The SHOWLITE range of

SUPER-HIGH-BRIGHTNESS DIGITAL VIDEO PROJECTORS

SHOWLITE 3000sx
SHOWLITE 4000gv

USER MANUAL

Revision A - 11/01/2002

DIGITAL PROJECTION

Important Information

Please read this manual carefully before using your Showlite projector and keep the manual handy for future reference.

Your serial number is located on the bottom of your projector. Record it here:

CAUTION: To turn off main power, be sure to remove plug from power outlet. The outlet socket should be located as near to the equipment as possible, and be easily accessible.

CAUTION: To prevent electrical shock. Do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

WARNING: To prevent fire or shock, do not expose this unit to rain or moisture.

WARNING: Do not use this unit's grounded plug with an extension cord or in a power outlet unless all three prongs can be fully inserted.

WARNING: Do not open the cabinet. There are high-voltage components inside. All servicing must be done by qualified service personnel.

DOC Compliance Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

3. GSGV Acoustic Noise Information Ordinance

The sound pressure level is less than 70 dB (A) according to ISO 3744 or ISO 7779.

RF Interference

The Federal Communications Commission does not allow any modifications or changes to the unit EXCEPT those specified in this manual. Failure to comply with this government regulation could void your right to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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:

i) Re-orient or relocate the receiving antenna.
ii) Increase the separation between the equipment and the receiver.
iii) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
iv) Consult the dealer or an experienced radio/television technician for help.

Informations Importantes

Veuillez lire ce manuel avec attention avant d'utiliser votre projecteur et gardez ce manuel à portée de main afin de pouvoir y recourir facilement. Votre numéro de série est situé sur le fond de votre projecteur. Reportez le ici:

ATTENTION: Pour couper complètement l'alimentation, retirez la prise du secteur. La prise du secteur doit être accessible et installée le plus près possible de l'appareil.

ATTENTION: Pour éviter tout choc électronique, n'ouvrez pas le boîtier. Les piéces internes ne sont pas réparables par l'utilisateur. Pour toute réparation, adressez-vous à un réparateur agrée Digital Projection.

AVERTISSEMENT: Afin de prevenier tout Risque d'incendie ou de choc électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.

AVERTISSEMENT: N'utilisez pas la prise avec terre de a'ppareil avec une rallonge ou une autre prise, a moins que les trois brouches puissent être completement insérées.

AVERTISSEMENT: N'ouvrez pas le boîtier. A l'intérieur se trouvent des composants à haute tension. Toute réparation doit être faite par du personnel agrée Digital Projection.

DOC avis de Conformation

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.

3. Réglement sur les informations concernant les nuisances acoustiques GSGV

Le niveau de pression sonore est inférieur à 70 dB (A) conformément à la norme ISO 3744 ou ISO 7779.

Declaration of Conformity

Directives covered by this Declaration
89/336/EEC Electromagnetic Compatibility Directive, amended by 92/31/EEC & 93/68/EEC.
73/23/EEC Low Voltage Equipment Directive, amended by 93/68/EEC.

Products covered by this Directive
Large Screen Projector type: SHOWLITE 3000sx.

Basis on which Conformity is being declared
The product identified above comply with the protection requirements of the above EU directives, and the manufacturer has applied the following standards:-

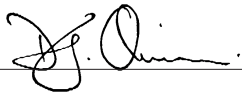
EN 55022:1998 - Limits and Methods of Measurements of Radio Disturbance Characteristics Information Technology Equipment.

EN 55024:1998 - Limits and Methods of Immunity Characteristics of Information Technology Equipment.

EN 61000-3-2:1998 - Harmonic Current Emissions.

EN 61000-3-3:1998 - Immunity to Voltage Fluctuations and Flicker.

The technical documentation required to demonstrate that the product met the requirements of the Low Voltage directive has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities. The CE mark was first applied in May 2001.

Signed: 

Authority: D.J. Quinn, Product Development Director

Date: 14th September 2001

Attention!
The attention of the specifier, purchaser, installer, or user is drawn to special measures and limitations to use which must be observed when these products are taken into service to maintain compliance with the above directives. Details of these special measures are available on request, and are also contained in the product manuals.

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89/336/EEC Electromagnetic Compatibility Directive, amended by 92/31/EEC & 93/68/EEC.
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Products covered by this Directive
Large Screen Projector type: SHOWLITE 4000gn.

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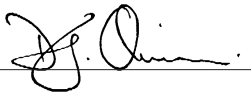
Signed: 

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Revision Record

From time to time revisions will be issued to this manual. To maintain a correct and up to date copy of the manual it is important that the instructions given in revision notices are carried out.

The person carrying out the revision should complete the table below.

Revision No	Revision Details	Date Revised

Introduction

The SHOWLITE 3000sx and SHOWLITE 4000gv are the finest, most technically advanced projectors available today. The projectors enable you to project exceptionally bright, precise images up to 300 inches across (measured diagonally) from your PC or Macintosh computer, VCR, document camera, laser disc player, DVD player and even an HD VCR or HD laser disc player.

Please read the following before proceeding

An Outline of Contents is given overleaf which provides an overview of the five sections, A to E, in this manual and lists all the major topics covered along with their location. This outline allows the user to direct themselves to the appropriate section of this manual where a detailed contents page will provide the exact location of the topic required. Section identifiers are also provided on the outside edge of the pages to allow the quick location of individual sections.

The user is strongly recommended to read Section A: Overview before unpacking or switching on the projector, paying particular attention to the safety warnings provided.

Disclaimer Digital Projection makes a sincere effort to ensure accuracy and quality of it's published materials; however, no warranty, expressed or implied, is provided. Digital Projection disclaims any direct or indirect damages resulting from the use of any information in this manual.

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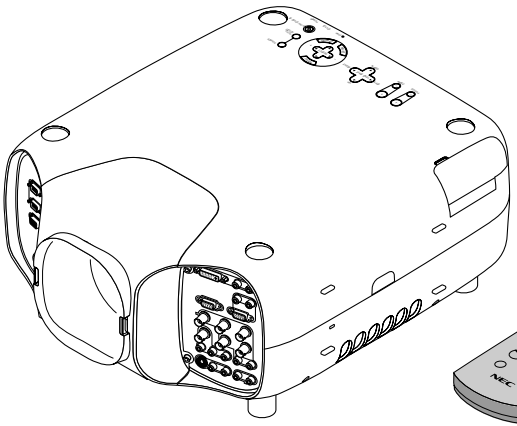
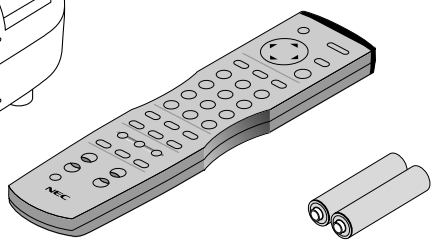
Packaging

Projector Packaging

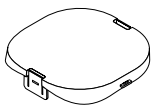
The following components should be contained within the projector packaging. Should any of the components be absent, please contact the dealer who supplied the projector, or Digital Projection Limited for all countries excluding North America or Digital Projection Inc. for North American Customers.



1 x SHOWLITE Projector.

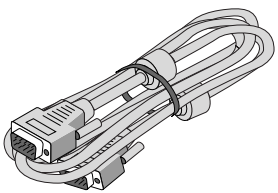


1 x Remote Control Unit with 2 x AAA Batteries.

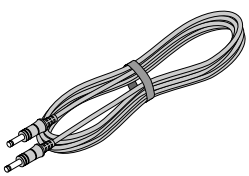


1 x Lens Cap

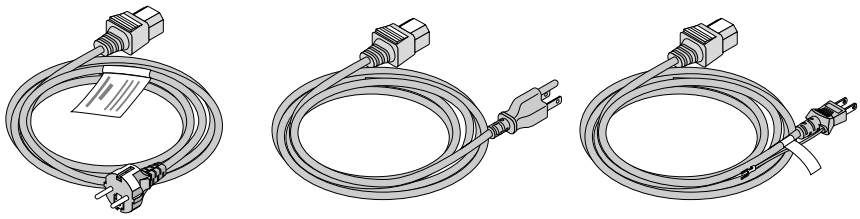
1 x String and Rivet



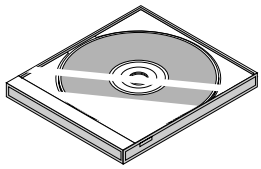
1 x RGB Signal Cable
(supplied with 4000gv only)

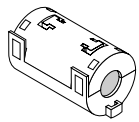


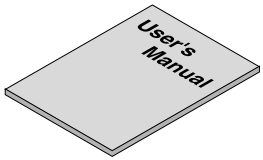
1 x Remote Control Cable



3 x AC Power Cables
(1 x 220-240V - Europe, 1 x 120V - North America and 1 x 100V - Japan)







1 x CD ROM (supplied with 4000gv only)

1 x Ferrite Clamp Core

1 x User Manual

All packaging should be retained to provide maximum protection during future shipping of the projector.

Lens Packaging

Lenses are supplied as individual items and the packaging may differ depending on the version ordered. Please refer to the instructions supplied with your lens.

Safety Advice

The safety instructions provided in this manual are to ensure the long life of your projector and to prevent fire and shock. Please read them carefully and heed all warnings.

Fire and Shock Precautions

Ensure that there is sufficient ventilation and that vents are unobstructed to prevent potentially dangerous concentrations of ozone and the build-up of heat inside your projector. Allow at least 10cm (3”) of space between your projector and a wall.

Ensure that nothing can be spilled on, or dropped inside the projector. If this does happen, switch off and unplug the mains supply immediately. Do not operate the projector again until it has been checked by qualified service personnel.

Do not insert any metal objects such as a wire or screwdriver into your projector.

Lamp Precautions

Due to the lamp being sealed in a pressurised environment, there is a small risk of explosion, if not operated correctly. There is minimal risk involved, if the unit is in proper working order, but if damaged or operated beyond the recommended 1500 hours, the risk of explosion increases.

The projector has a warning system that displays the following message when you reach 1500 hours of operation - ‘The Lamp has reached the end of its usable life. Please replace the lamp’. When you see this message please contact your Digital Projection dealer for a replacement lamp.

If the lamp does explode, it may shatter and pieces of glass could be scattered inside the lamp housing. In such an event, please contact your dealer.

WARNING: Do not look into the lens while the projector is on. Serious damage to your eyes could result.

CAUTION: The high pressure lamp may explode if improperly handled. Refer all servicing to qualified service personnel.

Power Supply

The projector is designed to operate on a power supply of 100-120VAC or 200-240VAC 50/60Hz. Ensure that your power supply fits this requirement before attempting to use your projector.

Handle the power cable carefully and avoid excessive bending. A damaged cord can cause electric shock or fire.

If the projector is not be used for an extended period of time, disconnect the plug from the power outlet. Do not unplug the power cable from the wall outlet under the following circumstances, doing so may cause damage to the projector:

a) Immediately after the power cable is plugged into the wall outlet (the POWER indicator has not changed to a steady amber glow).

b) Immediately after the lamp has been switched off. After the projector is turned off with the POWER OFF button the cooling fan continues to operate for 1 minute.

c) While the hour glass icon or the message ‘Please wait a moment’ is being displayed.

Installation Advice

The projector should be placed on a flat, level surface and in a dry area free from dust and moisture and out of direct sunlight. Exposure to direct sunlight, moisture, smoke or steam could harm internal components.

Do not place the projector in near heaters or heat radiating appliances and ensure there is adequate ventilation around the projector so heat can dissipate.

The projector should always be handled with care. Dropping or jarring the projector could damage internal components.

Do not place heavy objects on the projector.

If you wish to have the projector installed on the ceiling do not attempt to install the projector yourself. The projector must be installed in accordance with any local building codes by qualified technicians in order to ensure proper operation and reduce the risk of bodily injury.

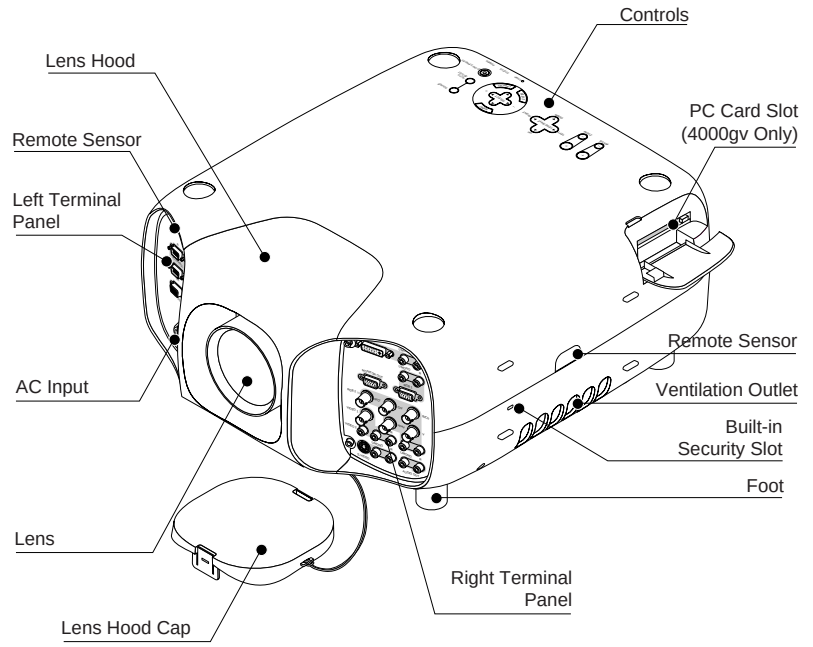
The ceiling must be strong enough to support the weight of the projector.

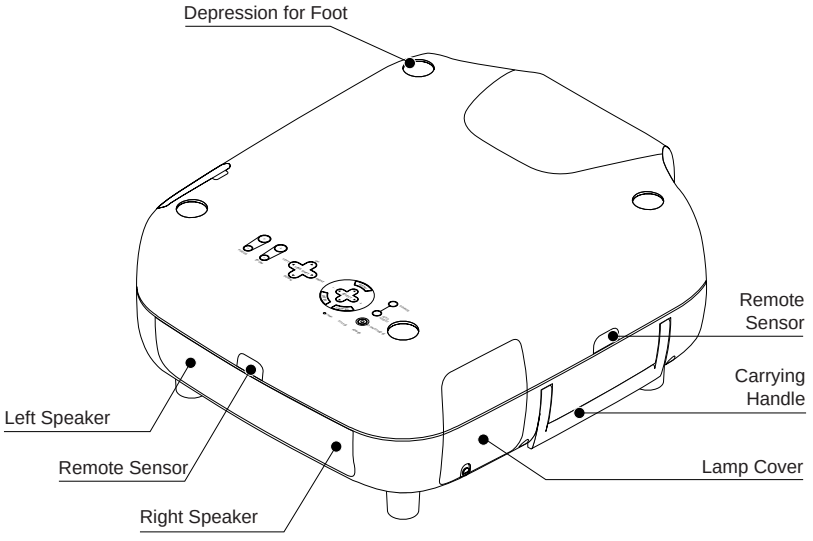
Do not attempt to stack projectors on the ceiling.

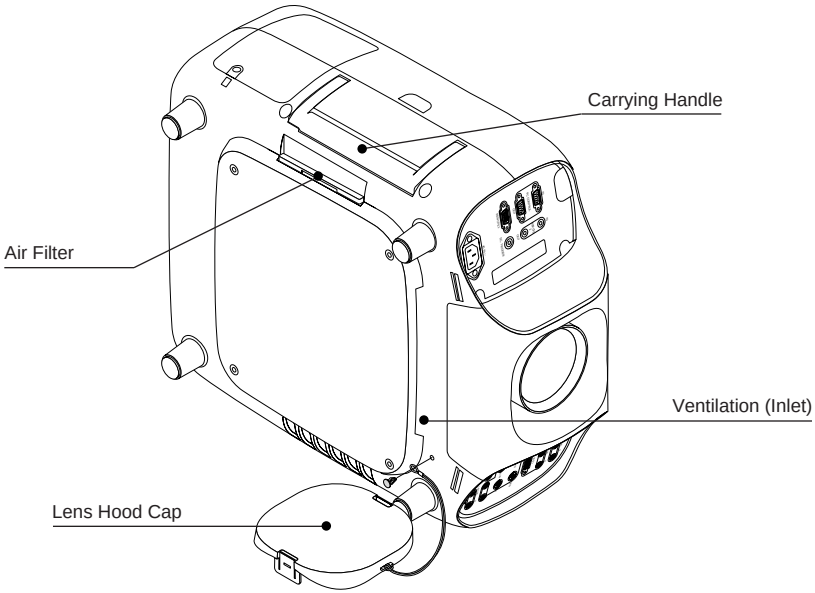
Do not use the projector where temperatures vary greatly. The 4000gv projector must be used at temperatures between 0° to 40°C. The 3000sx projector must be used at temperatures between 0° to 35°C.

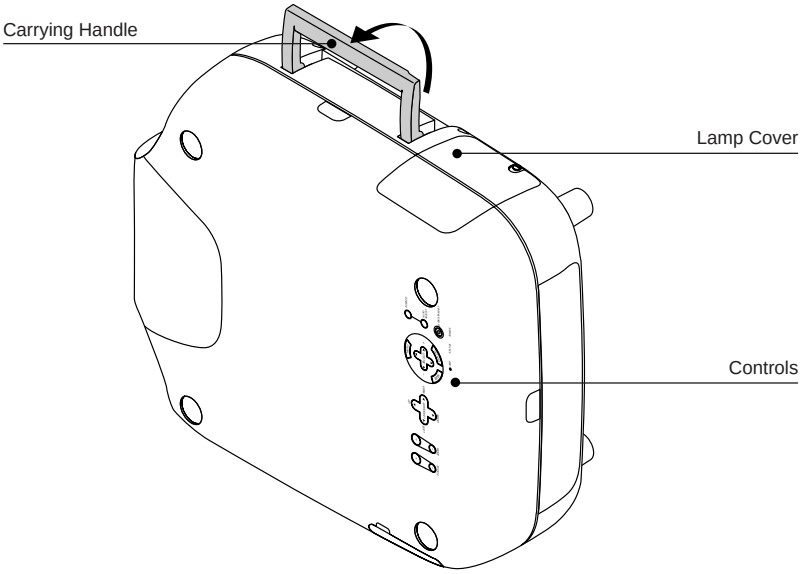
Components

Part Names



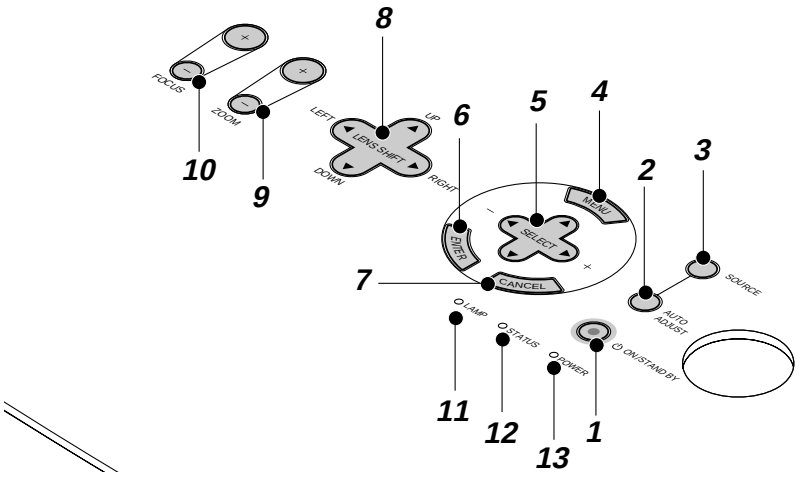



Carrying Handle
Air Filter
Ventilation (Inlet)
Lens Hood Cap


Carrying Handle
Lamp Cover
Controls

Control Panel

The control panel on the top of the projector provides all the main controls necessary to operate the projector.



1 - Power Button (ON/STAND BY)
Press to turn the projector on when the projector is in the standby condition (Main Power switch must be on and the POWER indicator lit amber). Press and hold for 2 seconds to turn off the projector.

2 - Auto Adjust Button (RGB Only)
This button is used to adjust Horizontal and Vertical Position and the Pixel Clock/Phase to provide an optimal picture. Some signals may not be displayed properly or take time to switch

3 - Source Button
Used to select the input source - PC, VCR, DVD Player or PC Card (PC card is only available on 4000gv). Each time the button is pressed, the input source will change. For the 4000gv the sequence is as follows: RGB1 -> RGB2 -> Video1 -> Video2 -> S-Video -> DVI digital -> DVI Analog -> PC Card Viewer. For the 3000sx the sequence is: RGB1 -> RGB2 -> DVI(DIGITAL) -> Video1 -> Video2 -> S-Video. In the event that no input signal is present, the input will be skipped.

4 - Menu Button
Displays the menu system.

5 - Select Cursors
When in the menu system, the up and down cursors are used to select the menu item you wish to adjust. When no menus are present, these cursors operate the volume. The left and right cursor buttons are used to change the setting of the selected menu item. When no menus are present, these cursors can be used to select a slide, or to move the cursor in folder or slide list. When the pointer is being displayed, all the cursors can be used to move the pointer.

6 - Enter Button
Executes your menu selection and activates items selected from the menu.

7 - Cancel Button
Press this button to exit the menu. Press this button to return the adjustments to the last condition while you are in the adjustment or setting menu.

8 - Lens Shift Button
This button adjusts the lens offset by shifting the projected image horizontally and/or vertically.

9 - Zoom Button
Zoom the lens in and out.

10 - Focus Button
Adjust the lens focus.

11 - Lamp Remaining Indicator
Indicates the lamp time remaining.

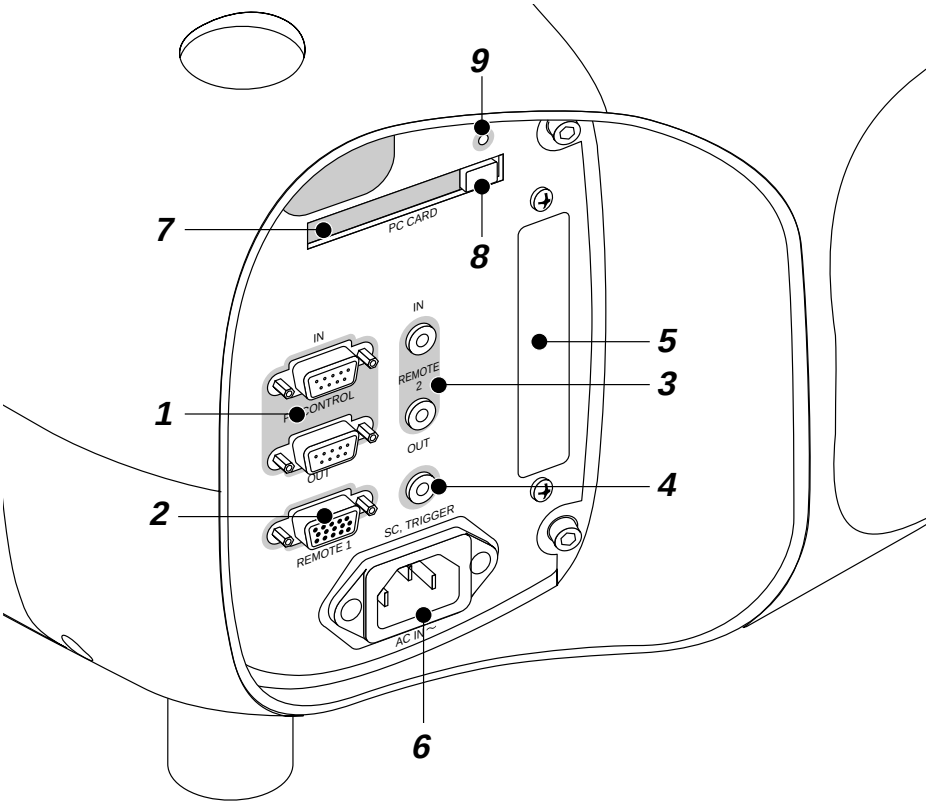
12 - Status Indicator
When this is continually lit Red (orange in Eco mode) its warns that the projector lamp has reached the end of its useable life. After this light appears it is advisable to replace the projection lamp as soon as possible. In addition, the message “The lamp has reached the end of its usable life. Please replace the lamp” appears continually until the lamp is replaced.

If the projector is in Eco mode or something abnormal takes place this indicator will be lit or flash. For example, if the lamp cover is not attached properly or the projector is overheating, the light will flash red rapidly.

13 - Power Indicator
When the indicator is green, the projector is on. When the indicator is orange the projector is in stand-by mode.

Left Terminal Panel - SHOWlite 3000sx

The Left Terminal Panel located on the front of the projector provides all the required connections for PC and Remote Control.



1 - PC CONTROL IN/OUT

These Mini D-SUB 15-Pin connections provide for PC control and daisy-chaining of projectors. The IN connection is for the connection of the control device (e.g. a PC). The OUT connection provides a link to another projector for multiple projector operation. To daisy-chain projectors in this manner the OUT connection should be connected the the IN connection on the next projector.

2 - REMOTE 1
This Mini D-SUB 15-Pin terminal allows control of the projector from an external switcher.

3 - REMOTE 2 IN/OUT
These 2 Mini Jacks provide for hard wire remote control of the projector and daisy-chained operation. To control multiple projectors with the same remote control unit, connect the OUT Jack to the IN Jack of the second projector.

4 - SC. TRIGGER
This Screen Trigger is used to operate Screen Controllers (cable not supplied). When the projector is turned on, the SC. TRIGGER output send a low voltage trigger to the Screen Controller to lower the screen. When the projector is turned off, the Screen Trigger stops sending the low voltage trigger and the screen is raised.

Do not use this jack for anything other than its intended use. Connecting the wired remote control to the SC. TRIGGER Mini Jack causes damage to the remote control.

5 - Slot for LAN Board
This connector is used to control the projector on a LAN (the optional LAN kit is required).

6 - AC IN
Connection for the supplied 3-Pin power plug.

7 - PC CARD SLOT
Slot for the insertion of a PC CARD.

8 - PC CARD EJECT
Button to eject an inserted PC CARD.

9 - PC CARD ACCESS INDICATOR
This indicator will illuminate when a PC CARD is accessed.

Left Terminal Panel - SHOWlite 4000gv

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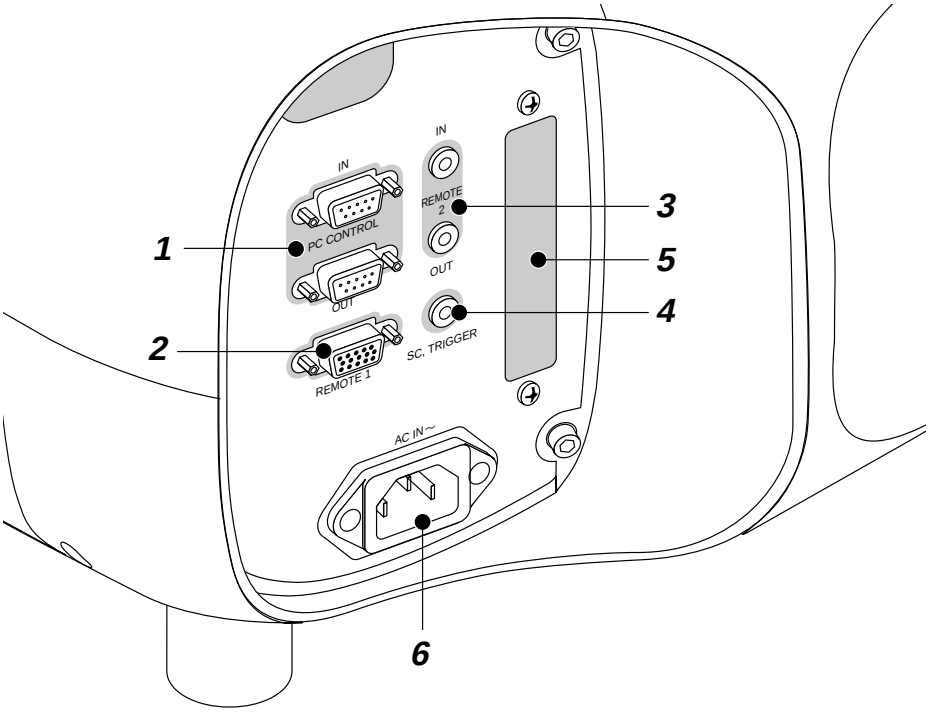

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These 2 Mini Jacks provide for hard wire remote control of the projector and daisy-chained operation. To control multiple projectors with the same remote control unit, connect the OUT Jack to the IN Jack of the second projector.

4 - SC. TRIGGER

This Screen Trigger is used to operate Screen Controllers (not supplied). When the projector is turned on, the SC. TRIGGER output send a low voltage trigger to the Screen Controller to lower the screen. When the projector is turned off, the Screen Trigger stops sending the low voltage trigger and the screen is raised.

Do not use this jack for anything other than its intended use. Connecting the wired remote control to the SC. TRIGGER Mini Jack causes damage to the remote control.

5 - Slot for LAN Board

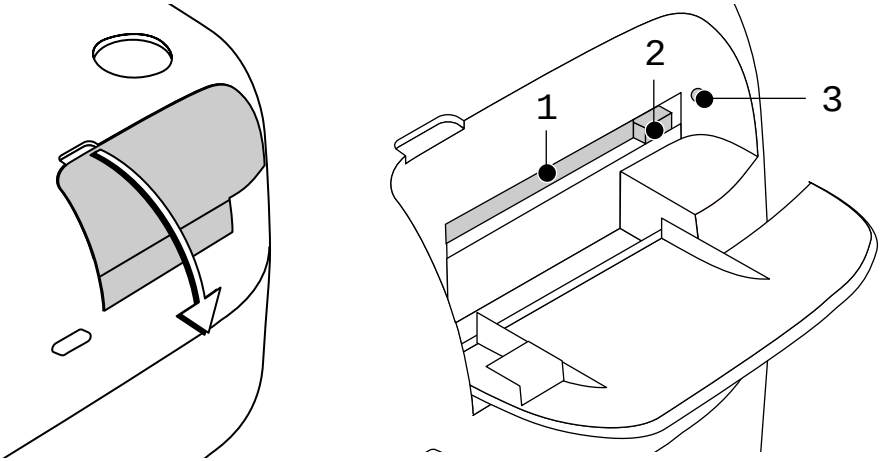
This connector is used to control the projector on a LAN (the optional LAN kit is required).

6 - AC IN

Connection for the supplied 3-Pin power plug.

PC Card Viewer - SHOWlite 4000gv

To access the PC Card Slot pull down the cover on the front left of the projector.



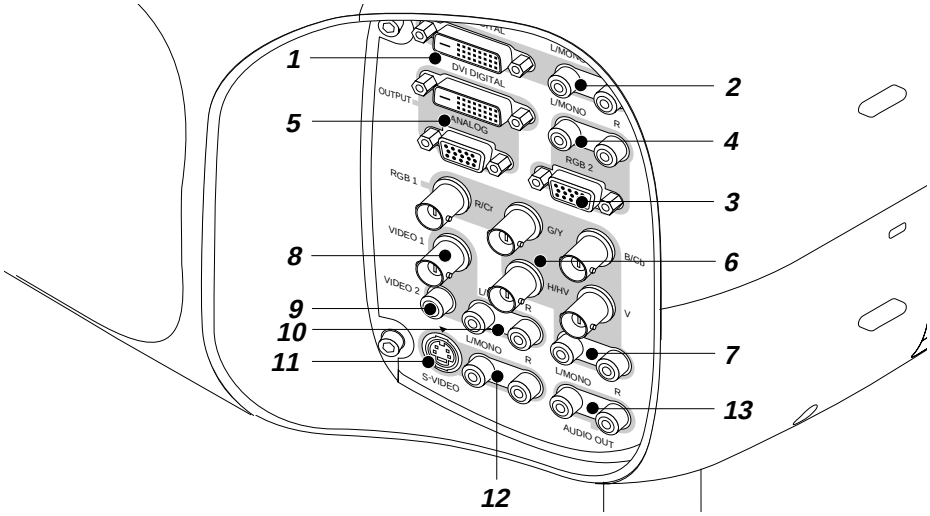
1 - PC CARD SLOT
Slot for the insertion of a PC CARD.

2 - PC CARD EJECT
Button to eject an inserted PC CARD.

3 - PC CARD ACCESS INDICATOR
This indicator will illuminate when a PC CARD is accessed.

Right Terminal Panel - SHOWlite 3000sx

The Right Terminal Panel located on the front of the projector provides all the required connections for input signal.



1 - DVI DIGITAL Input Connector

This connector is used for digital signal outputs from a computer with a DVI connector.

2 - DVI DIGITAL Audio Input Jacks

These RCA connections are for the left and right audio inputs for stereo sound from equipment connected to a computer with a DVI Output. The left input also acts as a monoaural audio input.

3 - RGB 2 Connector

This Mini D-Sub 15-Pin connection is used to connect RGB equipment (e.g. your PC, Macintosh or DVD player). When using a Y/Cb/Cr output, the optional Component V cable should be used.

4 - RGB 2 Audio Input Jacks

These RCA connections are for the left and right audio inputs for stereo sound from RGB equipment connected to the RGB 2 Input. The left input also acts as a monoaural audio input.

5 - DVI DIGITAL OUTPUT and ANALOG OUTPUT Connectors
The DVI DIGITAL OUTPUT connector is used for double stacking of projectors. Use a DVI-D cable to connect the DVI DIGITAL OUTPUT of the projector to the DVI DIGITAL INPUT connector of the following projector.

The ANALOG OUTPUT (Mini D-Sub 15-Pin) connection can be used to loop your computer image to an external monitor from either the RGB 1 or RGB 2 inputs.

6 - RGB 1 Input Connector
BNC connectors provide inputs for R/Cr, G/Y, B/Cb, H/HV and V outputs of external equipment. If using a Component signal with a combined sync (SYNC), connect it to the H/V terminal. When using Luminance and Color-Difference signals of HDTV and DVD, connect Pr/Cr to the R input, Y to the G input and Pb/Cb to the B input.

7 - RGB 1 Audio Input Jacks
These RCA connections are for the left and right audio inputs for stereo sound from RGB equipment connected to the RGB 1 Input. The left input also acts as a monoaural audio input.

8 - VIDEO 1 Input Connector
A BNC connection for the attachment of a VCR, DVD, Laser Disc Player or Document Camera.

9 - VIDEO 2 Input Connector
An RCA connection for the attachment of a VCR, DVD, Laser Disc Player or Document Camera.

10 - VIDEO Audio Input Jacks
These RCA connections are for the left and right audio inputs for stereo sound from equipment connected to the VIDEO 1 or VIDEO 2 inputs. The left input also acts as a monoaural audio input.

11 - S-VIDEO Input Connector
A Mini DIN 4-Pin connection for connection of an S-Video source such as a VCR or Laser Disc Player.

12 - S-VIDEO Audio Input Jacks

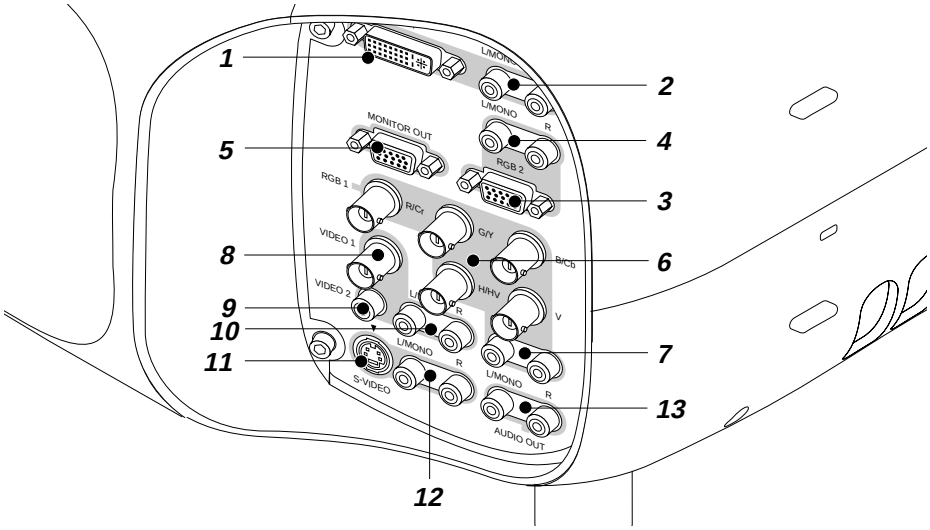
These RCA connections are for the left and right audio inputs for stereo sound from equipment connected to the S-VIDEO input. The left input also acts as a monoaural audio input.

13 - AUDIO OUT Jacks

These RCA connections are used to output sound from the currently selected input source.

Right Terminal Panel - SHOWlite 4000gv

The Right Terminal Panel located on the front of the projector provides all the required connections for input signal.



1 - DVI Connector

This connector is used for digital or analogue signal outputs from a computer with a DVI connector.

2 - DVI Audio Input Jacks

These RCA connections are for the left and right audio inputs for stereo sound from equipment with a DVI Output. The left input also acts as a monoaural audio input.

3 - RGB 2 Connector
This Mini D-Sub 15-Pin connection is used to connect RGB equipment (e.g. your PC, Macintosh or DVD player). When using a Y/Cb/Cr output, the optional Component V cable should be used.

4 - RGB 2 Audio Input Jacks
These RCA connections are for the left and right audio inputs for stereo sound from RGB equipment connected to the RGB 2 Input. The left input also acts as a monoaural audio input.

5 - MONITOR OUT Connector
This Mini D-Sub 15-Pin connection is used to loop your RGB or DVI input image to an external monitor.

6 - RGB 1 Input Connector
BNC connectors provide inputs for R/Cr, G/Y, B/Cb, H/HV and V outputs of external equipment. If using a Component signal with a combined sync (SYNC), connect it to the H/V terminal. When using Luminance and Color-Difference signals of HDTV and DVD, connect Pr/Cr to the R input, Y to the G input and Pb/Cb to the B input.

7 - RGB 1 Audio Input Jacks
These RCA connections are for the left and right audio inputs for stereo sound from RGB equipment connected to the RGB 1 Input. The left input also acts as a monoaural audio input.

8 - VIDEO 1 Input Connector
A BNC connection for the attachment of a VCR, DVD, Laser Disc Player or Document Camera.

9 - VIDEO 2 Input Connector
An RCA connection for the attachment of a VCR, DVD, Laser Disc Player or Document Camera.

10 - VIDEO Audio Input Jacks
These RCA connections are for the left and right audio inputs for stereo sound from equipment connected to the VIDEO 1 or VIDEO 2 inputs. The left input also acts as a monoaural audio input.

11 - S-VIDEO Input Connector
A Mini DIN 4-Pin connection for connection of an S-Video source such as a VCR or Laser Disc Player.

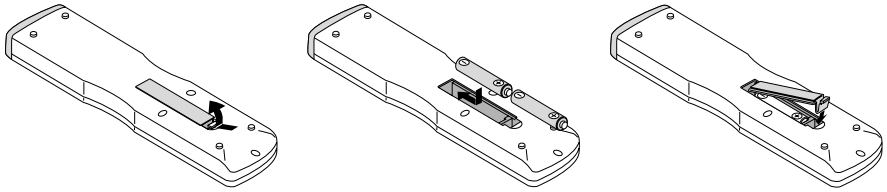
12 - S-VIDEO Audio Input Jacks
These RCA connections are for the left and right audio inputs for stereo sound from equipment connected to the S-VIDEO input. The left input also acts as a monoaural audio input.

13 - AUDIO OUT Jacks
These RCA connections are used to output sound from the currently selected input source.

Remote Control

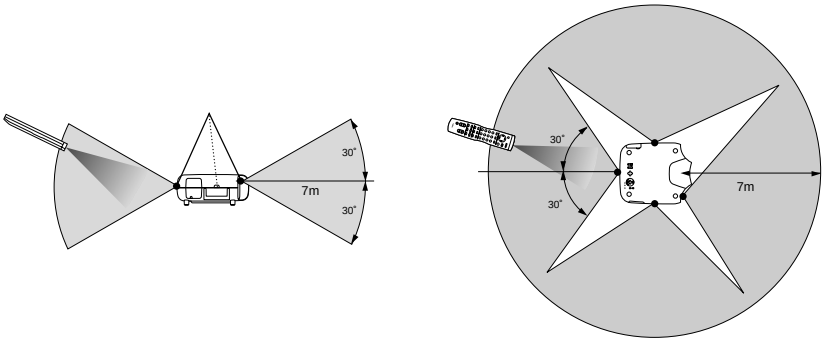
All the functions of the SHOWLITE projector can be controlled using the remote control. The remote control unit can operate either by infra-red or by direct connection to the projector via a hard wire connection.

For infra red operation the remote control requires to be powered by 2 AAA (HP16/RO3/LR03) alkaline batteries. The battery compartment is located on the back of the remote control. To remove the compartment cover press and open as shown below.



Insert the first battery into the compartment according to the (+) and (-) indications inside the case and it to the back of the compartment. Insert the second battery by pivoting it against the first and pushing down into place. When the batteries are securely in place, replace the battery compartment cover.

When using infra red operation the remote control has an effective range of about 7m (23 feet) and at an angle of 30° above, below, to the left and to the right of the remote control sensors located at the front, rear and on both sides of the projector.



The remote control should not be exposed to heat, steam, water or any other liquid. If the remote control gets wet, wipe it dry immediately.

When remote control buttons are pressed and held down the main unit function keys may not operate.

Direct sunlight, very bright fluorescent lighting or Infra Red translation systems may saturate the projectors' Infra Red receiver rendering the remote control inoperative.

You cannot operate the projector using the remote control if the remote ID is set to [None] or the remote ID is not the same as the projector ID.

Section B: System Installation

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Installation Guidelines

This installation section explains how to install the projector for optimum results. To do this, it is necessary to determine the following:

1. The type of screen and whether front or rear projection is to be used.

2. The projector location and therefore the type of lens to be used.

3. The method of mounting for the projector.

4. The type of input source to be used with the projector.

Screen Requirements

As virtually all commercially available screens will give a pleasing image you should choose according to your individual requirements. However, to achieve optimum results we recommend a low gain (1.2 - 1.3), non-perforated screen for front projection, this will keep hot spotting and light loss to a minimum whilst providing wide viewing angles.

Regardless of the type of screen used, it is important that your screen is of sufficient height to display the images at the aspect ratios intended to be used. Use the following tables to check that you are able to display the full image on your screen. If you have insufficient height, you will have to reduce the overall image size in order to display the full image on your screen.

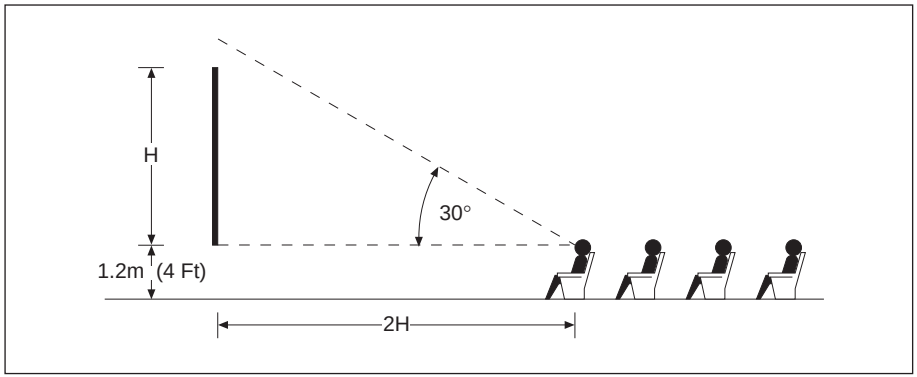
Screen Width	Screen Height (metres) Needed to Display Full Image with Aspect Ratio:				
(metres)	4 x 3	5 x 4	8 x 5	14 x 9	16 x 9
2.40	1.80	1.92	1.5	1.54	1.35
3.00	2.25	2.40	1.87	1.93	1.69
3.60	2.70	2.88	2.25	2.31	2.02
4.20	3.15	3.36	2.62	2.70	2.36
4.80	3.60	3.84	3.00	3.09	2.70
6.00	4.50	4.80	3.75	3.86	3.38
10.00	7.50	8.00	6.25	6.43	5.63

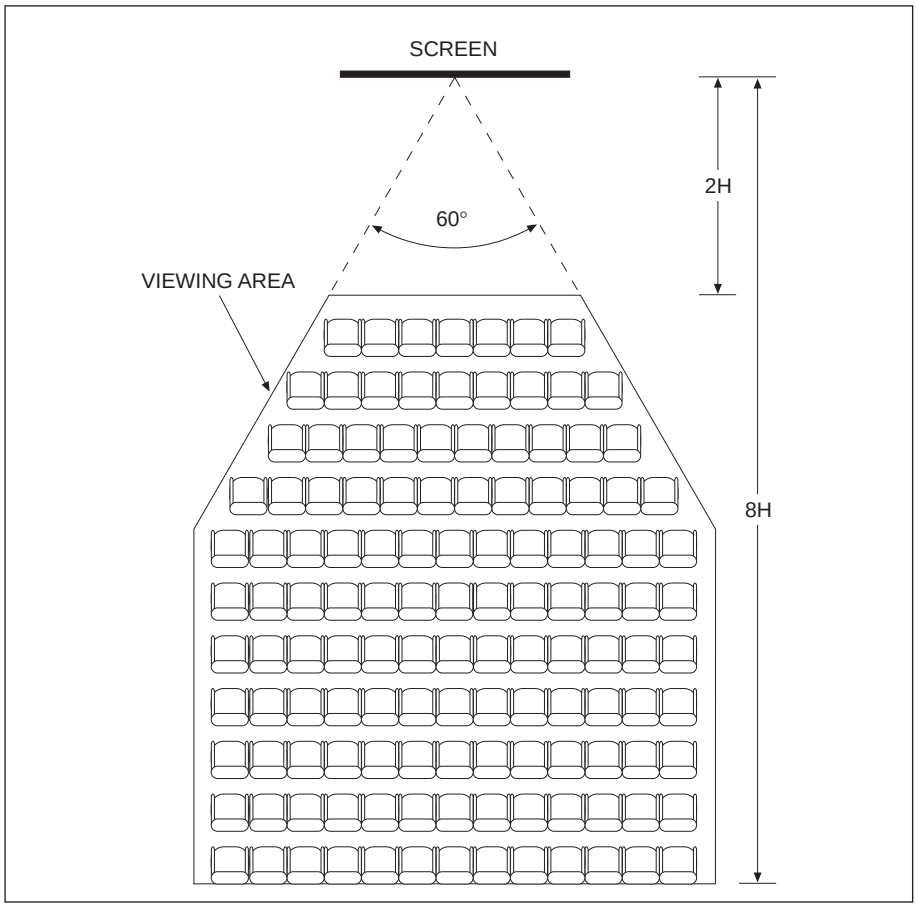
Screen Width (feet)	Screen Height (feet/inches) Needed to Display Full Image with Aspect Ratio:				
	4 x 3	**5 x 4**	**8 x 5**	**14 x 9**	**16 x 9**
8' 0"	6' 0"	6' 5"	5' 0"	5' 2"	4' 6"
10' 0"	7' 6"	8' 0"	6' 3"	6' 5"	5' 8"
12' 0"	9' 0"	9' 7"	7' 6"	7' 9"	6' 9"
14' 0"	10' 6"	11' 2"	8' 9"	9' 0"	7' 11"
16' 0"	12' 0"	12' 10"	10' 0"	10' 8"	9' 0"
20' 0"	15' 0"	16' 0"	12' 6"	12' 10"	11' 4"
30' 0"	22' 6"	24' 0"	18' 9"	19' 4"	16' 11

For optimum viewing, the screen should be a flat surface perpendicular to the floor. The bottom of the screen should be 1.2m (4 feet) above the floor and the front row of the audience should not have to look up more than 30° to see the top of the screen (see opposite).

The distance between the front row of the audience and the screen should be at least twice the screen height and the distance between the back row and the screen should be a maximum of 8 times the screen height. The screen viewing area should be within a 60° range from the face of the screen.

If you intend to use a rear projection screen you must ensure you have sufficient distance behind the screen for the projector to be correctly located Rear projection has the advantage that the projector cannot be seen and higher ambient light levels can be tolerated. Although the image can be flipped to rear projection and displayed without the need for extra mirrors or equipment, it makes the installation more complicated and advice should be sought from your local dealer before attempting an installation in this way.


H
30°
1.2m (4 Ft)
2H

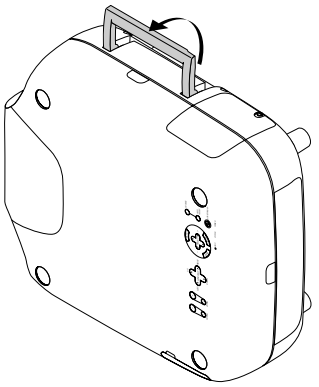

SCREEN
2H
60°
VIEWING AREA
8H

Positioning the Projector

Correct positioning of the projector is essential to achieve the best results. Before deciding on the final location of the projector please ensure you read the following information very carefully.

The projector must be situated in a clean, dry environment and away from direct sunlight or heat. Make sure you locate the projector so that the air inlets and outlets for the cooling system are not obstructed.

When positioning the projector always carry it by the retractable handle provided. The handle pulls out right hand side of the projector as shown below.



Never carry the projector on its side whilst the lamp is lit.

Ensure that the power cord and any other cables connecting to video sources are disconnected before moving the projector. When moving the projector or when it is not in use, cover the lens with the lens cap.

PROJECTOR THROW DISTANCE

The further the projector is positioned from the screen or wall, the larger the displayed image. The minimum projected image size is 1m (40") measured diagonally. The largest the image can be is 12.7m (500").

SCREEN SIZES

Screen Size (Diagonal)	Screen Width (H)		Screen Height (V)	
	Metres	Feet	Metres	Feet
40”	0.8	2.7	0.6	2.0
60”	1.2	4.0	0.9	3.0
80”	1.6	5.3	1.2	4.0
100”	2.0	6.7	1.5	5.0
150”	3.0	10.0	2.3	7.5
200”	4.1	13.3	3.0	10.0
250”	5.1	16.7	3.8	12.5
300”	6.1	20.0	4.6	15.0
400”	8.1	26.7	6.1	20.0
500”	10.2	33.3	7.6	25.0

When using a zoom lens, exact positioning of the projector is not required as the image size can be adjusted. However, the projector must be located within the Throw Distance range imposed by the minimum and maximum lens throw ratios. To calculate the distance required between the screen and the projector select your lens type and screen size from the table below.

Screen Size (Diagonal)	Throw Distance required for Lens Model			
	LA00236, 1.0	LA00235, 1.3-1.6	LA00232, 1.-2.4	LA00237, 3.4-5.2
40”	0.8	1.1 - 1.3	4.1 - 6.5	-
	(2.7)	(3.5 - 4.3)	(13.45-21.33)	-
60”	1.2	1.6 - 2.0	2.2 - 2.9	-
	(4.0)	(5.2 - 6.4)	(7.2 - 9.6)	-
80”	1.6	2.1 - 2.6	2.9 - 3.9	5.5 - 8.5
	(5.3)	(6.9 - 8.5)	(9.6 - 12.8)	(18.1 - 27.7)
100”	2.0	2.6 - 3.3	3.7 - 4.9	6.9 - 10.6
	(6.7)	(8.7 - 10.7)	(12.0 - 16.0)	(22.7 - 34.6)
150”	3.0	4.0 - 4.9	5.5 - 7.3	10.4 - 15.8
	(10.0)	(13.0 - 16.0)	(18.0 - 24.0)	(34.0 - 52.0)
200”	4.1	5.3 - 6.5	7.3 - 9.8	13.6 - 21.1
	(13.3)	(17.3 - 21.3)	(24.0 - 32.0)	(45.3 - 69.3)
250”	5.1	6.6 - 8.1	9.1 - 12.2	17.3 - 26.4
	(16.7)	(21.7 - 26.6)	(30.0 - 40.0)	(56.6 - 86.6)
300”	6.1	7.9 - 9.8	11.0 - 14.6	20.7 - 31.7
	(20.0)	(26.0 - 32.0)	(36.0 - 48.0)	(68.0 - 103.9)
400”	-	-	-	27.6 - 42.3
	-	-	-	(90.6 - 138.6)
500”	-	-	-	34.5 - 52.8
	-	-	-	(113.3 - 173.2)

Throw distances measured in metres and (feet)

For screen sizes between 40” and 500” not included in the previous table use the formula and table below to calculate the throw distance:

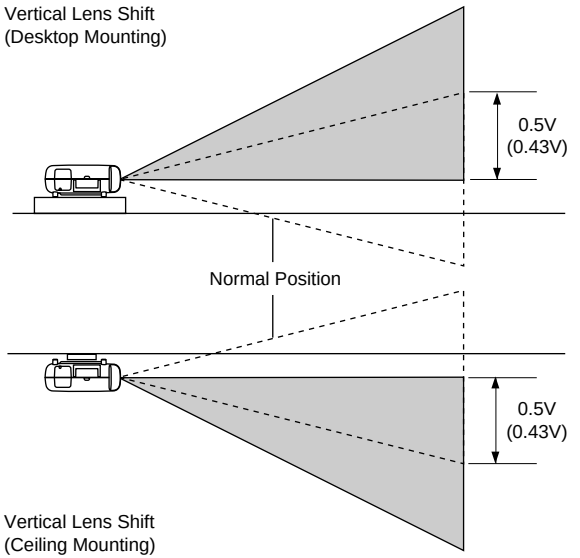
Projector Throw Distance = Screen Width (H) x Lens Magnification

Lens	Magnification	Screen Width Range
LA00236	1.0	0.8m (2.7ft) to 6.1m (20.0ft)
LA00235	1.3 - 1.6	1.1m (3.5ft) to 9.8m (32.0ft).
LA00232	1.9 - 2.4	1.5m (4.8ft) to 14.6m (48.0ft).
LA00237	3.4 - 5.2	5.5m (18.1ft) to 52.8m (173.2ft).

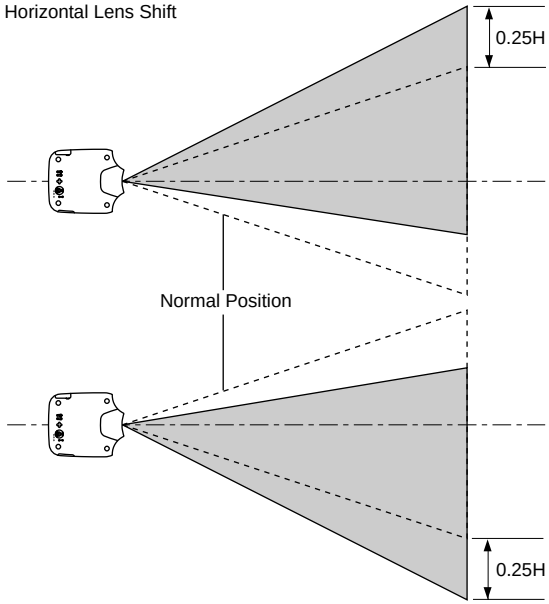
LENS SHIFT

The default height for positioning the projector is at the centre of your screen. However, you can set the projector above or below the centre and adjust the image using the ‘Lens Shift’ facility to centre the image on the screen. The maximum vertical lens shift range for the LA00232 and LA00237 lenses is 50% of the projected image height and the maximum range for the LA00235 lens is 43%.

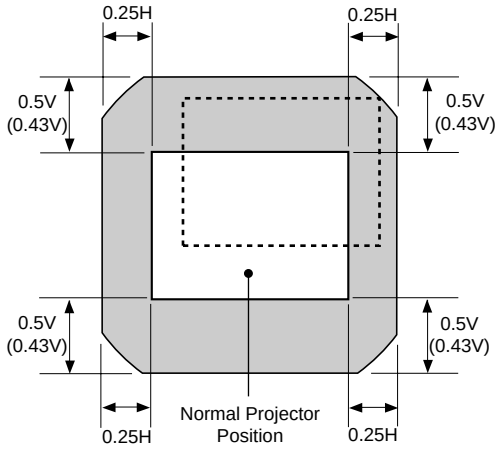
The Lens Shift facility is not available on the LA00236 fixed lens.



As with vertical positioning, the default horizontal position of the projector is at the centre of the screen. However, the projector can be mounted to the left or right of image centre and the 'Lens Shift' function used to centre the image on screen. The maximum horizontal lens shift range is 25% of the projected image width.



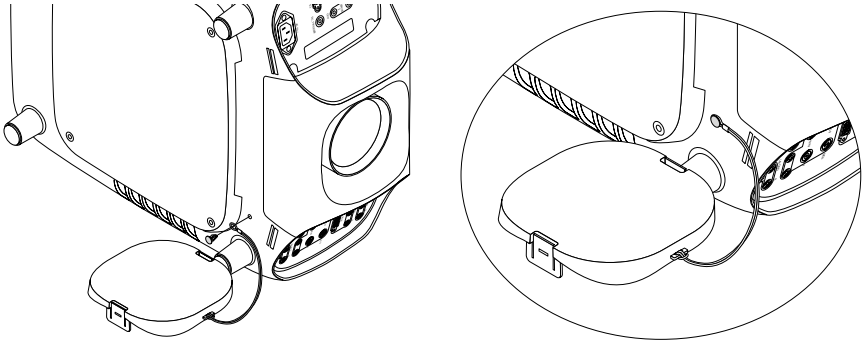
If the lens is shifted both horizontally and vertically, the maximum range in either direction is reduced due to the rounded off area near the edge of the lens (see below).



Installation

Attaching the Lens Hood Cap

To attach the lens hood cap to the projector, thread the string through the hole on the lens hood cap then use the rivet provided to attach the string to the bottom of the projector.



Lens Installation

Before installing a lens first determine the optional lens required to obtain the desired projection distance (see pages B–4 to B–6).

Do not attempt to install a lens if the projector is turned on. If the projector is operating, turn off the power and wait for the cooling fan to stop. Next turn off the main power switch on the rear panel and wait for the projector to cool off.

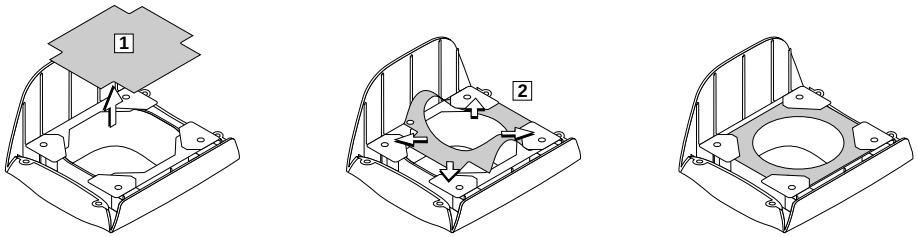
INSTALLATION PROCEDURE

Remove the lens hood cap and lens hood from the projector.

1. Press and hold the catches on both ends of the lens hood.
2. Pull the lens hood forward to remove it.
3. Loosen the four screws on the lens hood using the hexagonal driver (the screws do not detach from the lens hood).
4. Remove the lens hood.

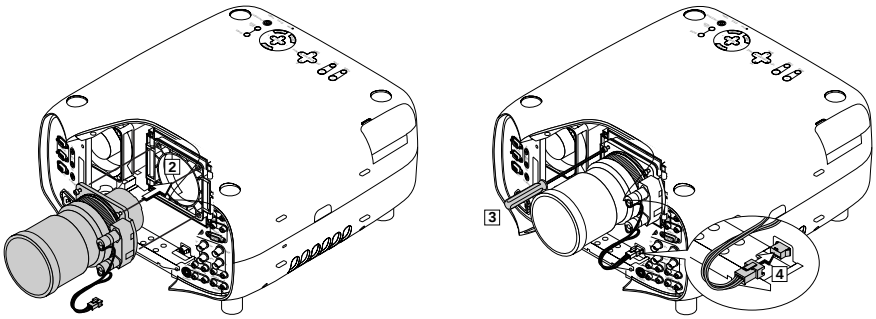
Replace the dust protective sheet on the lens hood

1. Remove the dust protective sheet on the back of the lens hood
2. Replace the sheet with the one provided with the new lens by placing it aluminium side up and warping it as shown in the diagram below. Be careful not to fold the sheet.



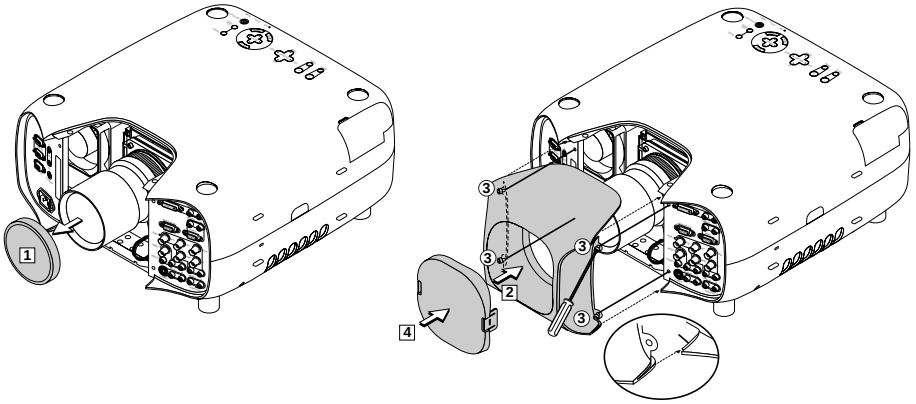
Mounting the lens unit and connecting the extension cable.

1. Remove the lens cap from the rear of the lens unit.
2. Insert the lens unit so that the four screws on the lens unit are correctly aligned with the four holes on the lens mount.
3. Secure the four screws using a hexagonal driver.
4. Insert the connector of the lens unit fully into the socket of the extension cable attached to the projector.



Re-install the lens hood.

1. Remove the front lens cap from the lens unit.
2. Insert the lens hood ensuring the grooves on the four corners are properly aligned with the four catches on the projector.
3. Secure the 4 screws using the hexagonal driver.



Basic Operation

Turning On and Off the Projector

Before you turn on your projector, ensure that the computer or video source is turned on and that your lens cap is removed.

Connect the power supply cable to the projector and plug it into the mains outlet on the wall. The projector will go instantly into standby mode and the power indicator will glow orange.

To turn on the projector, press the ON/STANDBY button on the remote control or the POWER ON button on the remote control. The power indicator on the projector will turn green and the projector is ready for use.

After turning on the projector, screen flicker may occur. This will disappear when the lamp stabilises (approx. 3-5 minutes).

To have the projector immediately start by plugging in the power cable, use the menu and enable the 'Auto Start' feature.

To turn off the projector, press the the Power (ON/STANDBY) button on the projector or press the POWER OFF button on the remote control for a minimum of 2 seconds. The Power indicator will turn to orange and the projector will turn off.

The cooling fans will remain running for one minute after the projector has been turned off. Do not disconnect the power cable until the fans have stopped operating.

Startup Screen

When you first turn on the projector you will be presented with the 'Startup Screen'. This screen enables you to select which language you want to have the menu system displayed in. The available options are: English, German, French, Italian, Spanish, Swedish and Japanese.

To select a menu language, use the cursor keys to highlight the desired choice and press ENTER. The Basic/Custom menu will be displayed in the language you have selected. After the first time you select the language you can proceed directly to this menu the next time you turn the projector on. The language menu choice can be changed later if required.

Basic/Custom Menu

The Basic/Custom Menu provides access to all the submenus used to control and configure the projector. Options available from this menu comprise: Source Select, Picture, Volume, Image Options, Projector Options, Tools, Help Test Pattern and To Advanced Menu.

Setting Up the Projector

Once the projector has been turned on and you have selected the required language, the type of projection you intend to use needs to be defined. The choices are selected from an flyout list under 'Orientation' in the Projector Options/Setup/Page 1 screen. Available choices include Desktop Front, Ceiling Rear, Desktop Rear and Ceiling Front.

Once you have selected the Orientation required for your installation, the image configuration needs to be tested using the test pattern. The test pattern is accessed by pressing the TEST button on the remote control or by selecting TEST PATTERN from the menu system. With the test pattern displayed, the image size and position can be adjusted by holding CTL and pressing the POSITION button to show the LENS SHIFT adjustment screen. The image can then be moved using the SELECT button on the remote control or the LENS SHIFT button on the projector. Once the required changes have been made to the image position you can exit the screen by pressing the CANCEL button.

To adjust the size of the displayed image, hold down the CTL button on the remote control and press the ZOOM + or - button. The image size can also be adjusted using the ZOOM + or - buttons on the projector.

Once the size and position has been selected, the focus should be adjusted to give the best image possible. To adjust the focus, hold down the CTL button on the remote control and pressing the FOCUS + or - button. The focus can also be adjusted using the FOCUS + or - buttons on the projector.

If you are still experiencing problems displaying a perfect image, other adjustments include the rotation the projector slightly to correct for an unsquare horizontal image (or using Keystone correction for more accurate adjustment). The projector feet can also be adjusted to raise or lower an individual corner of the projector up to 20mm or at angles of 3.5 degrees.

Input Source Connections

Connecting a VCR or Laser Disc Player

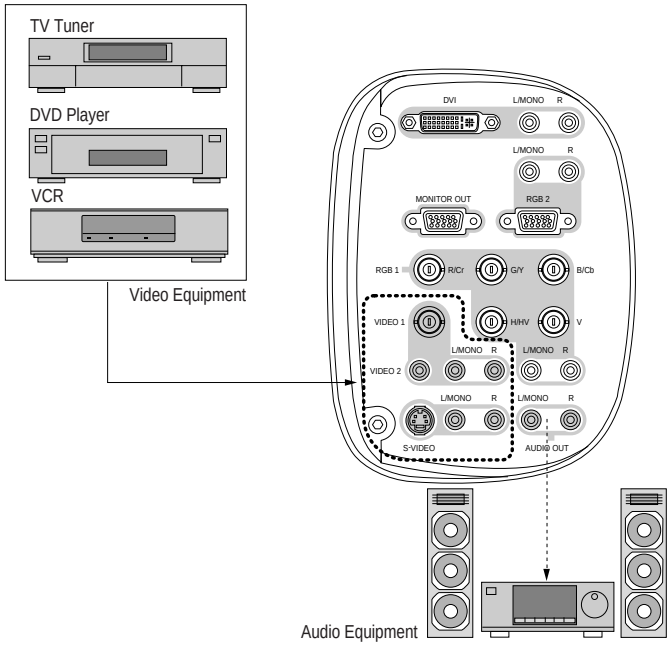
1. Turn off the power to your projector and VCR/Laser Disc Player.

2. Connect one end of a common RCA cable to the video output connector on the back of your DVD or Laser Disc Player.

3. Connect the other end to the Video input on your projector.

4. Using standard RCS audio patch cords, connect the audio from your VCR or Laser Disc Player to your projector ensuring to keep the left and right audio channels correct for stereo sound.

5. Turn on the projector and the VCR/Laser Disc Player.



Refer to your VCR or Laser Disc users manual for more information about your equipment's video and audio output requirements.

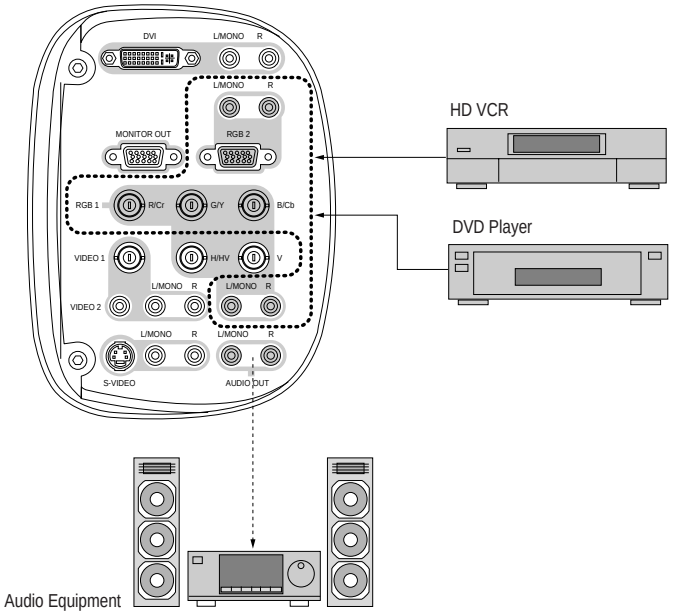
Connecting a DVD Player with Component Output

This type of input device requires the optional Component V cable for connection to the projector.

1. Turn off the power to your projector and DVD Player.

2. Connect one end of the Component V cable to your DVD player and the other end to the RGB1 input on the projector. Alternatively, use a D-Sub 15 Pin cable to connect to the RGB2 input.

3. Turn on the projector and the DVD player.



Refer to your DVD users manual for more information about your equipment's video and audio output requirements.

Connecting a PC or Macintosh Computer

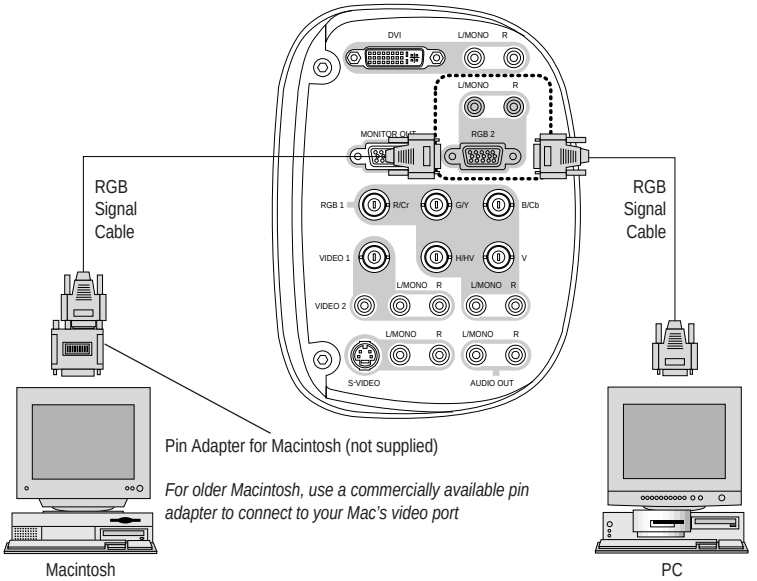
Connecting your PC or Macintosh computer to the projector allows you project the output onto a large screen for presentations.

1. Turn off the power to your projector and computer.

2. Use an RGB cable to connect your computer to the projector (an RGB cable is supplied with the SHOWlite 4000gv projector).

3. Turn on the projector and the computer.

If the projector goes blank after a period of inactivity, it may be caused by a screen saver installed on the computer.

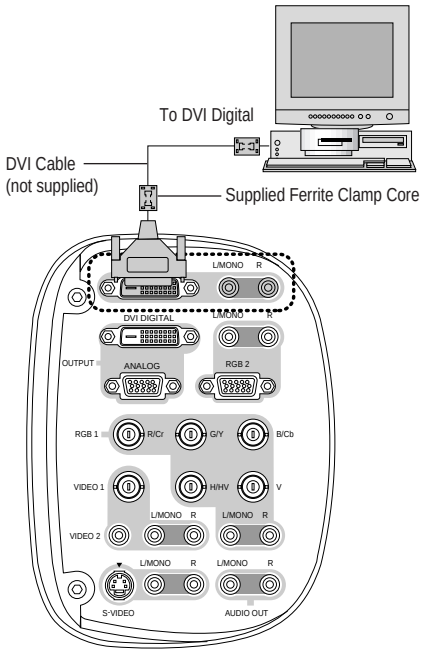


Refer to your computers users manual for more information about your equipment's video and audio output requirements.

Connecting to a PC with DVI Output - SHOWlite 3000sx

The DVI (digital) input accepts signals up to SXGA@60Hz. SXGA signals with a clock signal of 110MHz or over cannot be supported.

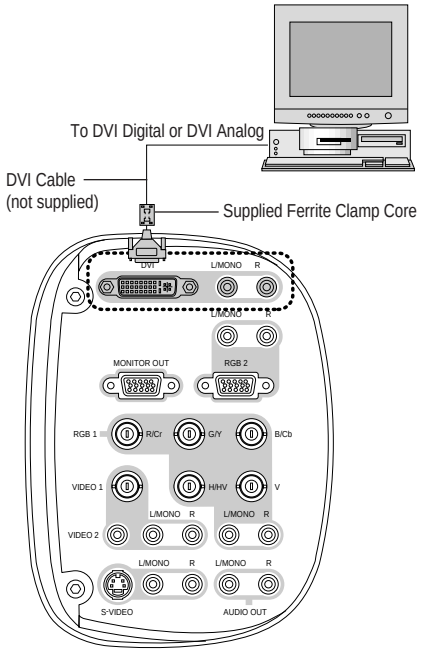
The Auto Adjust feature does not work for DVI digital signals. When a DVI signal is selected and the image position is not correct, adjust the horizontal and vertical position using the Pixel/Clock screen.



Connecting to a PC with DVI Output - SHOWlite 4000gv

The DVI (digital) input accepts the XGA signal produced from DVI equipment however a DVI cable will be required.

The Auto Adjust feature does not work for DVI digital signals. When a DVI signal is selected and the image position is not correct, adjust the horizontal and vertical position using the Pixel/Clock screen.

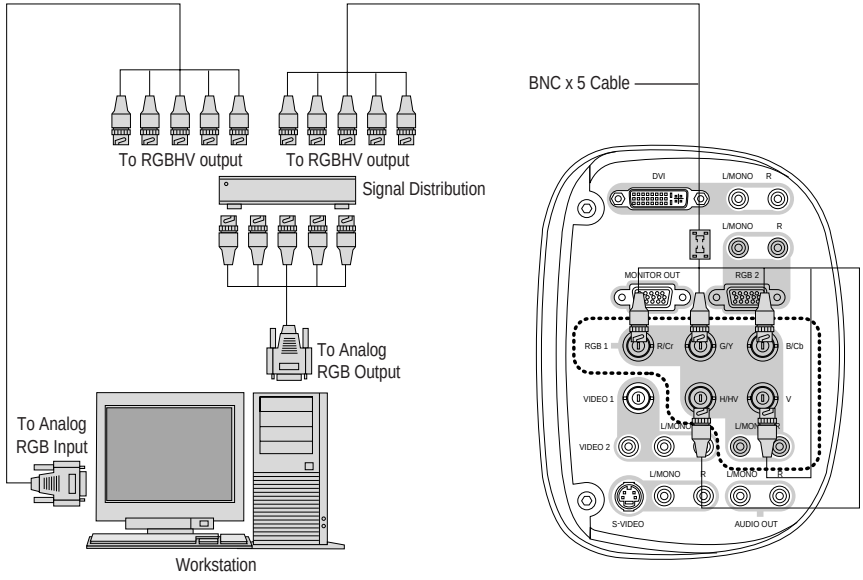


Connecting to a Single Workstation

1. Turn off the power to your projector and workstation.

2. Use a BNC x 5 cable to connect your workstation and the RGB1 connector on your projector.

3. Turn on the projector and workstation.



BNC x 5 INSTALLATION INSTRUCTIONS

To reduce unnecessary radiation of electromagnetic waves, fit the optional ferrite core to one end of the BNC cable.

1. Open and attach the ferrite core to a signal cable as close as possible to the projector end of the cable. Close the ferrite core tightly.

2. Fix the optional band to the cable as a stopper. Pull the end of the band to tighten it and cut off the remaining band.

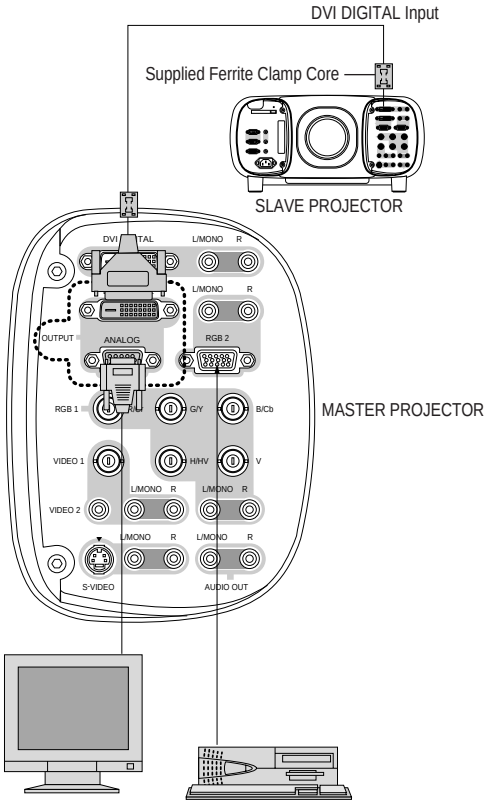
Connecting an External Monitor - SHOWlite 3000sx

You can connect a separate, external monitor to your SHOWlite 3000sx projector to simultaneously view the RGB analog or component image you are displaying on the projector.

1. Turn off the power to the projector, monitor and computer.

2. Use a 15pin cable to connect your monitor to the ANALOG OUTPUT (Mini D-Sub 15 pin) connection on the projector.

3. Turn on the projector, monitor and computer.



The ANALOG OUTPUT connector outputs RGB signal during standby. When the projector is placed into standby mode the external monitor will disappear for a moment.

The DVI DIGITAL OUTPUT connector outputs all input signals. This connector is designed for Link Mode only. Do not connect any other equipment other than another projector to this connector.

Connecting an External Monitor - SHOWlite 4000gv

You can connect a separate, external monitor to your projector to simultaneously view the RGB analog, DVI analog or component image you are displaying on the projector.

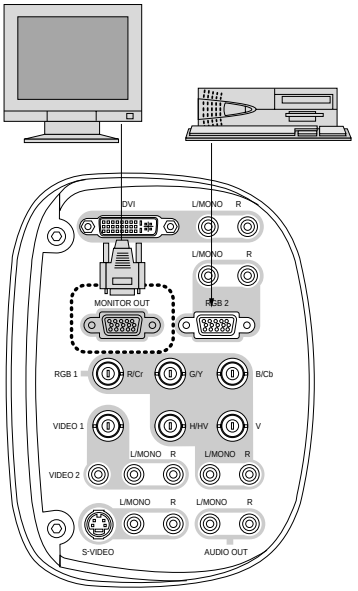
1. Turn off the power to the projector, monitor and computer.

2. Use a 15pin cable to connect your RGB monitor to the RGB MONITOR OUTPUT connection on the projector.

3. Turn on the projector, Monitor and computer.

The MONITOR OUTPUT connector outputs RGB signal during standby. When the projector is placed into standby mode the external monitor will disappear for a moment.

The DVI digital output signal from the MONITOR OUTPUT connector is not available.



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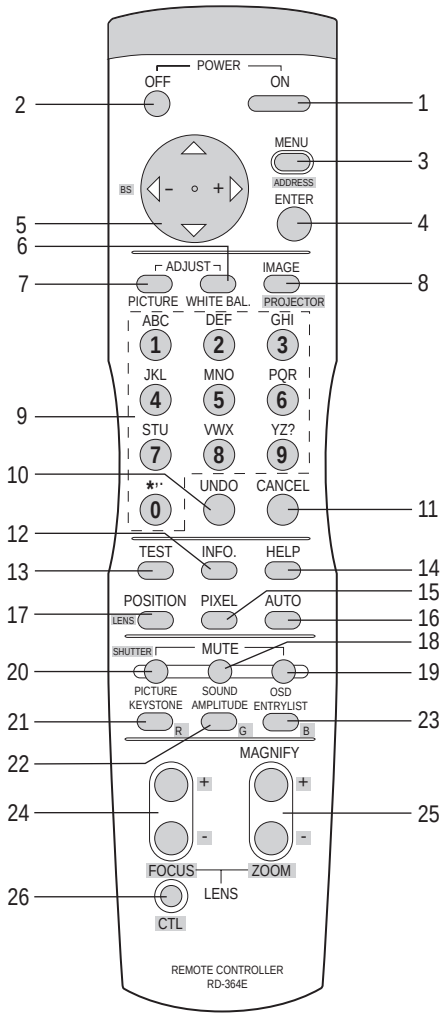
Remote Control Overview

All the functions of the **SHOWLITE** projector can be controlled by the remote control unit. The remote control can be directly connected to the projector via a control cable or to provide more flexibility send infra red signals which are detected by sensors located at the front and rear of the projector.

A description of all the remote control functions is provided overleaf.



OPERATION

1 - POWER ON
Press to turn on the projector. The POWER indicator lights up green.

2 - POWER OFF
Press and hold this button for a minimum of two seconds to turn off the projector.

3 - MENU
Press to display the main menu. While pressing and holding CTL, press this button to display the Remote Control ID dialog box to specify the remote control ID.

4 - ENTER
Executes the menu selection and activates items selected from the menu. When the slidebar or dialog box is displayed, pressing this button confirms adjustments/ setting and returns to the previous menu display.

5 - CURSOR BUTTONS
The cursor buttons are used to navigate the menu system. When pressed together, the CTL and left cursor buttons work as a Back Space key in the entry screen. Pressing and holding CTL, then this button moves the menu, slidebar or dialog box.

6 - ADJUST WHITE BAL
Displays the Colour adjustment screen. For the SHOWlite 3000sx projector pressing this button sequentially selects Color Temperature, White Balance - Brightness, White Balance - Contrast, Signal Level, Ref. White Bal and Switcher Gain. For the SHOWlite 4000gv, this button selects Colour Temperature, White Balance and Switcher Gain.

7 - ADJUST PICTURE
Displays the Picture adjustment screen. Pressing this button sequentially for the SHOWlite 3000sx projector selects Brightness, Contrast, Saturation, Color, Hue, Sharpness, V. Aperture and Gamma Correction. For the SHOWlite 4000gv projector, this button selects Brightness, Contrast, Colour, Hue, Sharpness and V-Aperture.

8 - IMAGE/PROJECTOR

Displays the Image Option screen. When used with a SHOWlite 3000sx projector this button sequentially selects Pixel Adjust, Position, Aspect Ratio, Resolution, Overscan, Video Filter and Blanking.

For SHOWlite 4000gv projectors this button sequentially selects Gamma Correction, Aspect Ratio, Noise Reduction, Color Matrix, Resolution, Video Filter, Overscan, Clamp Timing, Y/C Delay, YTR Adjustment, CTR Adjustment and HD Delay.

For either projector model, holding down CTL and pressing this button rotates through On/Off Timer, Sleep Timer, Menu, Setup, Link Mode, Switcher Control and LAN Mode (optional).

9 - INPUT

The alpha-numeric INPUT buttons are used to select an input, to name a signal, or to enter a passcode during input registration.

When used to select an input, the alpha-numeric buttons operate as follows:

Input	SHOWlite 3000sx	SHOWlite 4000gv
1	Selects RGB 1 Input.	Selects RGB 1 Input.
2	Selects RGB 2 Input.	Selects RGB 2 Input.
3		Select VIDEO 1 Input.
4	Select VIDEO 1 Input.	Selects VIDEO 2 Input.
5	Selects VIDEO 2 Input.	Selects S-VIDEO Input.
6	Selects S-VIDEO Input.	Selects DVI Digital Input.
7	Selects RGB1 (VIDEO) Input.	Selects DVI Analog Input.
8	Selects RGB1 (S-VIDEO) Input.	Selects PC Card Viewer.
9		Selects RGB1 (VIDEO) Input.
0		Selects RGB2 (S-VIDEO) Input.

10 - UNDO

Returns the adjustments and settings to their previous condition. While pressing and holding CTL, UNDO clears all the menus or adjustment/setting screen. At this time the adjustments/settings are stored in memory.

11 - CANCEL
Press to exit the menu. When in the menu system, pressing this button with CTL returns to the previous menu allowing adjustment of several items concurrently.

12 - INFO
Displays the Source Information or Projector Information window. This button operates as a toggle between the two windows.

13 - TEST
Displays the projector test patterns. Pressing this button sequentially rotates through the nine available test patterns.

14 - HELP
Provides online help.

15 - PIXEL
Displays the Pixel Adjust screen to allow adjustment of the pixel clock and phase.

16 - AUTO
Adjusts the Horizontal/Vertical Position and Pixel Clock/Phase for an optimum picture (RGB Only).

17 - POSITION
Pressing this button will display the Position/Clock screen. Pressing this button while holding down CTL displays the Lens Shift adjustment screen.

18 - MUTE SOUND
Mute Sound toggles the sound on and off.

19 - MUTE OSD
This button turns on and off the On Screen Display.

You can also toggle the on-screen display on and off by pressing and holding CTL and then pressing MUTE OSD. In this case any adjustment will still change the projector's memory settings. This mode is available even when an input is switched to another or the power is turned off using the POWER OFF button on the remote control.

20 - MUTE PICTURE
Pressing Mute Picture toggles the display between the incoming signal and a blank screen.

21 - KEYSTONE (R)
Display the Keystone Correction screen. When a test pattern is displayed, holding down CTL and pressing this button displays a red test pattern.

22 - AMPLITUDE (G)
For use by authorised service personnel only. When a test pattern is displayed, holding down CTL and pressing this button displays a green test pattern.

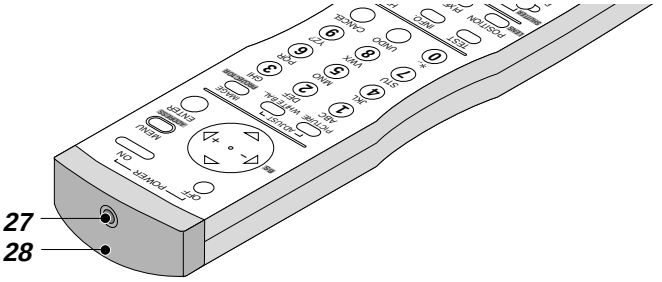
23 - ENTRY LIST (B)
Display the Entry List screen. When a test pattern is displayed, holding down CTL and pressing this button displays a blue test pattern.

24 - FOCUS (+/-)
While pressing and holding CTL, pressing this button allows you to adjust the lens focus.

25 - MAGNIFY/ZOOM (+/-)
Magnifies the size of the targeted portion of the displayed image. When the image is magnified, pressing CTL and any one of the cursor buttons will display the magnifying glass icon. This icon can be moved around the screen using the cursor buttons to select the area to be magnified. Press CTL and a cursor button again to remove the icon.

While pressing and holding CTL, pressing this button allows you to zoom the lens in and out.

26 - CTL
The CTL button is used in conjunction with other buttons to provide alternative functions.



27 - REMOTE JACK

Connector for hard wire operation of the projector.

28 - INFRARED TRANSMITTER

Infrared transmitter for sending control signals to the projector.

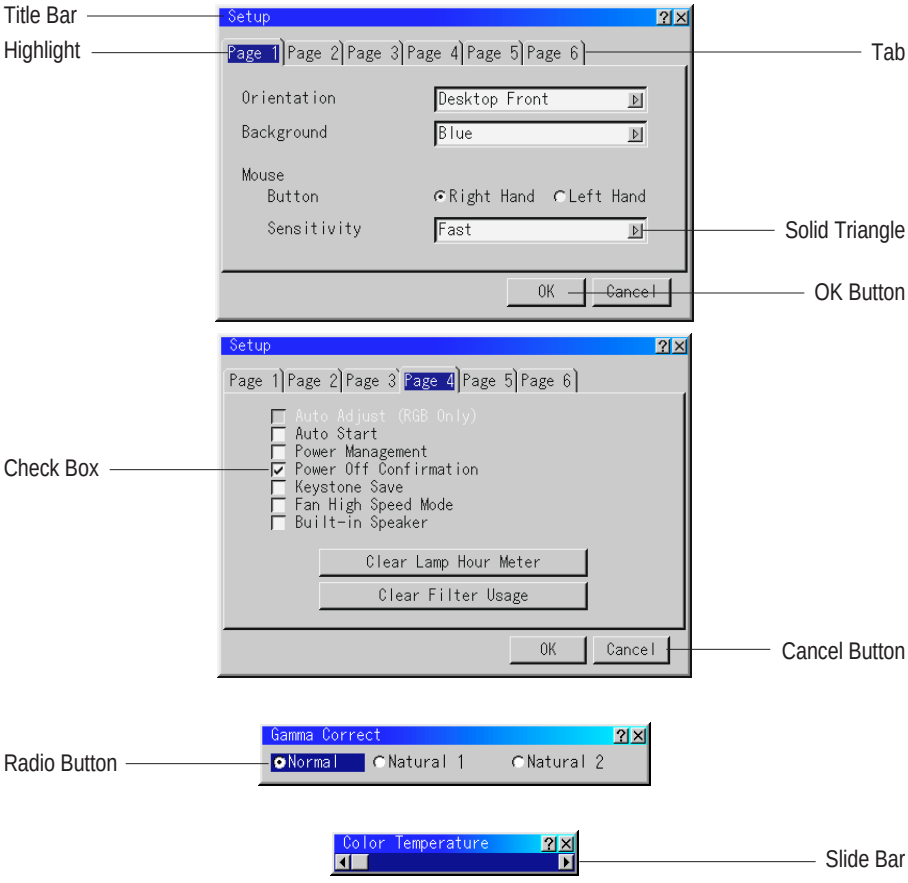
Direct Key Combinations

The CTL button can be used in conjunction with other remote control buttons to provide alternative functions. A list of these combinations is provided below.

KEY COMBINATION	ACTION
CTL +SOURCE (1-10)	Switches to any selected signal found in the Entry List. To enable this combination, you must first assign specific remote buttons for direct input selection in the Entry Edit window.
CTL + ENTER	Displays the Entry Edit Command Window. Only available while displaying the Entry List window.
CTL + CANCEL	Returns to previous menu without closing the slidebar or dialogue box.
CTL + UNDO	Clears all menus or adjustment/setting screens. Adjustments & settings are saved automatically.
CTL + Cursor Button	Moves the slidebar or dialogue box horizontally or vertically.
CTL + Cursor Button (while using zoom)	Displays the magnifying glass icon.
CTL + Left Cursor (BS)	Deletes one letter or numeral in the entry screen.
CTL + MUTE OSD	Forcefully turns off the on-screen display.
SOURCE (1-10) in SW1 Level mode	Switches to corresponding slot.
SOURCE (1-10) in SW2 Level mode	Displays the Select Switcher Input Slot window.
CTL + MENU (ADDRESS)	Displays the Remote ID Entry window.
CTL + IMAGE (PROJECTOR)	Sequentially selects the Projector Options sub menus.
CTL + POSITION (LENS)	Displays the Lens Shift control window.
CTL + KEYSTONE (R)	Turns on Red. Only available when viewing Test Patterns.
CTL + AMPLITUDE (G)	Turns on Green. Only available when viewing Test Patterns.
CTL + ENTRY LIST (B)	Turns on Blue. Only available when viewing Test Patterns.
CTL + MAGNIFY (ZOOM)	Zooms the lens in and out.
CTL + (FOCUS)	Adjusts the lens focus.

Menu System Overview

Menu windows or dialog box typically have the following elements:



Title bar - Indicates the menu title.

Highlight - Indicates the selected menu or item.

Solid triangle - Indicates further choices are available. A highlighted triangle indicates the item is active.

Tab - Indicates a group of features in a dialog box. Selecting any tab brings its page to the front.

Radio button - Use this round button to select an option in a dialog box.

Check box - Place a checkmark in the square box to turn the option On.

Slide bar - Indicates settings or the direction of adjustment.

OK button - Press to confirm your setting. You will return to the previous menu.

Cancel button - Press to cancel your setting. You will return to the previous menu.

Navigating the Menu System

Press the MENU button on the remote control to display the Main Menu. Next, use the up and down cursor buttons on the remote control to select the required sub menu and press ENTER.

Using the up and down cursor buttons to select the item to be modified from the sub menu and press ENTER to display the adjustment screen or dialog box.

A right-oriented delta symbol in the menu structure indicates that further choices are available by pressing the right cursor button.

Adjust the level or turn the selected item on or off using left or right cursor keys on the remote control. The on-screen slide bar will show you the amount of increase or decrease.

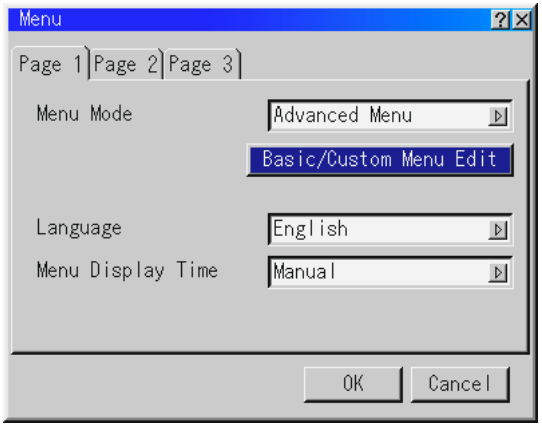
To exit, press CANCEL on the remote control.

The change is stored automatically when the on-screen disappears, the projector goes into standby mode or one input is switched to another.

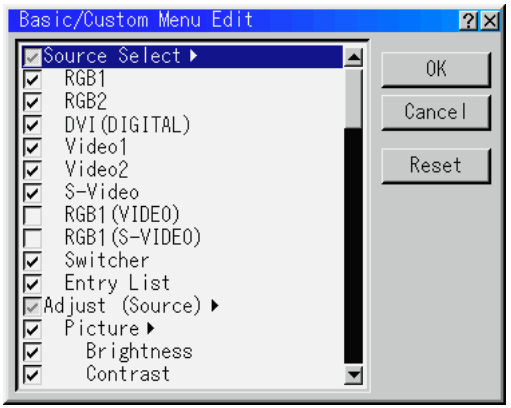
Menu Operation - SHOWlite 3000sx

The menu system can be customised to meet individual requirements. Selecting a menu item from the 'Basic/Custom Menu Edit' list allows you to custom tailor the menu items to your needs.

1. Select 'Basic/Custom Menu Edit' to display the editing screen.



2. Use the up and down cursors to highlight your selection and press the Enter button to place a check mark next to an option to enable that feature in the menu system. Pressing the Enter button over a checked box will deselect it. If you select an item with a solid triangle to the right of it and press Enter, you will enable all sub menu items under that feature.



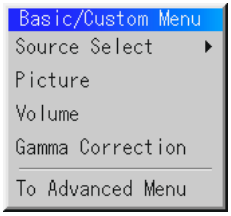
Up to 12 main menu items (within 'Basic/Custom Menu Edit', not including sub menu items) can be selected.

3. In order for the changes to take effect, use the left and right cursor buttons to highlight 'OK' and press the Enter button. To cancel the changes, use the up or down arrows to highlight 'Cancel' and press the Enter button. To return to the factory default, select 'Reset' and press Enter.

The default Basic/Custom Menu items are Source Select (RGB 1/2, DVI DIGITAL, Video 1/2, S-Video and Entry List), Brightness, Contrast, Pixel Adjust and Position.

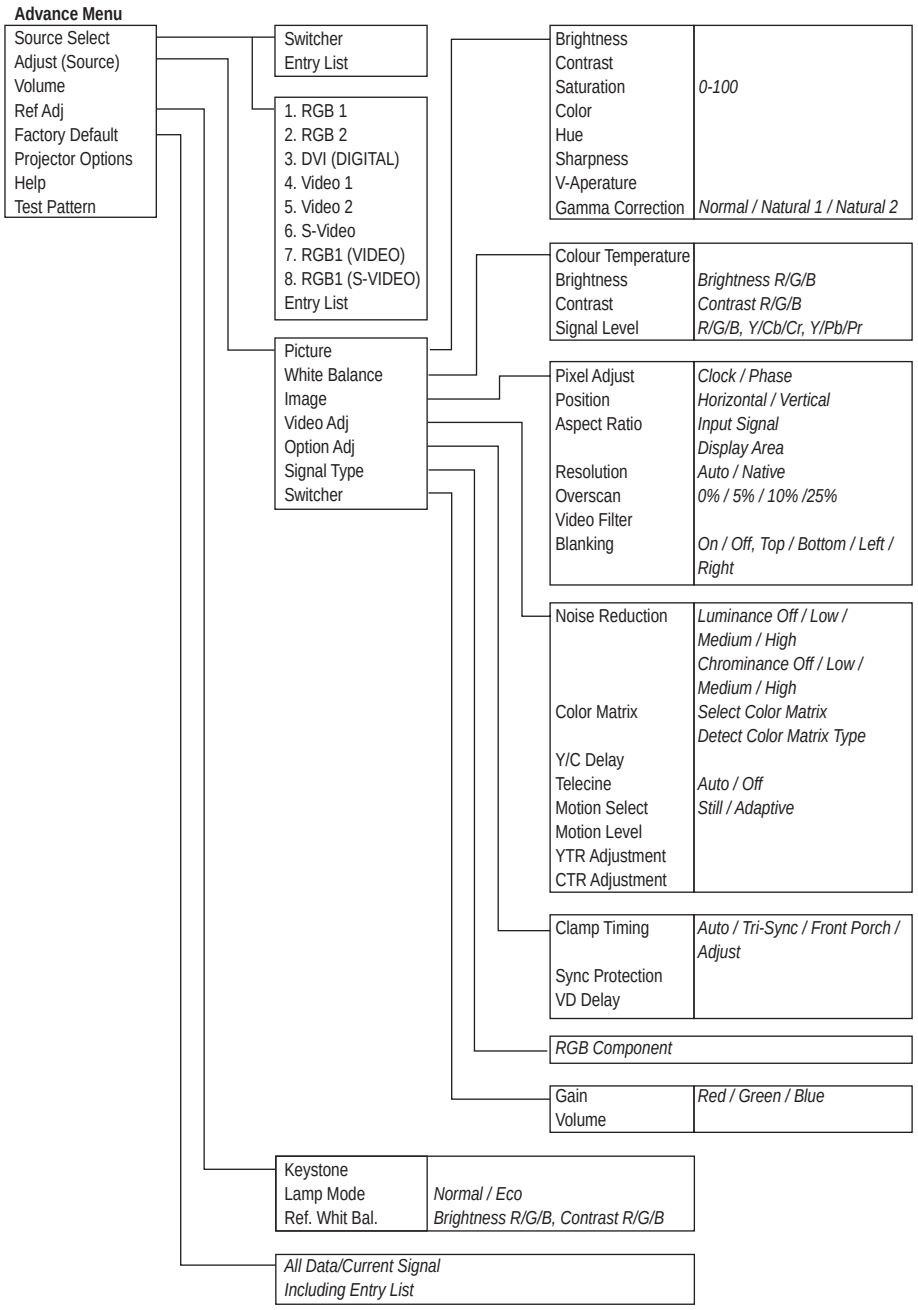
Once you have selected OK on the 'Basic/Custom Menu Edit' screen, you cannot cancel the changes on the 'Menu' screen. However, you can re-edit the menu items as many times as you wish.

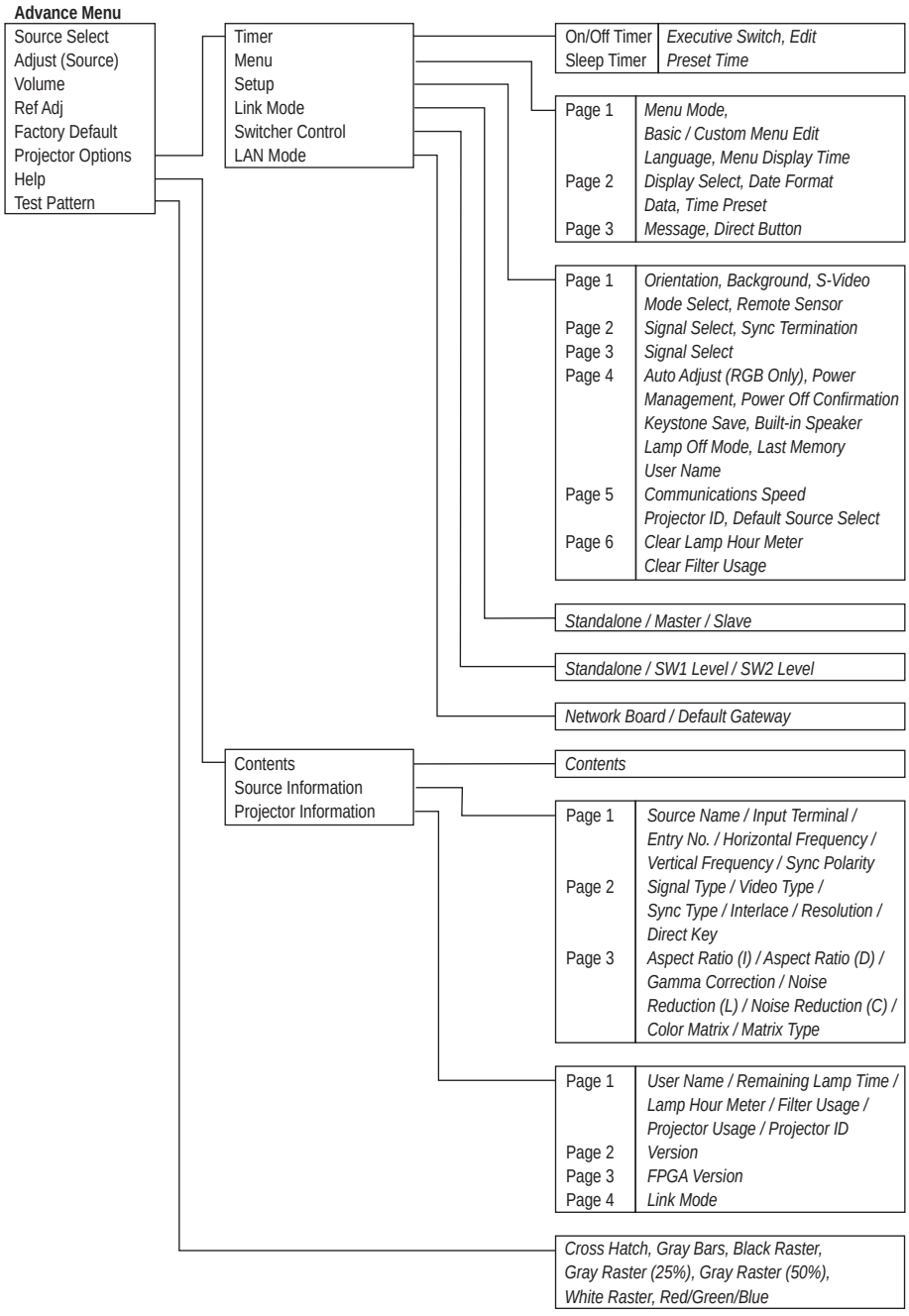
If the 'Advanced Menu' item has been selected on the 'Menu' mode, you get the 'Confirmation Change Menu' upon completion of 'Basic/Custom Menu' editing. In this case, selecting 'Yes' then Enter will close all the menus and apply the changes from the 'Advanced Menu' to the 'Basic/Custom Menu' and a 'To Advanced Menu option will appear at the bottom of the 'Basic/Custom Menu'. Selecting this option will open the 'Advanced Menu'.



If you select 'No', then all the menu items will return to the 'Advanced Menu' but your changes will still be available within the 'Basic/Custom Menu'. To display the previously tailored 'Basic/Custom Menu', select 'Basic/custom Menu' from the Menu Mode'

Menu Structure




Advance Menu
Source Select
Adjust (Source)
Volume
Ref Adj
Factory Default
Projector Options
Help
Test Pattern
Timer
Menu
Setup
Link Mode
Switcher Control
LAN Mode
On/Off Timer
Executive Switch, Edit
Sleep Timer
Preset Time
Page 1
Menu Mode,
Basic / Custom Menu Edit
Language, Menu Display Time
Page 2
Display Select, Date Format
Data, Time Preset
Page 3
Message, Direct Button
Page 1
Orientation, Background, S-Video
Mode Select, Remote Sensor
Page 2
Signal Select, Sync Termination
Page 3
Signal Select
Page 4
Auto Adjust (RGB Only), Power
Management, Power Off Confirmation
Keystone Save, Built-in Speaker
Lamp Off Mode, Last Memory
User Name
Page 5
Communications Speed
Projector ID, Default Source Select
Page 6
Clear Lamp Hour Meter
Clear Filter Usage
Standalone / Master / Slave
Standalone / SW1 Level / SW2 Level
Network Board / Default Gateway
Contents
Source Information
Projector Information
Contents
Page 1
Source Name / Input Terminal /
Entry No. / Horizontal Frequency /
Vertical Frequency / Sync Polarity
Page 2
Signal Type / Video Type /
Sync Type / Interlace / Resolution /
Direct Key
Page 3
Aspect Ratio (I) / Aspect Ratio (D) /
Gamma Correction / Noise
Reduction (L) / Noise Reduction (C) /
Color Matrix / Matrix Type
Page 1
User Name / Remaining Lamp Time /
Lamp Hour Meter / Filter Usage /
Projector Usage / Projector ID
Page 2
Version
Page 3
FPGA Version
Page 4
Link Mode
Cross Hatch, Gray Bars, Black Raster,
Gray Raster (25%), Gray Raster (50%),
White Raster, Red/Green/Blue

Advance Menu - SHOWlite 3000sx

The Advanced Menu provides access to sub-menus which allow you to control the projector and to view any system settings.

Source Select - enables selection of an input source.

Adjust (Source) - allows adjustment of the image parameter settings.

Volume - adjusts the sound level of the projector.

Ref Adj - allows adjustment of the Keystone, Lamp Mode and White Balance Reference parameters.

Factory Default - returns all adjustments and settings to factory preset levels.

Projector Options - enables you to set projector preferences and other operating options.

Help - provides on-line help.

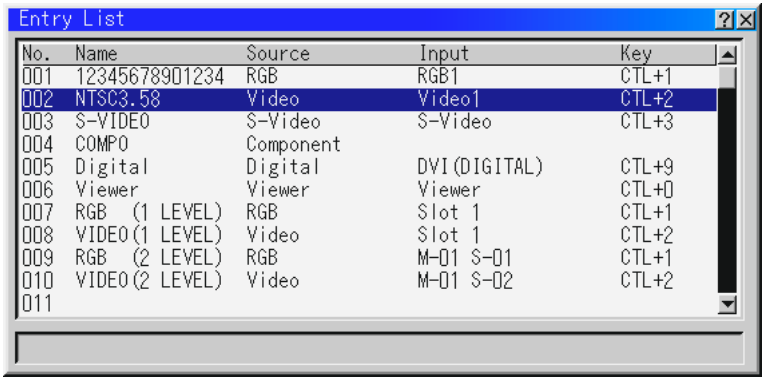
Test Patterns - gives access to the seven projector test patterns.

Source Select - SHOWlite 3000sx

Source Select enables you to select an input source connected to the projector. To select an input source use the up/down buttons on your remote control or the projector cabinet to highlight the desired input type and press Enter.

Entry List

The Entry List window contains a list of all current and previously connected input signals.



ENTRY EDIT COMMAND (Expert Mode Only)

The names and positions of the signals stored in the entry list can be modified using the Entry Edit Command. To display the Entry Edit Command window hold down CTL and press ENTER on the remote control. You can then Cut, Copy, Paste and Edit the entries.

OPERATION

Cut - allows you to remove a selected signal from the list. The selected signal is stored on the 'clipboard' in the projector.

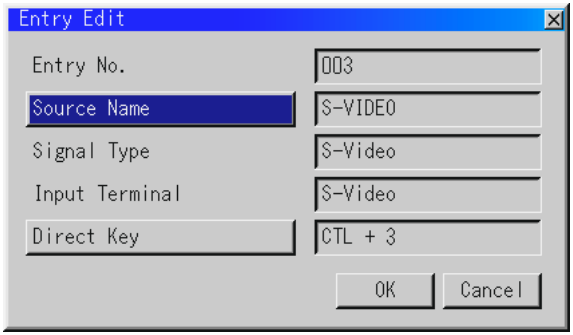
Copy - copies the selected signal from the list and stores it on the 'clipboard'.

Paste - Enables you to paste the signal stored on the 'clip-board' to any other line of the list. To do this, select Paste and then select the line number you want to paste to and press ENTER.

Edit - allows you to change source name or assign the direct key.

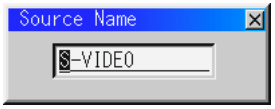
The following buttons are not available for the currently projected signal:

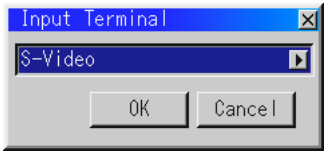
1. The Cut and Paste buttons on the Edit Entry Command screen.
2. The Input Terminal button on the Edit Entry screen.



After making the desired modification, select OK and press ENTER. To exit without saving, select CANCEL.

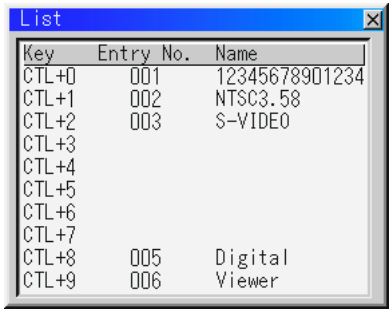
The source name and input terminals can be modified by selecting 'Source Name' and 'Input Terminal'. The appropriate Edit window will be displayed allowing you to make adjustments. This option is only available for sources which are not currently being displayed.





You can assign specific remote keys for direct signal input selection using the 'Direct Key' function. Select 'List' and press ENTER to display the direct Key assignment list.

After assigning the desired remote keys, select 'OK' and press ENTER to save changes and close the window.



After modifying an entry in the list using the Edit function select OK and press ENTER to save the new settings. To exit without storing setting, select Cancel.

To close the List window without making any changes press CANCEL on the remote control.

SELECTING BETWEEN SIMILAR SIGNALS

Selecting a new signal that is close to one of the listed signals in horizontal and vertical frequency may not display the image correctly because the new signal is considered as one of the registered signals listed in the Entry List. (In this case the Auto Adjust feature may not work correctly.

To use both signals, use a different input terminal or assign specific remote keys for each signal.

1. Cut an existing signal from the Entry List.
   i) Select another signal other than the one currently projected because the currently projected signal cannot be cut.
   ii) Press the ENTRY LIST button on the remote control.
   iii) After selecting the existing signal, press and hold down the CTL button and press ENTER on the remote control. The Entry Edit Command window will appear. Select 'Cut' and press ENTER. The selected signal will be deleted from the Entry List (and stored on the clipboard).

2. Select the new signal and enter it in the Entry List. Press and hold down the CTL and then press the ENTRY LIST button on the remote control to enter the signal in the Entry List.

3. Paste the signal data that was cut and placed in the clipboard (from step 1).
   i) Select a vacant line in the Entry List.
   ii) Hold down CTL and press the ENTER button on the remote control to display the Entry Edit Command window.
   iii) Select 'Paste' and press ENTER to add the signal to the Entry List.

4. Assign the listed signals for direct keys.
   i) Select one signal from the Entry List.
   ii) Hold down CTL and press ENTER on the remote control to display the Entry Edit Command window.
   iii) Select 'Edit' and then press the ENTER button on the remote control to display the Entry Edit screen.
   iv) Select 'Direct Key' and press ENTER to display the Direct Key screen.
   v) Assign the signals for direct keys.

Be sure not to disconnect the power cable when you are performing steps 1 to 3 otherwise the signal data stored in the clipboard will be deleted.

Adjust (Source) - SHOWlite 3000sx

Picture

The Picture menu provides access to the image controls.

Brightness - adjust the level of brightness or the black raster intensity.

Contrast - adjusts the intensity of the image according to the incoming signal.

Saturation - adjusts the saturation at the white peak.

Color - increases or decreases the color saturation level (not available for RGB).

Hue - Varies the color level from +/- green to +/- blue. The red level is used as reference. This adjustment is only valid for Video and Component inputs.

Sharpness - controls the detail of the image for video (not available for RGB or Component signals).

V-Aperture - Adjusts edge enhancement in the vertical direction (not available for RGB).

Gamma Correction - This feature allows you to adjust the image for different environments. Normal should be used when in a lighted room and either Natural 1 or Natural 2 for darkened rooms. Natural 1 provides true color reproduction of natural tones (e.g. flesh tones) and Natural 2 provides true reproduction of middle tones (dark portions of a picture).

White Balance

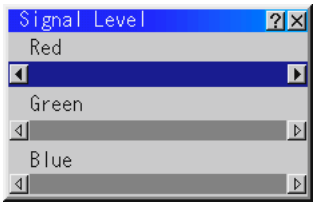
This feature adjusts the white balance for each input signal and provides options to modify the Color Temperature, Brightness, Contrast and Signal Level.

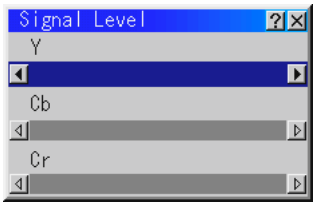
Color Temperature - This feature adjusts the colour temperature of the image via a slide bar using the left and right cursors. Moving the slide bar to the left decreases the temperature, producing a reddish image while moving the slide bar to the right, increases it for a bluish image.

Brightness - Allows the brightness of each colour (Red, Green and Blue) to be changed to adjust the black level of the screen.

Contrast - Allows the contrast of each colour (Red, Green and Blue) to be changed to adjust the white level of the screen.

Signal Level - Allows the adjustment of RGB, Component or HDTV Gain to match multiple projector color uniformity. Adjustment can be made to the Red, Green, Blue, Y, Cb and Cr signal levels via a slide bar.



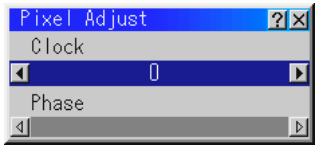


Image

The Image menu provides access to the Pixel Adjust, Position, Aspect Ratio, Resolution, Overscan, Video Filter and Blanking features of the projector.

PIXEL ADJUST

Active only when Auto Adjust is turned off, Pixel Adjust allows the Clock and Phase to be adjusted to fine tune the displayed image.

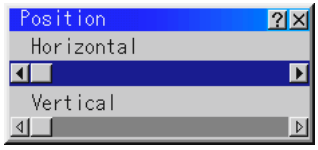


Clock - Used to fine tune a computer image or to remove any vertical banding that might be present.

Phase - Adjusts the clock phase to reduce video noise, dot interference or cross talk. Phase should be used only after 'Clock' adjustments have been made.

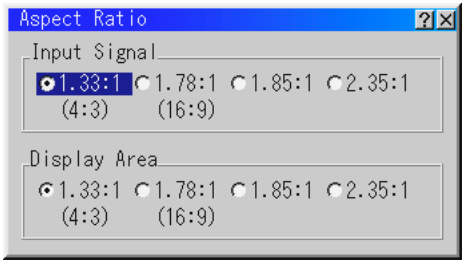
POSITION

When Auto Adjust is turned off, Position allows you to manually set the horizontal and vertical image location on the screen.



ASPECT RATIO

This feature allows you to define the correct proportions for displayed image. You can define the aspect ratio for both the input signal and display area. Selection of the appropriate ratio is made via the cursor buttons.



When Resolution is set to Native, this feature is not available and the stored settings and adjustments are invalid.

RESOLUTION

When Auto Adjust is turned off, Resolution allows you to activate or deactivate the Imaging Resizing feature. There are two settings - Auto and Native.

Auto - Turns on the Advanced AccuBlend feature. The projector automatically reduces or enlarges the current image to fit the full screen.

Native - Turns off the Advanced AccuBlend feature. The projector displays the current image in its true resolution.

If you are displaying an image with higher resolution than the projector's native resolution, even in Native mode, the image is displayed full screen using the Image Resizing Feature.

OVERSCAN

Sets the overscan percentage for RGB signals.

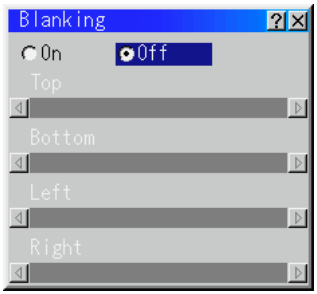
When Resolution is set to Native, this feature is not available, and the stored settings and adjustments are invalid.

VIDEO FILTER

This feature reduces video noise and is only available when Auto Adjust is off. When activated a low-pass filter is applied, when deactivated the filter is removed. Selection is made using the left and right cursor buttons.

BLANKING

This feature allows you to blank off any unwanted part of the screen image. When activated, blanking can be performed on the top, bottom, left and right hand side of the screen using the left and right cursor buttons.



Video Adj

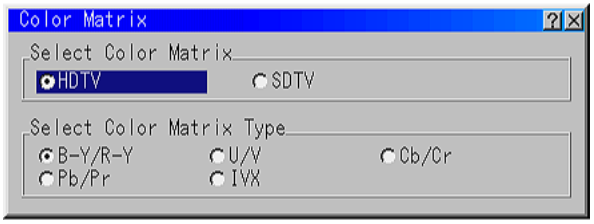
NOISE REDUCTION

This feature is used to reduce video noise. Select Off, Low, Medium or High to give the optimum image.

The lower the Noise Reduction level, the better the image quality. Increasing Noise Reduction lowers video bandwidth.

COLOR MATRIX

The Color Matrix feature is only available for component video signals. To use this feature first select an appropriate color matrix for your input signal, either HDTV or SDTV. Next, select an appropriate matrix type, the options available are B-Y/R-Y, U/V, Cb/Cr, Pb/Pr or IVX.



Y/C DELAY

Adjusts the Y/C delay level. Adjustments can be made from -8 to +8 using the left and right cursor keys.This feature is not available for RGB and DVI digital inputs.

TELECINE

Telecine uses 3:2 pull down to eliminate jitter and artefacts in video. This option should be set to Auto for film sources such as a DVD player and set to off for non film sources.

MOTION SELECT

Sets the interpolation method as either Still or Adaptive. Still should be selected for non moving images (e.g. images from a document camera) and Adaptive should be selected for all motion video.

MOTION LEVEL

Adjusts the level of motion detection when Adaptive is selection for Motion Select.

YTR ADJUSTMENT

Adjusts the luminance transient time. Adjustments can be made to either the Gain or Tap using the left and right cursor keys.This feature is not available for RGB and DVI digital inputs.

CTR ADJUSTMENT

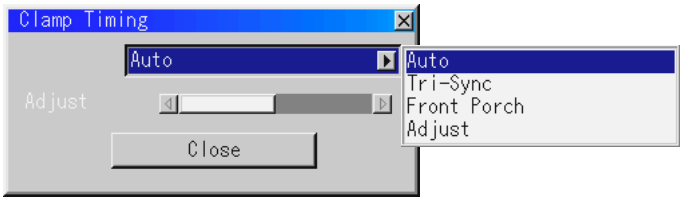
Adjusts the chroma transient time. Adjustments can be made to either the Gain or Tap using the left and right cursor keys.This feature is not available for RGB and DVI digital inputs.

Option Adj

The Option Ref menu provides access to the Clamp Timing, Sync Protection and VD Delay features.

CLAMP TIMING

According to the signal, this function sets the detected position (i.e. clamp position) of the black level reproduction of the analog input signal. Normally this is not used (1080P is set as the default).



Auto - this is the normal setting.

Tri-Sync - should be set for HDTV signals.

Front Porch - is used when the picture quality does not improve even though Auto or Tri-Sync has been set.

Adjust - permits the video clamp position for each signal to be set. Adjust should be used when a clamp timing error occurs at the time of special analog signal reception such as 1080P.

Adjust is not valid for doubler signals such as NTSC and PAL.

To delete the 'Clamp Timing' setting screen, select the SELECT down cursor button and press the ENTER button, or press the remote control CANCEL button.

SYNC PROTECTION

When a VCR, DVD or some other equipment that supports Copyguard (a copy prevention system) is played back, the screen may be displayed in a curved manner. If this is the case, Sync Protection can be used to adjusted to compensate.

VD DELAY

VD Delay is used to correct vertical jitter of non-standard interlaced signals.

If the image from a Scan Converter is not displayed correctly, the VD Delay should be adjusted.

Signal Type

This feature is available for the RGB 1 and RGB 2 inputs only and defines the expected signal type as either an RGB or Component signal.

Volume - SHOWlite 3000sx

Volume adjusts the sound level of the projector. You can display the volume bar without operating the menu system (see ‘Direct Key Combinations’, page C—6 for details).

Ref Adj - SHOWlite 3000sx

Keystone

Keystone is the distortion of a projected image that usually creates a wider top than bottom. Aiming a projector upward on a wall rather than straight at a wall creates this distortion. This feature corrects keystone distortion by increasing or decreasing the top or bottom of the image to generate a geometrically correct image.

Depending on the type of graphics being used, keystone correction may not be possible or the picture may get blurred or when excessive correction is used.

To correct the keystone distortion, use the left and right cursors

The maximum keystone angle that can be corrected is 30 degree upwards and 30 degree downward with the projector placed horizontally on the ground plane.

When Resolution is set to Native, this feature is not available, and the stored settings and adjustments are invalid.

Lamp Mode

Lamp Mode defines the brightness mode of the lamp - High Bright or Eco mode. The default mode is High Bright. Eco mode can extend the life of the lamp up to 2000 hours.

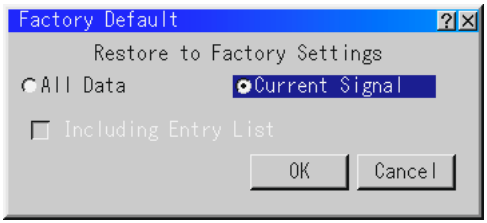
If you select Eco mode, the projector will startup in High Bright mode and change to Eco mode after 3 minutes.

Ref. White Bal.

This feature adjusts the white balance that is used as a reference. This adjustment affects all sources and is available for Test Pattern only.

Factory Default - SHOWlite 3000sx

Factory Default returns all the adjustment and image settings to the factory preset levels



There are two options available:

All Data - Resets the settings for all signals to the factory preset levels.

All parameters are reset with the exception of Language, Projector ID, Lamp Hour Meter, Filter Usage, Projector Usage and Communication Speed.

When selecting 'All Data' an option is available to delete all the signals in the Entry List and return the list to the factory preset.

Current Signal - Resets the adjustments and image options for the current signal to the factory preset levels.

All items in the 'Adjust (Source)' menu can be rest.

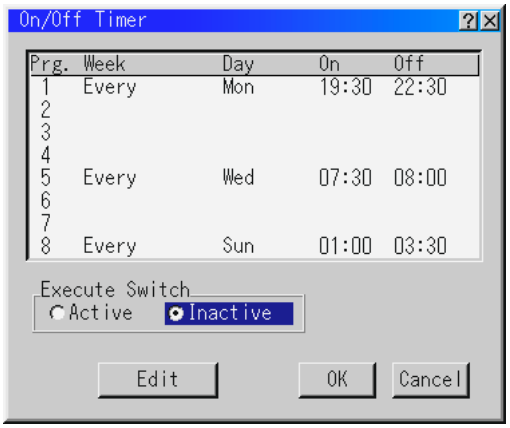
Projector Options - SHOWlite 3000sx

Timer

This feature enables you to turn on or off your projector automatically at a specified time. There are two timer functions are available: On/Off Timer and Sleep Timer.

ON/OFF TIMER

The On/Off Timer enables you to schedule up to eight on and off times in 12 or 24 hour format. Before setting the On/Off Timer the current date and time must be defined using the Date, Time Pre-set feature. When the On/Off Timer has been set it is still possible to turn the projector on or off with the remote control.



To schedule an On and Off Time:

1. Open the On/OFF Timer window.

2. Select EDIT and press ENTER on the remote control to open the EDIT window.

3. Set the Week, Day, On-Time and Off-Time using the CURSOR buttons and INPUT buttons (1 through 10). To cancel the on-time or off time, use Delete.

4. Select Set and press ENTER on the remote control to complete the setting. To close, select Close.

5. To enable your setting, select Active on the Execute Switch.

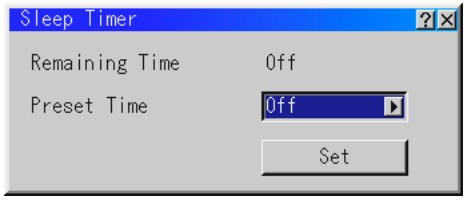
6. Select OK and press ENTER on the remote control to complete the setting.

When On Timer is set and the projector is in the standby mode, the "00" display on the INDICATOR flashes to show that On Timer program is active.

The projector must be in stand-by mode at the time of turning on. The preset power-on time will be void if the cooling fan is working or an error occurs.

SLEEP TIMER

The Sleep Timer allows you to set the projector to automatically turn itself off after a pre-defined time period.



To activate the Sleep Timer:

1. Select your desired time between 30 minutes and 2 hours in 30 minutes.

2. Select Set and press the ENTER button on the remote control.

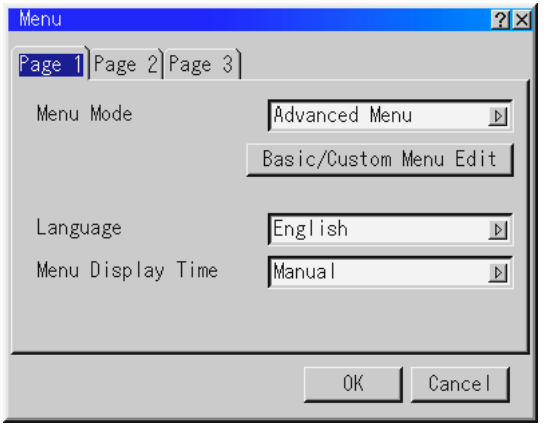
3. The remaining time starts counting down.

4. The projector will turn off after the countdown is complete.

Menu

The Menu window allows you to set preferences for the on-screen menu system.These preferences are provided over three tabbed pages, Selecting an individual tab will bring the appropriate page to the front of the screen.

PAGE 1

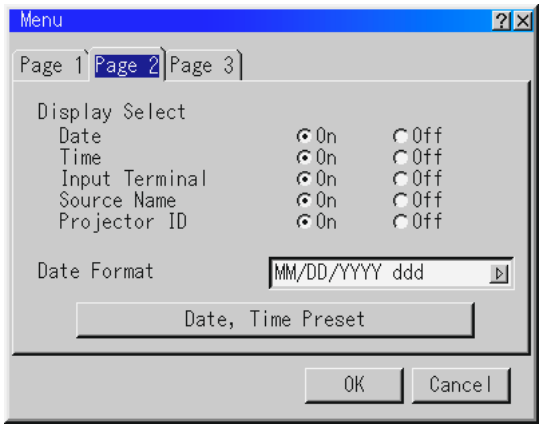


Menu Mode -This feature allows you to select either an Advanced or Basic/Custom Menu mode. The Advanced Menu contains all available menus and commands. The Basic/Custom Menu is a user defined menu system.

Language - Up to seven languages are available for the on screen instructions. The options are: English, German, French, Italian, Spanish, Swedish and Japanese.

Menu Display Time - The on screen menu display appears when the buttons on the remote control, or the controls on the rear panel are pressed. The display can be set to automatically turn off at a pre-selected time of either 5, 10 or 30 seconds after the last menu action or set to manual operation. When set to manual, the display will be turned on and off whenever the MUTE OSD button is pressed.

PAGE 2



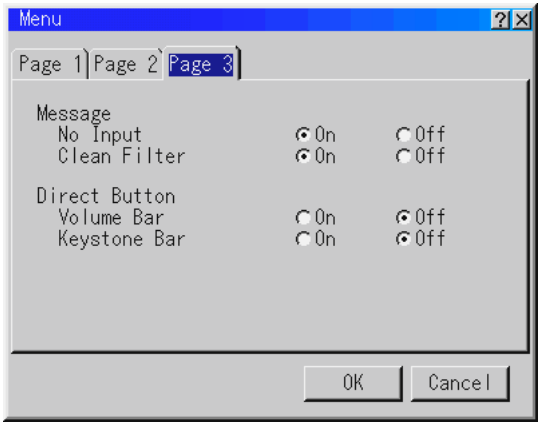
Display Select - Allow you to define the information you want displayed on the screen. The selected information will be displayed every time you switch sources.

Date Format - Defines the format of the date displayed in the top left of the screen (if selected in Display Select). A choice of eight formats are available.

Date, Time Preset - Sets the current Date and Time. To set the date and time, type in the current values using the input buttons on the remote control. The month and date must be entered in two digits e.g. January is entered as 01. The time is expressed in 24hour clock format. When you have defined the current values select OK and press ENTER. The clock will start when the window closes.

The projector has a built-in clock which will keep working for up to 3 days after the mains have been turned off, after this time the date and time will reset. The built-in clock will not reset while in standby condition.

PAGE 3



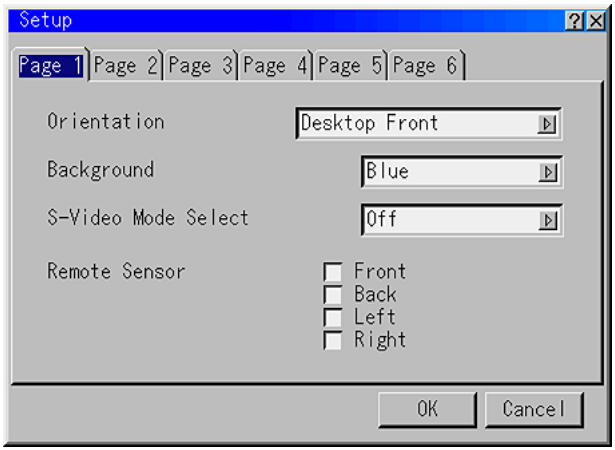
Message - This feature allows you to choose whether the 'No Input' and 'Clean Filter' messages are displayed on screen.

Direct Button - Turns on or off the on screen Volume and Keystone Bars when you make adjustments to the volume or keystone levels using the remote control. The Keystone Bar option is only available on the optional presentation remote control (PR50KIT).

Setup

There are six Setup pages used to define the operating options for the projector.

SETUP PAGE 1



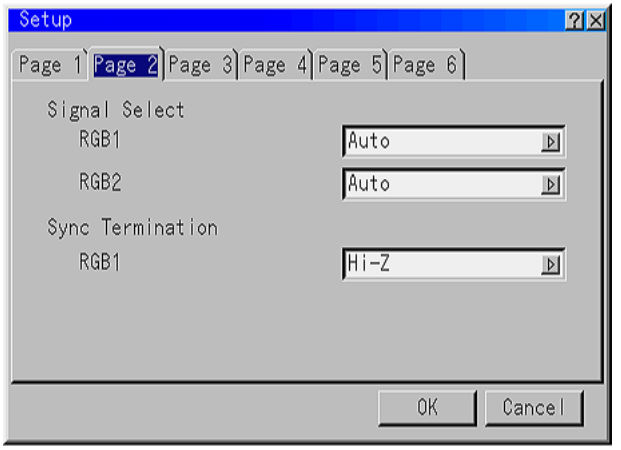
Orientation - The projector can be set for desktop front projection, ceiling rear projection, desktop rear projection or ceiling front projection.

Background - This feature can be used to display a blue/black screen or logo when no signal is available. The default background is blue.

S-Video Mode Select - This feature defines the S-Video detection mode. When set to S2 the projector will determine whether an S-Video signals has a zoom (16:9) or wide zoom (4:3) aspect ratio. When set to off the projector will not try to identify S-Video signals.

Remote Sensor - Defines which remote sensors (front, back, left or right) accept signals from the remote control.

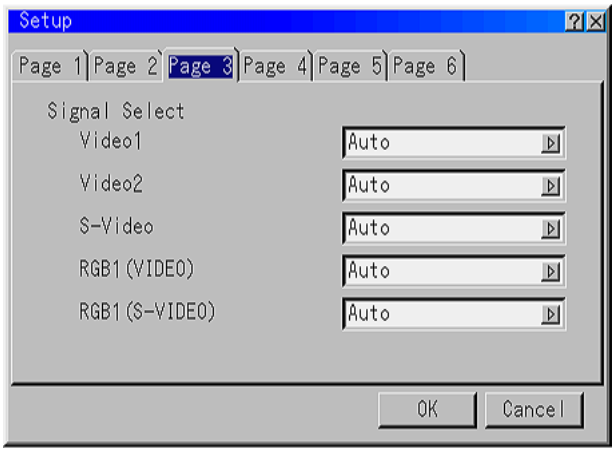
SETUP PAGE 2



Signal Select - Defines the input signal type for the RGB 1 and RGB 2 inputs. The options are 'RGB', 'Component' and 'Auto'. Normally 'Auto' would be selected to allow the projector to automatically select the input type. However, there may be certain signal types that the projector is unable to detect. If this is the case, 'RGB' or 'Component' can be defined.

Sync Termination - This feature is used to define the impedance of the sync signal as either '75Ω' or 'Hi-Z'. The default setting is '75Ω'. The 'Hi-Z' setting should be selected when inputting a TTL signal.

SETUP PAGE 3

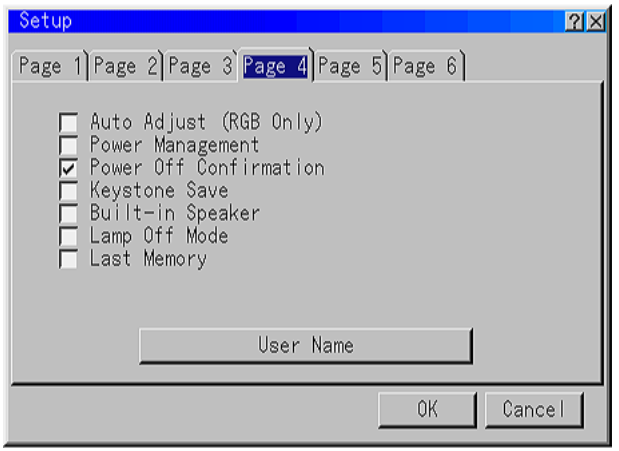


Signal Select - Allows you to define the type of RGB and VIDEO input signals.

RGB1 and RGB2 allow you to define the RGB input as either RGB, Component or Auto. RGB would be used for computer signals etc. and Component would be used for component video sources e.g. a DVD player. When set to Auto the projector attempts to automatically detect the signal type. However, certain component signals may not be detectable.

VIDEO1, VIDEO2 and S-VIDEO allow you to manually select Composite video signals. Normally, Auto would be defined and the projector would attempt to automatically detect the signal type.

SETUP PAGE 4



Auto Adjust (RGB Only) - When checked, the projector automatically determines the best resolution for the current RGB input signal. The projector can automatically adjust the Horizontal and Vertical Position along with Clock, Phase and Resolution.

The projector has a feature that enters a signal automatically in the Entry List once you have made adjustments. However, this feature is not available if you adjust a signal using the Auto Adjust feature. To register the signal after you use the Auto Adjust feature, first you need to make any one adjustment manually.

Power Management - When this option is checked, the projector will turn itself off automatically if there is no RGB input for five minutes or more.

Power Off Confirmation - Determined whether a confirmation dialogue box is shown or not when turning off the projector.

Keystone Save - Allows you to save the current Keystone settings. The settings affect all input sources and are saved automatically when the projector is turned off.

Built-in Speaker - When checked, the projectors built-in speakers are activated when an audio cable is connected to the AUDIO OUT terminal.

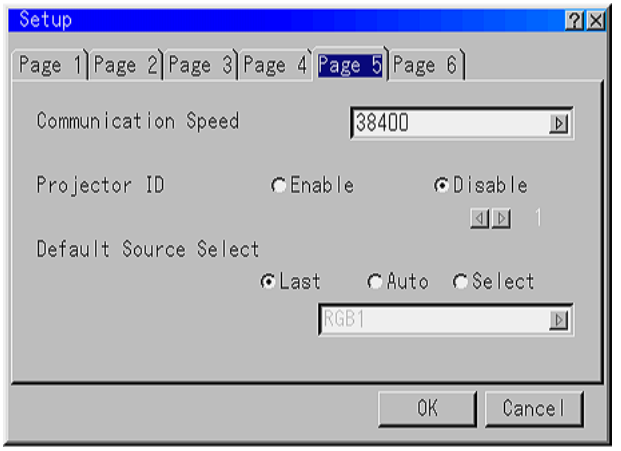
Lamp Off Mode - Activating this feature allows an RGB signal to be passed through to the monitor output connector during a standby condition.

Last Memory - The projector stores the last signal data in memory for each input (RGB 1, RGB 2, DVI-DIGITAL, Video and S-Video). This feature reduces the switching time between sources.

If a commercially available switcher is connected, turning on this feature may cause the image to be displayed incorrectly. If this should happen, turn this feature off to mute the screen between switching signals.

User Name - This feature allows you to name (up to 18 characters) the projector for ease of identification. The name is entered using the alphanumeric INPUT and SELECT buttons on the remote control. Once the name has been entered, press ENTER.

SETUP PAGE 5



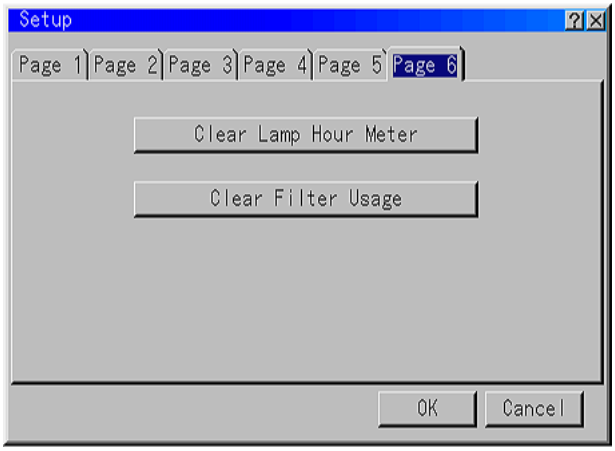
Communication Speed - Defines the baud rate of the PC CONTROL connector.

Projector ID - Each projector needs its own unique address when used in serial communication mode (multiple projector use). To set the projector ID, select Enable then select the ID number from the spin box. To activate the setting, select OK.

Default Source Select - You can set the projector to default to last input used, a pre-defined input or to automatically detect an active source on any input connector.

When set to Auto, the projector searches for sources in the following order RGB1, RGB2, Video 1, Video 2, S-Video, PC Card Viewer, DVI Digital, DVI Analog and then RGB1 (Standalone).

SETUP PAGE 6



Clear Lamp Hour Meter - Resets the lamp clock to zero. Selecting this option displays a confirmation window: To reset the lamp usage hour, press 'OK'.

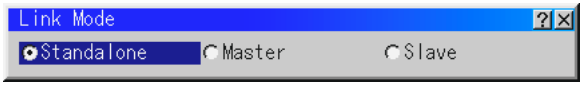
The projector will turn off and go into standby mode after 1600 hours (up to 2100 hours in Eco mode) of service. If this happens, press the 'Help' button on the remote control for ten seconds to reset the lamp clock to zero.

Only reset the lamp clock after replacing the lamp.

Clear Filter Usage - Resets the filter usage to zero. It is recommended that the filter is cleaned after every 100 hours of operation (or more frequently depending on environmental conditions). Selecting this option displays a confirmation window: To reset the filter usage hour, press 'OK'.

Link Mode

This feature is used for multiple projector connection using RGB Digital Input/Output connectors. When using Link Mode, the master projector should be set to Master and all other projectors set to Slave. For single projector operation, Standalone should be selected.



Link Mode is not available for DVI Digital.

Help - SHOWlite 3000sx

The Help menu on the SHOWlite 3000sx projector provides three options - Contents, Source Information and Projector Information.

Contents

The Contents option provides a list of functions for which online help is available. Underlined functions provide a direct link to the corresponding item by selecting the option and pressing Enter.

The Help Menu may not be displayed correctly when a UXGA signal is displayed.

Source Information

The Source Information option provides three pages of information about the current input source. An outline of the information available on each page is provided below.

Page 1 Source Name, Input Terminal, Entry No., Horizontal Frequency, Vertical Frequency, Sync Polarity.

Page 2 Signal Type, Video Type, Sync Type, Interlace, Resolution, Direct Key.

Page 3 Aspect Ratio (I), Aspect Ratio (D), Gamma Correction, Noise Reduction (L), Noise Reduction (C), Color Matrix, Matrix Type.

Projector Information

The Projector Information option provides four pages of information about the projector such as lamp usage, serial number, version number etc. An outline of the information available on each page is provided overleaf.

Page 1 User Name, Remaining Lamp Time, Lamp Hour Meter, Filter Usage, Projector Usage, Projector ID.

Page 2 Version (BIOS/Firmware/Data/SUB-CPU)

Page 3 FPGA Version (OSD/JOE)

Page 4 Link Mode (Master/Slave)

PAGE 4

When you select Page 4 the current status of Link Mode will be displayed. This window provides the following information.

Master ID - Displays the ID number of the master projector.

Status - Displays the status of the master projector.

Connected PJ - Shows the number of slave projectors connected.

Slave No. - Displays the serial numbers of the slave projectors.

ID - Displays the ID numbers of the slave projectors.

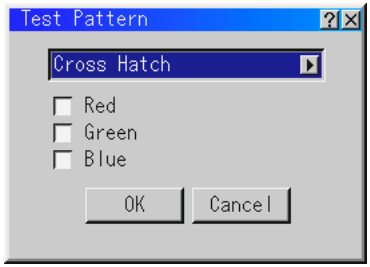
Status - Displays the status of the slave projector.

Reconnect - This button confirms the connection of all linked projectors

The status of the master and slave projectors will be shown as either Running, Cooling Lamp, Standby, Communication Error, Connecting or Error Standby.

Test Pattern - SHOWlite 3000sx

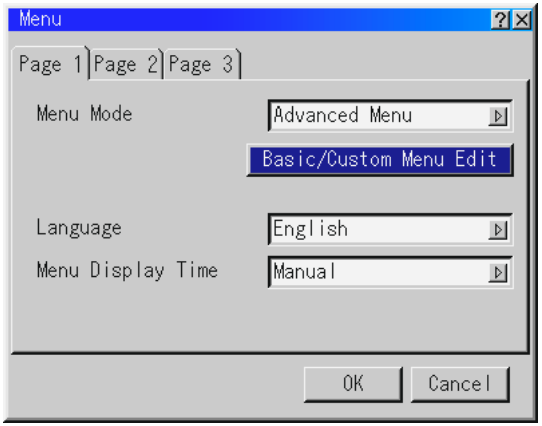
Seven internal Test Patterns are provided to assist with projector setup and alignment. The Test Patterns are selected from a flyout list and for each pattern you have the ability to turn off the Red, Green and Blue channels.



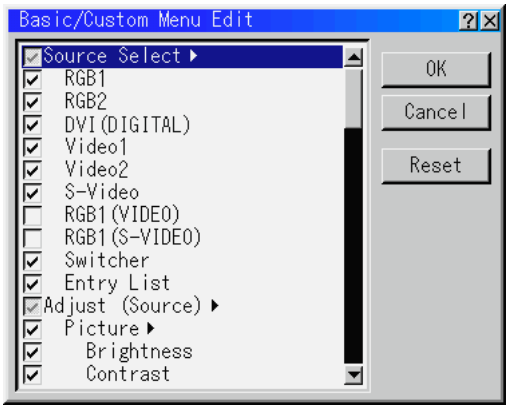
Menu Operation - SHOWlite 4000gv

The menu system can be customised to meet individual requirements. Selecting a menu item from the 'Basic/Custom Menu Edit' list allows you to custom tailor the menu items to your needs.

1. Select 'Basic/Custom Menu Edit' to display the editing screen.



2. Use the up and down cursors to highlight your selection and press the Enter button to place a check mark next to an option to enable that feature in the menu system. Pressing the Enter button over a checked box will deselect it. If you select an item with a solid triangle to the right of it and press Enter, you will enable all sub menu items under that feature.



Up to 12 main menu items (within 'Basic/Custom Menu Edit', not including sub menu items) can be selected.

3. In order for the changes to take effect, use the left and right cursor buttons to highlight 'OK' and press the Enter button. To cancel the changes, use the up or down arrows to highlight 'Cancel' and press the Enter button. To return to the factory default, select 'Reset' and press Enter.

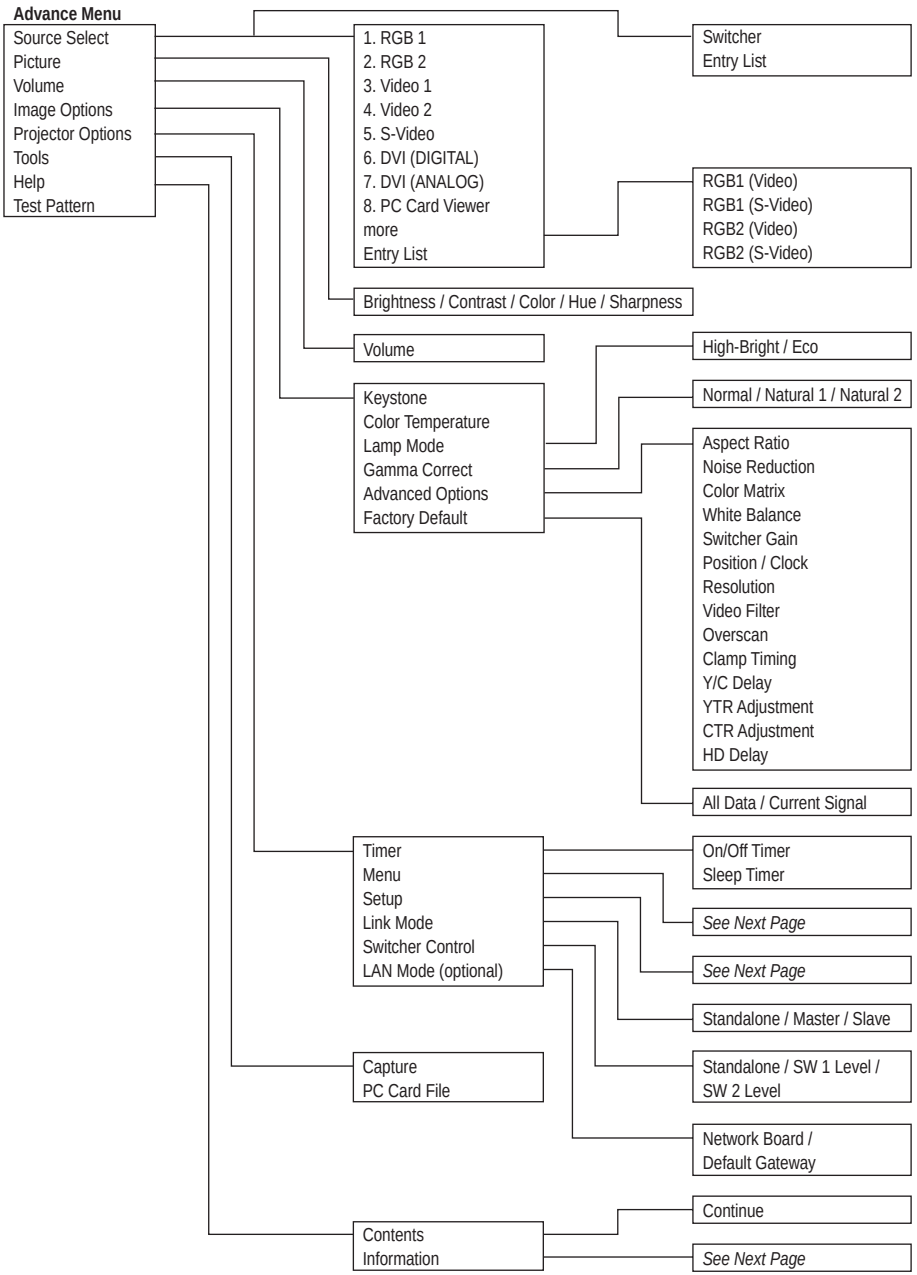
The default Basic/Custom Menu items are Source Select (RGB 1/2, DVI DIGITAL, Video 1/2, S-Video and Entry List), Brightness, Contrast, Pixel Adjust and Position.

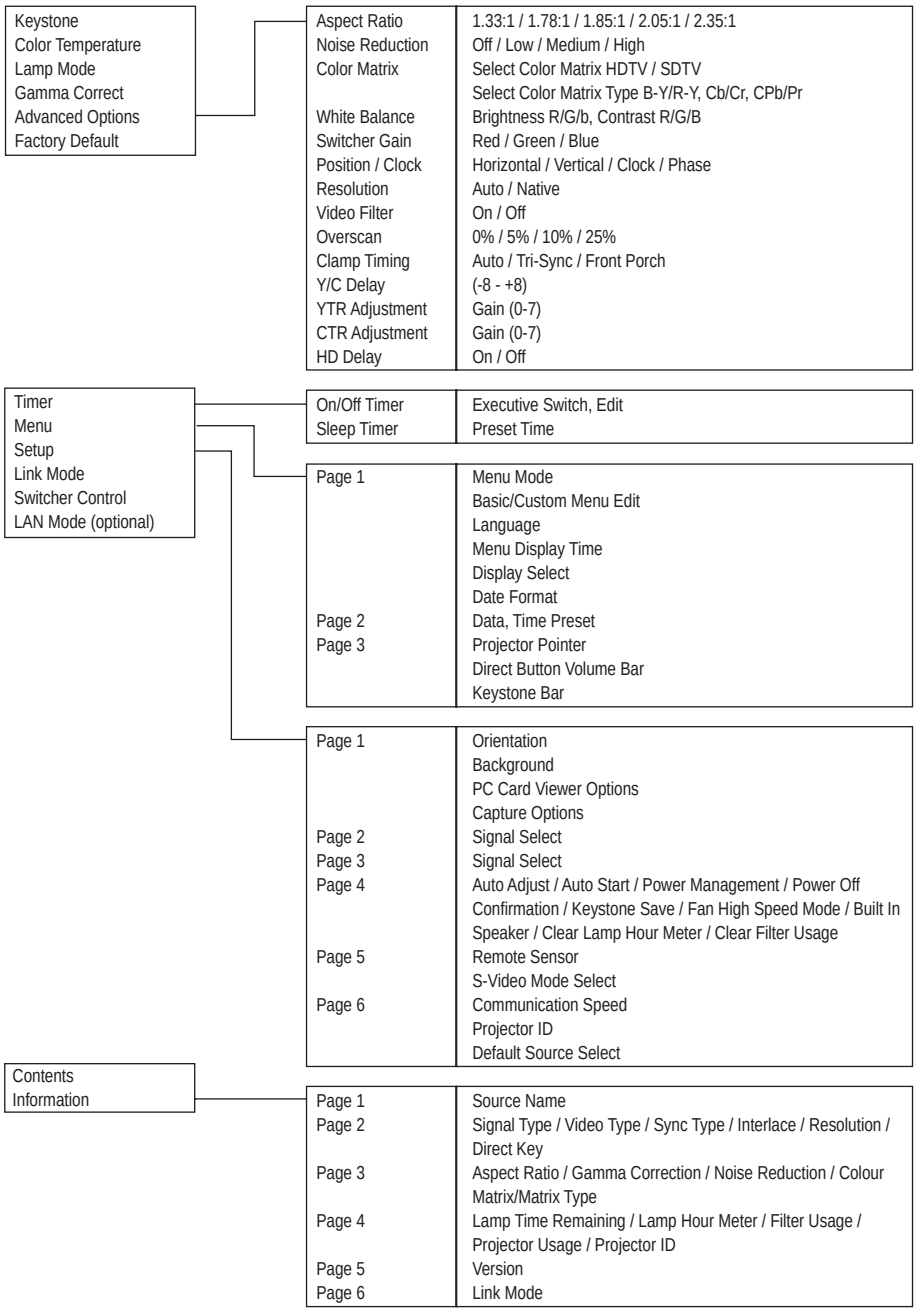
Once you have selected OK on the 'Basic/Custom Menu Edit' screen, you cannot cancel the changes on the 'Menu' screen. However, you can re-edit the menu items as many times as you wish.

If the 'Advanced Menu' item has been selected on the 'Menu' mode, you get the 'Confirmation Change Menu' upon completion of 'Basic/Custom Menu' editing. In this case, selecting 'Yes' then Enter will close all the menus and apply the changes from the 'Advanced Menu' to the 'Basic/Custom Menu' and a 'To Advanced Menu option will appear at the bottom of the 'Basic/Custom Menu'. Selecting this option will open the 'Advanced Menu'.

If you select 'No', then all the menu items will return to the 'Advanced Menu' but your changes will still be available within the 'Basic/Custom Menu'. To display the previously tailored 'Basic/Custom Menu', select 'Basic/custom Menu' from the Menu Mode'

Menu Structure




Keystone
Color Temperature
Lamp Mode
Gamma Correct
Advanced Options
Factory Default
Aspect Ratio
1.33:1 / 1.78:1 / 1.85:1 / 2.05:1 / 2.35:1
Noise Reduction
Off / Low / Medium / High
Color Matrix
Select Color Matrix HDTV / SDTV
Select Color Matrix Type B-Y/R-Y, Cb/Cr, CPb/Pr
White Balance
Brightness R/G/b, Contrast R/G/B
Switcher Gain
Red / Green / Blue
Position / Clock
Horizontal / Vertical / Clock / Phase
Resolution
Auto / Native
Video Filter
On / Off
Overscan
0% / 5% / 10% / 25%
Clamp Timing
Auto / Tri-Sync / Front Porch
Y/C Delay
(-8 - +8)
YTR Adjustment
Gain (0-7)
CTR Adjustment
Gain (0-7)
HD Delay
On / Off
Timer
Menu
Setup
Link Mode
Switcher Control
LAN Mode (optional)
On/Off Timer
Executive Switch, Edit
Sleep Timer
Preset Time
Page 1
Menu Mode
Basic/Custom Menu Edit
Language
Menu Display Time
Display Select
Date Format
Page 2
Data, Time Preset
Page 3
Projector Pointer
Direct Button Volume Bar
Keystone Bar
Page 1
Orientation
Background
PC Card Viewer Options
Capture Options
Page 2
Signal Select
Page 3
Signal Select
Page 4
Auto Adjust / Auto Start / Power Management / Power Off
Confirmation / Keystone Save / Fan High Speed Mode / Built In
Speaker / Clear Lamp Hour Meter / Clear Filter Usage
Page 5
Remote Sensor
S-Video Mode Select
Page 6
Communication Speed
Projector ID
Default Source Select
Contents
Information
Page 1
Source Name
Page 2
Signal Type / Video Type / Sync Type / Interlace / Resolution /
Direct Key
Page 3
Aspect Ratio / Gamma Correction / Noise Reduction / Colour
Matrix/Matrix Type
Page 4
Lamp Time Remaining / Lamp Hour Meter / Filter Usage /
Projector Usage / Projector ID
Page 5
Version
Page 6
Link Mode

Advance Menu - SHOWlite 4000gv

The Advanced Menu provides access to sub-menus which allow you to control the projector and to view any system settings.

Source Select - enables selection of an input source.

Picture - provides access to the image controls.

Volume - Adjusts the sound level of the projector.

Image Options - provides optional image controls such as gamma correction, component signal selection, wide screen and video noise reduction features.

Projector Options - enables you to set projector preferences and other operating options.

Tools - Provides tools for capturing images and displaying files in a PC Card.

Help - provides on-line help.

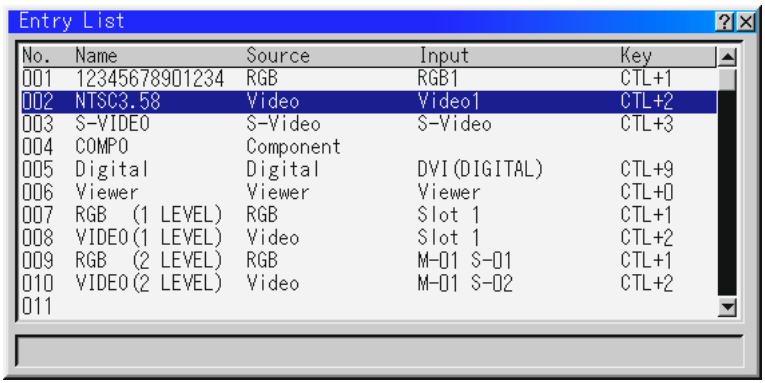
Test Patterns - gives access to the nine projector test patterns.

Source Select - SHOWlite 4000gv

Source Select enables you to select an input source connected to the projector. To select an input source use the up/down buttons on your remote control or the projector cabinet to highlight the desired input type and press Enter.

Entry List

The Entry List window contains a list of all current and previously connected input signals.



ENTRY EDIT COMMAND (Expert Mode Only)

The names and positions of the signals stored in the entry list can be modified using the Entry Edit Command. To display the Entry Edit Command window hold down CTL and press ENTER on the remote control. You can then Cut, Copy, Paste and Edit the entries.

Cut - allows you to remove a selected signal from the list. The selected signal is stored on the 'clipboard' in the projector.

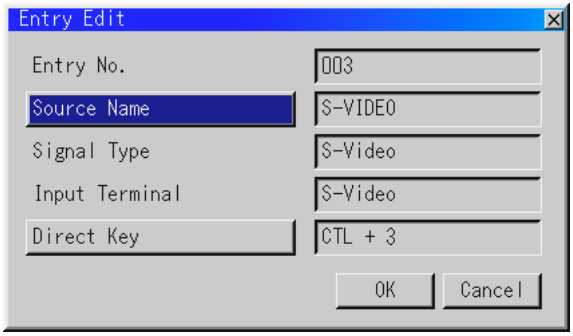
Copy - copies the selected signal from the list and stores it on the 'clipboard'.

Paste - Enables you to paste the signal stored on the 'clip-board' to any other line of the list. To do this, select Paste and then select the line number you want to paste to and press ENTER.

Edit - allows you to change source name or assign the direct key.

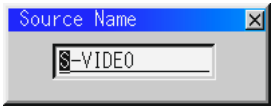
The following buttons are not available for the currently projected signal:

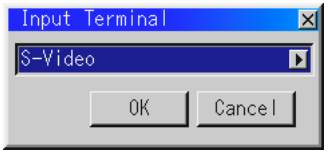
1. The Cut and Paste buttons on the Edit Entry Command screen.
2. The Input Terminal button on the Edit Entry screen.



After making the desired modification, select OK and press ENTER. To exit without saving, select CANCEL.

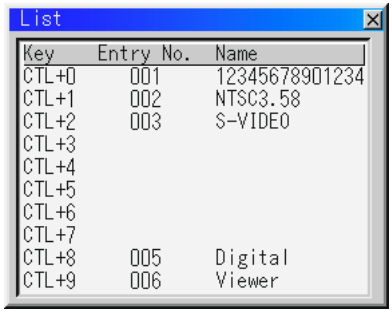
The source name and input terminals can be modified by selecting 'Source Name' and 'Input Terminal'. The appropriate Edit window will be displayed allowing you to make adjustments. This option is only available for sources which are not currently being displayed.





You can assign specific remote keys for direct signal input selection using the 'Direct Key' function. Select 'List' and press ENTER to display the direct Key assignment list.

After assigning the desired remote keys, select 'OK' and press ENTER to save changes and close the window.

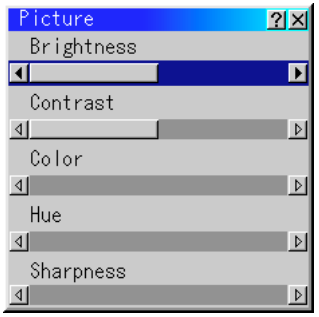


After modifying an entry in the list using the Edit function select OK and press ENTER to save the new settings. To exit without storing setting, select Cancel.

To close the List window without making any changes press CANCEL on the remote control.

Picture - SHOWlite 4000gv

Picture provides access to controls for the displayed image. Use the up and down cursors on the projector cabinet or remote control to highlight the menu you want to adjust.



Brightness - Adjusts the brightness level or the back raster intensity.

Contrast - Adjusts the intensity of the image according to the incoming signal.

Color - Increases or decreases the color saturation level (not valid for RGB).

Hue - Varies the color level from+/- green to +/- blue. The red level is used as a reference. This adjustment is only valid for Video and Component inputs (not valid for RGB).

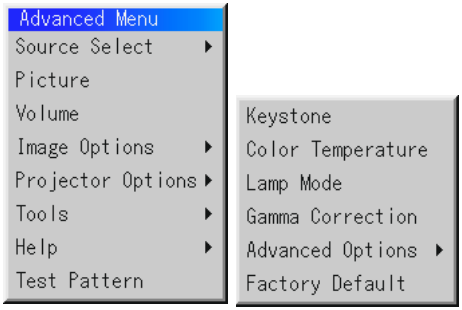
Sharpness - Controls the detail of the image for video (not valid for RGB or Component).

Volume - SHOWlite 4000gv

Adjust the sound level of the projector. You can also display the volume bar without opening the menu using the direct key combination (see page C—7).

Image Options - SHOWlite 4000gv

The Image Options menu provides optional controls such as keystone, colour temperature, lamp mode, gamma correction and other advanced image adjustments.



Keystone

Keystone is the distortion of a projected image that usually creates a wider top than bottom. Aiming a projector upward on a wall rather than straight at a wall creates this distortion. This feature corrects keystone distortion by increasing or decreasing the top or bottom of the image to generate a geometrically correct image. Depending on the type of graphics being used, keystone correction may not be possible or the picture may get blurred or when excessive correction is used.

To correct the keystone distortion, use the left and right cursors

The maximum keystone angle that can be corrected is 30 degree upwards and 30 degree downward with the projector placed horizontally on the ground plane.

When Resolution is set to Native, this feature is not available, and the stored settings and adjustments are invalid.

Color Temperature

This feature adjusts the colour temperature of the image via a slide bar using the left and right cursors. Moving the slide bar to the left decreases the temperature, producing a reddish image while moving the slide bar to the right, increases it for a bluish image.

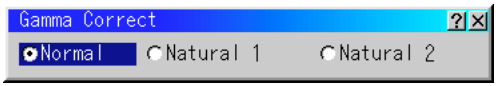
Lamp Mode

Lamp Mode defines the brightness mode of the lamp - High Bright or Eco mode. The default mode is High Bright. Eco mode can extend the life of the lamp up to 2000 hours.

If you select Eco mode, the projector will startup in High Bright mode and change to Eco mode after 3 minutes.

Gamma Correction

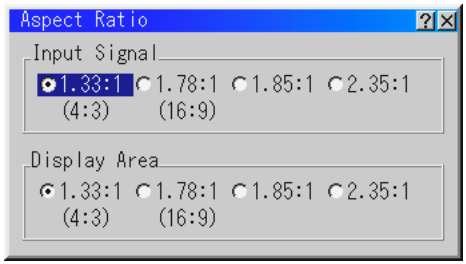
This feature allows you to adjust the image for different environments. Normal should be used when in a lighted room and either Natural 1 or Natural 2 for darkened rooms. Natural 1 provides true color reproduction of natural tones (e.g. flesh tones) and Natural 2 provides true reproduction of middle tones (dark portions of a picture). Selection is made using the left and right cursor buttons.



Advanced Options

ASPECT RATIO

This feature allows you to define the correct proportions for displayed image. You can define the aspect ratio for both the input signal and display area. Selection of the appropriate ratio is made via the cursor buttons.



When Resolution is set to Native, this feature is not available and the stored settings and adjustments are invalid.

NOISE REDUCTION

This feature is used to reduce video noise. Select Off, Low, Medium or High to give the optimum image.

The lower the Noise Reduction level, the better the image quality. Increasing Noise Reduction lowers video bandwidth.

This feature is not available for RGB or PC Card Viewer.

COLOR MATRIX

The Color Matrix feature is only available for component video signals. To use this feature first select an appropriate color matrix for your input signal, either HDTV or SDTV. Next, select an appropriate matrix type, the options available are B-Y/R-Y, Cb/Cr or Pb/Pr.

WHITE BALANCE

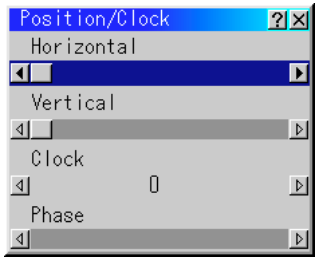
This feature adjusts the white balance for each input signal. For Video/RGB signals the brightness for each color (RGB) is used to adjust the black level of the screen and the contrast for each color adjusts the white level of the screen.

To make adjustments use the up and down cursors to select the item to modify then use the left and right cursors to make the adjustment.

This feature is not available for PC Card Viewer.

POSITION /CLOCK

This feature allows you to manually adjust the image horizontally and vertically, and adjust the pixel clock and phase.



Horizontal and vertical position allows you to manually adjust the position of the displayed image on the screen using the left and right cursor buttons.

Clock is used to fine tune a computer image to remove any vertical banding that may appear. Adjust using the left and right cursors until the banding disappears.

Phase is used to reduce video noise, dot interference or cross talk. Use Phase only after Clock has been adjusted. Adjustment is made using the left and right cursors.

All adjustments to the position, clock and phase are made automatically when the Auto Adjust feature is turned on.

RESOLUTION

When Auto Adjust is turned off, Resolution allows you to activate or deactivate the Imaging Resizing feature. There are two settings - Auto and Native.

Auto - Turns on the Advanced AccuBlend feature. The projector automatically reduces or enlarges the current image to fit the full screen.

Native - Turns off the Advanced AccuBlend feature. The projector displays the current image in its true resolution.

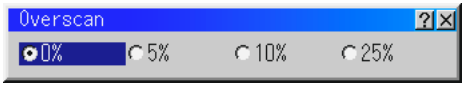
If you are displaying an image with higher resolution than the projector's native resolution, even in Native mode, the image is displayed full screen using the Image Resizing Feature.

VIDEO FILTER

This feature reduces video noise and is only available when Auto Adjust is off. When activated a low-pass filter is applied, when deactivated the filter is removed. Selection is made using the left and right cursor buttons.

OVERSCAN

Sets the overscan percentage for RGB signals.



When Resolution is set to Native, this feature is not available, and the stored settings and adjustments are invalid.

CLAMP TIMING

This function sets the standard black level position of the displayed image (with the exception of DVI digital). Select one of the three options using the left and right cursor buttons:

Auto is the normal setting, Tri-Sync is used for HDTV signals and Front Porch for all other settings.

Y/C DELAY

Adjust the Y/C delay level. Adjustments can be made from -8 to +8 using the left and right cursor keys.This feature is not available for RGB and DVI digital inputs.

YTR ADJUSTMENT

Adjusts the luminance transient time. Adjustments can be made to either the Gain or Tap using the left and right cursor keys.This feature is not available for RGB and DVI digital inputs.

CTR ADJUSTMENT

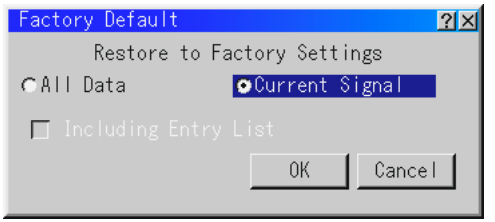
Adjusts the chroma transient time. Adjustments can be made to either the Gain or Tap using the left and right cursor keys.This feature is not available for RGB and DVI digital inputs.

HD DELAY

This feature corrects the vertical jitter of DVI digital signals. Turning HD Delay On

Factory Default

Factory Default returns all the adjustment and image settings to the factory preset level for each source with the exception of Lamp Hour Meter, Projector Usage, Language and Communication Speed.



There are two options available:

All Data - Resets the settings for all signals to the factory preset levels.

Current Signal - Resets the adjustments and image options for the current signal to the factory preset levels.

The items that are reset for the current signal are Brightness, Contrast, Color, Hue, Sharpness, Color Temperature, Gamma Correction, Aspect Ratio, Noise Reduction, Color Matrix, White Balance, Switcher Gain, Position/Clock, Resolution, Video Filter, Overscan, Clamp Timing, Y/C Delay, YTR Adjustment, CTR Adjustment and HD Delay.

The Volume, Keystone, Lamp Mode and all items in the Projector Options menu can only be reset when 'All Data' is selected.

Projector Options - SHOWlite 4000gv

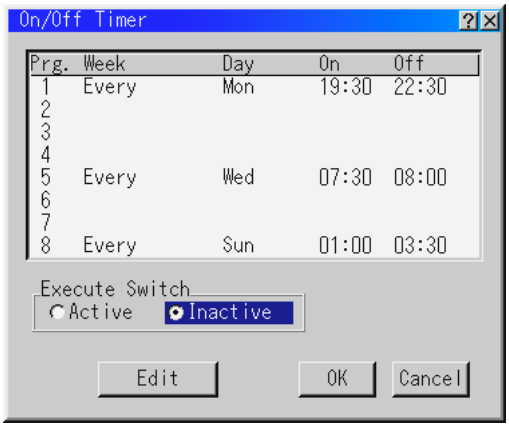
The Projector Options Menu enables you to set projector preferences and other operating options.

Timer

This feature enables you to turn on or off your projector automatically at a specified time. There are two timer functions are available: On/Off Timer and Sleep Timer.

ON/OFF TIMER

The On/Off Timer enables you to schedule up to eight on and off times in 12 or 24 hour format. Before setting the On/Off Timer the current date and time must be defined using the Date, Time Pre-set feature. When the On/Off Timer has been set it is still possible to turn the projector on or off with the remote control.



To schedule an On and Off Time:

1. Open the On/OFF Timer window.

2. Select EDIT and press ENTER on the remote control to open the EDIT window.

3. Set the Week, Day, On-Time and Off-Time using the CURSOR buttons and INPUT buttons (1 through 10). To cancel the on-time or off time, use Delete.

4. Select Set and press ENTER on the remote control to complete the setting. To close, select Close.

5. To enable your setting, select Active on the Execute Switch.

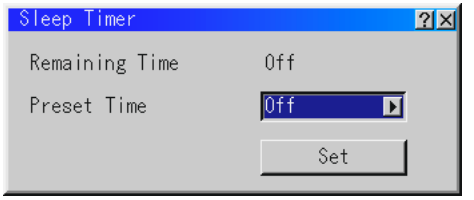
6. Select OK and press ENTER on the remote control to complete the setting.

When On Timer is set and the projector is in the standby mode, the "00" display on the INDICATOR flashes to show that On Timer program is active.

The projector must be in stand-by mode at the time of turning on. The preset power-on time will be void if the cooling fan is working or an error occurs.

SLEEP TIMER

The Sleep Timer allows you to set the projector to automatically turn itself off after a pre-defined time period.



To activate the Sleep Timer:

1. Select your desired time between 30 minutes and 2 hours in 30 minutes.

2. Select Set and press the ENTER button on the remote control.

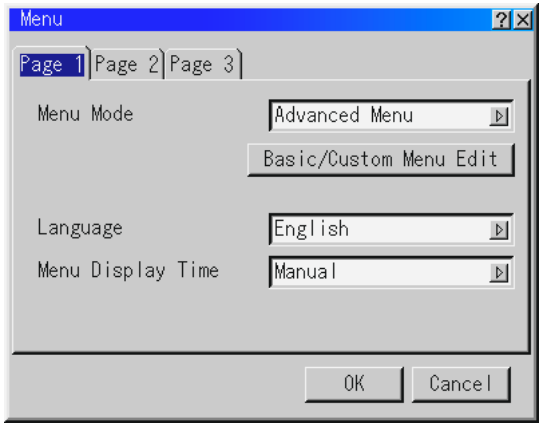
3. The remaining time starts counting down.

4. The projector will turn off after the countdown is complete.

Menu

The Menu window allows you to set preferences for the on-screen menu system.These preferences are provided over three tabbed pages, Selecting an individual tab will bring the appropriate page to the front of the screen.

PAGE 1

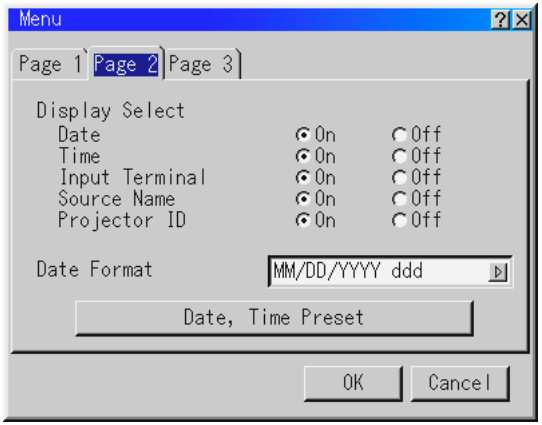


Menu Mode -This feature allows you to select either an Advanced or Basic/Custom Menu mode. The Advanced Menu contains all available menus and commands. The Basic/Custom Menu is a user defined menu system.

Language - Up to seven languages are available for the on screen instructions. The options are: English, German, French, Italian, Spanish, Swedish and Japanese.

Menu Display Time - The on screen menu display appears when the buttons on the remote control, or the controls on the rear panel are pressed. The display can be set to automatically turn off at a pre-selected time of either 5, 10 or 30 seconds after the last menu action or set to manual operation. When set to manual, the display will be turned on and off whenever the MUTE OSD button is pressed.

PAGE 2



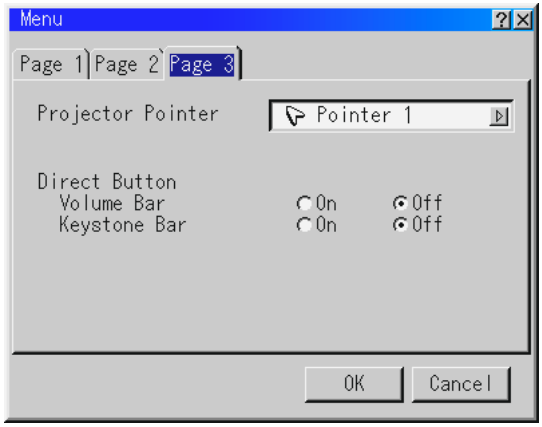
Display Select - Allow you to define the information you want displayed on the screen. The selected information will be displayed every time you switch sources.

Date Format - Defines the format of the date displayed in the top left of the screen (if selected in Display Select). A choice of eight formats are available.

Date, Time Preset - Sets the current Date and Time. To set the date and time, type in the current values using the input buttons on the remote control. The month and date must be entered in two digits e.g. January is entered as 01. The time is expressed in 24hour clock format. When you have defined the current values select OK and press ENTER. The clock will start when the window closes.

The projector has a built-in clock which will keep working for up to 3 days after the mains have been turned off, after this time the date and time will reset. The built-in clock will not reset while in standby condition.

PAGE 3



Projector Pointer - This option is available on the optional presentation remote control (PR50KIT) only and enables you to select from eight different pointer icons for the 'Pointer' button on your remote control.

After moving your pointer icon to the area you want on the screen, press the Magnify button on the remote control to enlarge the selected area.

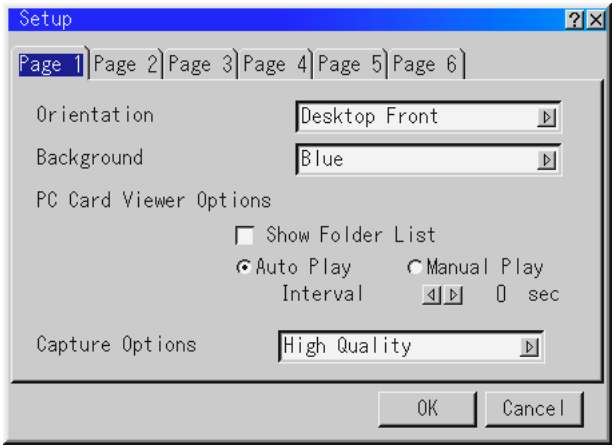
There may be cases where the Pointer function is not available (e.g. a non-interlaced signal at 15Hz such as a video game).

Direct Button - Turns on or off the on screen Volume and Keystone Bars when you make adjustments to the volume or keystone levels using the remote control. The Keystone Bar option is only available on the optional presentation remote control (PR50KIT).

Setup

There are six Setup pages used to define the operating options for the projector.

SETUP PAGE 1



Orientation - The projector can be set for desktop front projection, ceiling rear projection, desktop rear projection or ceiling front projection.

Background - This feature can be used to display a blue/black screen or logo when no signal is available. The default background is blue. You can change the logo screen using the PC Card Files feature.

PC Card Viewer Options - Allows you to define folder list and play options for PC Card inputs. When Show Folder List is checked, the folder lists will be displayed when PC Card Viewer is selected as the input on the projector.

If Auto Play is checked, any given slide will start to play automatically. An Auto Play Interval is definable allowing you to set an interval time between 5 and 300 seconds.

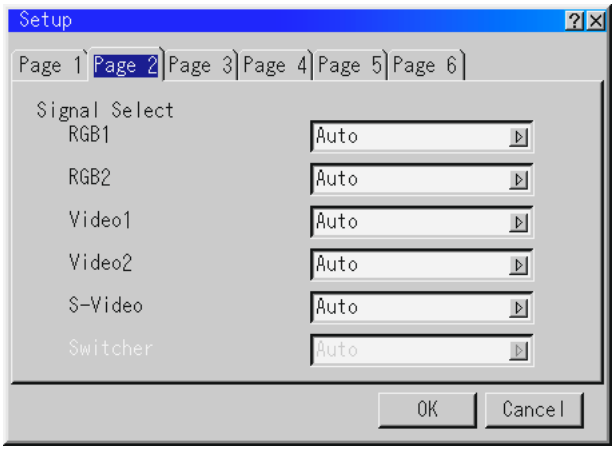
The Auto Play interval time set on the PC Card Viewer utility will over-ride the setting on this page.

OPERATION

When Manual Play is selected, the Play and Stop icons on the toolbar are used to control slide playback when PC Card Viewer is selected.

Capture Options - These options are used for the Capture function and can be selected from Tools menu. You have three options for JPEG compression: High Quality, Normal, and High Compression.

SETUP PAGE 2

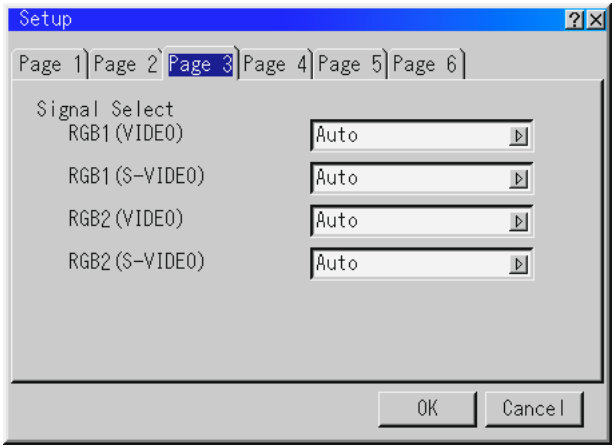


Signal Select - Allows you to define the type of RGB and VIDEO input signals.

RGB1 and RGB2 allow you to define the RGB input as either RGB, Component or Auto. RGB would be used for computer signals etc. and Component would be used for component video sources e.g. a DVD player. When set to Auto the projector attempts to automatically detect the signal type. However, certain component signals may not be detectable.

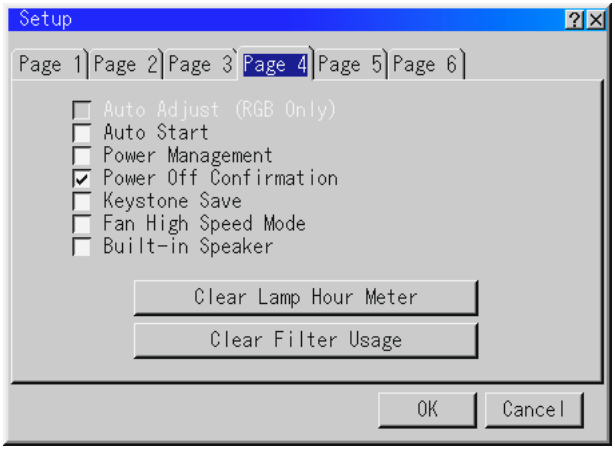
VIDEO1, VIDEO2 and S-VIDEO allow you to manually select Composite video signals. Normally, Auto would be defined and the projector would attempt to automatically detect the signal type.

SETUP PAGE 3



Signal Select - Allows you to choose VIDEO or S-VIDEO for the RGB1 and RGB2 connectors. By default Auto would be defined.

SETUP PAGE 4



Auto Adjust (RGB Only) - When checked, the projector automatically determines the best resolution for the current RGB input signal. The projector can automatically adjust the Horizontal and Vertical Position along with Clock, Phase and Resolution.

The projector has a feature that enters a signal automatically in the Entry List once you have made adjustments. However, this feature is not available if you adjust a signal using the Auto Adjust feature. To register the signal after you use the Auto Adjust feature, first you need to make any one adjustment manually.

Auto Start - Defines whether the projector starts up as soon as the mains power is applied or whether standby mode is selected.

Power Management - When this option is checked, the projector will turn itself off automatically if there is no RGB input for five minutes or more.

Power Off Confirmation - Determined whether a confirmation dialogue box is shown or not when turning off the projector.

Keystone Save - Allows you to save the current Keystone settings. The settings affect all input sources and are saved automatically when the projector is turned off.

Fan High Speed Mode - This option allows the user to select either high or normal fan speed. Fan High Speed Mode is used to quickly cool down the temperature inside the projector.

Built-in Speaker - When checked, the projectors built-in speakers are activated when an audio cable is connected to the AUDIO OUT terminal.

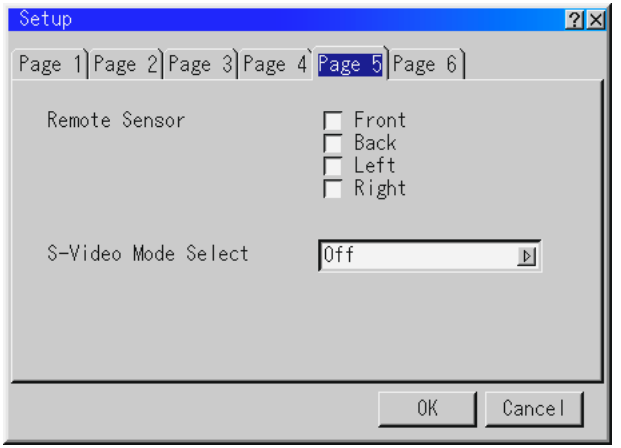
Clear Lamp Hour Meter - Resets the lamp clock to zero. Selecting this option displays a confirmation window: To reset the lamp usage hour, press 'OK'.

The projector will turn off and go into standby mode after 1600 hours (up to 2100 hours in Eco mode) of service. If this happens, press the 'Help' button on the remote control for ten seconds to reset the lamp clock to zero.

Only reset the lamp clock after replacing the lamp.

Clear Filter Usage - Resets the filter usage to zero. It is recommended that the filter is cleaned after every 100 hours of operation (or more frequently depending on environmental conditions). Selecting this option displays a confirmation window: To reset the filter usage hour, press 'OK'.

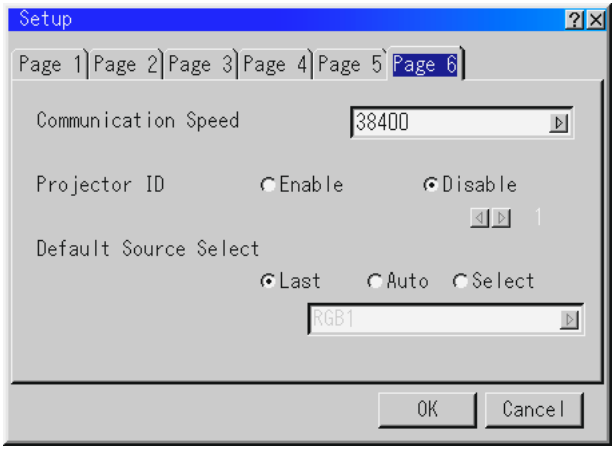
SETUP PAGE 5



Remote Sensor - Determines which infra red sensors are enabled for remote control operation.

S-Video Mode Select - This option selects the S-Video detection mode. The options are OFF or S2. When set to S2, the projector will identify zoom (16:9) and wide zoom (4:3) signals.

SETUP PAGE 6



Communication Speed - Defines the baud rate of the PC CONTROL connector.

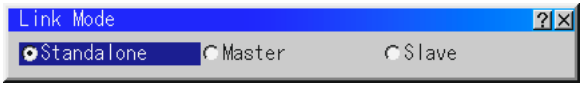
Projector ID - Each projector needs its own unique address when used in serial communication mode (multiple projector use). To set the projector ID, select Enable then select the ID number from the spin box. To activate the setting, select OK.

Default Source Select - You can set the projector to default to last input used, a pre-defined input or to automatically detect an active source on any input connector.

When set to Auto, the projector searches for sources in the following order RGB1, RGB2, Video 1, Video 2, S-Video, PC Card Viewer, DVI Digital, DVI Analog and then RGB1 (Standalone).

Link Mode

This feature is used for multiple projector connection using RGB Digital Input/Output connectors. When using Link Mode, the master projector should be set to Master and all other projectors set to Slave. For single projector operation, Standalone should be selected.



Link Mode is not available for DVI Digital.

Tools - SHOWlite 4000gv

The Tools Menu provides tools for capturing images and displaying files in a PC Card.

The 'Capture' and 'PC Card Files' features are required for the PC Card

Capture

This feature allows you to capture an image from the source being displayed and save it as a JPEG to the PC Card. When you select Capture from the menu you are provided with a tool bar with the following functions Capture, Freeze and Exit. This toolbar can be used to capture images when the menu is not being displayed.

Capture - Captures an image and saves it as a JPEG to the PC Card.

Freeze - Used to Freeze and Unfreeze the displayed image.

Exit - Exits the Capture function.

The Capture feature is only available when a PC Card is inserted into the PC Card slot of the projector.

The number of images that can be stored on a PC Card depends on the size of the PC Card. If there is insufficient space on the PC Card to save the image the display will show 'Card Error'. To make more space available on the PC Card, use your PC to erase any unwanted images.

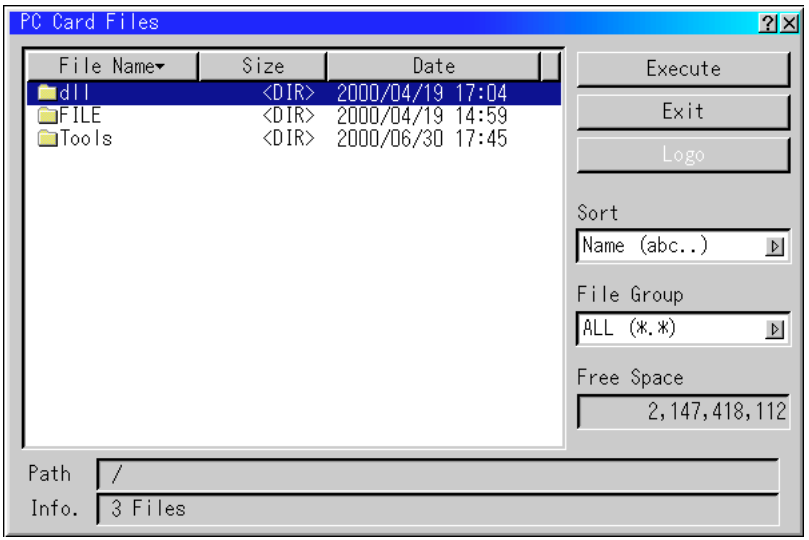
Do not turn off the projector or remove the PC Card while capturing an image. This could cause a loss of data in the PC Card or damage the card.

Captured images with a higher resolution than the projector's native resolution will not be displayed correctly.

PC Card Files

The PC Card Files window displays a list of all the files stored in the PC Card and allows you to select a file to display or sort the files by name or date. The projector can only display files in idx, text, HTML, JPEG and BMP format. Selecting BMP and JPEG files automatically switches to the PC Card Viewer source.

After highlighting the file you want to display using the cursor buttons, select 'Execute' to view the file. When you select a JPEG or BMP file and press the Enter button on the remote control or projector cabinet, a toolbar will be displayed. This toolbar allows you to return to the PC Card Files screen.



When an image with a resolution of XGA (1024 x 768) or higher is projected, the PC Card Files screen may not be correctly displayed.

CHANGING BACKGROUND LOGO

The Logo button allows you to select a graphics file stored on the PC Card and use it as the background when no input signal is present. The file must be less than 64KB and be either JPEG or BMP format.

To select a new logo, highlight the desired file in the PC Card Files window using the up and down cursors. Next, press the right cursor followed by the down cursor to select 'Logo'. Pressing Enter on the remote control will bring up the confirmation window where you can select either OK or Cancel. To implement the new logo, select OK then press Enter.

Help - SHOWlite 4000gv

The Help menu provides two options - Contents and information.

Contents

The Contents option provides a list of functions for which online help is available. Underlined functions provide a direct link to the corresponding item by selecting the option and pressing Enter.

The Help Menu may not be displayed correctly when a UXGA signal is displayed.

Information

The information option provides six pages of information about the current setup of the projector along with with the status of the current signal, lamp and usage hours. An outline of the information available on each page is provided below.

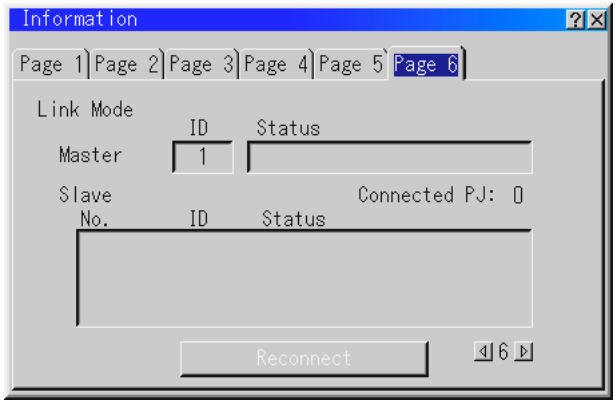
Page 1	Source Name, Input Terminal, Entry No., Horizontal Frequency, Vertical Frequency, Sync Polarity.
Page 2	Signal Type, Video Type, Sync Type, Interlace, Resolution, Direct Key.
Page 3	Aspect Ratio (In/Out), Gamma Correction, Noise Reduction, Color Matrix, Matrix Type.
Page 4	Lamp Remaining Time (%), Lamp Hour Meter (H), Filter Usage (H), Projector Usage (h), Projector ID.

Page 5 Version (BIOS/Firmware/Data/SUB-CPU)

Page 6 Link Mode

PAGE 6

When you select the Tab for Page 6 in the Information menu the current status of Link Mode will be displayed.



Master ID - Displays the ID number of the master projector.

Status - Displays the status of the master projector.

Connected PJ - Shows the number of slave projectors connected.

Slave No. - Displays the serial numbers of the slave projectors.

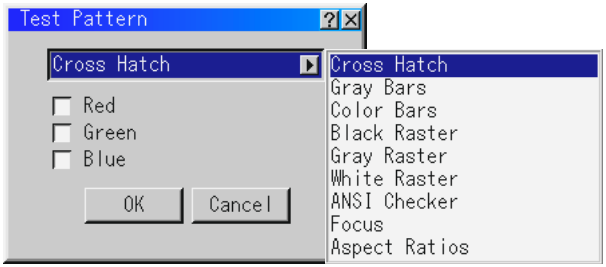
Slave ID - Displays the ID numbers of the slave projectors.

Slave Status - Displays the status of the slave projector.

The status of the master and slave projectors will be shown as either Running, Cooling Lamp, Standby, Communication Error, Connecting or Error Standby.

Test Pattern - SHOWlite 4000gv

Nine internal Test Patterns are provided to assist with projector setup and alignment The Test Patterns are selected from a flyout list and for each pattern you have the ability to turn off the Red, Green and Blue channels.



PC Card Viewer - SHOWlite 4000gv

The Viewer feature allows slides stored on a PC memory card (referred to as a PC Card in this manual) to be displayed on the projector. Even if no computer is available, presentations can be conducted by simply inserting a PC card into the projector.

The projector can display high resolution images (up to 1024x768 dots) with 24-bit full color playback.

The PC Card Viewer has a simple software utility for computer control. This utility will operate under Windows 95/98/NT4.0 and Windows 2000. Using the utility, slides can be easily created by capturing the displayed image. A control screen is provided for displaying and editing lists of captured slides. The PC Card Viewer utility includes a PPT Converter which converts files created in Microsoft Powerpoint into indexes playable with PC Card Viewer.

PC CARDS

The projector only accepts PCMCIA Type II cards. The Cards have a top and bottom and must be inserted correctly;y into the PC Card slot in a specific direction. The card cannot be inserted backwards or upside-down. Attempting to force the card into the slot in the wrong direction may break the internal pin and damage the PC slot.

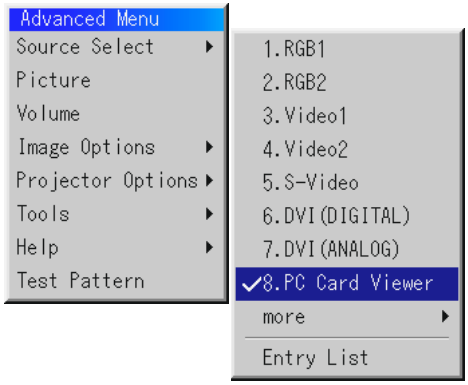
To insert a PC card into the projector, hold the card horizontally with its top facing up and insert it slowly into the PC Card slot. The eject button pops out once the card is fully inserted.

To eject a PC Card, press the eject button. The PC Card will pop out a little from the PC Card slot. Grasp the edges of the PC Card and pull it out. Do not eject the PC Card while data is being accessed or stored.

Projector Operation of the PC Card Viewer Function

PLAYING SLIDES

Insert a PC Card into the card slot (with the insertion direction arrow on the top) and select 'PC Card Viewer' from the Source Select menu.



Checking 'Show Folder List' means that selecting PC Card Viewer input displays a list of all folders in the PC Card and if 'Auto Play' is checked the projector automatically starts to play slides at the first slide of the folder you have selected.

A tool bar will appear when you press the MENU button on the remote control or the projector cabinet.

Prev - Returns to the previous slide (or can be used to play slides in reverse).

Next - Advances to the next slide.

Play - Plays back automatically or manually according to the PC Card Viewer Options in the menu system. This button allows you to move on to the next slide when 'Manual Play' is selected.

Stop - This allows you to stop 'Auto Play' while you are playing back and to resume playing from the selected slide or folder when 'Auto Play' is selected.

Jump - Displays a list of slides while you are playing back.

Select - Displays a list of folders while you are playing back.

Setup - Displays the PC Card Viewer Options dialogue box on Page 1 of the Setup dialogue box.

Delete - Deletes the captured slide(s) in the Capture - specific folder.

View - Hides the tool bar while you are playing back. Pressing the MENU button shows it again.

If no PC Card is inserted in the PC Card slot, there is no signal, and a black, blue or logo background is displayed, depending on the setting.

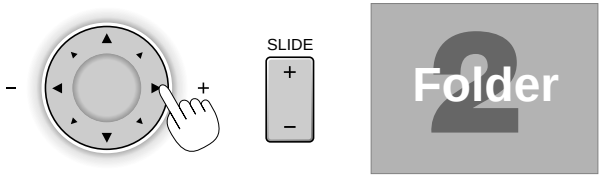
Playback is stopped when the Select left or right cursors on the cabinet or optional presentation remote control are pressed while in 'Auto Play' mode.

Up to 12 indexes can be displayed on the list of folders. The folder in the right bottom is always a folder exclusively for captured images, but is only displayed when images have been captured. To display the list of folders when there are 13 or more indexes stored on the PC Card, select 'Edit Index' from the PC Card Viewer software's 'File' menu and move the index you want to display to within the first 12 indexes from the top of the folder index. For further details, refer to the PC Card Viewers software help folder.

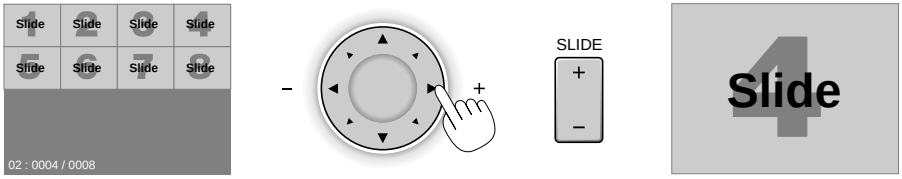
WHEN THE TOOL BAR IS NOT DISPLAYED

Press the Select Left or Right cursor, or the FOLDER LIST button on the optional remote control to display folders from a PC Card in the projector's PC Card slot.

Use the Select Left or Right cursor, or the SLIDE +/- button to advance to the next folder or return to the previous folder. To select a folder, press ENTER.



When viewing the slide list in the selected folder, use the Select Left or Right cursors, or the SLIDE +/- button to advance to the next slide or return to the previous slide. To select a slide, press ENTER.



If you use the Select Left or Right cursor buttons on the remote control for PC Card Viewer operation, press the PJ button to switch to the projector mode (the PJ button is illuminated).

SWITCHING TO SLIDES DIRECTLY FROM OTHER INPUT MODES

With this function it is possible to switch directly to a slide when the picture of a VCR or computer is being projected.

For example, when conducting presentations using a combination of slides and moving pictures from a VCR, etc., it is possible to switch from a PC Card Viewer slide to the video picture than back to the PC Card Viewer slide simply by using a source button and PC CARD button.

Even if you switch the current PC CARD Viewer source to another source, the current slide is retained. When you return back to the PC CARD Viewer, you will get the slide that has been retained.

Capturing Images

STORING DISPLAYED IMAGES ON THE PC CARD

Insert a PC Card into the card slot and project the image you wish to store. Next, select 'Capture' from the Tools menu. A tool bar will appear allowing you to Capture an image and save it, Freeze and unfreeze the image and exit the Capture function.

When you capture an image and save it, an hour glass will appear to indicate that the image is being stored. Do not eject the PC Card or turn off the projector power while this icon is being displayed. Doing so will damage the PC Card.

You can compress a captured file (JPEG) using the Capture Options in the Setup dialog.

Captured images with a higher resolution that the projector's native resolution cannot be displayed properly.

DELETING CAPTURED IMAGES

The PC Card Viewer tool bar allows you to select, view and delete captured images. To delete captured images first select the PC Card Viewer. Then using the right cursor button to select the Capture folder in the right bottom of the screen. Next, press the MENU button to display the tool bar and use the left/right cursor buttons to select the delete icon from toolbar and press the ENTER button. The selected image will be deleted.

VIEWING DIGITAL IMAGES

Digital images can be displayed with the PC Card viewer if the following conditions are met:

1. The image can be stored on an MS-DOS format PC Card.

2. The image can be stored in a format supported by the PC Card Viewer. With the PC Card Viewer, images on the card are searched for in directories and images in JPEG or BMP format are recognised as slides.

   In order to be searchable, the image files must be within the first 12 files in a directory and the directory must be within two steps of the root directory.

The maximum number of images recognised as slides within one directory is 128.

PC Card Viewer Utility Software - SHOWlite 4000gv

The PC Card Viewer Utility is an application for editing documents, converting them into slides and storing them on PC Cards as playback data (indexes) for presentations using projectors.

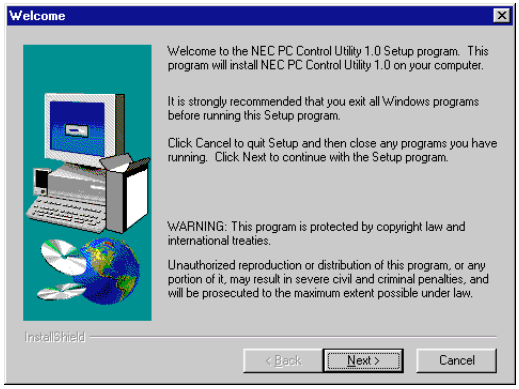
Software Installation

1. Quit any open applications.

2. Insert the PC Card Viewer CD-ROM into the CD-ROM drive. The installation application will automatically launch and the contents screen will appear.

3. Click on 'Installing the PC Card Viewer Utility 1.0' button.

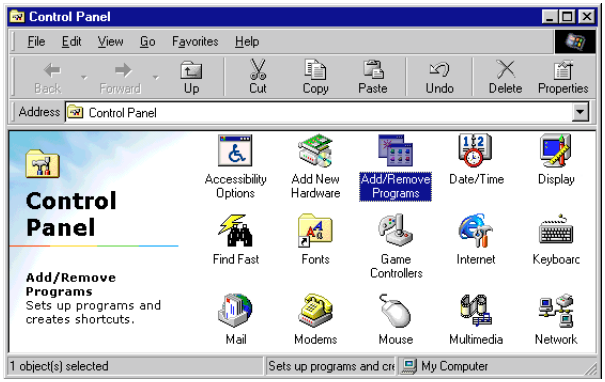
4. The setup dialogue appears. Simply, follow the instructions given to complete the installation.



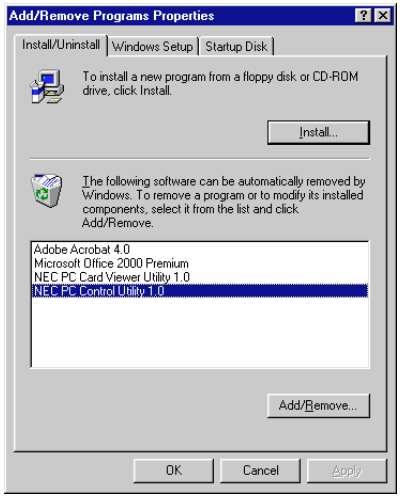
Software Removal

The PC Card Viewer software files can be easily removed from a PC using the 'Install/Uninstall Application' Control Panel in Windows.

2. In the ‘Control Panels’ folder, double-click on ‘Add/Remove Programs’.



3. In the ‘Add/Remove Programs Properties’ dialogue box, click the ‘Setup/Remove’ tab, then select ‘PC Card Viewer Utility 1.0’ from the list of applications and click on ‘Add/Remove’

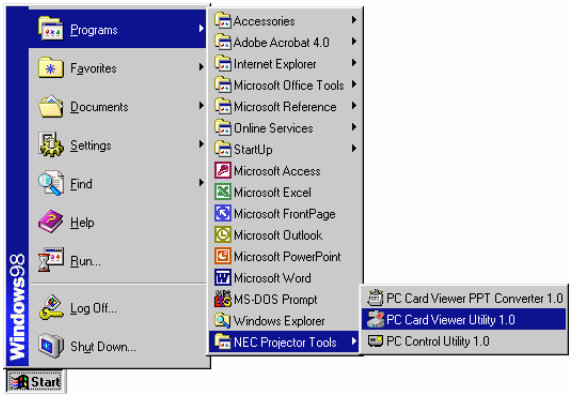


4. In the ‘Confirm File Deletion’ dialogue box, click ‘Yes’.

5. Once the application is uninstalled, click on ‘OK’ in the ‘Remove Program From Your Computer’ dialogue box.

PC Card Viewer Utility

The PC Card Viewer Utility is the software used to create PC Card Viewer slides. To start the Utility select Start > Programs > NEC Projector Tools > PC Card Viewer Utility 1.0. When started, refer to the online help for operating instructions.



PC Card Viewer PPT Converter

This application converts files created with Microsoft PowerPoint 95/97/2000 into indexes so that they can be played directly using the PC Card Viewer Utility. The software is installed automatically when you install the viewer utility. To start the conversion application select Start > Programs > NEC Projector Tools > PC Card Viewer PPT Converter 1.0. When started, refer to the online help for operating instructions.

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Screen Illuminance

The projector's arc lamp emits a *luminous flux* measured in **lumens**. This flux is directed at the screen and illuminates it, the *illuminance* (E) can be measured in **Lux** (lumens/m2) or **Foot Candles** (lumens/ft^2). The *illuminance* of the screen is calculated by dividing the incident flux by the illuminated screen area.

The brightness of the screen, known as the screen *luminance* (B) is determined by the amount of light reflected from it (or transmitted through it if using a rear projection screen). If the screen is diffuse, the incident light is reflected into a hemisphere. If the screen has a *reflectivity* (R), the screen *luminance* in candela/m^2 is given by (R x E) / π, where E is measured in Lux. If E is measured in Foot-Candles, the screen *luminance* is in Foot-Lamberts, and is given by R x E.

Examples:

1) A 6' x 4' 6" diffuse screen, with a reflectivity of 0.8 is illuminated by a projector emitting 3000 lumens.

The screen illuminance (E) = F / A = 3000 / 27 = 111 Foot-Candles

The screen luminance (B) = R x E = 0.8 x 111 = 89 Foot Lamberts

2) A 4m x 3m screen with a reflectivity of 0.85 is illuminated by a projector emitting 3500 lumens.

The screen illuminance (E) = F / A = 3500 / 12 = 292 Lux

The screen luminance (B) = (R x E) / π = (0.85 x 292) / π = 79 Candela/m^2

Projection Orientation

You can use your SHOWLITE projector to project an image from either in front or behind the screen. The Projector can either be set for either ceiling mounted front/rear projection or desk mounted front/rear projection using the Projector Options > Setup > Page 1 > Orientation menu option.

The throw distance required for rear projections is the same as for front projection. If the image is inverted when projecting an image from the rear onto a transparent screen, it can be corrected using the Orientation feature under Projector Options > Setup > Page1 in the Projector Options Submenu.

Only use your projector on a solid, level surface. Installing your projector on a ceiling must be done by a qualified engineer. If the projector falls to the ground, you can be injured or the projector may be damaged.

Multiple Projector Operation

Up to two projectors can be gravity stacked without external support to increase the brightness of the displayed image. In some cases, the two images will not align correctly and may need adjusted. This will be more apparent when displaying small text and graphics. Refer to page D—8, Gravity Stacking, for more information.

In order to prevent any damage to the projectors, they should be securely mounted on a shelf or table that has sufficient strength to support the weight of all the projectors.

STACKING THE PROJECTORS

Place the projectors at the correct height for best screen to projector relationship and ensure that all projectors are set to the same display orientation.

HOOK-UP

Using an RGB signal cable, connect the RGB output of the master projector to the RGB input of the slave projector (an RGB cable is supplied with the SHOWlite 4000gv projector). Repeat the procedure with the output from the slave projector until all additional slaves are connected.

Using a commercially available, bi-directional RS-232C cable connect the PC CONTROL OUT terminal of the master projector to the PC CONTROL IN terminal of the slave projector. Repeat the procedure with the out terminal from the slave projector until all additional slaves are connected.

Turn all projectors on and and adjust the optical parameters of each projector until a desirable image is displayed.

SIGNAL DATA PREPARATION

Select one projector as the master projector and turn it on. Next, display all the desired input signals, making adjustments where required and then save the changes to the master projector. Turn the master projector off and store all the adjustments to the master projector to a PC card.

It is not possible to register signals whilst in Link Mode, this procedure has to be completed before proceeding.

STORING DATA ON A PC CARD

Insert a PC Card into the PC Card slot on the master projector. Press and hold CANCEL, then press POWER on the top panel of the master projector. The power indicator will change to a steady green and the PC Card Access indicator will start flashing.

After storing data on the PC Card, the Access indicator will change to orange. Remove the PC Card from the master projector and transfer the data from the master projectors PC Card to the slave projectors.

TRANSFERRING DATA FROM A PC CARD

Insert the PC Card into the PC Card Slot of the slave projector. Press and hold ENTER, then press MENU on the top panel of the slave projector. The POWER indicator will change to steady green and the PC Card Access indicator will start flashing to indicate that data is being copied to the slave projector.

After storing data on the PC Card, the Access indicator will change to orange. Remove the PC Card from the slave projector.

If you selected RGB1 as the input on the master projector, you must also select the same input on the slave projector.

After adjusting and registering the signals as mentioned above, you must change the input to RGB on the Entry Edit Command window for Link Mode.

ADJUSTING THE DISPLAYED IMAGE.

Display the internal crosshatch test pattern using a different colour for each projector and adjust the lens shift, Zoom and Focus until a clear image is displayed.

If the physical (vertical) alignment is not correct, adjust the height of the projector feet. If there is any keystone distortion, use keystone adjustment to correct and save the settings on each projector.

This completes the installation for stacked projectors. The user must now configure the link mode to allow multiple projector control.

Link Mode Setting

To configure multiple projectors for Link Mode you must define a unique projector ID for each projector, set the Communication Speed and define whether each projector is a Master or Slave.

The projector ID for a 3000sx projector is assigned under Projector Options > Setup > Page 5 > Projector ID. For a 4000gv projector it is assigned under Advanced Menu > Projector Options > Setup > Page 6 > Projector ID.

The Communication Speed is located on the same Setup page. All projectors should be set to the same speed (available options are 4800, 9600, 19200 and 38400).

Link Mode is located under Projector Options. The master projector should be defined as 'Master' and all other projectors should be defined as 'Slave'.

Once the Link Mode settings have been defined, display an image onto the screen and check to ensure that the images from all the projectors are synchronised, adjusting for any differences in vertical alignment or keystone distortion.

If you select an unregistered signal, the master projector will display the image but the slave projectors will not. It is not possible to register an image whilst in Link Mode. To register a signal, set Link Mode to 'Standalone' and repeat the multiple projector operation procedure from Signal Data Preparation.

To make any image adjustments to slave projectors, temporarily change the master projectors Link Mode setting to 'Standalone' and check that all other projectors are in slave mode. Next, display the same image source on all projectors and make any desired adjustments to brightness, contrast or colour temperature of the slave projectors. Finally, change the Link Mode of the master projector back to 'Master' to activate Link Mode

The setup procedure for Link Mode has now been completed.

Gravity Stack

Up to two projectors can be gravity stacked without external support. In some cases however, the projected images will not align. This will be more apparent when displaying small text and detailed graphics.

The optional lenses available for the projector have different geometrical distortions in wide zoom and tele. Select the best zoom position for stacking where the distortion is a little as possible (see System Installation, page B—5 for Lens Throw Distances).

The horizontal lens position must be as close to the centre of the lens opening as possible.

A distribution amplifier is recommended for gravity stacking in Link Mode to distribute one input source to two projectors. Without a distribution amplifier, the horizontal position of each projector will need to be adjusted before enabling Link Mode. This adjustment will prevent image alignment.

Operation via Remote Control

Multiple projectors can be individually controlled by the same remote control by assigning each projector a unique ID number and specifying the ID number of the projector you wish to adjust.

To assign the ID number on a 3000sx projector, select Projector Options > Setup > Page 5 > Projector ID. For a 4000gv projector, select Advanced Menu > Projector Options > Set Up > Page 6 > Projector ID.

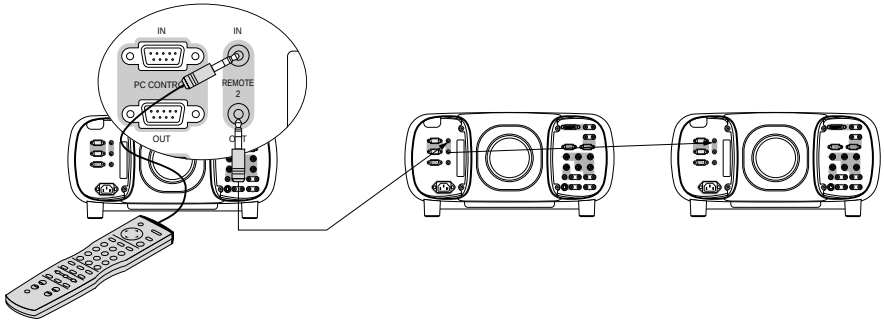
To operate a specific projector, press and hold the CTL button on the remote control then enter the ID number of the projector you wish to operate.

Specifying 'None' for the projector ID allows you to operate multiple projectors concurrently. However, some projectors may not synchronize to the others.

WIRED OPERATION

You can daisy chain multiple projectors and operate them individually via a single hard wired remote control.

First, connect the REMOTE 2 output of the first projector to the REMOTE 2 input of the second projector using a remote control cable (only one supplied with each projector). Repeat the process until all projectors are linked.



Next, assign a unique ID number to each projector and operate using the remote control as normal. The ID number can be set to 'None' allowing multiple projector control (see operation via remote control on previous page).

Operation via the PC Control Connectors

The Link Mode function allows you to adjust or set multiple projectors using the RGB 2 and PC CONTROL connectors.

Using a bi-directional RS-232C cable (not supplied) connect the PC CONTROL output of the master projector to the PC CONTROL input of the slave projector. Next, using the supplied RGB signal cable, connect the MONITOR OUT of the master projector to the RGB2 connector of the slave projector.

It is recommended that a commercially available distribution amplifier is used if connecting multiple projectors in Link Mode. For more information on PC Control see page D—16.

Link Mode Menu Items - SHOWlite 3000sx

The tables below list the availability of functions from the menu system and via projector and remote control buttons when in analog or digital link mode. Each link mode letter in the tables indicates one of the following:

Link Mode	Master Projector	Slave Projector
L	Valid	Linked
L(*1)	Valid	Adjustment Not Possible
L(*2)	Valid	Adjustment Possible
N	Invalid	Invalid
M	Valid	Invalid
I	Independently Adjustable	Independently Adjustable

Menu Function			Link Mode
Source Select			L
Adjust Source	Picture	Brightness	L
		Contrast	L
		Other functions	N
	White Balance		N
	Image	Pixel adjust (Phase)	L
		Position	L
		Other functions	N
	Video Adj		N
	Option Adj		N
	Signal Type		N
	Switcher		N
Volume			M
Ref Adj	Keystone		N
	Lamp Mode		N
	Ref. White Bal.		N
Factory Default			N
Projector Options	Timer		L
	Menu		M
	Setup		N
	Link Mode		M
	Switcher Control		N
	LAN Mode		N

Menu Function	Link Mode
Help	M
Test Pattern	N

Direct Button			Link Mode
Lens Shift	Projector		I
	Remote Control		N
Focus	Projector		I
	Remote Control		I
Zoom	Projector		I
	Remote Control		I
Menu	Projector		L(*1)
	Remote Control		L(*1)
Power	Projector		L(*2)
Power On	Remote Control		L(*2)
Power Off	Remote Control		L(*2)
Input (alphanumeric)	Remote Control		L(*1)
Mute (Picture)	Remote Control		L(*1)
Mute (OSD)	Remote Control		L(*1)
Mute (Sound)	Remote Control		L(*1)
Volume	Up/Down on Projector	Bar Display	L(*1)
		No Bar Display	L(*1)
	Up/Down on Remote	Bar Display	L(*1)
		No Bar Display	L(*1)
Keystone	Remote Control		N
Auto	Projector		N
	Remote Control		N
Source	Projector		L(*1)
Test	Remote Control		N

Link Mode Menu Items - SHOWlite 4000gv

The tables below list the availability of functions from the menu system and via projector and remote control buttons when in analog link mode. Each link mode letter in the tables indicates one of the following:

Link Mode	Master Projector	Slave Projector
L	Valid	Linked
L(*1)	Valid	Adjustment Not Possible
L(*2)	Valid	Adjustment Possible
N	Invalid	Invalid
M	Valid	Invalid
I	Independently Adjustable	Independently Adjustable

Menu Function			Link Mode
Source Select	All functions except PC card viewer		L
Picture	All functions		L
Volume			L
Image Options	Keystone		N
	Color Temperature		L
	Lamp Mode		N
	Gamma Correction		L
	Advanced Options	Aspect Ratio	L
		Noise Reduction	N
		Color Matrix	N
		White Balance	L
		Switcher Gain	N
		Position	N
		Overscan	L
		Clock	N
		Resolution	L
		Video Filter	L
		Clamp Timing	N
		Y/C Delay	N
		YTR Adjustment	N
		CTR Adjustment	N
		HD Delay	N
Factory Default			N

Menu Function		Link Mode
Projector Options	Timer	L
	Menu	M
	Setup	N
	Link Mode	M
	Switcher Control	N
	LAN Mode	N
Tools	Capture	N
	PC Card Files	N
Help		M
Test Pattern		N

Direct Button			Link Mode
Lens Shift	Projector		I
	Remote Control		N
Focus	Projector		I
	Remote Control		I
Zoom	Projector		I
	Remote Control		I
Menu	Projector		L(*1)
	Remote Control		L(*1)
Power	Projector		L(*2)
Power On	Remote Control		L(*2)
Power Off	Remote Control		L(*2)
Input (alphanumeric)	Remote Control		L(*1)
Mute (Picture)	Remote Control		L(*1)
Mute (OSD)	Remote Control		L(*1)
Mute (Sound)	Remote Control		L(*1)
Volume	Up/Down on Projector	Bar Display	L(*1)
		No Bar Display	L(*1)
	Up/Down on Remote	Bar Display	L(*1)
		No Bar Display	L(*1)
Keystone	Remote Control		N
Auto	Projector		N
	Remote Control		N
Source	Projector		L(*1)
Test	Remote Control		N

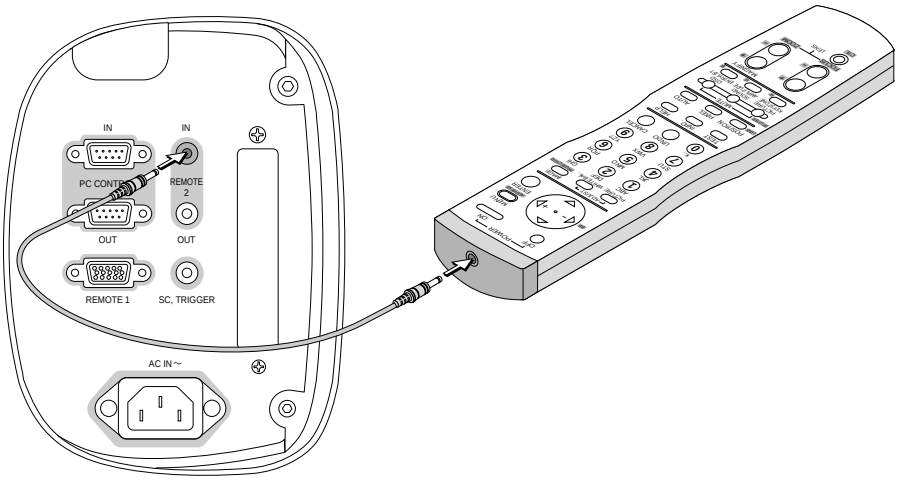
External Connections

Hard Wire Connection of the Remote Control

Hard Wire connection of the remote control unit allows the user to control the projector without the need for batteries in the remote control unit or in areas where high levels of infra red interference would contaminate the output signal.

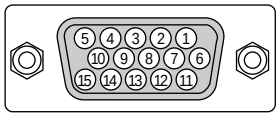
A cable is provided for connection between the remote control unit and the REMOTE 2 INPUT on the projector. If you require to lengthen the cable, standard 3.5mm mini jack adapters can be used.

To control multiple projectors with the same remote control unit, connect the REMOTE 2 OUT Jack to the REMOTE 2 IN Jack of the next projector.



RGB2 Connector

The RGB2 connector is a Mini D-Sub 15 Pin Connector.



Signal Level
Video Signal: 0.7Vp-p (Analog)
Sync Signal: TTL level

Pin No.	RGB Signal (Analog)	YCrCb Signal	Video/S-Video
1	Red	Cr	Composite Video
2	Green or Sync on Green	Y	Y
3	Blue	Cb	C
4	Ground		
5	Ground		
6	Red Ground	Cr Ground	Composite Ground
7	Green Ground	Y Ground	Y Ground
8	Blue Ground	Cb Ground	C Ground
9	No Connection		
10	Sync Signal Ground		
11	Ground		
12	Bi-Directional Data (SDA)		
13	Horizontal or Composite Sync		
14	Vertical Sync		
15	Data Clock		

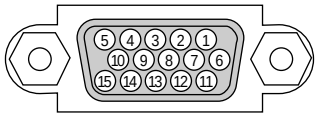
Pin 15 (Data Clock) is not used on SHOWlite 3000sx.

Remote 1 Connector

The Remote 1 connector is used for connecting an external switcher or third party control device. When a switcher is used, it should be connected using a 15 pin - 15 pin control cable.

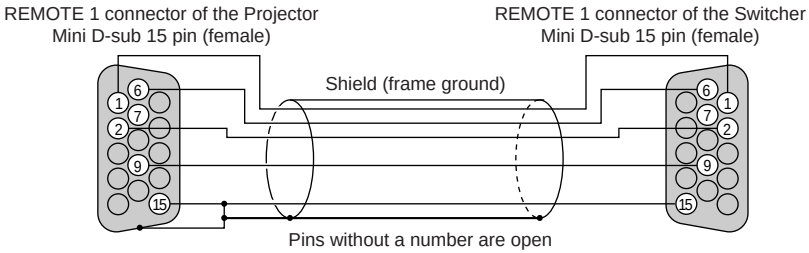
EXTERNAL SWITCHER USE

The pins of the Remote 1 connector have the following functions when used with an external switcher.



Pin No	Function
1, 2, 6 and 7	Sending and receiving data
9	Projector identification
15	Ground
8, 11 and 12	Used inside the projector. Normally set to open.

When using the Remote 1 connector with an external switcher connect pins 1, 2, 6, 7, 9 and 15 of the projector to the same pin numbers on the switcher as shown below.



WHEN USED IN STAND ALONE OPERATION

Pin No.	Short/Open	Function
14	Short	External Control Mode ON
	Open	External Control Mode OFF
5	Short	Power ON
	Open	Power OFF
10	Short	Picture Mute ON
	Open	Picture Mute OFF
3	Short	Mute Sound ON
	Open	Mute Sound OFF

Pin 11	Pin 12	Pin 8	Pin 4	Function
Open	Open	Open	Open	RGB 1
Open	Open	Open	Short	VIDEO 1
Open	Open	Short	Open	S-VIDEO
Open	Short	Open	Short	RGB 2
Open	Short	Short	Open	VIDEO 2
Open	Short	Short	Short	RGB 1 (S-VIDEO)
Short	Open	Open	Open	DVI (DIGITAL)
Short	Open	Short	Short	RGB 1 (VIDEO)

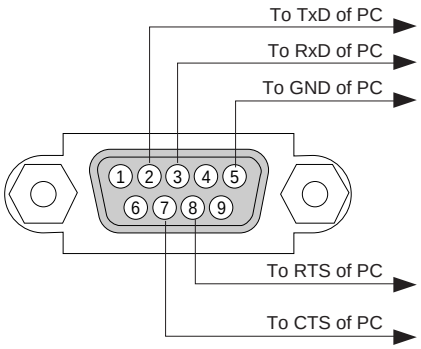
The term 'Short' means to connect with Pin 15.

When the combinations other than those specified in the above table are selected, the input will be forcefully switched to RGB 1. When in external control mode, the POWER, Source/Alphanumeric, PICTURE MUTE and SOUND MUTE buttons on the remote control will not function and the following settings are not effective: Timer, Power Management, Power Configuration, Default Source Select.

Pin 13 is the external remote signal terminal. The projector can be controlled by the same signal format as the supplied remote control from the external controller regardless of the setting on Pin 14.

When turning off the power to the projector using the external control, do not disconnect the plug from the power outlet. These procedures are to protect your projector and the connected equipment.

PC Control Connectors



COMMUNICATION PROTOCOL

Baud Rate	38400bps
Data Length	8 bits
Parity	No Parity
Stop Bit	One Bit
Xon/off	None
Communications Procedure	Full Duplex

Pins 1, 4, 6 and 9 are used inside the projector.

Jumper 'Request to Send' and 'Clear to Send' together on both ends of the cable to simplify connection.

PC CONTROL CODES

Function	Code Data
POWER ON	02H 00H 00H 00H 00H 02H
POWER OFF	02H 01H 00H 00H 00H 03H
INPUT SELECT RGB 1	02H 03H 00H 00H 02H 01H 01H 09H
INPUT SELECT RGB 2	02H 03H 00H 00H 02H 01H 02H 0AH
INPUT SELECT VIDEO 1	02H 03H 00H 00H 02H 01H 06H 0EH
INPUT SELECT VIDEO 2	02H 03H 00H 00H 02H 01H 07H 0FH
INPUT SELECT S-VIDEO	02H 03H 00H 00H 02H 01H 0BH 13H
INPUT SELECT DVI (DIGITAL)	02H 03H 00H 00H 02H 01H 1AH 22H
INPUT SELECT DVI (ANALOG)	02H 03H 00H 00H 02H 01H 03H 0BH
INPUT SELECT PC CARD VIEWER	02H 03H 00H 00H 02H 01H 1FH 27H
PICTURE MUTE ON	02H 10H 00H 00H 00H 12H
PICTURE MUTE OFF	02H 11H 00H 00H 00H 13H
SOUND MUTE ON	02H 12H 00H 00H 00H 14H
SOUND MUTE OFF	02H 13H 00H 00H 00H 15H
ON SCREE MUTE ON	02H 14H 00H 00H 00H 16H
ON SCREEN MUTE OFF	02H 15H 00H 00H 00H 17H

DVI (ANALOG) and PC CARD VIEWER are not available on SHOWlite 3000sx.

Compatible Input Signal List - SHOWlite 3000sx

Signal Name	Resolution(H x V) (H x V)	Horizontal Frequency	Vertical Frequency
Video (NTSC)	640 x 480	15.734	60.0
Video (PAL/SECAM)	768 x 576	15.625	50.0
Video (HDTV)	640 x 480p	31.5	60.0
	1280 x 720p	45.0	60.0
	1920 x 1035i	33.75	60.0
	1920 x 1080i	28.13	50.0
	1920 x 1080i	33.75	60.0
IBM PC or Compatibles	640 x 350	31.5	70.0
	640 x 400	37.9	85.0
	720 x 400	37.0	85.0
	640 x 480	31.5	60.0
	640 x 480	37.9	72.8
	640 x 480	37.5	75.0
	640 x 480	43.3	85.0
	800 x 600	35.2	56.3
	800 x 600	37.9	60.3
	800 x 600	48.1	72.0
	800 x 600	46.9	75.0
	800 x 600	53.7	85.0
	1024 x 768	48.4	60.0
	1024 x 768	56.5	70.1
	1024 x 768	60.0	75.0
	1024 x 768	68.7	85.0
	1152 x 864	67.5	75.0
	1280 x 960	60.0	60.0
	1280 x 1024	64.3	60.0
	1280 x 1024	80.0	75.0
	1280 x 1024	91.1	85.0
	1600 x 1200	75.0	60.0
	1600 x 1200	81.3	65.0
	1600 x 1200	87.5	70.0
	1600 x 1200	93.8	75.0
	1600 x 1200	106.3	85.0

Signal Name	Resolution(H x V) (H x V)	Horizontal Frequency	Vertical Frequency
Apple Macintosh	640 x 480	34.9	66.6
	832 x 624	49.7	74.6
	1024 x 768	60.2	74.9
	1152 x 870	68.7	75.6
	1280 x 1024	64.3	60.4
	1280 x 1024	74.9	69.9
HP	1280 x 1024	78.1	72.0
SUN	1152 x 900	61.8	66.0
	1280 x 1024	81.1	76.0
SGI	1024 x 768	49.7	60.4
	1152 x 900	71.7	76.1
	1280 x 1024	63.9	60.0

The VGA, SVGA, XGA and UXGA signals are displayed with Advanced AccuBlend.

Some composite syncs may not be displayed correctly.

Signals other than those specified in the table may not be displayed correctly. If this should happen, change the refresh rate or resolution on your PC. Refer to Display Properties of your PC for procedures.

UXGA can be supported for separate sync only.

DVI digital signal can support a maximum resolution of SXGA @ 60Hz

Compatible Input Signal List - SHOWlite 4000gv

Y/N	Signal	Resolution (Dots)	H. Frequency (kHz)	Refresh Rate (Hz)	Dot Clock (MHz)
Y	NTSC	640 x 480	15.734	60	-
Y	PAL	768 x 576	15.625	50	-
Y	SECAM	768 x 576	15.625	50	-
Y	VESA	640 x 480	31.47	59.94	25.175
Y	IBM	640 x 480	31.47	60	25.175
Y	MAC	640 x 480	31.47	60	25.175
Y	MAC	640 x 480	34.97	66.67	31.334
Y	MAC	640 x 480	35	66.67	30.24
Y	VESA	640 x 480	37.86	72.81	31.5
Y	VESA	640 x 480	37.5	75	31.5
Y	IBM	640 x 480	39.375	75	31.49
Y	VESA	640 x 480	43.269	85.01	36
Y	IBM	720 x 350	31.469	70.09	28.322
Y	VESA	720 x 400	37.927	85.04	40
Y	IBM	720 x 350	39.44	87.85	35.5
Y	IBM	720 x 400	39.44	87.85	35.5
Y	VESA	800 x 600	35.16	56.25	36
Y	VESA	800 x 600	37.876	60.32	40
Y	VESA	800 x 600	48.077	72.19	50
Y	VESA	800 x 600	46.88	75	49.5
Y	VESA	800 x 600	53.674	85.06	56.25
#Y	MAC	832 x 624	49.725	74.55	57.283
#Y	VESA	1024 x 768	35.5	43 Interlaced	44.9
#Y	VESA	1024 x 768	48.363	60	65
#Y	VESA	1024 x 768	57.476	70.07	75
#Y	IBM	1024 x 768	58.131	72.03	79
#Y	MAC	1024 x 768	60.241	74.93	80
#Y	VESA	1024 x 768	60.023	75.03	78.75
#Y	VESA	1024 x 768	68.677	85	94.5
##Y	VESA	1152 x 864	67.5	75	108
##Y	MAC	1152 x 870	68.681	75.6	100
##Y	SUN	1152 x 900	61.796	65.95	92.94

Y/N	Signal	Resolution (Dots)	H. Frequency (kHz)	Refresh Rate (Hz)	Dot Clock (MHz)
##Y	SGI	1152 x 900	71.736	76.05	105.6
##Y	VESA	1280 x 960	60	60	108
##Y	SGI	1280 x 1024	63.9	60	107.35
##Y	VESA	1280 x 1024	64.286	60.02	108
##Y	MAC	1280 x 1024	64.31	60.38	107
##Y	MAC	1280 x 1024	65.2	69.82	118.5
##Y	HP	1280 x 1024	78.125	72.01	135
##Y	SUN	1280 x 1024	81.13	76.11	135
##Y	VESA	1280 x 1024	79.976	75.03	135
##Y	VESA	1280 x 1024	91.146	85.02	157.5
##Y	HDTV	1920 x 1080	33.75	60 Interlace	74.25
##Y	HDTV	1280 x 720	45	60 Progressive	74.25
##Y	SDTV	-	31.47	59.94 Progressive	27
##Y	SDTV	-	15.73	59.9 Interlace	-
##Y	VESA	1600 x 1200	75.0	60	162
##Y	VESA	1600 x 1200	81.3	65	175.5
##Y	VESA	1600 x 1200	87.5	70	189
##Y	VESA	1600 x 1200	93.75	75	202.5

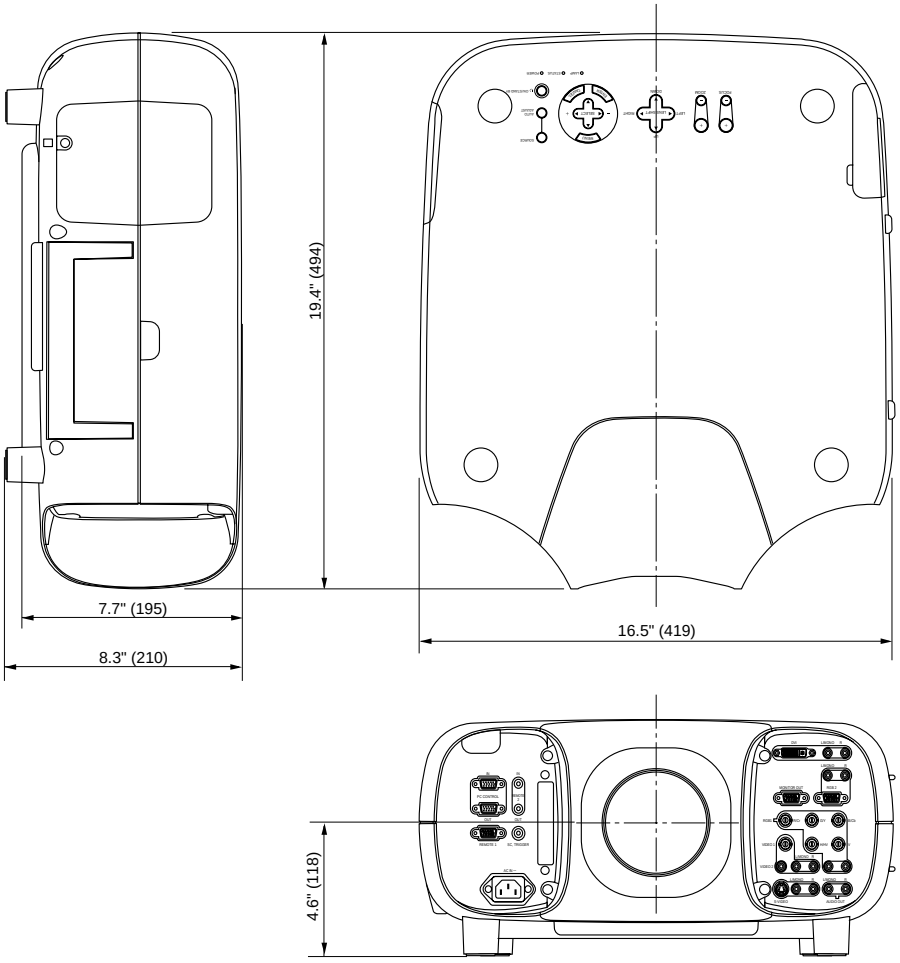
##Y in the above table represents Y compressed with Advanced AccuBlend.

Some composite syncs may not be displayed correctly.

Signals other than those specified in the table may not be displayed correctly. If this should happen, change the refresh rate or resolution on your PC.

UXGA can be supported for separate sync only.

Projector Dimensions



Technical Specifications

Projector Model: SHOWlite 3000sx

MECHANICAL

Physical Dimensions	W: 419mm (16.5”), H: 195mm (7.7”), D: 494mm (19.4”)
Weight (chassis only)	10kg Net, 14.8kg Gross
Operating Temperature	32 - 95°F (0 - 35°C). 20 - 80% humidity, No Condensing
Storage Temperature	14 - 122°F (-10 - 50°C), 20 - 80% humidity, No Condensing
Tilt Foot	Adjustable by 3 degrees

ELECTRICAL

Power Source	100-120V AC / 200-240V AC +/-10%, 50/60Hz
Power Consumption	460W (max.), 20W (max. at Stand-by)
Input Current	4.2A (100-120V AC) 2.0A (200-240V AC)

LCD PANEL

Size	1.3” w/MLA
Resolution	1366 x 1024 pixels
Material	p-Si TFT LCD Panel
Lifetime	2000Hours

OPTICAL

Lamp	250W DC lamp
Average Lifetime	1500 hours (Normal mode) / 2000 hours (Eco-mode)
Brightness	2000 ANSI lumens at normal mode
Brightness Uniformity	> 75%
Contrast Ratio	> 200:1
Color Misconvergence	< 1 Pixel (Centre), < 1.5 Pixel (Fringe)

INPUT SIGNALS

RGB Analog	VGA, SVGA, XGA,SXGA, UXGA (Advanced Accublend)
RGB Digital	VGA, SVGA, XGA, SXGA (@60HZ)
Video	NTSC, PAL, SECAM, NTSC4.43
Component	DTV 1080i, 720p, 480p, 480I (60Hz refresh) DVD Component Video Signal (15kHz)

INPUT/OUTPUT TERMINALS

RGB Analog	2 Inputs: Mini D-SUB 15pin, 5 BNC 1 Output: Mini D-SUB 15pin
RGB Digital	1 Input: DVI-D 1 Output: DVI-D
RGB Audio	3 Inputs: Stereo RCA
Audio Monitor Output	1 Output: Stereo RCA (variable)
Video	2 Inputs: BNC/RCA
S-Video	1 Input: DIN 4pin
Video/S-Video Audio	2 Inputs: Stereo RCA
Wired Remote	1 Input: Stereo Mini-Jack 1 Output: Stereo Mini-Jack
PC Control	1 Input: D-SUB 9pin 1 Output: D-SUB 9pin
External Control	1 Input: D-SUB 15pin
Screen Trigger	1 Output: Stereo Mini-Jack

Fan Noise	< 40dB (Normal Mode), < 37dB (Eco Mode)
Audio Output	2 x 5W Stereo Speakers
After Cooling	180 seconds

Projector Model: SHOWlite 4000gv

MECHANICAL

Physical Dimensions	W: 419mm (16.5”), H: 195mm (7.7”), D: 494mm (19.4”)
Weight (chassis only)	10kg Net, 14.8kg Gross
Operating Temperature	32 - 95°F (0 - 35°C). 20 - 80% humidity, No Condensing
Storage Temperature	14 - 122°F (-10 - 50°C), 20 - 80% humidity, No Condensing
Tilt Foot	Adjustable by 3 degrees

ELECTRICAL

Power Source	100-120V AC / 200-240V AC +/-10%, 50/60Hz
Power Consumption	430W (max.), 20W (max. at Stand-by)
Input Current	3.9A (100-120V AC) 1.9A (200-240V AC)

LCD PANEL

Size	1.3” w/MLA
Resolution	1024 x 768 pixels
Material	p-Si TFT LCD Panel
Lifetime	2000Hours

OPTICS

Lamp	250W DC lamp
Average Lifetime	1500 hours (Normal mode) / 2000 hours (Eco-mode)
Brightness	2250 ANSI lumens at normal mode
Brightness Uniformity	> 75%
Contrast Ratio	> 200:1
Color Misconvergence	< 1 Pixel (Centre), < 1.5 Pixel (Fringe)

INPUT SIGNALS

RGB Analog	VGA, SVGA, XGA, SXGA, UXGA (Advanced AccuBlend)
RGB Digital	VGA, SVGA, XGA
Video	NTSC, PAL, SECAM, NTSC4.43
Component	DTV 1080i, 720p, 480p, 480I (60Hz refresh) DVD Component Video Signal (15kHz)

INPUT/OUTPUT TERMINALS

RGB Analog	3 Inputs: Mini D-SUB 15pin, 5 BNC, DVI 1 Output: Mini D-SUB 15pin
RGB Digital	1 Input: DVI
RGB Audio	3 Inputs: Stereo RCA
Audio Monitor Output	1 Output: Stereo RCA (variable)
Video	2 Inputs: BNC/RCA
S-Video	1 Input: DIN 4pin
Video/S-Video Audio	2 Inputs: Stereo RCA
Wired Remote	1 Input: Stereo Mini-Jack 1 Output: Stereo Mini-Jack
PC Control	1 Input: D-SUB 9pin 1 Output: D-SUB 9pin
External Control	1 Input: D-SUB 15pin
Screen Trigger	1 Output: Stereo Mini-Jack

Fan Noise	< 39dB (Normal Mode), < 35dB (Eco Mode)
Audio Output	2 x 5W Stereo Speakers
After Cooling	60 seconds

Lens Specifications

Lens Options	LA00236	1.0 : 1 Fixed Lens
	LA00235	1.3 - 1.6 : 1 Zoom Lens
	LA00232	1.9 - 2.4 : 1 Zoom Lens
	LA00237	3.4 -5.2 : 1 Zoom Lens
Motorised zoom (except LA00236 lens) & motorised focus	LA00232	F 2.0-2.5, f = 48.9-63.7mm
	LA00235	F 2.3 - 2.8, f = 34.5 - 42.5mm
	LA00237	F 2.5 - 3.4, f = 92.4 - 140.6mm
	LA00236	F 2.3, f = 27mm
Throwing Angle	LA00232	9 degree (tele) / 11.7 degree (wide)
	LA00235	13.3 degree (tele) / 16.4 degree (wide)
	LA00237	4 degree (tele) / 6.2 degree (wide)
Projection Distance	LA00236	0.8 - 6.1m (2.7 - 20.0ft)
	LA00232	1.5 - 14.6m (4.8 - 48.0ft)
	LA00235	1.1 - 9.8m (3.5 - 32.0ft)
	LA00237	5.5 - 52.8m (18.1 - 173.2ft)
Projection Size	LA00236	min. 1m (40”) max. 7.5m (300”)
	LA00232	min. 1m (40”) max. 7.5m (300”)
	LA00235	min. 1m (40”) max. 7.5m (300”)
	LA00237	min. 2m (80”) max. 12.5m (300”)
Lens Shift (LA00232 and LA00237)	Vertical	+/- 0.5V
	Horizontal	+/- 0.25H

Section E: Maintenance

Lamp Replacement ..... E—1

Cleaning/Replacing the Filter ..... E—4

Trouble Shooting ..... E—5

Lamp Replacement

After your lamp has been operating for 1500 hours or longer (2000 hours in Eco mode), the 'Status' indicator on the cabinet will illuminate and the message 'The Lamp has reached the end of its usable life. Please replace the lamp' will appear. Even though the lamp is still operational, for optimal performance of the projector, it is recommended that the lamp is changed at this time.

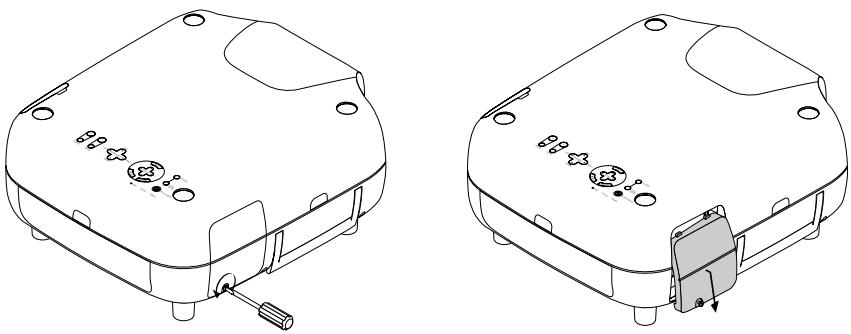
The projector will turn off and go into standby mode after 1600 hours of service (2100 hours in Eco mode). Should this happen, replace the lamp immediately. If you continue to use the lamp it may shatter and pieces of glass could be scattered inside the lamp housing.

Do not touch the lamp immediately after it has been in use. It will be extremely hot. Turn the projector off, wait 3 minutes and disconnect the power cable. Then allow at least 1 hour for the lamp to cool down.

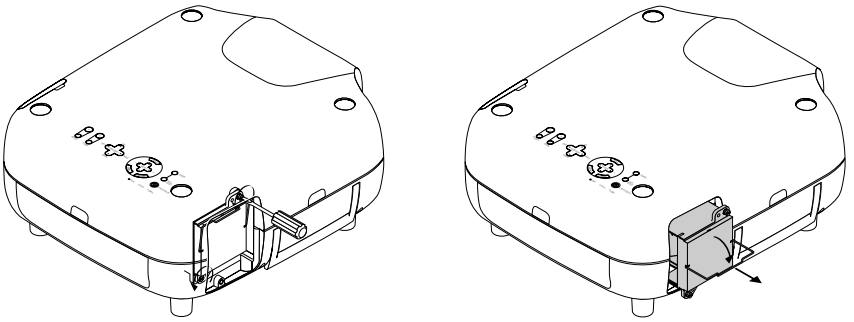
Do not remove any screws except the lamp cover screw and the two lamp housing screws.

REMOVING THE LAMP

Loosen the lamp cover screw until the screwdriver goes into a freewheeling condition then remove the lamp cover.



Loosen the two screws securing the lamp housing until the screwdriver goes into a freewheeling condition. Remove the lamp housing by pulling it out by the handle.

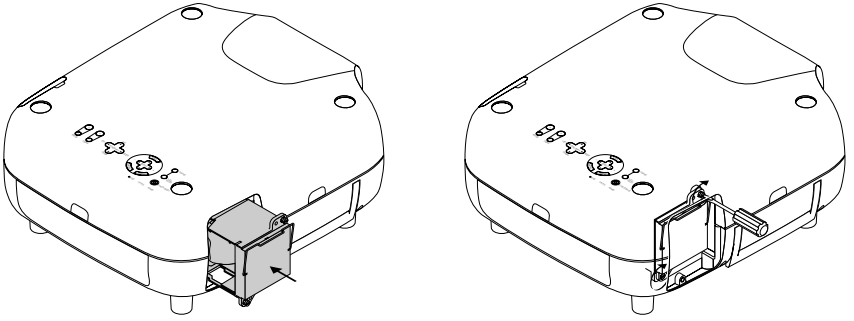


There is an interlock on the case to prevent the risk of electrical shock. Do not attempt to circumvent this interlock.

INSTALLING A NEW LAMP

Insert a new lamp housing until it plugs into the socket. Secure the lamp housing in place by tightening the two screws.

Do not use any lamp other than the specified LA00233 lamp.



Attach the lamp cover and secure by tightening the attached screw.

When first starting the projector after replacing the lamp, enter the menu system and reset the lamp time clock. When the lamp time clock is reset , the 'Status' indicator on the cabinet will go out. To reset the lamp time clock on a 3000sx projector select Projector Options > Setup > Page 6 > Clear Lamp Hour Meter. For a 4000gv projector select Menu > Projector Options > Setup > Page 4 > Clear Lamp Hour Meter.

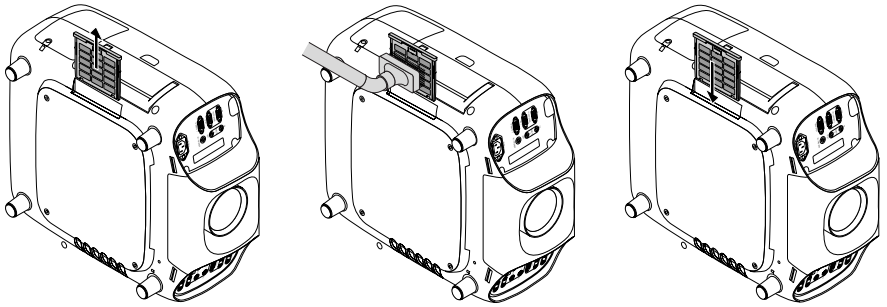
When the lamp exceeds 1600 hours of service (2100 hours in Eco mode), the projector cannot turn on. If this happens, press and hold the HELP button on the remote control for at least 10 seconds whilst in standby mode. This will reset the lamp time clock and allow normal operation.

Cleaning/Replacing the Filter

The air filter sponge keeps the inside of the projector free from dust or dirt in the atmosphere and should be cleaned every 100 hours of operation. If your filter is dirty or clogged, your projector may overheat.

Before attempting to clean or replace the filter, turn off the projector and wait until the projector fan stops operating. Then remove the mains lead from the projector and clean all the dust and dirt of the projector cabinet.

To remove the filter, pull out the filter by pushing up on the catch. The filter can be cleaned by using a vacuum hose. Install the new/cleaned filter by slotting back into place and pushing down to secure.



Do not detach the sponge from the filter.

Do not wash the filter with soap and water as this will damage the filter membrane.

When first starting the projector after cleaning/replacing the filter, enter the menu system and reset the filter time clock. To reset the filter time clock on a 3000sx projector select Projector Options > Setup > Page 6 > Clean Filter Usage. For a 4000gv projector select Menu > Projector Options > Setup > Page 4 > Clear Filter Usage.

Troubleshooting

COMMON PROBLEMS & SOLUTIONS

Problem	Checks/Possible Solutions
Projector does not turn on.	Check that the power cable is plugged in and that the power button on the projector & remote control is on.
	Ensure the lamp cover is correctly installed.
	Check the lamp usage has not exceeded 1600 hours
	Check to see if the projector has overheated.
No Picture.	Ensure lens hood has been removed.
	Ensure your cables are connected correctly.
	Use the menu system to select your input source.
	Check brightness and contrast settings.
	Reset settings to factory defaults in the Image menu.
The image isn't square to the screen.	Reposition the projector at better angle to screen.
	Use the Keystone feature to correct trapezoid distortion.
Picture is blurred.	Adjust the focus.
	Reposition the projector at better angle to screen.
	Ensure distance between projector and screen is within adjustment range of lens.
Rolling image.	Define the correct input source for the input device used.
Remote control does not work.	Install new batteries in remote control unit.
	Ensure there are no obstacles between you and projector.
	Stand within 7m (22ft) of the projector.
Cross colour in RGB mode.	If Auto Adjust is off turn it on.
	If Auto Adjust is on, turn it off and balance the image using the Position and Clock Adjust features.

LAMP LIGHT INDICATORS

Indicator	Lamp Remaining Time
Steady Green	50 - 100%
Steady Orange	25 - 50%
Steady Red	0 - 25%

POWER/STATUS LIGHT INDICATORS

Power Indicator	Status Indicator	Condition
Steady Orange	-	Standby - normal
Steady Orange	Flashing Green (4 sec interval)	Standby - ON Timer active
Flashing Green	-	Cooling Down
Steady Green	-	Lamp in High Bright mode
Steady Green	Steady Green	Lamp in Eco mode
Steady Green	Steady Red	End of lamp life (over 1500 hours in High Bright mode)
Steady Green	Steady Orange	End of lamp life (over 2000 hours in Eco mode)
Steady Orange	Steady Red	End of lamp life (over 1600 hours in High Bright mode or 2100 hours in Eco mode)
Steady Orange	Flashing Red (1 sec interval)	Lamp cover, filter cover or lens holder error.
Steady Orange	Flashing Red (4 sec interval)	Temperature error
Steady Orange	Flashing Red (8 sec interval)	Fan error
Steady Orange	Flashing Red (12 sec interval)	Lamp error

PC VIEWER CARD

Problem	Checks/Possible Solutions
No Picture.	Check PC Card Viewer is selected from Source menu.
	Check PC Card is seated correctly in PC Card slot.
	Check slide data is stored on PC Card
Part of a slide is not displayed	Images with over 1024x768 dots will be projected but several lines of information may be lost. Limit the displayed image size to 1024x768 dots.

Appendix

Glossary i

Glossary

Aspect Ratio
This is the ratio of picture width to picture height (the standard television aspect ratio is 4x3).

Black body
An ideal body or surface that completely absorbs all light falling upon it with no reflection.

Brightness
The light intensity of the displayed image.

Colour Temperature
The Colour Temperature is the position along the black body curve of the chromaticity diagram - but takes into account the preset values for colour balance in the service set-up to take up the variations in the prism.

Composite Signal
A signal line that carries information relating to the entire signal, also incorporating sync pulses.

Contrast
The difference between the dark and light areas of the screen.

Field
A space on a menu screen for data to be entered.

Horizontal Scan Rate
This is the rate at which the DMD is scanning the horizontal lines on the screen. The rate is set by the horizontal sync from the source and measured in Hertz.

Hs + Vs
This stands for Horizontal and Vertical sync.

Hue
The graduation (red/green balance) of colour (applicable to NTSC).

Hz - Hertz
Hertz is a measurement of frequency, where one hertz is one cycle per second.

Interlacing
An interlaced image is displayed by alternatively updating two fields of horizontal display lines to produce a constant image. Field 1 (the odd lines) is updated, then field 2 (the even lines) is updated.

LED
A Light Emitting Diode is an electronic component that emits light.

Lumen
The measurement of luminous flux.

Luminance
Also known as 'Y' this is the part of an S-Video signal which affects the brightness, i.e. the black and white part.

Noise
Electrical interference displayed on the screen.

NTSC- National Television Standards Committee
The United States standard for television - 525 lines of resolution transmitted at 60 interlaced frames per second.

PAL - Phase Alternate Line
The television system used in the UK, Australia and other countries - 625 lines of resolution transmitted at 50 interlaced frames per second.

Resolution
This is expressed as the number of horizontal pixels by the number of vertical lines, e.g. 680 x 400 means 400 lines with 680 pixels per line.

RGB
The Red, Green and Blue inputs from an RGB source.

S-Video
A video signal which has separate Y and C signals.

Throw Distance
The required distance between the screen and the projector.

Y
This is the luminance input (brightness) from an S-Video or component video signal.