the projector to fall, which may cause serious injury to people and/or the projector.

3. **Ventilation** - Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the projector and protection from overheating, do not block or cover slots and openings in any way. Do not place the projector on any soft surface or close to a heating source, radiator, etc. Never install the projector in an enclosed unit.

4. **Heat** - The projector should be situated away from heat sources such as direct sunlight, radiators, stoves or other strong heat sources.

5. **Power Sources** - The projector must only be connected to proper electrical voltage as marked on the projector body. The projector should be connected to electrical outlet using a power cord compatible with the local electrical voltage. If you are not sure about the type of electrical service at your location, consult your projector dealer or local power company.

6. **Power Cord Protection** - Power cords should be routed so that they are not likely to be walked on, pinched or unduly bent by items placed upon or against them. Pay particular attention to cords and cables at the point where they exit from the projector.

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7. **Cleaning** - The projector should be cleaned only as recommended, see the Maintenance section. Disconnect the power cord from the power outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.

8. **Non-use Periods** - The power cord of the projector should be unplugged from the outlet when left unused for a long period of time.

9. **Damage Requiring Service** - The projector should be serviced only by authorized service personnel when;
   - the power supply cord or the plug has been damaged,
   - objects have fallen, or liquid spilled, into the projector,
   - the projector has been exposed to water or condense,
   - the projector does not appear to operate normally (fan not working, noise, smell, smoke, heat etc.)
   - the projector has been dropped or damaged.

10. **Object or Liquid Entry** - Care should be taken so that objects do not fall into the projector casing. Be careful not to spill liquids into the inside of the projector. Do not insert metal or flammable objects into the projector.

11. **Servicing** - The user should not attempt to perform unusual or technical service to the projector. Do not open the unit. Refer all servicing to authorized service personnel.

12. **Grounding or Polarization** - Precautions should be taken so that grounding or polarization of a projector is maintained. Do not use a three prong to a two prong adapter.

⚠	*To prevent electric shock, do not use the polarized ac plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.*

14. **Lamp Replacement** - Do not attempt to replace lamp. Contact an authorized service centre for lamp replacement.

15. **Abnormality** - If you detect an abnormal smell or smoke, immediately turn off the power switch. Disconnect the power plug from the power switch to prevent fire or electric shock.

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16. **Lifting/moving** - When the projector is to be moved, let the unit cool down completely, cover the lens, disconnect the power plug from the power outlet and disconnect all external cords and cables to prevent damage that may cause a fire, electric shock, etc. Be careful when lifting and carrying the unit as it is heavy.

17. **Lamp Beam** - Do not look directly into the projector or lens when operating the projector. The lamp emits rays which may cause eye injury and/or sunburns.

18. **Electrical Shock** - To reduce risk of electrical shock do not open the unit. Refer all servicing to authorized personnel only.

3   INTRODUCTION

The first time user will be introduced to the SVGA LCD multimedia projector and its capabilities through easy-to-read text and illustrations. Then a step-by-step illustrated connection procedure leads you through to problem-free operation.

For the more experienced user, the later sections of this manual provide a handy reference guide to help you get the most out of your LCD projector.

3.1   YOUR LCD PROJECTOR

Congratulations on purchasing this state-of-the-art, high resolution LCD projector. This projector can be connected to most computer and video sources, for the best projection results and maximum compatibility.

The SVGA LCD multimedia projector displays bright vivid images in 16.7 million colors simultaneously, at SVGA resolution, making it the ideal choice for presenting computer generated text and graphics, as well as live video with full sound capability.

Applications include multiple-menus and typical Windows environments including Internet applications and CD-ROM based multimedia presentations in any 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.

4   MAIN FEATURES

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

- **High brightness 575 Watt illumination system**
- **True SVGA 800 x 600 resolution**
- **640 x 480 to 1152 x 870 image compatibility**
- **16.7 million colors**
- **High quality 2 x 5W stereo sound**
- **Trackball remote control**
- **On screen display (OSD)**
- **User's source settings memorized**
- **Low noise cooling system**
- **False light blocking**
- **4m (13 ft) VGA cable with V‑split**
- **Ceiling mountable**
- **Prepared for rear projection**
- **2 video inputs (Composite/S-video)/ 1 data input**

5 SUPPLIED MATERIAL

5.1   WHEN YOU OPEN THE LCD PROJECTOR PACKAGE

A complete set includes the following components :
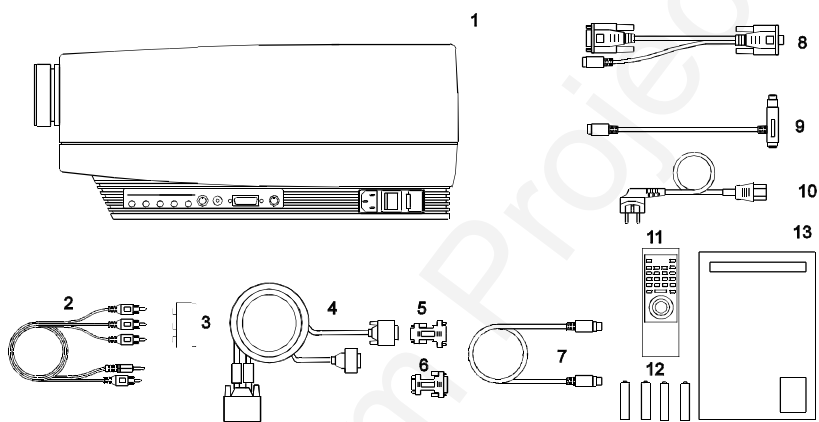
1. LCD Projector
2. A/V cable
3. SCART Adapter
4. VGA Cable with V-split
5. MAC computer adapter
6. MAC monitor adapter
7. Mouse Cable
8. Mouse Adapter PC (Y-Split)
9. MAC Mouse Adapter
10. Power Cord
11. Remote Control
12. Batteries
13. User Guide

5.2   OPTIONAL MATERIAL

Optional cables, adapters and accessories are available. Consult your dealer for further information.

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5.3   GLOSSARY

Take a closer look at the LCD projector itself. The following terms are used throughout this user guide to identify the different parts of the LCD projector, or to refer to certain auxiliary items.

HANDLE (RECLINING)

TOP PANEL KEYBOARD

SPEAKER

VENTILATION GRILL

POWER STATUS INDICATOR

LCD PROJECTOR UNIT

PROJECTION LENS

LENS CAP

FOCUSING RING

POWER ON/OFF SWITCH

FUSE HOLDER

IR RECEIVER

MAINS POWER PORT

HEIGHT ADJUSTMENT RING

CONNECTOR PANEL
WITH CONNECTOR PORTS

DESKTOP MOUSE

REMOTE CONTROL

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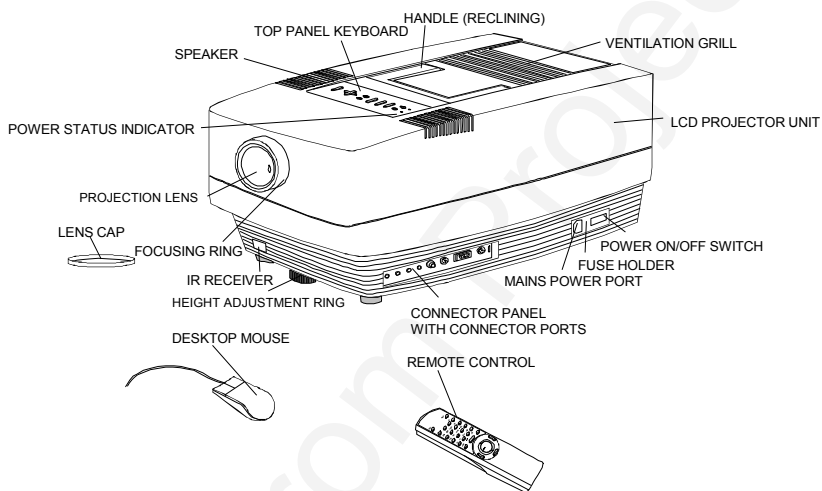
6 SETTING UP THE LCD PROJECTOR

6.1 SAFETY PRECAUTIONS

Switch off all equipment before connecting together the various items. 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.

Do not cover the ventilation grills in front and on top of the projector housing, as this will prevent cooling. Also make sure to place the projector on a flat, hard surface to avoid blocking the air inlet at the bottom of the unit. A thermal safety switch will cut off the illumination system if the ventilation is reduced.

Do not connect any devices or cables other than those supplied with the LCD projector into the connector ports on the projector unit, even if the connector ports appear identical, as this voids any warranty and may cause permanent damage to the projector, and to the connected source apparatus.

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6.2   ARRANGEMENTS IN THE PROJECTION ROOM

Place the LCD projector on a table, or other stable hard surface, at the distance required to give the desired size of projected image on the wall.

	MINIMUM			MAXIMUM
DISTANCE	1.58m/ 62 "	3.00m/ 118"	4.00m/ 157 "	5,60m/ 220 "
DIAGONAL	1.43m/ 56 "	2.82m/ 111"	3.77m/ 148 "	5.28m/ 208 "
WIDTH	1.14m/ 45 "	2.26m/ 89 "	3.01m/ 119 "	4.22m/ 166 "
HEIGH	0.87m/ 34 "	1.70m/ 67 "	2.26m/ 89 "	3.17m/ 125 "
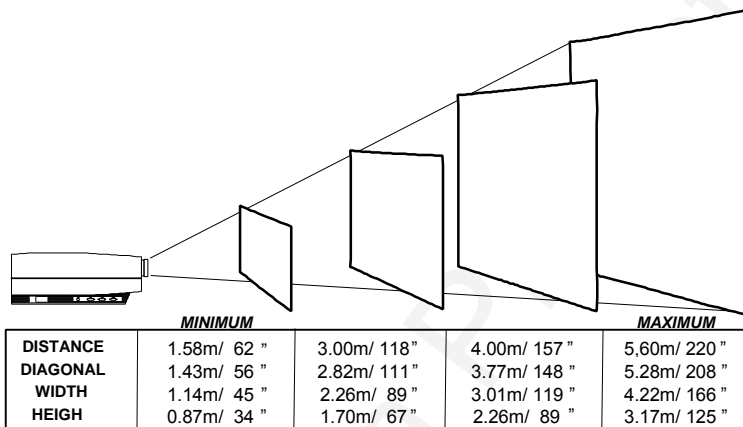
(*Actual projection distances and screen sizes may vary)*

The image should be projected onto a flat surface screen with high reflectivity to get a bright and undistorted image.

The best viewing results are obtained in a dimmed room with no direct sunlight shining in. Try to ensure also that the projected image is visible to the whole audience by placing source equipment where it will not obscure viewing. The LCD projector is provided with extra long cables for this purpose.

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6.3   SELECTING ADAPTERS AND CABLES

6.3.1   FOR YOUR COMPUTER SOURCE

You may have a computer source which requires an additional adapter to connect between the source computer and the VGA cable with V-split. A set of two MAC adapters is supplied in your delivery package.

COMPUTER	ADAPTER
VGA	None required
MAC II and PowerMAC	Set of 2 MAC adapters

6.3.2   FOR VIDEO SOURCES

You may not need any adapters to connect your LCD projector to any composite, S-video or RGB video source.

You will find an audio/video (A/V) cable, supplying stereo sound from RCA output, in your delivery package which you must use to connect a composite source to the LCD projector. An S-video cable is available optionally through your dealer.

A SCART adapter (SCART to RCA) is supplied in the LCD projector package. If required, attach the adapter to the supplied A/V cable before use.

For use of RGB video, optional adapters are available.

6.3.3   FOR YOUR MOUSE

The projector gives you the opportunity to control your computer mouse from the IR remote control, thus giving you control over the computer from your hand. This requires a mouse cable connection from the projector to the computer. When using the remote control, the computer will receive signals from the projector to emulate your desktop mouse.

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An adapter is needed to connect the mouse cable from the LCD projector and the mouse itself into the computer source. The table below shows which adapters are required for which mouse model.

MOUSE	ADAPTER	Y-SPLIT	AVAILABILITY	DRIVER
Microsoft serial	PC Serial	Yes	Supplied	Microsoft or 100% compatible driver.
mouse compatible		No	Option	
Macintosh ADB-bus mouse	MAC	Yes	Supplied	Self-detecting
PS/2	PS/2	No	Option	Self-detecting

6.4   MAKING THE CABLE CONNECTIONS

> *This set-up sequence illustrates a table-top arrangement.*
> *The LCD projector can also be used in ceiling mount*
> *systems, in which case the connection sequence is the*
> *same as illustrated below.*

1. Place the projector on a stable, hard surface, at the desired distance
    from the projection screen.
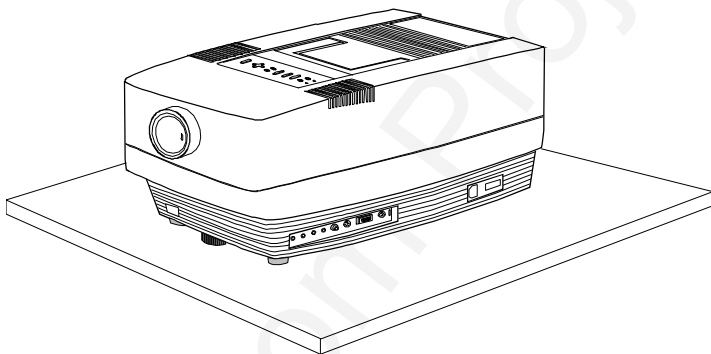
2. Connect the computer source equipment to the computer connector
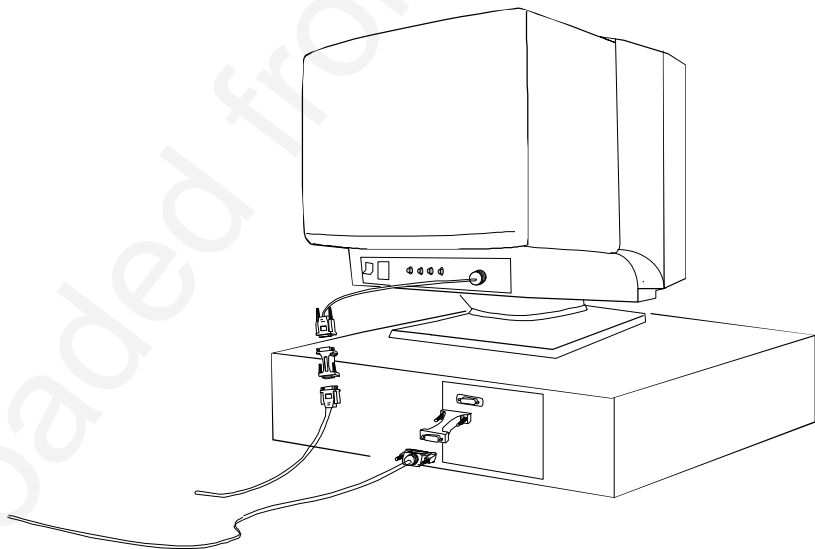   port of the LCD projector:

- PC: Insert the end of the VGA cable marked 'LCD' into the
         COMPUTER connector port on the LCD projector. Connect the
         connector marked 'Monitor' onto your monitor cable, and the
         connector marked 'VGA', into the VGA port on the PC unit. If you
         do not intend to use a monitor then just leave the short cable
         section unconnected.

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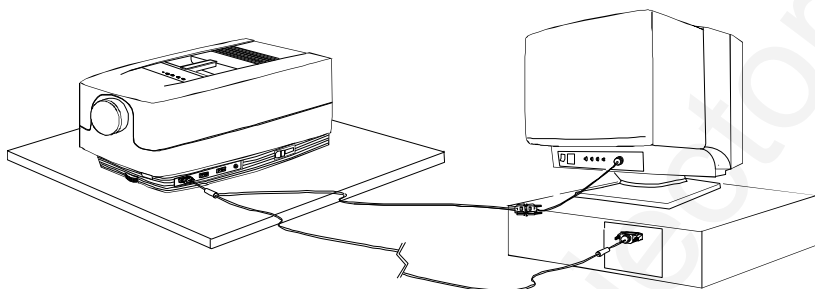
- MAC: Insert the end of the VGA cable marked 'LCD' into COMPUTER connector port on the LCD projector. Connect the MAC-Monitor adapter onto the short cable section and then attach your MAC monitor to it. Connect the MAC-Computer adapter onto the output port on your Macintosh computer unit, and then connect the VGA cable connector marked 'VGA' to it. If you do not intend to use the monitor then just leave the short cable section unconnected and the MAC monitor adapter unused.
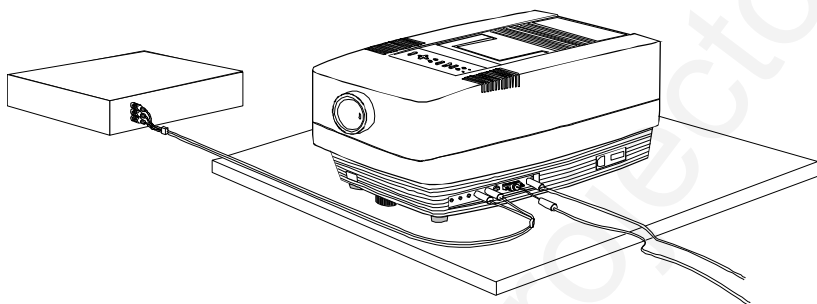
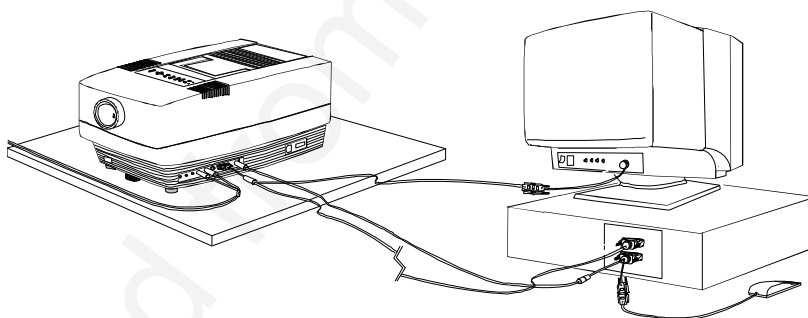|	*No termination is needed on the short end cable.*

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3. Connect video sources if required, using the supplied A/V cable.

4. Connect one end of the mouse cable marked 'LCD' into the mouse port on the LCD projector and the other end marked 'MA' (Mouse Adapter) into the appropriate mouse adapter, determined by which mouse type you are using (see *For your Mouse* section).

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5. Ensure the ventilation grills on the LCD projector are not obstructed. Check the mains voltage setting, then apply mains power to the projector. Remember to switch on the unit at the Power ON/OFF switch!

6. Apply mains power to the various items of source equipment.
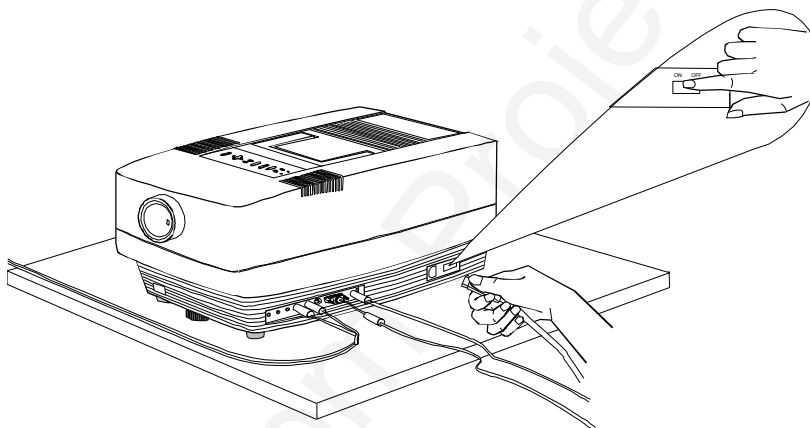
⚠	*Check that the voltage selector at the mains input is set correctly according to the local mains voltage (selector indicator shows 115V or 230V)*

Your LCD projector is now fully connected up. Before use for your presentation, refer to the next section on *Image Adjustments* to attain the highest quality of projected image.
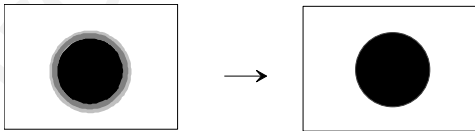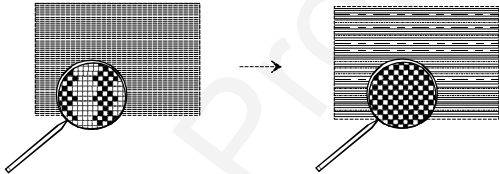
6.5   IMAGE ADJUSTMENTS
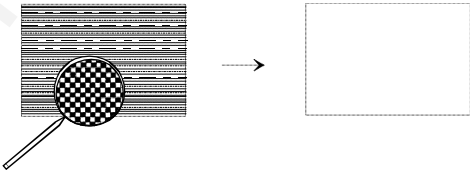
The trackball remote control is the main user interface by which the device settings are adjusted. The remote control keys are used to adjust the settings of the LCD projector correctly, either directly or through the menu system, so as to achieve the best possible viewing conditions. Alternatively, the top panel keyboard on the projector gives full access to the settings.
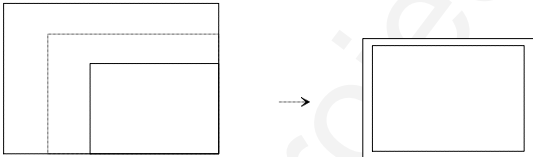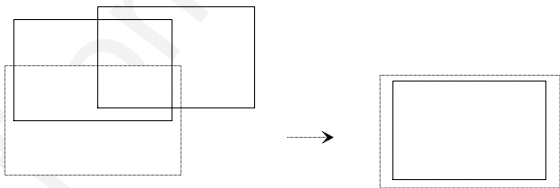
Set-up should be performed once with the source(s) you are using most frequently. Allow some minutes for the unit to warm up before adjusting the settings. All settings will automatically be memorized individually for each source for future use (see *Using the LCD Projector*).

Selection is performed by pressing the remote controls left button (left hand side of trackball). After having finished the adjustments, press left again to disactivate the function.
No special setup is necessary for video. Depending on source, some positioning might be necessary.

	OPERATION
LENS	• Use focusing ring on projection lens to sharpen the image on the screen.

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	OPERATION
FREQ	• Select FREQUENCY in the MENU. • With data from a computer source displayed on-screen, set the background to a chequered pattern 50% grey (direct mode 1:1 uncompressed). • If the frequency is set wrongly, vertical unstable bands will be visible in the image (see illustration). • Adjust with the frequency with the trackball to remove all the vertical bands (see illustration). • When adjusted correctly, there might be a horizontal "swimming" effect in the image. This is adjusted by timing the image.
TUNE	• Select TUNING in the MENU. • Adjust the tuning using the right/left keys to stabilize the image. Preferably all the "sideways swimming" lines should be removed (see illustration).

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	OPERATION
SCALE	• If your computer source resolution is not exactly 800x600, you can select SCALE. This will scale the source resolution to fit the LCD screen resolution by adjusting the number of vertical and horizontal pixel lines at intervals throughout the image.
POSITION	• Select POSITION in the MENU. • Adjust using the trackball until the full image lies within the viewing area (see illustration). • If the positioning goes too fast, try to alter the trackball sensitivity under options.
CONTR	• Adjust using the contrast up/down with the trackball for optimum image quality
BRIGHT	• Adjust using the brightness up/down with the trackball for local lighting conditions.

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For video sources these additional settings may be required:

COLOR	To enhance the color saturation of video images you can: • Select COLOR in the menu. • The setting can be altered using the trackball .
TINT	To enhance the hue of NTSC video (only) images you can: • Select TINT in the menu. • The setting can be altered using the trackball.
SHARPNESS	To enhance the sharpness of the lines in a video image you can: • Select SHARPNESS in the menu. The setting can be altered using the trackball.
GAMMA	Default on. • Enhanced detail in the brightness parts of video.

Your LCD projector is now fully set up and ready for use. If you experience any problems in carrying out this set up procedure you should refer to the *Trouble-shooting* section found later in this user guide.

7   USING THE LCD PROJECTOR

The LCD projector has a set of features and functions with which you need to be familiar with in order to operate the unit efficiently and to allow you to make a smooth, problem-free presentation.

7.1   TRACKBALL REMOTE CONTROL

The trackball remote control is the main user interface with the projector. The remote control is used to set the LCD projector correctly so that the best viewing conditions are achieved, and also to control your presentation. The functions performed by the keys on the remote control are described below.

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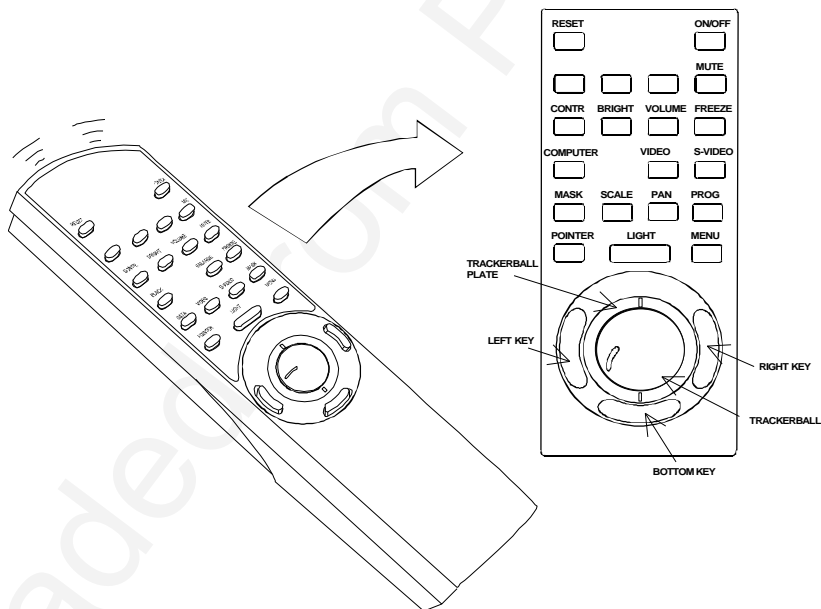
The MEM column indicates whether the function setting is memorized for the source apparatus for future use.

KEY	FUNCTION	KEY TYPE	MEM
RESET	Defaults to the standard settings for the active mode.	single touch activated	-
ON/OFF	Turns the projected image ON/OFF.	toggle	-
CONTR	Contrast is the ratio between light and dark colors.	scale (up/down arrows)	Yes
BRIGHT	Brightness (whiteness) of the image can be altered to suit local lighting conditions.	scale (up/down arrows)	Yes
VOLUME	Volume of the audio output can be altered to suit local conditions.	scale (up/down arrows)	Yes
FREEZE	Holds the image projected on the screen. This feature can be used to hide actions on the computer that the audience need not see, such as changes between software packages, or for returning the audience's attention back to the presenter!	any key to release	No
COMPUTER	Selects the computer as the active source.	single touch activated	-
VIDEO	Selects video as the active source.	single touch activated	-
S-VIDEO	Selects S-video as the active source.	single touch activated	-
MASK	Applies a mask to the image, which can be moved using the trackball.	toggle	-

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KEY	FUNCTION	KEY TYPE	MEM
SCALE	Selects direct 1:1 mapping or scaling of images. Scaling not applicable in 800 x 600 mode.	toggle	No
PAN	Allows panning within oversized images using the trackball. Use the trackball to show different areas of the image based on each of the four corners.	trackball movements	-
PROG	This key may be programmed to one of the menu controls.		-
POINTER	Applies a trackball controlled pointer to the screen. The appearance of the pointer can be changed in the options menu (cross/ball/menu).	toggle	No
LIGHT	Illuminates the keys for 4 seconds.	toggle	No
MENU	Activates the menu system.	toggle	No
TRACKBALL	The trackball simulates the actions of the desktop mouse to control the computer cursor.	trackball movements	-
LEFT KEY	Emulates the left mouse key. Once the menu is accessed selection are confirmed using LEFT.		-
RIGHT KEY	Emulates the right mouse key.		-
BOTTOM KEY	This emulates the 'click-and-hold' (drag) function of the desktop mouse. Use BOTTOM key instead of LEFT when connected to a Macintosh computer.		-

7.2 TOP PANEL KEYBOARD

All settings are also accessible via a secondary keyboard panel on the top of the LCD projector, known as the Top Panel Keyboard. The Power ON/OFF Indicator is also located on this panel. The panel layout is shown below. The buttons function exactly as the corresponding remote control keys. For additional information, see below.
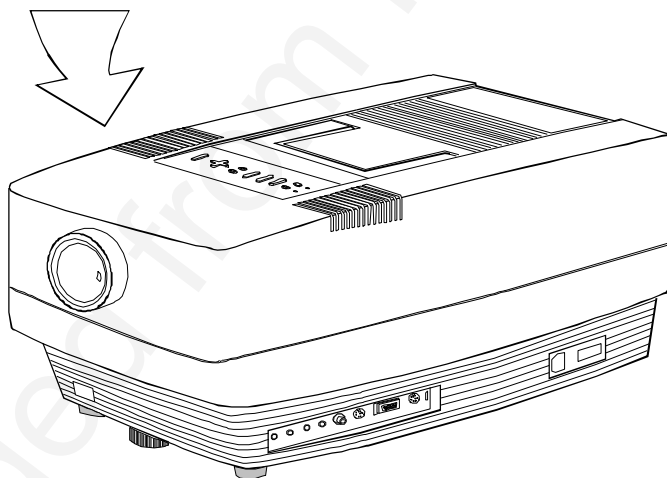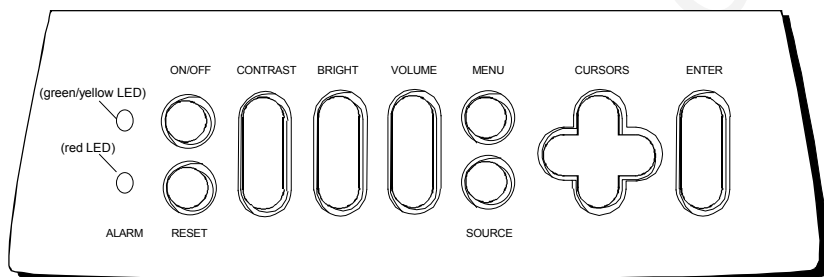
LED INDICATORS:

Green: The top LED indicator gives a green light when the projector is switched ON with the power switch. The light flickers when the projector/remote control is used.

Yellow: The green LED indicator changes color to yellow when the projector is turned OFF by remote control/top panel, indicating a standby mode.

Red: The red LED indicator is activated when the expected life time of the lamp (750 hours) has expired.

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7.3   THE 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 remote control.

Press the MENU key on the remote control to invoke the menu system. When the menu is active, the trackball is 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 or deactivate an option.

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

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

Increase/decrease functions (like TUNE and FREQUENCY) are adjusted using the trackball. 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 main menu selections SETUP, PICTURE, SOUND, OPTIONS and HELP are explained in detail below.

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

7.3.1   THE SET-UP MENU SELECTIONS

TUNE 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 and has been disabled.

FREQUENCY is provided in order to adjust to special graphic cards that are not automatically recognised by the projector. Generally, an incorrect frequency setting can be observed as an image too wide or too narrow, combined with vertical, unstable bands.

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POSITION. Due to variations in graphic cards, the horizontal and vertical position may need adjustment. Select POSITION, then press LEFT and use trackball. A general information box is shown in the lower left corner. VGA text mode (720 x 400) is correctly displayed when the image is positioned correctly. (VGA text mode can also be viewed full screen when SCALE is selected.

REAR inverts the image for use in rear projection arrangements i.e. projection from the back of a screen. The feature is switched on or off by selecting it from the menu.

CEILING switches between an upright and an upside-down projection by flipping the image vertically.

FACTORY RESET. This function resumes factory settings of all parameters. You will be promted if you want to erase all settings.

7.3.2   THE PICTURE SELECTIONS

These selections are only applicable for video sources.

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

SHARPNESS controls the sharpness of the lines in an image, and is only active for video sources.

COLOR adjusts color saturation. Only applicable when video is connected.

GAMMA toggles the gamma correction on and off for video sources. Gamma correction helps improve detail in low light situations, like indoors scenes etc. Only active for video sources.

7.3.3   THE SOUND SELECTIONS

TREBLE controls the higher sound range.

BASS controls the lower sound range .

BALANCE controls the sound balance between the two stereo speakers.

MONO is selected if the audio source is not stereo, in order to get sound in both speakers. If mono is not selected, there will be sound in the left speaker only.

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7.3.4   THE OPTIONS SELECTIONS

HIDE OSD switches the on screen echoing of controls on and off. This setting only affects the direct control operations, not the menu system. This setting is not memorized.

CHANNEL SEARCH is a toggle function that controls whether the projector shall automatically switch to the next source when the current source is switched off or removed. Manual source selection is maintained in both modes as long as signals are present. Source priority is first COMPUTER, then S-VIDEO and then VIDEO. If CHANNEL SEARCH is off (not tagged), the manually selected source is maintained regardless of signal presence. If CHANNEL SEARCH is tagged, the projector will switch to the next prioritized active source, regardless of manual selection.

TRACKBALL SENSITIVITY controls the response of the trackball in the menu system. (It does not affect the response of the computer mouse. Please adjust computer mouse responsively on the computer). FAST, MEDIUM and SLOW options are available.

LANGUAGE. A selection of languages is available for the menu options, including English, German, French, Italian, Spanish, Norwegian and Japanese. Other languages may apply.

POINTER selects the pointer appearance. Options include ball, arrow and cross.

MASK selects whether the mask is applied downwards or upwards.

SERVICE applies only to authorized service personnel

7.3.5   THE HELP SELECTIONS

SOURCE INFO provides a status list of parameters relating to the source selected.

ABOUT provides system information about the projector.

8 SPECIAL FEATURES OF YOUR LCD PROJECTOR

8.1 COOLING SYSTEM

The fan operates as long as the LCD projector is switched on. Provided that the power cord is connected, the fan continues to run until the unit has cooled down even after the unit has been switched off. This ensures a continuous protection against high temperature inside the projector. The cooling system is designed to minimize stray light and noise. If the air flow is blocked, a temperature safety fuse will automatically shut off the projector to protect it from overheating.

8.2 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. Some sources are predefined, while the remaining are available for customer set-up. See the *Technical Data* section for compatibility.

Custom sources are added to the memory 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, frequency, position and scaling. See the remote control function table in section *Using the LCD Projector*.

8.3 OSD SYSTEM

The OSD (On Screen Display) system echoes on screen your keypad or remote control actions. The OSD may be switched off and on in the menu system.

8.4   RESET

This feature enables standard settings of most controls. RESET will only reset the active mode.

	A factory reset may be performed in the menu system. All settings will return to factory defaults, so do not perform a factory reset unless it is really required. This operation will also erase all custom sources and modes that have been memorized. You will be promted before this is done to avoid unwanted resets.

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9   CEILING MOUNTING

The projector is prepared for ceiling mounting. As opposed to desktop use (most tables are approximately 80 cm tall, are flat and have a hard surface finish), ceilings vary in height and material. Also considerations must be made with respect to signal and power wiring.

9.1   SELECTING A MOUNT

Various mounting systems are available from different sources. Contact your dealer for further details or consult vendor catalogs. Be sure that the vendor has tested the mount with this specific projector for operational safety. Check that the mounting brackets fit the integral screw mounts of the projector, and that the ventilation slots are not blocked.

9.2   MOUNTING IN THE CEILING

An improperly mounted projector is a potential danger to people and equipment. A projector and mount falling down may cause personal injury and material damage. Such damage caused by bad workmanship in mounting and operation may lead to legal action and should be avoided.

⚠	*Avoid ceiling mounting of the projector in areas of frequent or probable earth quakes.*

When fixing the mount in the ceiling, be sure to check the ceiling material and if it will hold the total weight of the mount and the projector. Look for wood, steel beams or concrete that will secure a good and lasting fixture. Avoid plaster or other fragile materials that do not have sufficient structural properties. Follow the detailed instructions supplied with the ceiling mount for proper mounting and operation.

After having mounted the projector in the ceiling, test if the holding force is sufficient by adding a load to the mount double the weight of the combined projector and mount. The mount should hold this extra weight with no sign of fatigue and with no sign of mounting screws loosening. For positioning see section 6.2: *Arrangements in the Projection Room.*

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9.3   WIRING

Ceiling mounted projectors require long signal and power wires.

The signals should be wired using high quality coaxial cable. The cables usually need to be customized. Some vendors have specialized in this field. Contact your dealer for further detail.

If the signal cables run over a longer distance from the source to the projector, a line buffer (distribution amplifier) may be needed (available from third party vendors).

To facilitate on/off control of the complete unit, including the projection lamp, the mains wiring must be switchable by the user. The projector can not be switched off by the wireless remote control.

When installing the unit in the ceiling, a separate, external mains switch must therefore be applied as indicated in the figure.
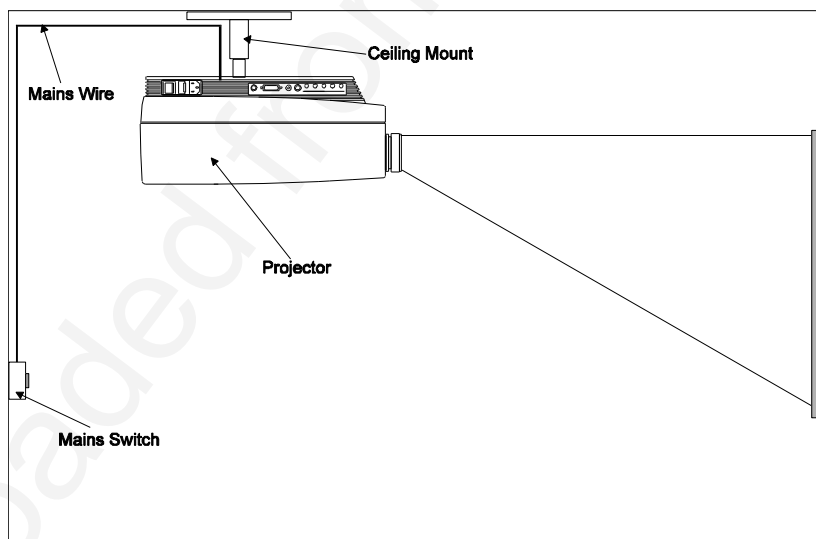
10 TROUBLE-SHOOTING

This is a checklist to help you pinpoint any problem that may arise. Check the symptoms carefully if you experience any problem. The cure may be at your fingertips!

> *Always check that the OSD appears when the OSD key on the remote control is pressed. This indicates that the LCD projector is receiving signals from the remote control.*

SYMPTOM	SOLUTION
LCD projector does not work	• Check if the mains cable is attached properly. • Check that the Power switch at mains inlet is ON. • Is the LCD projector fuse, located in the fuse holder, blown? (See Maintenance for the replacement procedure.) • Check that the voltage selector is correctly set. • If you are using the projector from a power strip - check that this has been switched on.
The projected image is completely black	• The ON/OFF setting may be OFF. Press ON/OFF again to resume operation. • Check that the Power switch at mains inlet is ON. • The unit may have overheated due to the ventilation slats being covered while the projector was in use. Also ensure that the ambient temperature is within the recommended range. Check the air inlet filter, as it may need vacuuming (see *Maintenance*). Wait until the unit has completely cooled down before using again. • Try to switch to another source to see if it gives an image.
The projected image is on the logo or blue for neutral version	• No source is connected. Connect to the source you want to use.
The projected image is too dark or too bright.	• Adjust the CONTRAST and BRIGHTNESS settings. • Press RESET, which will remove the pre-determined settings for the current source, and make the set-up adjustments again. • Check the FREQ setting.

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SYMPTOM	SOLUTION
Some colors are unstable or flickering	• Check first that there are no loose cable connections. • You can try to adjust the image quality with the CONTRAST and BRIGHTNESS keys. • Try to improve the tuning using the TUNE key.
The whole image appears to be unstable or misplaced	• If the image is scaled, press SCALE to return to the default mode. • Adjust the frequency and tuning settings (instability), or the image position settings (misalignment). • Check that you are using a source with compatible resolution.
Cooling fan is not working	• If the fan does not work the LCD projector **must not be used** and should be returned to your dealer for repair.
The remote control is not working	• Make sure you point the remote control at the projection screen or directly at the IR receiver • The maximum range of the IR transmitters is 15 m/ 49 feet - Are you standing close enough? • If the effective range of the transmitters is significantly reduced, the remote control needs new batteries.
The desktop mouse is not working	• Remember that the mouse must be connected before the computer source is switched on. • Are the mouse cable and mouse adapter connections secure? • Check the mouse driver settings on the computer source • You must boot the computer after the cable has been connected for it to recognise the mouse. If you are unsure whether this was the case, reboot your computer.

11 MAINTENANCE

11.1 GENERAL

From time to time, the LCD projector unit and lens may be cleaned with a damp, non-abrasive cloth to remove dust and dirt spots. The lens should be cleaned with a mild dish-washing detergent solution, or with standard lens cleaning solutions available from a photographic dealer.

Vacuum the air inlet dust filter (located in the front, under the lens) periodically, especially when build-up of dust is observed. This will ensure cool operation of the projector.

> ⚠ *Do not scratch the lens surface and use the lens cap for added protection when the projector is not in use. Remember to remove the lens-cap when the LCD projector is in use!*

11.2 LAMP REPLACEMENT

The projector is using a 575W metal halide lamp for illumination. This lamp is HIGH PRESSURE when operating. The lamp may not be changed by the user for safety reasons and under the terms of the warranty. Always refer to authorized dealers if the LCD projector transmits a lamp replacement message.

> ⚠ *There are no user serviceable parts inside the projector. Never touch any glass parts (lamp bulb or lenses), as the fingerprints will burn and affect the optical quality of the projected image. Also, fingerprints on the lamp bulb may cause damage and possibly explosion of the lamp when in operation. If any parts of the lamp or optics have been touched, it must be cleaned using a cloth moistened with alcohol (included with replacement bulb) and polished with a dry cloth.*

11.3   LAMP REPLACEMENT MESSAGES

When the time is due to replace the lamp, the red LED will light, and the projector will give you one of the two following messages on the screen.

WARNING!

Lamp has less than 50 hours left of recommended burning time

Please change lamp!

Press any key to clear this message...

The lamp has only 50 hours burning time left, and should be changed. Remember that you can check accumulated lamp usage each time the projector is switched on. A message appears in the lower left hand corner of the screen stating software revision and accumulated lamp hours used.

If you do not respond to the first message, a second message will appear when the lamp has exceeded recommended burning time. Please read Warnings and Notes in *Lamp Replacement* section carefully and refer lamp change to qualified service personnel only.

WARNING!

Lamp has exceeded its lamp life of 750 hours

Continued use leads to a high risk of lamp explosion

PLEASE CHANGE LAMP IMMEDIATELY ! ! !

After the lamp has been replaced and the lamp timer has been reset, the message below confirms that the operation has been successful.

INFO!

The lamp timer has been reset to 0

Press any key to clear this message...

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If the lamp timer is accidentally reset before the lamp has reached expected lifetime, or the lamp is changed before it is required and reset the timer, the warning below appears. This leaves you with two alternatives which are both described in the next paragraphs.

If the lamp has been changed on purpose before required, this message appears when you confirm by pressing RESET.

INFO!

The lamp timer has been reset to 0

If the lamp timer was reset unintentionally, this message confirms that mistake has been corrected by pressing any other key to continue.

INFO!

### The lamp timer has not been changed

11.4 FUSE REPLACEMENT

The two mains fuses are located at the mains input, as an integral part of the connector and switch assembly.

> *Defective fuses may indicate a permanent electrical failure. If a new fuse breaks immediately, please return the unit to you dealer for control.*

Release the fuse holder by using a flat screwdriver, and replace the broken fuses with new ones. Make sure to use fuses of correct rating, see *Technical Data* section.
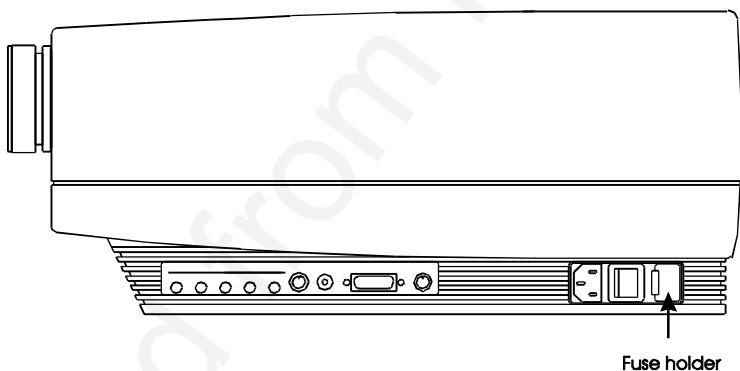
Fuse holder

The fuse drawer contains 2 fuses, see illustration below for location.

10 A
6.3 A

115 V

6.3 A
10 A

230 V

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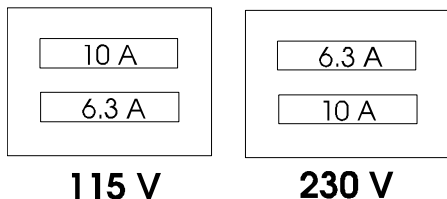
11.5   CARE OF THE REMOTE CONTROL

The trackball remote control requires no maintenance, other than battery replacement when required. To change the batteries, open the battery holder on the rear of the handset. Remove the old batteries and dispose of carefully. Insert four new batteries of the type described in the *Technical Data* section, observing the polarity instructions inside the battery holder, and close the clip-shut door. Test that the remote control functions correctly by pressing OSD, which should bring up the OSD.

12 TECHNICAL DATA

⚠️ | *The technical data given in this section was correct at the time of going to print, but may change without prior notice in order to improve product performance.*

This LCD projector is designed for indoor use and should not be operated or stored in conditions outside the general environmental limits given in section below, as this may lead to permanent damage and will violate any warranties.

12.1 GENERAL ENVIRONMENTAL LIMITS

Storage temperature	-20 - 60°C (-4 - 140 F)
Storage humidity	10 - 90 % relative humidity, non-condensing
Operating temperature	15 - 30°C (59 - 86 F) ambient
Operating humidity	20 - 80 % relative humidity

☞ | *Allow for slow acclimatization after storing at extreme temperatures and humidities, to avoid condensation. Should condensation appear, leave the projector unit in a controlled environment within the operating limits until the condensation has evaporated before using the LCD projector.*

12.2 LCD PROJECTOR UNIT

PROJECTOR DIMENSIONS	302 x 220 x 546 mm/11.9 x 8.7 x 21.5 inches
PROJECTOR WEIGHT	8,5 kg/19,6 lbs
PROJECTION LENS	215 - 225 mm VARIOFOCUS
ANTI-KEYSTONE CORRECTION	12 degrees
PROJECTION LAMP	575W Dual ended metal halide (OSRAM 575W/GS or equivalent)
LIGHT OUTPUT	350 ANSI lumen 500 peak lumen 1150 peak lux
LCD CELL	Active matrix TFT (thin film transistor) stripe configuration
COLOR RESOLUTION	16.7 million
RESPONSE TIME	30 ms
CONTRAST RATIO	100:1
PIXEL RESOLUTION	800 x 600 x 3 (RGB)
LCD SCREEN DIAGONAL	8.4 inches
DEFECTIVE PIXELS	Maximum 25 (black, red, green or blue)
VIDEO FREQUENCY	14 - 100 MHz
HORIZONTAL SYNC	14 - 100 kHz
VERTICAL SYNC	50 - 100 Hz
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 - 1 Vpp
VIDEO INPUT	0 - 1 Vpp
S-VIDEO INPUT	0 - 1 Vpp
AUDIO INPUT	1V RMS
SPEAKERS	2 x 5 W stereo
APPROVALS	• CE • UL • cUL • FCC Class A, Subpart J, Part 15

12.3 POWER SUPPLY

DUAL VOLTAGE	100 - 120 VAC (9A), 60 Hz, fuse 10A 220 - 240 VAC (5A), 50 Hz, fuse 6.3A

12.4   REMOTE CONTROL

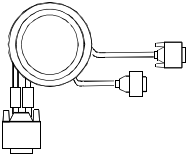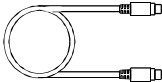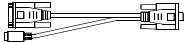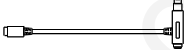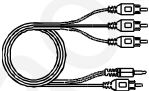|	
UNIT SIZE	190 x 49 x 21 mm / 7.5 x 1.9 x 0.8 inches
UNIT WEIGHT	154 g / 5.4 ounces (with batteries)
BATTERIES	4 pcs LR03/AM4 1.5V
FUNCTIONAL RANGE	15 m/45 ft
COMPATIBILITY	Microsoft 2-key serial mouse; IBM PS/2; MAC
APPROVALS	CE, FCC Class A

12.5   COMPATIBILITY

The LCD projector is compatible with the interfaces and resolutions shown below, some of which are predefined. However since different varieties of these exist, a frequency adjustment may be needed.

MODE	RESOLUTION	MAXIMUM VERTICAL FREQUENCY (Hz)	
Generic	640 x 350	85	
	640 x 400	85	
	640 x 480	85	
	720 x 480	85	
	800 x 600	100	
	1024 x 768 (compressed)	100	
VGA	640 x 350	85	
	640 x 400	85	
	640 x 480	85	
	720 x 400	85	
SVGA	800 x 600	100	
XGA	1024 x 768 (compressed)	100	
MAC	640 x 480	85	(75 Hz default)
	832 x 624*	100	(75 Hz default)
	1024 x 768 (compressed)	100	(75 Hz default)
	1152 x 870 (compressed)	90	(75 Hz default)

* MAC 832x624 mode is projected at 800 x 600 resolution and therefore a few lines vertically and horizontally at the edge of the MAC images at 832 x 624 will not be visible. The image is not compressed and cannot be panned around using the remote control.

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12.6   CONNECTORS ON THE SUPPLIED CABLES

The connectors on the supplied cables are described below.

CABLE	PROJECTOR END	SOURCE END	
		1	2 (if applies)
VGA 4m/13 ft V-split cable	26 pin HDDSUB male with fingerscrews	Computer end: 15 pin HDDSUB male with fingerscrews	Monitor end: 15 pin HDDSUB female with nuts
Mouse cable	8 pin mini DIN male	8 pin mini DIN male	-
Mouse adapter cable (serial)	8 pin mini DIN female	Computer end: 9 pin DSUB female with fingerscrews	Mouse end: 9 pin DSUB male with nuts
MAC mouse adapter	8 pin mini DIN female	Computer end: 4 pin mini DIN female (MAC ADB style)	Mouse end: 4 pin mini DIN female (MAC ADB style)
A/V 4m/13 ft cable	Dual ended: one RCA male and one 3.5 mm male stereo jack	Video end: 3 x RCA male	-

13 CONNECTORS

The connector ports for the source equipment on the LCD projector are located on the right hand-side (when facing) of the unit. The connector port for the mains power cord is located next to the fuse cabinet. The pinouts of all the connector ports is described in this section.

> ⚠️ *Do not connect any devices or cables other than those supplied with the LCD projector into the connector ports on the projector unit, even if the connector ports appear identical, as this voids any warranty and may cause permanent damage to the projector.*
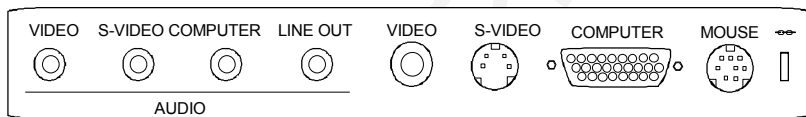
13.1 COMPUTER

This connector relays all sync signals from the computer to the LCD projector, and also to a local CRT monitor if required.

26 PIN HIGH DENSITY DSUB
FEMALE (FRONT VIEW)
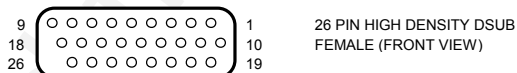
1 ANALOG R IN	10 ANALOG R GND IN	19 HSYNC IN
2 ANALOG G IN	11 ANALOG G GND IN	20 C/VSYNC IN
3 ANALOG B IN	12 ANALOG B GND IN	21 DIGITAL GND
4 NOT USED	13 NOT USED	22 PCID0
5 NOT USED	14 NOT USED	23 PCID1
6 NOT USED	15 NOT USED	24 DIGITAL GND
7 ANALOG R OUT	16 ANALOG R GND OUT	25 HSYNC OUT
8 ANALOG G OUT	17 ANALOG G GND OUT	26 VSYNC OUT
9 ANALOG B OUT	18 ANALOG B GND OUT	

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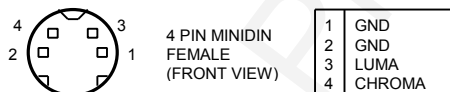### 13.2 MOUSE

This port is used to exchange mouse messages between the projector and the computer.

8 PIN MINIDIN
FEMALE
(FRONT VIEW)

1 MAC ADB	5 RS232 RTS
2 PS/2 CLOCK	6 RS232 RXD
3 PS/2 DATA	7 RS232 CTS
4 RS232 TXD	8 GND
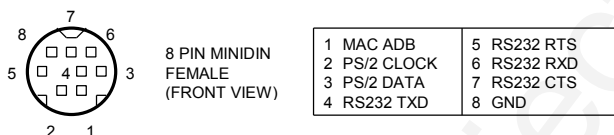
13.3 S-VIDEO

This connector is used as S-VHS video input.

4 PIN MINIDIN
FEMALE
(FRONT VIEW)

1	GND
2	GND
3	LUMA
4	CHROMA

13.4 VIDEO

This connector is used as composite video input.

PHONO / RCA
FEMALE
(FRONT VIEW)

STEM	COMPOSITE
SHIELD	GND

13.5 AUDIO

Four similar connectors are used for stereo sound line input for COMPUTER, S-VIDEO, VIDEO and LINE OUT channels respectively.

3.5 mm
JACK
(FRONT VIEW)

TIP	RIGHT
RING	LEFT
STEM	COMMON

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14 ENVIRONMENTAL STATEMENT

Care has been taken in the manufacture of this LCD projector that environmental stress and pollution has been minimized. Where possible, recyclable materials have been used to minimize the environmental impact.

There are no special requirements for handling the product. Should the LCD module inside the projector become broken for any reason, resulting in a spillage of liquid and glass fragments from inside the unit, the following precautions should be taken:

- wear gloves,
- place the projector unit **without opening it** inside a heavy-duty polythene bag to retain any further spillage,
- clean up the spillage, disposing of the waste wisely, and wash your hands thoroughly.

The delivery packaging can be recycled without further ado. With respect to the LCD projector unit itself, thought should be given to the eventual disposal of the unit in the most environmentally friendly manner considering the mechanical, electronic and chemical components inside.

15 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.

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 projector 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.

PLEASE READ

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