NEC

Portable Projector

LT20

User's Manual

Important Information

Safety Cautions

Precautions

Please read this manual carefully before using your NEC LT20 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 the plug from power outlet.
The power outlet socket should be installed as near to the equipment as possible, and should be easily accessible.

CAUTION

TO PREVENT SHOCK, DO NOT OPEN THE CABINET.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED NEC SERVICE PERSONNEL.

This symbol warns the user that uninsulated voltage within the unit may be sufficient to cause electrical shock. Therefore, it is dangerous to make any kind of contact with any part inside of the unit.

This symbol alerts the user that important information concerning the operation and maintenance of this unit has been provided.
The information should be read carefully to avoid problems.

WARNING: TO PREVENT FIRE OR SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.
DO NOT USE THIS UNIT'S PLUG WITH AN EXTENSION CORD OR IN AN OUTLET UNLESS ALL THE PRONGS CAN BE FULLY INSERTED.
DO NOT OPEN THE CABINET. THERE ARE HIGH-VOLTAGE COMPONENTS INSIDE. ALL SERVICING MUST BE DONE BY QUALIFIED NEC SERVICE PERSONNEL.

DOC Compliance Notice (for Canada only)

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

WARNING TO CALIFORNIA RESIDENTS:

Handling the cables supplied with this product, will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. Wash hands after handling.

RF Interference (for USA only)

WARNING

The Federal Communications Commission does not allow any modifications or changes to the unit EXCEPT those specified by NEC Solutions (America), Inc. 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:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio / TV technician for help.

For UK only: In UK, a BS approved power cable with moulded plug has a Black (five Amps) fuse installed for use with this equipment. If a power cable is not supplied with this equipment please contact your supplier.

Important Safeguards

These safety instructions are to ensure the long life of your projector and to prevent fire and shock. Please read them carefully and heed all warnings.

Installation

1. For best results, use your projector in a darkened room.

2. Place the projector on a flat, level surface in a dry area away from dust and moisture.

3. Do not place your projector in direct sunlight, near heaters or heat radiating appliances.

4. Exposure to direct sunlight, smoke or steam can harm internal components.

5. Handle your projector carefully. Dropping or jarring can damage internal components.

6. Do not place heavy objects on top of the projector.

Fire and Shock Precautions

1. Ensure that there is sufficient ventilation and that vents are unobstructed to prevent the build-up of heat inside your projector. Allow at least 12 inches (30 cm) of space between your projector and a wall.

2. Prevent foreign objects such as paper clips and bits of paper from falling into your projector.

   Do not attempt to retrieve any objects that might fall into your projector. Do not insert any metal objects such as a wire or screwdriver into your projector. If something should fall into your projector, disconnect it immediately and have the object removed by a qualified NEC service personnel.

3. Do not place any liquids on top of your projector.

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

5. Keep any items such as magnifying glass out of the light path of the projector. The light being projected from the lens is extensive, therefore any kind of abnormal objects that can redirect light coming out of the lens, can cause unpredictable outcome such as fire or injury to the eyes.

6. Do not cover the lens with the supplied lens cap or equivalent while the projector is on. Doing so can lead to melting of the cap and possibly burning your hands due to the heat emitted from the light output.

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

8. Handle the power cable carefully and avoid excessive bending.

   A damaged cord can cause electric shock or fire.

9. If the projector is not to be used for an extended period of time, disconnect the plug from the power outlet.

10. Do not touch the power plug during a thunderstorm. Doing so can cause electrical shock or fire.

11. Do not handle the power plug with wet hands.

Table of Contents

Precautions

Follow all warnings, precautions and maintenance as recommended in this user's guide to maximize the life of your unit.

⚠ **Warning-** Do not look into the projector's lens when the lamp is on. The bright light may hurt your eyes.

⚠ **Warning-** To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

⚠ **Warning-** Please do not open or disassemble the projector as this may cause electric shock.

⚠ **Warning-** When changing the lamp, please allow unit to cool down, and follow all changing instructions.

⚠ **Warning-** This product will detect the life of the lamp itself. Please be sure to change the lamp when it shows warning messages.

⚠ **Warning-** Reset the "Clear lamp hour" function from the On-Screen Menu "Setup" menu after replacing the lamp module (refer to page 24).

⚠ **Warning-** When switching the projector off, please ensure the projector completes its cooling cycle before disconnecting power.

⚠ **Warning-** Turn on the projector first and then the signal sources.

⚠ **Warning-** Do not use lens cap when projector is in operation.

⚠ **Warning-** Do not place the projector on its side when the lamp is turned on. Doing so may cause damage to the projector.

⚠ **Warning-** The tilt angle of the projector should not exceed 8 degrees, otherwise the lamp life could decrease dramatically.

⚠️ **Warning-** When the lamp reaches the end of its life, it will burn out and may make a loud popping sound. If this happens, the projector will not turn back on until the lamp module has been replaced. To replace the lamp, follow the procedures listed under "Replacing the Lamp".

Do:

- ❖ Turn off the projector before cleaning.
- ❖ Use a soft cloth moistened with mild detergent to clean the display housing.
- ❖ Disconnect the power plug from AC outlet if the projector is not being used for a long period of time.

Don't:

- ❖ Block the slots and openings on the projector provided for ventilation.
- ❖ Use abrasive cleaners, waxes or solvents to clean the projector.
- ❖ Use under the following conditions:
    - In extremely hot, cold or humid environments.
    - In areas susceptible to excessive dust and dirt.
    - Near any appliance that generates a strong magnetic field.
    - Place in direct sunlight.

Product Features

This product is an XGA single chip 0.7" DLP™ projector. Outstanding features include:

◆ True XGA, 1024 x 768 addressable pixels

◆ Single chip DLP™ technology

◆ NTSC/NTSC4.43/PAL/PAL-M/PAL-N/SECAM, Component (480i/p, 576i/p) and HDTV compatible

◆ Full function remote control

◆ User friendly multilingual on-screen menus

◆ Advanced digital keystone correction and high quality full screen image scaling

◆ User friendly control panel

◆ SXGA compression and XGA, VGA, SVGA re-sizing

◆ Mac compatible

What's in the Box?

This projector comes with all the items shown below. Check to make sure your unit is complete. Contact your dealer immediately if anything is missing.

Projector with lens cap   Power Cord 1.8m   VGA Cable 1.8m

Composite Video Cable 1.8m   S-Video Cable 1.8m   Soft Case

CAUTION: Be sure to put the projector in the **soft case** with the lens upward so as not to damage the lens.

2 x Battery   Remote Control
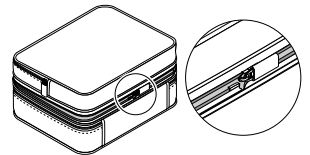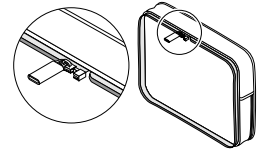
Documents :

☑ User's Guide (CD)

☑ Quick Start Card

☑ Important Information

☑ Warranty Document

Introduction

Product Overview

Main Unit
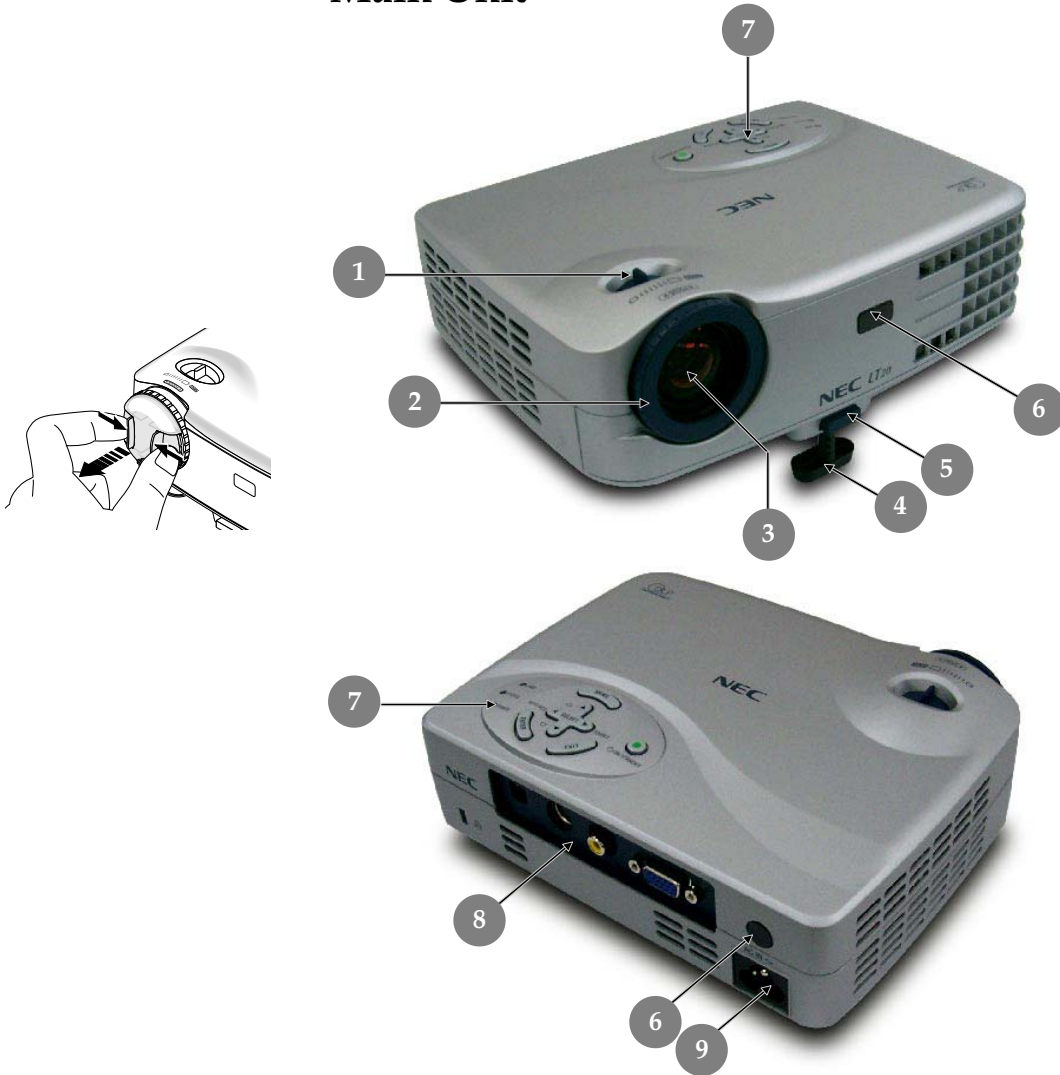
1. Zoom Lever
2. Focus Ring
3. Zoom Lens
4. Elevator Foot
5. Elevator Button
6. Remote Sensor
7. Control Panel
8. Connection Ports
9. AC Inlet

Control Panel
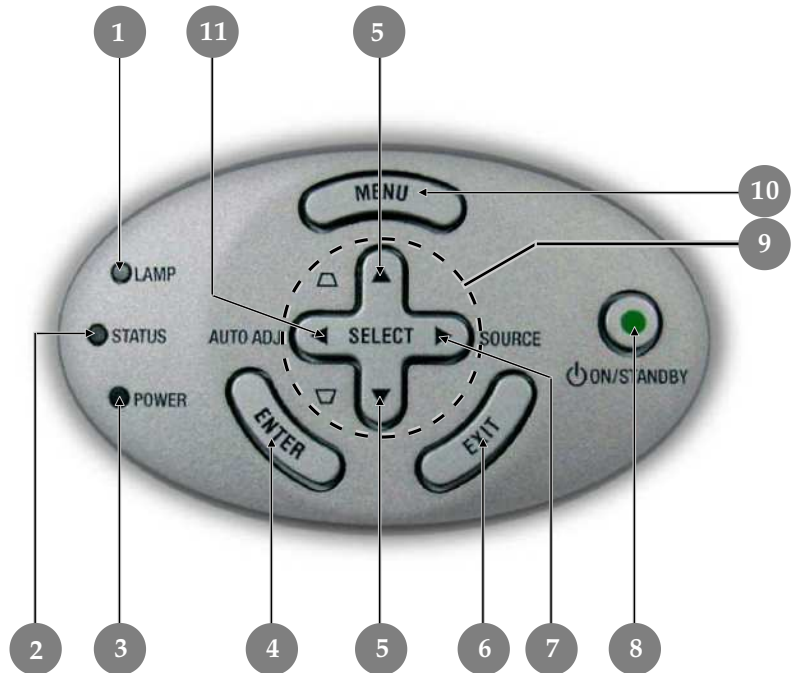
1. Lamp Indicator LED
2. Status Indicator LED
3. Power Indicator LED
4. Enter
5. Keystone Correction
6. Exit
7. Source
8. On/Standby
9. Four Directional Select Keys
10. Menu
11. Auto Adjustment

Introduction

Connection Ports
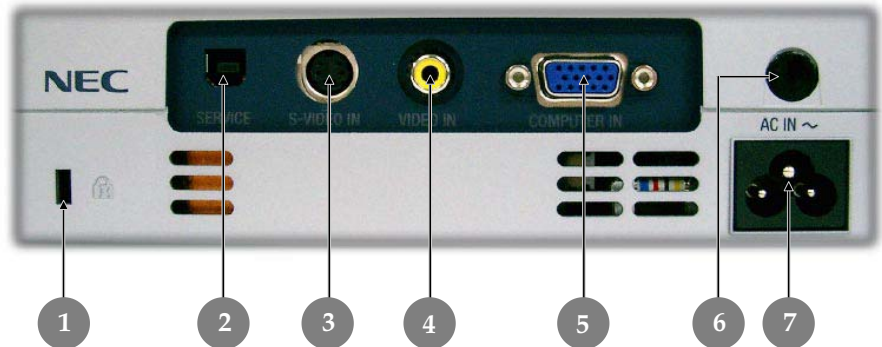
1. Kensington™ Lock Port
2. For Service Use Only
3. S-Video Input Connector
4. Composite Video Input Connector
5. VGA Connector (PC Analog Signal/HDTV/Component Video Input)
6. Remote Sensor
7. AC Inlet

Remote Control

1. IR LEDS
2. Auto Adjustment
3. Power
4. Keystone Correction
5. Exit
6. Aspect Ratio
7. Freeze
8. Source
9. Four Directional Select Keys
10. Menu
11. Enter
12. Picture Mute
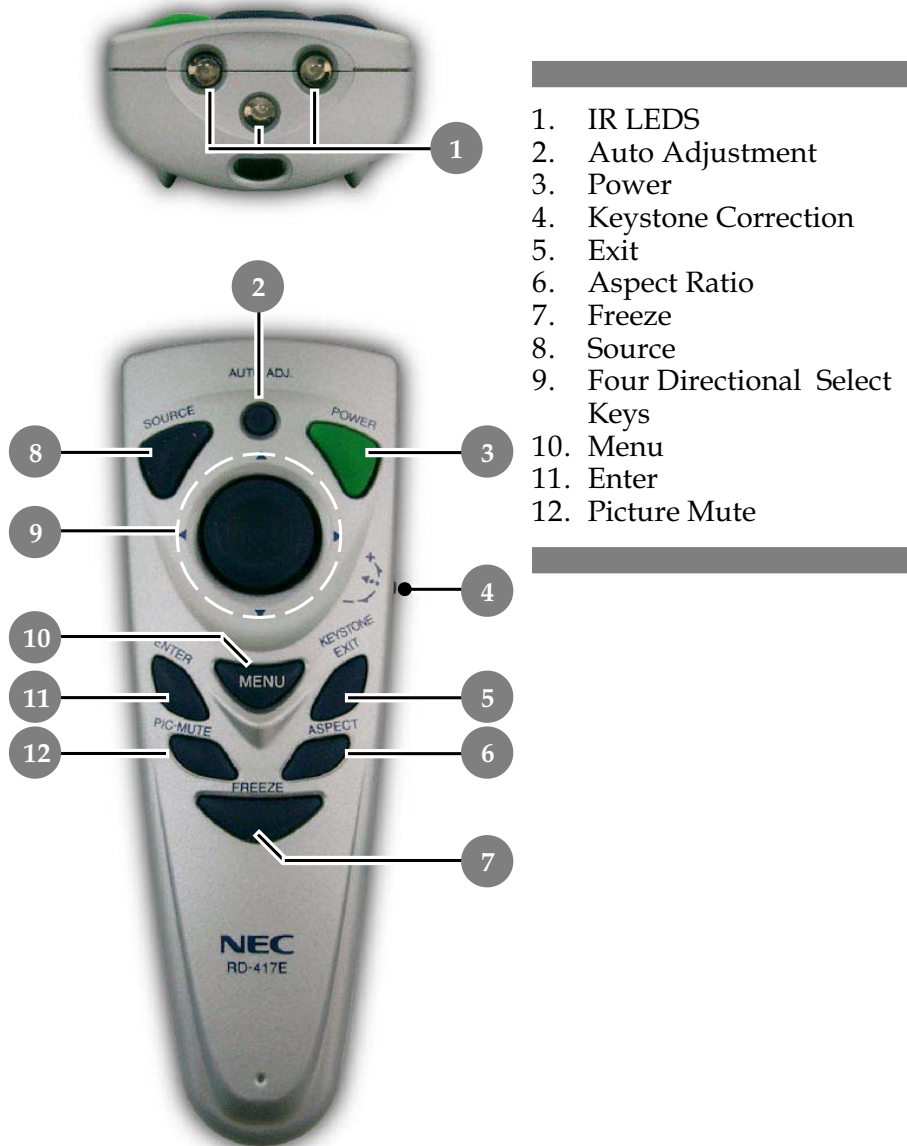
Installation

Connecting the Projector

RGB

S-Video Output

Video Output
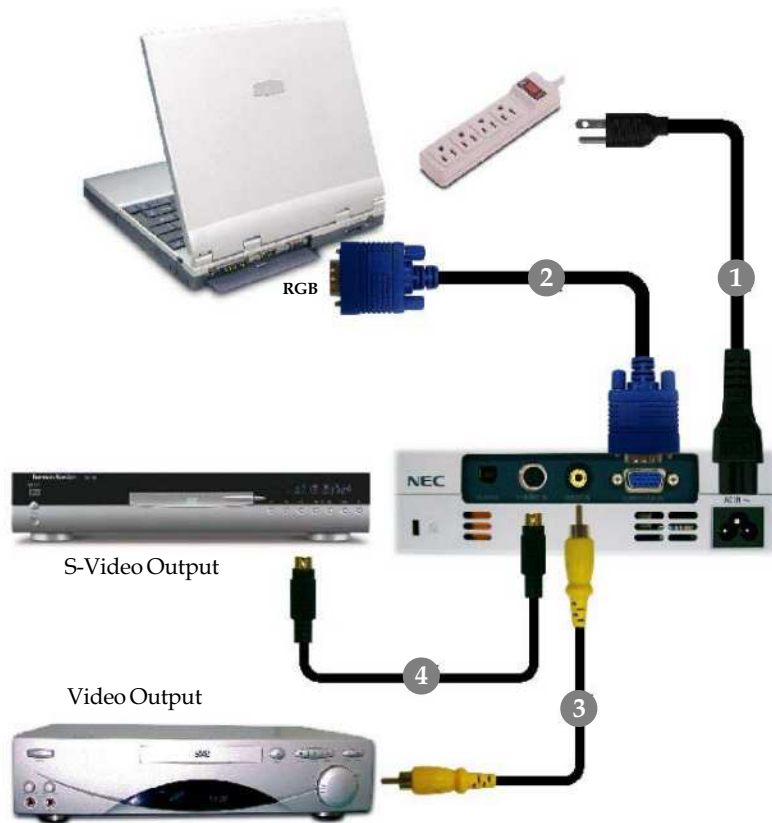
1. .... Power Cord
2. .... VGA Cable
3. .... Composite Video Cable
4. .... S-Video Cable

❖ *To ensure the projector works well with your computer, please*
set the display mode of your graphic card less than or equal to
1024 X 768 resolution. Make sure the timing of the display mode is
compatible with the projector. Refer to the "Compatibility Modes"
section on page 31.

Powering On/Off the Projector

Powering On the Projector

1. Remove the lens cap.
2. Ensure that the power cord and signal cable are securely connected. The Power LED will turn **orange**.
3. Turn on the lamp by pressing "On/Standby" button on the control panel. ❶ And the Power LED will **flash green**.

   The startup screen will display for 20 seconds and the Power LED will turn **green**.
4. Turn on your source (computer, notebook, video player, etc.). The projector will detect your source automatically.

❖ *If the screen displays "No Input", please make sure the signal cables are securely connected.*

❖ *If you connect multiple sources at the same time, use the "Source" button on the remote control or control panel to select your desired source.*

❖Turn on the projector first and then the signal sources.

① On/Standby

Powering Off the Projector

1. Press the "On/Standby" button to turn off the projector lamp, you will see a message "**Power Off**" on the on-screen display.

2. Press the "On/Standby" button again to confirm.

    Otherwise the message will disappear after **5** seconds.

3. The cooling fans continue to operate for about **100** seconds for cooling cycle and the Power LED will **flash orange**. When the light **stops** flashing and **turns orange**, the projector has entered standby mode.

    If you wish to turn the projector back on, you must wait until the projector has completed the cooling cycle and has entered standby mode. Once in standby mode, simply press "On/Standby" button to restart the projector.

4. Disconnect the power cord from the electrical outlet and the projector.

5. Do not turn on the projector immediately following a power off procedure.

Warning Indicator

❖ *When the "LAMP" indicator lights **solid red**, the projector will automatically shut itself down. Please contact your local reseller or service center.*

❖ *When the "STATUS" indicator lights **solid red**, it indicates the projector has been overheated. You will see a message "Projector Overheated" on the on-screen display. The projector will automatically shut itself down.*
Under normal conditions, the projector can be switched on again after it has cooled down. If the problem persists, you should contact your local dealer or our service center.

❖ *When the "STATUS" indicator **flashes red** for about **10** seconds, you will see a message "The cooling fan has stopped" on the on-screen display. Please contact your local dealer or our service center.*

Adjusting the Projected Image

Adjusting the Projector Image Height

The projector is equipped with an elevator foot for adjusting the image height.

To raise the image:

1. Press the elevator button ❶.

2. Raise the image to the desired height angle ❷, then release the button to lock the elevator foot into position.

3. Use ❸ to fine-tune the display angle.

To lower the image:

1. Press the elevator button.

2. Lower the image, then release the button to lock the elevator foot into position.

3. Use ❸ to fine-tune the display angle.

Elevator Button

Elevator Foot   Tilt Adjusting Wheel
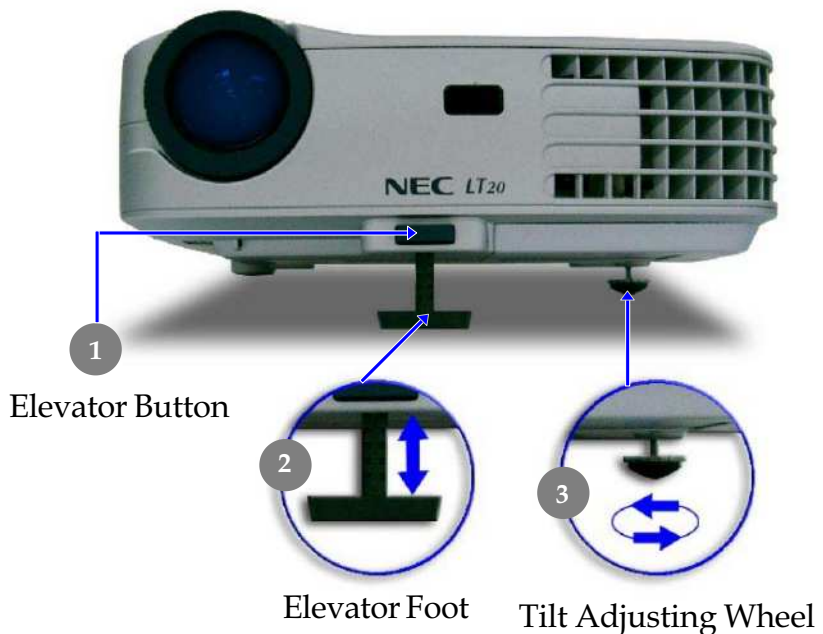
Adjusting the Projector Zoom / Focus

You may turn the zoom lever to zoom in or out. To focus the image, rotate the focus ring until the image is clear. The projector will focus at distances from 4.9 to 32.8 feet (1.5 to 10.0 meters).

Zoom Lever

Focus Ring
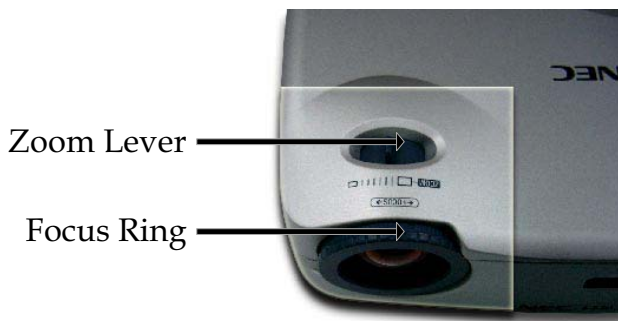
Adjusting Projected Image Size
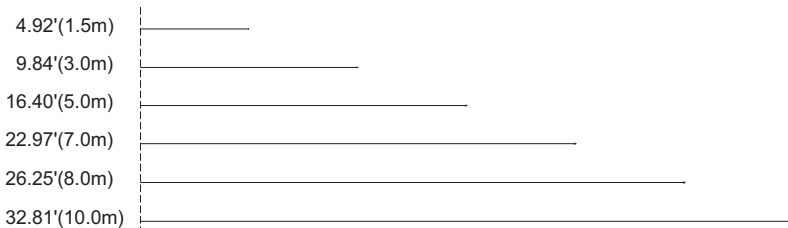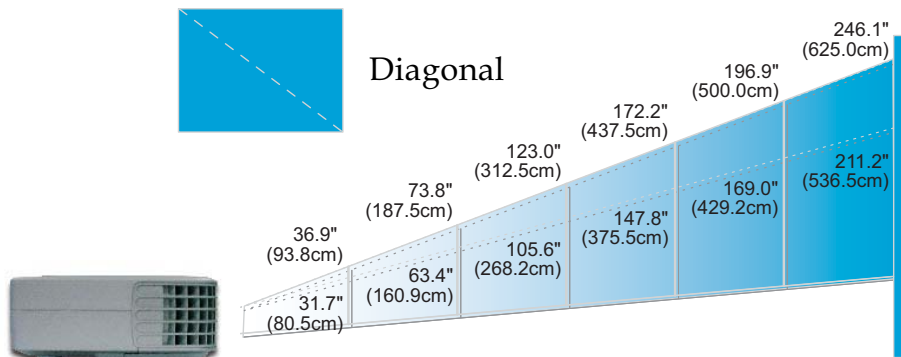
Screen (Diagonal)	Max.	36.9"(93.8cm)	73.8"(187.5cm)	123.0"(312.5cm)	172.2"(437.5cm)	196.9"(500.0cm)	246.1"(625.0cm)
	Min.	31.7"(80.5cm)	63.4"(160.9cm)	105.6"(268.2cm)	147.8"(375.5cm)	169.0"(429.2cm)	211.2"(536.5cm)
Screen Size	Max.(WxH)	29.52" x 22.14" (75.0 x 56.3cm)	59.04" x 44.28" (150.0 x 112.5cm)	98.40" x 73.80" (250.0 x 187.5cm)	137.76" x 103.32" (350.0 x 262.5cm)	157.52" x 118.14" (400.0 x 300.0cm)	196.88" x 147.66" (500.0 x 375.0cm)
	Min.(WxH)	25.36" x 19.02" (64.4 x 48.3cm)	50.72" x 38.04" (128.7 x 96.5cm)	84.48" x 63.36" (214.6 x 160.9cm)	118.24" x 88.68" (300.4 x 225.3cm)	135.20" x 101.40" (343.4 x 257.5cm)	168.96" x 126.72" (429.2 x 321.9cm)
Distance		4.92'(1.5m)	9.84'(3.0m)	16.40'(5.0m)	22.97'(7.0m)	26.25'(8.0m)	32.81'(10.0m)

❖This graph is for user's reference only.

Control Panel & Remote Control

There are two ways for you to control the functions: Remote Control and Control Panel.
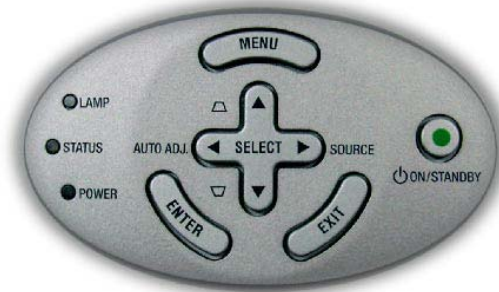
Control Panel   *Remote Control*

Using the Control Panel

On/Standby ⦿

▸ Refer to the "Powering On/Off the Projector" section on pages 11-12.

Source ▶

▸ Press "Source" to choose RGB, Component, HDTV, Composite video and S-video sources.

Menu

▸ Press "Menu" to launch the on-screen menu (OSM).

Keystone ▲ ⬠ / ▼ ⬡

▸ Adjusts image distortion caused by tilting the projector (±8 degrees).

Four Directional Select Keys

▸ Use ▲ ▼ ◀ ▶ to select items or make adjustments to your selection.

Enter

▸ Confirm your selection of items.

AUTO ADJ. (Auto adjustment) ◀

▶ Automatically synchronizes the projector to the input source.

Exit

▶ Exit the OSM menu.

Using the Remote Control

Power

▶ Refer to the "Powering On/Off the Projector" section on pages 11-12.

AUTO ADJ. (Auto adjustment)

▶ Automatically synchronizes the projector to the input source.

Keystone

▶ Adjusts image distortion caused by tilting the projector (±8 degrees). Press the gyro-wheel first, and then slip up or down.

Source

▶ Press "Source" to choose RGB, Component, HDTV, Composite video and S-video sources.

PIC-MUTE (Picture Mute)

▶ Press "PIC-MUTE" to hide image, press again to restore display of the image.

Freeze

▶ Press "Freeze" to pause the screen image.

Aspect Ratio

▶ Selects the desired aspect ratio.

Menu

▶ Press "Menu" to launch the on-screen display menu.

Four Directional Select Keys

▶ Use ▲ ▼ ◀ ▶ to select items or make adjustments to your selection.

Enter

▶ Confirm your selection of items.

Exit

▶ Exit the OSM menu.

❖ "◀••" should be pressed, the keystone could be adjust.

On-Screen Menus

The Projector has multilingual On-Screen menus that allow you to make image adjustments and change a variety of settings. The projector will automatically detect the source.

How to operate

1. To open the OSM menu, press "Menu" on the Remote Control or Control Panel.

2. When OSM is displayed, use ◀ ▶ keys to select any item in the main menu. While making a selection on a particular page, press "Enter" key to enter sub menu.

3. Use ▲ ▼ keys to select the desired item and adjust the settings by ◀ ▶ key.

4. Select the next item to be adjusted in the sub menu and adjust as described above.

5. Press "Exit" to confirm, and the screen will return to the main menu.

6. To exit, press "Exit" again. The OSM menu will close and the projector will automatically save the new settings.

Main Menu

Sub Menu

Setting

Image (All)

Brightness	60
Contrast	50
White Peaking	5
Color Temperature	2
Keystone	50
Aspect Ratio	4:3
Display mode	Video
Reset	No

Move   Select
Computer   1024x768 60Hz
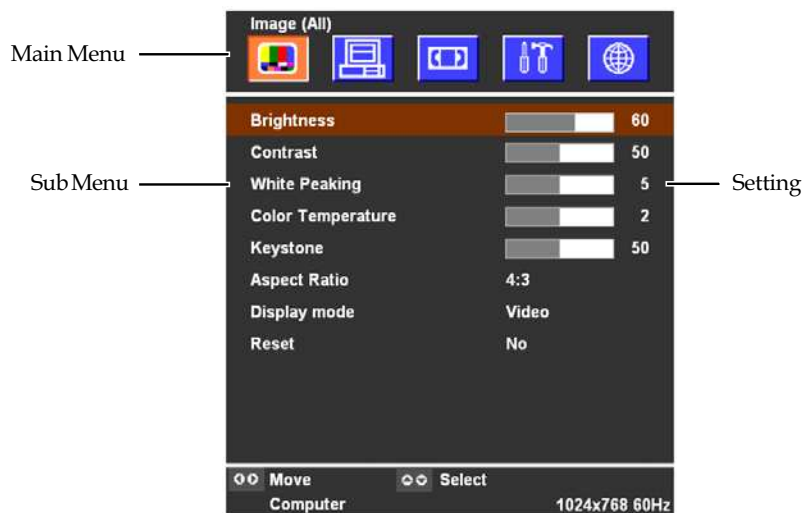
User Controls

Language

Language

Choose the multilingual OSM menu . Use the ▲ or ▼ key to select your preferred language.

Press "Enter" to finalize the selection.
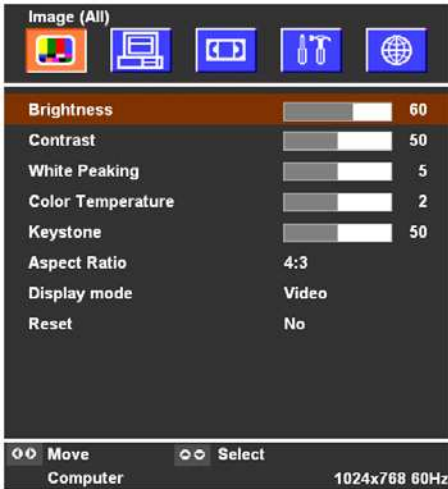
Image (All)

Brightness

Adjust the brightness of the image.

▶ Press the ◀ to darken image.

▶ Press the ▶ to lighten the image.

Contrast

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

▶ Press the ◀ to decrease the contrast.

▶ Press the ▶ to increase the contrast.

White Peaking

White peaking can be incrementally adjusted between 0 and 10. Click on the slider bar to adjust. The default value for computer is 10. The default value for video is 2. If the default value is changed, the display mode will change to user mode automatically.

▶ Setting 10 will maximize brightness and contrast.

▶ Setting 0 will maximize color reproduction quality.

Color Temperature

Adjust the color temperature. At higher temperature, the screen looks colder; at lower temperature, the screen looks warmer.

Keystone

Adjust image distortion caused by tilting projector. (±8 degrees)

Aspect Ratio

Use this function to choose your desired aspect ratio.

Image (All)				
Brightness			60
Contrast			50
White Peaking			5
Color Temperature			2
Keystone			50
Aspect Ratio	4:3		
Display mode	Video		
Reset	No		

Move   Select

Computer   1024x768 60Hz

Image (All)

▷ 4:3 : The input source will be scaled to fit the projection-screen.

▷ 16:9 : The input source will be scaled to fit the width of the screen.

Display Mode

There are many factory presets optimized for various types of images.

▷ Presentation : For presentation.

▷ Video : For home theater.

▷ Game : For game.

▷ sRGB : For PC standard color.

▷ User : Memorize user's settings.

Reset

Choose "Yes" then "Enter" pressed, the display parameters on this menu will return to their factory default settings.

Image Computer (Computer mode)

Auto Adjust

The projector automatically adjusts clock, phase, horizontal and vertical. With most signal sources, Auto Adjust provides the best results.

Clock

"Clock"changes the display data frequency to match the frequency of your computer's graphic card. If you experience a vertical flickering bar, use this function to make an adjustment.

Phase

"Phase" synchronizes the signal timing of the display with the graphic card. If you experience an unstable or flickering image, use this function to correct it.

Horizontal Position

▶ Press the ◀ to move the image left.

▶ Press the ▶ to move the image right.

Vertical Position

▶ Press the ◀ to move the image down.

▶ Press the ▶ to move the image up.

Reset

Choose "Yes" then "Enter" pressed, the display parameters on this menu will return to their factory default settings.

Image (Video)

Color	████████░░░░	50
Sharpness	████████░░░░	50
Hue	████████░░░░	50
Reset	No	

◐◐ Move   ◐◐ Select
S-video   640x480 60Hz

Image Video (Video mode)

Color

Adjusts a video image from black and white to fully saturated color.

  ▸ Press the ◀ to decrease the amount of color in the image.
  ▸ Press the ▶ to increase the amount of color in the image.

Sharpness

Adjusts the sharpness of the image.

  ▸ Press the ◀ to decrease the sharpness.
  ▸ Press the ▶ to increase the sharpness.

Hue

Adjusts the color balance of red and green.

  ▸ Press the ◀ to increase the amount of green in the image.
  ▸ Press the ▶ to increase the amount of red in the image.

Reset

Choose "Yes" then "Enter" pressed, the display parameters on this menu will return to their factory default settings.

Setup				

Menu Location	🟦 🟦 🟧 🟦 🟦
Orientation	◣ ◢
Lamp hour	▭▭▭▭ 50
Signal Type	RGB
Search signal lock	Off
Fan mode	Normal
Lamp mode	Normal
Lamp Reminding	Off
Clear Lamp Hour	No
Reset	No
Reset (All data)	No

◖◗ Move   ◖◗ Select
Computer   1024x768 60Hz

Setup

Remark :

The formula is : "ECO mode" lamp hours x 0.67 = "Normal mode" lamp hours.

Menu Location

Choose the menu location on the display screen.

Orientation

▶ ◣ **Front-Desktop**

The factory default setting.

▶ ◢ **Rear-Desktop**

When you select this function, the projector reverses the image so you can project behind a translucent screen.

Lamp Hour

Display the cumulative lamp operating time. The lamp hour in OSM is calculated by "Normal mode", when "ECO mode" is selected, the system will convert from "ECO mode" lamp hour to "Normal mode".

Signal Type

Select signal type RGB or Video sources.

Search Signal Lock

When this function is turned off, the projector will search for other signals if the current input signal is lost. When this function is turned on, it will search specified connection port.

Fan Mode

Choose "High" to turn on High Altitude mode. Operates the fans at full speed continuously to allow for proper high altitude cooling of the projector. Choose "Normal" to return standard mode.

Setup

Lamp Mode

Choose "ECO" to dim the projector lamp which will lower power consumption and extend the lamp life by up to 150%. Choose "Normal" to return standard mode.

Lamp Reminding

Choose this function to show or to hide the warning message when the changing lamp message is displayed. The message will show up 100 hours before end of life.

Clear Lamp Hour

Turns the lamp hour counter to 0 hours.

Reset

Choose "Yes" then "Enter" pressed, the display parameters (except for Lamp Hour) on this menu will return to their factory default settings.

Reset (All)

Choose "Yes" then "Enter" pressed, the display parameters (except for Lamp Hour) on all menus will return to their factory default settings.

Troubleshooting

If you experience trouble with the projector, refer to the following information. If the problem persists, please contact your local reseller or service center.

Problem: No image appears on-screen.

▶ Ensure all the cables and power connections are correctly and securely connected as described in the "Installation" section.

▶ Ensure the pins of connectors are not crooked or broken.

▶ Check if the projection lamp has been securely installed. Please refer to the "Replacing the lamp" section.

▶ Make sure you have removed the lens cap and the projector is switched on.

▶ Press "Picture Mute" button to make sure the image has not been turned off temporarily.

Problem: Partial, scrolling or incorrectly displayed image.

▶ Press the "AUTO ADJ." button on the Remote Control or Control Panel.

▶ If you use a PC:
If the resolution of your computer is higher than 1024 x 768. Follow the steps outlined below to reset the resolution.

For Windows 3.x:
1. In the Windows Program Manager, click the "Windows Setup" icon in the Main group.
2. Verify that your display resolution setting is less than or equal to 1024 x 768.

For Windows 95,98,2000,XP:
1. Open "My Computer" icon, the "Control Panel" folder, and then double click on the "Display" icon.
2. Select the "Setting" tab.
3. In the "Desktop Area" you will find the resolution setting. Verify that the resolution setting is less than or equal to 1024 x 768 resolution.

If the projector is still not projecting the whole image, you will also need to change the monitor display you are using. Refer to the following steps.

4. Follow the above steps 1-2. Click on the "Advanced Properties" button.
5. Select the "Change" button under the "Monitor" tab.
6. Click on "Show all devices". Then select "Standard monitor types" under the "Manufacturers" box; choose the resolution mode you need under the "Models" box.
7. Verify that the resolution setting of the monitor display is less than or equal to 1024 x 768.

▸ If you are using a Notebook PC:
1. You are required to implement the above steps of resolution setting of the computer first.
2. Switch the Notebook PC display to the "external display only" or "CRT only" mode.

▸ If you experience difficulty in changing resolutions or your monitor freezes, restart all the equipment and the projector.

Problem: The screen of the Notebook or PowerBook computer is not displaying your presentation.

▸ If you are using a Notebook PC:
Some Notebook PCs may deactivate their screens when a second display device is in use. Refer to your computer's documentation for information on how to reactivate the monitor display.

▸ If you are using an Apple PowerBook:
In Control Panels, open the PowerBook Display to select Video Mirroring "On".

Problem: Image is unstable or flickering

▸ Use "Phase" to correct it. Refer to page 21.
▸ Change the monitor color setting from your computer.

Problem: Image has vertical flickering bar

▸ Use "Clock" to make an adjustment. Refer to page 21.
▸ Check and reconfigure the display mode of your graphic card to make it compatible with the projector. Refer to page 25.

Problem: Image is out of focus

▸ Adjusts the Focus Ring on the projector lens. Refer to page 14.
▸ Make sure the projection-screen is between the required distance 4.9 to 32.8 feet (1.5 to 10.0 meters) from the projector.

Problem: The image is stretched when displaying 16:9 DVD.
The projector automatically detects 16:9 DVD and adjusts the aspect ratio by digitizing to full screen with 4:3 default setting.

If the image is still stretched, you will also need to adjust the aspect ratio by referring to the following:
  ‣ Please select 4:3 aspect ratio type on your DVD player if you are playing a 16:9 DVD.
  ‣ If you can't select 4:3 aspect ratio type on your DVD player, please select 4:3 aspect ratio in the on-screen menu.

Problem: Lamp burns out or makes a popping sound
  ‣ When the lamp reaches its end of life, it will burn out and may make a loud popping sound. If this happens, the projector will not turn on until the lamp module has been replaced. To replace the lamp, follow the procedures in the "Replacing the Lamp". See page 29.

Problem: LED lighting message

Steady light => ☀
No light => ◯

Message	Power LED		Status	Lamp
	Orange	Green	LED	LED
Standby State (Input power cord)	☀	◯	◯	◯
Lamp lighting	◯	Flashing	◯	◯
Power On	◯	☀	◯	◯
Power Off (Cooling)	Flashing	◯	◯	◯
Error (Lamp failed)	Flashing	◯	◯	Flashing
Error (Fan lock failed)	Flashing	◯	Flashing	◯
Error (Overheated)	Flashing	◯	☀	◯
Error (Lamp no strike)	☀	◯	◯	☀

Problem: Message Reminders
  ‣ "The lamp has reached the end of its usable life. Please replace the lamp." will be shown about 10 seconds, when lamp is nearing end of life.
  ‣ "Projector Overheated." will be shown when the system temperature is too high.
  ‣ " The cooling fan has stopped." will be shown when the fan is out of order.

Replacing the lamp

The projector will detect the lamp life itself. It will show you a warning message "The lamp has reached the end of its usable life. Please replace the lamp." When you see this message, change the lamp as soon as possible.

Make sure the projector has been cooled down for at least 60 minutes before changing the lamp.

⚠ **Warning:** Lamp compartment is hot! Allow it to cool down before changing lamp!
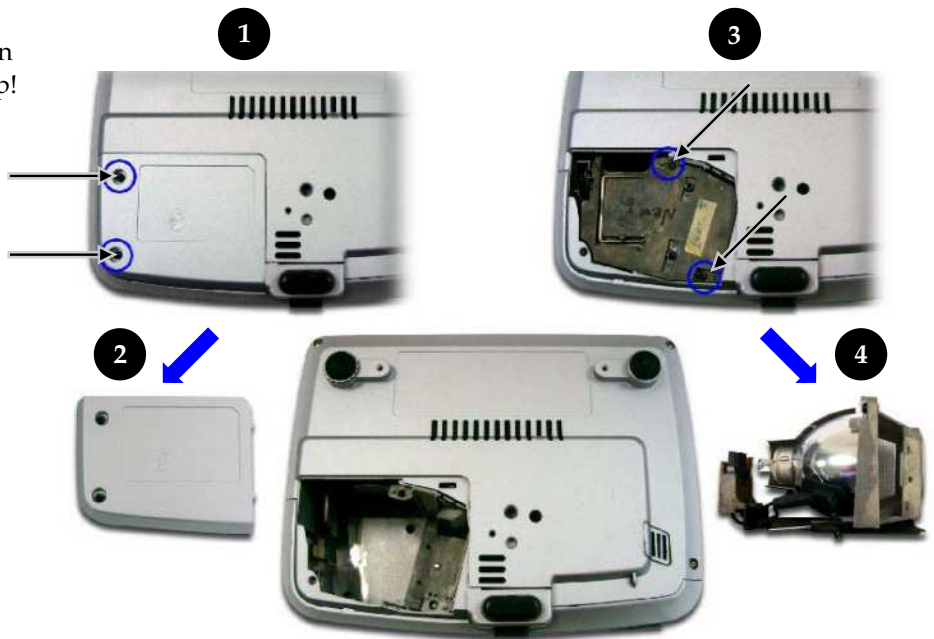
⚠ **Warning:** To reduce the risk of personal injury, do not drop the lamp module or touch the lamp bulb. The bulb may shatter and cause injury if it is dropped.

Lamp Changing Procedure:
1. Switch off the power to the projector by pressing the On/Standby button.
2. Allow the projector to cool down at least 60 minutes.
3. Disconnect the power cord.
4. Use a screwdriver to remove the 2 screws from the cover.❶
5. Push up and remove the cover.❷
6. Remove the 2 screws from the lamp module.❸
7. Pull out the lamp module. ❹

To replace the lamp module, reverse the previous steps.

Specifications

Light Valve	- Single Chip DLP™ Technology by Texas Instruments
Number of Pixels	- 1024 pixels(H) X 768 lines(V)
Displayable Color	- 16.7M colors
Projection Lens	- F/2.7~2.88 f=28.43~32.75mm with 1.15x Manual zoom lens
Projection Screen Size (Diag.)	- 31.7 to 246.1 inches (0.81 to 6.25 meters) Diagonal
Projection Distance	- 4.92 to 32.8 feet (1.5 to10.0 meters)
Video Compatibility	- NTSC/NTSC 4.43/PAL/PAL-M/PAL-N/SECAM, Component and HDTV compatible
	- Composite video & S-Video capability
H. Frequency	- 15kHz~80kHz horizontal scan
V. Frequency	- 50Hz~85Hz vertical refresh
Power Supply	- Universal AC input 100-240V ; Input Frequency 50-60Hz
Power Consumption	- 200W
Input Current	- 2.3-1.0A (100-240V AC)
I/O Connectors	- Power: AC power input socket
	- Computer Input:
	1x 15-pin D-Sub VGA for analog/component and HDTV signal
	- Video Input:
	1x Composite video RCA input
	1x S-Video input
Weight	- 2.2 lbs (1 kg)
Dimensions (W x H x D)	- 7.9 x 2.2 x 5.9 inches (200 x 56 x 150.5 mm)
Environmental	- Operating Temperature: 41~95°F (5~ 35°C) Humidity: 80% maximum (Non-condensing)
	- Storage Temperature: -4~140°F (-20~60°C) Humidity: 80% maximum (Non-condensing)
Safety Regulation	- FCC, CE, VCCI, UL, cUL, TÜV-GS, S-TUV(Japan), PSE(Japan), CB Report

Appendices

Compatibility Modes

Mode	Resolution	(ANALOG)	
		V.Frequency (Hz)	H.Frequency (kHz)
VESA VGA	640 x 350	70	31.5
VESA VGA	640 x 350	85	37.9
VESA VGA	640 x 400	85	37.9
VESA VGA	640 x 480	60	31.5
VESA VGA	640 x 480	72	37.9
VESA VGA	640 x 480	75	37.5
VESA VGA	640 x 480	85	43.3
VESA VGA	720 x 400	70	31.5
VESA VGA	720 x 400	85	37.9
SVGA	800 x 600	56	35.2
SVGA	800 x 600	60	37.9
SVGA	800 x 600	72	48.1
SVGA	800 x 600	75	46.9
SVGA	800 x 600	85	53.7
VESA XGA	1024 x 768	60	48.4
VESA XGA	1024 x 768	70	56.5
VESA XGA	1024 x 768	75	60.0
VESA XGA	1024 x 768	85	68.7
* VESA SXGA	1152 x 864	70	63.8
* VESA SXGA	1152 x 864	75	67.5
* VESA SXGA	1152 x 864	85	77.1
* VESA SXGA	1280 x 960	60	60.0
* VESA SXGA	1280 x 960	75	75.0
* VESA SXGA	1280 x 1024	60	63.98
* VESA SXGA	1280 x 1024	75	79.98
* VESA SXGA+	1400 x 1050	60	63.98
MAC 16"	832 x 624	74.55	49.725
MAC 19"	1024 x 768	75	60.24
* MAC	1152 x 870	75.06	68.68
MAC G4	640 x 480	60	31.35
i Mac DV	1024 x 768	75	60.0
* i Mac DV	1152 x 870	75	68.49
* i Mac DV	1280 x 960	75	75.0

Remark :

1.> "*"compressed computer image.

2.> The interlaced analog signals are not supported.

TravelCare Guide

TravelCare - a service for international travelers

This product is eligible for "TravelCare", NEC's unique international warranty.
Please note that TravelCare coverage differs in part from coverage under the warranty included with the product.

Services offered with TravelCare

This warranty allows customers to receive service on their product at the NEC and NEC-designated service stations in the countries listed herein when temporarily traveling internationally for business or pleasure.
For details on services offered by the different service stations, please refer to the "List of TravelCare Outlets" below.

1 Repair services

The product will be repaired and delivered within 10 business days, not including shipping time.
During the term of warranty, the cost of maintenance parts, labor costs for repairs and shipping costs within the service station's coverage area are covered by the warranty.

2 Replacement product rental service

If the customer desires, he or she can rent a replacement product while the original product is being repaired.
Fee: US$200 for 12 days
This fee must be paid at the local service station in cash or credit card.
The $200 rental fee is non-refundable even if the customer rents it less than 12 days before returning.
The replacement product will be delivered within 3 business days.
If the customer did not return the replacement product within 12 days, the customer will be charged the price of the unit.
If the customer returned the replacement product in a faulty or damaged condition, the repair cost will be charged to the customer.
Note that this service is not offered in all countries and regions. Please refer to the "List of TravelCare Outlets".
In addition, this replacement product rental service is not offered after the product's warranty has expired.

Term of warranty

1

a. *Upon presentation of the warranty or receipt received upon purchase:*

Valid for the term indicated on the warranty or the normal term of warranty for the country of purchase.

b. *When only the product is brought in:*

Valid for a period of within 14 months of the date of manufacture indicated by the serial number attached to the product.

2 When a product whose term of warranty is expired is brought in:

Repairs will be offered for a fee. In this case the customer is not eligible for the replacement product rental service.

3 In the following cases, repairs may be charged, even if the product's warranty is still in effect:

1) *If the term of warranty, model name, serial number and name of the store of purchase are not indicated on the warranty or have been altered.*

2) *Problems or damage caused by dropping or shocks during shipment or movement by the customer or by improper handling by the customers.*

3) *Problems or damage caused by improper usage or unwarrantable alterations or repairs by the customer.*

4) *Problems or damage caused by fire, salt damage, gas damage, earthquakes, lightning damage, storm or flood damage or other natural disasters or such external factors as dust, cigarette smoke, abnormal voltage, etc.*

5) *Problems or damage caused by use in hot or humid places, in vehicles, boats or ships, etc.*

6) *Problems or damage caused by expendable supplies or devices connected to the product other than those designated by NEC.*

7) *Problems caused by natural consumption, wear or deterioration of parts under normal usage conditions.*

8) *Problems or damage to lamps and other expendable supplies, included parts or optional parts.*

9) *Other conditions stipulated in the warranty included with the product also apply.*

NOTE: The product can be used overseas with voltages of 100 to 120V and 200 to 240V by using a power cable suited for the standards and power source voltage of the country in which the product is being used.

List of TravelCare Outlets

This list applies as of December 1, 2004.
For the most up-to-date information, please refer to the websites of the service stations in the various countries on the List of TravelCare Outlets or to the NEC website at http://www.nec-pj.com.

In Europe

NEC Europe, Ltd. / European Technical Centre

Address:	Unit G, Stafford Park 12, Telford TF3 3BJ, U.K.
Telephone:	+44 1952 237000
Fax Line:	+44 1952 237006
Email Address:	AFR@uk.neceur.com
WEB Address:	http://www.neceur.com

(Regions Covered)
EU: Austria*, Belgium*, Denmark*, Finland*, France*, Germany*, Greece*, Ireland*, Italy*, Luxembourg*, The Netherlands*, Portugal*, Spain*, Sweden* and the United Kingdom*
EEA: Norway*, Iceland and Liechtenstein

In North America

NEC Solutions (America), Inc.

Address:	1250 N. Arlington Heights Road, Suite 400, Itasca, Illinois 60143, U.S.A.
Telephone:	+1 800 836 0655
Fax Line:	+1 800 356 2415
Email Address:	vsd.tech-support@necsam.com
WEB Address:	http://www.necvisualsystems.com

(Regions Covered)
U.S.A. *, Canada*

In Oceania

NEC Australia Pty., Ltd.
Address: New South Wales;
    184 Milperra Road, Reversby 2212
    Victoria;
        480 Princess Hwy Noble Park 3174
    South Australia;
        84A Richmond Road, Keswick 5035
    Queensland;
        116 Ipswich Road, Woollongabba 4102
    Western Australia;
        45 Sarich Court Osborne Park 6017

Telephone:	131 632 (from domestic)
	+61 8 8375 5706 (from overseas)
Fax Line:	+61 8 8375 5757
Email Address:	lee.gramola@nec.com.au
WEB Address:	http://www.nec.com.au

(Regions Covered)
Australia*, New Zealand

In Asia and Middle East

NEC Viewtechnology, Ltd.

Address:	686-1, Nishioi, Oi-Machi, Ashigarakami-Gun, Kanagawa 258-0017, Japan
Telephone:	+81 465 85 2369
Fax Line:	+81 465 85 2393
Email Address:	support_pjweb@nevt.nec.co.jp
WEB Address:	http://www.nec-pj.com

(Regions Covered)
Japan*

NEC Hong Kong Ltd.

Address:	11th Floor, Tower B, New Mandarin Plaza, 14 Science Museum Road, Tsim Sha Tsui East, Kowloon, Hong Kong
Telephone:	+852 2369 0335
Fax Line:	+852 2795 6618
Email Address:	esmond_au@nechk.nec.com.hk
WEB Address:	http://www.nec.com.hk

(Regions Covered)
Hong Kong

NEC Taiwan Ltd.

Address:	7F, No.167, SEC.2, Nan King East Road, Taipei, Taiwan, R.O.C.
Telephone:	+886 2 8500 1734
Fax Line:	+886 2 8500 1420
Email Address:	nickliao@nec.com.tw
WEB Address:	http://www.nec.com.tw

(Regions Covered)
Taiwan

NEC Solutions Asia Pacific Pte. Ltd

Address:	401 Commonwealth Drive, #07-02, Haw Par Technocentre, Singapore 149598
Telephone:	+65 6 273 8333
Fax Line:	+65 6 274 2226
Email Address:	tehgh@rsc.ap.nec.com.sg
WEB Address:	http://www.nec.com.sg/ap

(Regions Covered)
Singapore

NEC Systems Integration Malaysia Sdn Bhd

Address:	Ground Floor, Menara TA One, 22, Jalan P. Ramlee, 50250 Kuala Lumpur, Malaysia
Telephone:	+6 03 2164 1199
Fax Line:	+6 03 2160 3900
Email Address:	necare@nsm.nec.co.jp
WEB Address:	http://www.necmalaysia.com.my

(Regions Covered)
Malaysia

Tele Service Co., Ltd.

Address:	2nd Fl., Ire B/D. #2, 4Ga, Yangpyeng-Dong, Youngdeungpo-Gu, Seoul, Korea 150-967
Telephone:	+82 2 2163 4193
Fax Line:	+82 2 2163 4196
Email Address:	moneybear@hyosung.com

(Regions Covered)
South Korea

Lenso Communication Co., Ltd.

Address:	292 Lenso House 4, 1st Floor, Srinakarin Road, Huamark, Bangkapi, Bangkok 10240, Thailand
Telephone:	+66 2 375 2425
Fax Line:	+66 2 375 2434
Email Address:	pattara@lenso.com
WEB Address:	http://www.lenso.com

(Regions Covered)
Thailand

ABBA Electronics L.L.C.

Address:	Tariq Bin Ziyad Road, P.O.Box 327, Dubai, United Arab Emirates
Telephone:	+971 4 371800
Fax Line:	+971 4 364283
Email Address:	ABBA@emirates.net.ae

(Regions Covered)
United Arab Emirates

Samir Photographic Supplies

Address:	P.O.Box 599, Jeddah 21421, Saudi Arabia
Telephone:	+966 2 6828219
Fax Line:	+966 2 6830820
Email Address:	vartkes@samir-photo.com

(Regions Covered)
Saudi Arabia

NOTE: *In countries designated with an asterisk(*), replacement product rental service are offered.*

Date: / / , P-1/ ,

TO: NEC or NEC's Authorized Service Station:
FM:

_____

(Company & Name with signature)

Dear Sir (s),

I would like to apply your TravelCare Service Program based on attached registration and qualification sheet and agree with your following conditions, and also the Service fee will be charged to my credit card account, if I don't return the Loan units within the specified period. I also confirm following information is correct.   Regards.

Application Sheet for TravelCare Service Program

Country, product purchased :	
User's Company Name :	
User's Company Address : Phone No., Fax No. :	
User's Name :	
User's Address :	
Phone No., Fax No. :	
Local Contact office :	
Local Contact office Address :	
Phone No., Fax No. :	
User's Model Name :	
Date of Purchase :	
Serial No. on cabinet :	
Problem of units per User :	
Required Service :	(1) Repair and Return (2) Loan unit
Requested period of Loan unit :	
Payment method :	(1) Credit Card (2) Travelers Cheque (3) Cash
In Case of Credit Card : Card No. w/Valid Date :	

Condition of your TravelCare Service Program

Enduser is requested to understand following condition of TravelCare Service Program and complete the necessary information on the application sheet.

1. Service Options:
There are 3 types of "Service" available. Enduser has to understand following condition and is required to fill in the Application Sheet.

1) Repair and Return:

   The 'Faulty unit' is sent or collected from the customer. It is repaired and returned within 10 days to the customer, excluding transport time.

   There may have a case, repair and return can't be done by NEC Authorized Service Station, because of shortage of spare parts due to same model is not sold in the territory.

2) Repair and Return with Loan: (This service is limited to some Service Stations)

   This service is offered to the Enduser, who cannot wait until their unit is repaired.

   The customer can borrow a unit for $200 up to 12 days. Customer then sends in inoperable unit to nearest NEC Authorized Service Station for service. In order to prevent collection problem, Enduser is required to fill in Application Sheet.

   Enduser needs to confirm the availability of the Service to NEC Authorized Service Stations.

3) Loan Only:

   For this service, NEC Authorized Service Station supplies the customer with a loan unit for US$200 up to 12 days. Customer keeps the inoperable unit and when customer returns home, customer arranges to have the projector serviced in the home country.

2. Warranty Exclusions:
This program does not apply if the Projector's serial number has been defaced, modified or removed.
If, in the judgement of NEC Authorized Service Station or its agent the defects or failures result from any cause other than fair wear and tear or NEC neglect, or fault including the following without limitation:

1) Accidents, transportation, neglect, misuse, abuse, water, dust, smoke or default of or by the Customer its employees or agents or any third party;

2) Failure or fluctuation of electrical power, electrical circuitry, air conditioning, humidity control or other environmental conditions such as use it in smoking area;

3) Any fault in the attachments or associated products or components (whether or not supplied by NEC or its agents which do not form part of the Product covered by this warranty);

4) Any act of God, fire, flood, war, act of violence or any similar occurrence;

5) Any attempt by any person other than any person authorized by NEC to adjust, modify, repair, install or service the product.

6) Any Cross-border charges such as, duty, insurance, tax etc.

3. Charges for Warranty Exclusions and Out of Warranty Case:
In case faulty unit is under warranty exclusions case or under Out of Warranty period, NEC Authorized Service Station will Inform estimation of actual service cost to the Enduser with reason.

4. Dead on Arrival (DOA):
Enduser must take this issue up with their original supplier in the country of purchase.
NEC Authorized Service Station will repair the DOA unit as a Warranty repair, but will not exchange DOA unit with new units.

5. Loan Service Charges and Conditions:
Upon acceptance of this NEC Projector, Customer agrees to assume liability for this loan unit.

The current cost of use of this loan unit is $200.00 USD for 12 calendar days.
If Customer does not return the unit within the 12 calendar days, Customer will be charged the next highest cost up to and including the full list price to Credit Cards, which price will be informed by NEC Authorized Service Stations. Please see the attached listing of contacts for each country to arrange for pickup of the loan unit.

If you return to their country of origin with the loan unit, you will be charged additional freight to return the unit to the loaning country.

Thank you for your understanding of this program.

Ver.1 01/05

LIMITED WARRANTY (USA and Canada only)

NEC SOLUTIONS' PROJECTOR PRODUCTS

NEC Solutions (America), Inc. (hereafter NEC Solutions) warrants this product to be free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

NEC Solutions' LT20 projector is covered by a two (2) year limited parts and labor warranty from the date of the first customer purchase. The lamp when used under normal operating conditions is warranted for 500 hours or 90 days, whichever comes first.

WHO IS PROTECTED

This warranty may be enforced only by the first purchaser, and is not transferable.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as specified below, this warranty covers all defects in material or workmanship in this product.

NEC SOLUTIONS' LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT AT NEC SOLUTIONS' OPTION. REPLACEMENT PRODUCTS MAY BE NEW OR RECONDITIONED PRODUCTS, AND REPLACEMENT PARTS MAY BE NEW OR SERVICEABLE USED PARTS. The following are not covered by the limited warranty and NEC Solutions shall not be liable for:

1. Any product which is not distributed in the U.S.A. or Canada by NEC Solutions or which is not purchased, installed, and operated in the U.S.A or Canada.
2. Any product on which the serial number has been defaced, modified or removed.
3. Normal decrease in lamp light output over time.
4. Damage, deterioration or malfunction resulting from:
   a. Accident, misuse, abuse, neglect, improper ventilation, fire, dust, smoke, water, lightning or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
   b. Repair or attempted repair by anyone other than a NEC Solutions authorized service center.
   c. Any shipment of the product (claims must be presented to the carrier).
   d. Removal or installation of the product.
   e. Any other cause which does not relate to a product defect.
   f. Use of the product beyond normal operating conditions. Normal operating conditions are defined as product use not in excess of 8 hours per day and 260 days per year.
5. Cartons, carrying cases, shipping cases, batteries, external cabinets, magnetic tapes, or any accessories used in connection with the product.
6. Service required as a result of third party components.

WHAT NEC SOLUTIONS WILL PAY FOR

NEC Solutions will pay labor and material expenses for covered items, but NEC Solutions will not pay for the following:

1. Removal or installation charges.
2. Costs of technical adjustments, set-up, maintenance, or adjustment of user controls.
3. Payment of shipping and related charges incurred in returning the product for warranty repair.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on your product, consult the dealer from whom you purchased the product.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage. In order to obtain warranty service, you may be required to describe and demonstrate the problem to your dealer or to NEC Solutions.
3. All products returned to NEC Solutions for service MUST have prior approval. To receive approval or for the name of the nearest NEC Solutions authorized service center, call NEC Solutions at 800-836-0655.
4. It shall be your obligation and expense to ship the product, freight prepaid, or to deliver it to a NEC Solutions authorized service center, in either the original package or a similar package affording an equal degree of protection.
5. In the event a product is returned to NEC Solutions for warranty service, and it is determined that there is no product defect or that the product condition is not covered by this limited warranty, a diagnostic service fee may be charged to the customer.

LIMITATION OF IMPLIED WARRANTIES

EXCEPT AS EXPRESSLY SET FORTH IN THIS LIMITED WARRANTY, NEC SOLUTIONS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED TO THE TERMS AND DURATION OF THIS LIMITED WARRANTY.

EXCLUSION OF DAMAGES

NEC SOLUTIONS' LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT AT NEC SOLUTIONS' OPTION. NEC SOLUTIONS SHALL NOT BE LIABLE FOR:
1. DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THIS PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, COMMERCIAL LOSS; OR
2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.

HOW STATE LAW RELATES TO THE WARRANTY

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS AND/OR DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS AND EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

FOR MORE INFORMATION, CONTACT:
NEC SOLUTIONS (AMERICA), INC.
1250 N. Arlington Heights Road
Itasca, Illinois 60143-1248
TELEPHONE 800-836-0655
www.necvisualsystems.com

Customers are cautioned that product performance is affected by system configuration, software, the application, customer data, and operator control, among other factors. While NEC Solutions' products are considered to be compatible with many systems, the specific functional implementation by the customers of the product may vary. Therefore, the suitability of a product for a specific purpose or application must be determined by the customer and is not warranted by NEC Solutions.

DECLARATION OF CONFORMITY

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

U.S. Responsible Party:	**NEC Solutions (America), Inc.**
Address:	**1250 N. Arlington Heights Road**
	Itasca, Illinois 60143
Tel. No.:	**(630) 467-5000**

Type of Product:	Projector
Equipment Classification:	Class B Peripheral
Model:	LT20

FC

We hereby declare that the equipment specified above conforms to the technical standards as specified in the FCC Rules.