

# NEC

AUTO-SCANNING WITH DIGITAL CONTROL  
LCD COLOR DISPLAY MONITOR

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## MultiSync® LCD1800™

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USER'S GUIDE



For future reference, record the serial number of your display monitor in the space below:

SERIAL No.

The serial number is located on the rear cover of the monitor.

Internet Home Page: <http://www.necmitsubishi.com/>

Supplying Windows 95/98 INF File download service, new products information, etc.

## RADIO INTERFERENCE REGULATIONS STATEMENT FOR U.S.A.

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.
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NO USER SERVICEABLE PARTS INSIDE. DO NOT ATTEMPT TO MODIFY THIS EQUIPMENT. IF MODIFIED, YOUR AUTHORITY TO OPERATE THIS EQUIPMENT MIGHT BE VOIDED BY FCC.

### Declaration of Conformity - United States only

Product Name: 18.1 in. (46cm) Color Display  
Monitor  
Type: LSA831W  
Brand Name: NEC

This device complies with Part 15 of the 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.

For questions regarding this declaration, contact:  
NEC-Mitsubishi Electronics Display of  
America, Inc.  
1250 N. Arlington Heights Road,  
Suite 500 Itasca, IL 60143  
or, call 630-467-5000

To identify this product, refer to the model number found on the product.

As an ENERGY STAR Partner, NEC-MITSUBISHI Electronics Display of America, Inc. has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

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取扱説明書に従って正しい取り扱いをしてください。





### **Congratulations!**

You have just purchased a TCO'99 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also to the further development of environmentally adapted electronics products.

### **Why do we have environmentally labelled computers?**

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during their manufacture. Since it is not so far possible to satisfactorily recycle the majority of electronics equipment, most of these potentially damaging substances sooner or later enter nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of electricity generation have a negative effect on the environment (e.g. acidic and climate-influencing emissions, radioactive waste), it is vital to save energy. Electronics equipment in offices is often left running continuously and thereby consumes a lot of energy.

### **What does labelling involve?**

This product meets the requirements for the TCO'99 scheme which provides for international and environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation) and Statens Energimyndighet (The Swedish National Energy Administration).

Approval requirements cover a wide range of issues: environment, ergonomics, usability, emission of electric and magnetic fields, energy consumption and electrical and fire safety.

The environmental demands impose restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons) and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental policy which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, physical and visual ergonomics and good usability.

Below you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

### **TCO Development**

SE-114 94 Stockholm, Sweden

Fax: +46 8 782 92 07

Email (Internet): [development@tco.se](mailto:development@tco.se)

Current information regarding TCO'99 approved and labelled products may also be obtained via the Internet, using the address: <http://www.tco-info.com/>

### **Environmental requirements**

#### **Flame retardants**

Flame retardants are present in printed circuit boards, cables, wires, casings and housings. Their purpose is to prevent, or at least to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame retardant substances. Most flame retardants contain bromine or chloride, and those flame retardants are chemically related to another group of environmental toxins, PCBs. Both the flame retardants containing bromine or chloride and the PCBs are suspected of giving rise to severe health effects, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative\* processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

The relevant TCO'99 demand requires that plastic components weighing more than 25 grams must not contain flame retardants with organically bound bromine or chlorine. Flame retardants are allowed in the printed circuit boards since no substitutes are available.

#### **Cadmium\*\***

Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries, the colour-generating layers of display screens and the electrical or electronics components must not contain any cadmium.

#### **Mercury\*\***

Mercury is sometimes found in batteries, relays and switches. It damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries may not contain any mercury. It also demands that mercury is not present in any of the electrical or electronics components associated with the labelled unit.

#### **CFCs (freons)**

The relevant TCO'99 requirement states that neither CFCs nor HCFCs may be used during the manufacture and assembly of the product. CFCs (freons) are sometimes used for washing printed circuit boards. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on earth of ultraviolet light with e.g. increased risks of skin cancer (malignant melanoma) as a consequence.

#### **Lead\*\***

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in higher doses, causes lead poisoning. The relevant TCO'99 requirement permits the inclusion of lead since no replacement has yet been developed.

\* Bio-accumulative is defined as substances which accumulate within living organisms

\*\* Lead, Cadmium and Mercury are heavy metals which are Bio-accumulative.

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## CAUTION

Do not remove the monitor cabinet as this can expose you to very high voltages and other hazards.

### MANUFACTURER DECLARATION FOR CE-MARKING:

We, NEC-MITSUBISHI ELECTRIC VISUAL SYSTEMS CORPORATION declare under our sole responsibility, that this product is in conformity with the following standards:

- EN60950
- EN55022 Class B
- EN50082-1
- EN61000-3-3

following the provisions of:

- 73/23/EEC Low Voltage Directive
- 89/336/EEC EMC Directive

### WARNING!

This product is not designed for use in life support devices and NEC-MITSUBISHI ELECTRIC VISUAL SYSTEMS CORPORATION makes no representations to the contrary. Life support devices are those devices which are used to measure, diagnose, or evaluate the tissue, systems or functions of the human body; or other devices employed to support or sustain life or good health.

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# 1 INTRODUCTION

Congratulations on your purchase of the MultiSync LCD1800™ high resolution color LCD monitor. This guide tells you how to connect, adjust and care for your MultiSync LCD1800 monitor. This guide also provides technical specifications and instructions for troubleshooting any basic problems you may experience with your monitor.

## 1.1 Features

The MultiSync LCD1800 is a 46cm/18.1", intelligent, microprocessor-based LCD monitor compatible with most analog RGB (Red, Green, Blue) display standards. The monitor provides crisp text and vivid color graphics with both PC and Macintosh platforms.

### Dual Inputs

Offers dual inputs, allowing you to connect the monitor to two systems. You can easily switch between computers with a touch of a button on the front control panel.

### Reduced Footprint

Provides the ideal solution for environments requiring superior image quality but with size and weight limitations. The monitor's small footprint and low weight allow it to be moved or transported easily from one location to another.

### AccuColor® Control System

Allows you to adjust the colors on your screen and customize the color accuracy of your monitor to a variety of standards.

### OSM™ (On-Screen Manager) Controls

Allow you to quickly and easily adjust all elements of your screen image via simple to use on-screen menus.

### ErgoDesign® Features

Enhance human ergonomics to improve the working environment, protect the health of the user and save money. Examples include OSM controls for quick and easy image adjustments, tilt/swivel base for preferred angle of vision, small footprint and compliance with MPRII guidelines for lower emissions.

### Plug and Play

The Microsoft® solution with the Windows® operating system facilitates setup and installation by allowing the monitor to send its capabilities (such as screen size and resolutions supported) directly to your computer, automatically optimizing display performance.

### IPM™ (Intelligent Power Manager) System

Provides innovative power-saving methods that allow the monitor to shift to a lower power consumption level when on but not in use, saving two-thirds of your monitor energy costs, reducing emissions and lowering the air conditioning costs of the workplace.

### Multiple Frequency Technology

Automatically adjusts monitor to the display card's scanning frequency, thus displaying the resolution required.

### FullScan™ Capability

Allows you to use the entire screen area in most resolutions, significantly expanding image size.

### VESA Standard Mounting Interface

Allows users to connect their MultiSync monitor to any VESA standard third party mounting arm or bracket. Allows for the monitor to be mounted on a wall or an arm using any third party compliant device.

### XtraView®

Allows the user to be able to see the monitor from any angle (160 degrees). Provides full 160° viewing angles either up, down, left or right.

## 1.2 Internal Preset Memory Capability

To minimize adjustment needs, the factory has preset popular display standards into the monitor, as shown in Table 1. If any of these display standards are detected, the picture size and centering are automatically adjusted. All of the factory presets may be overwritten by adjusting the user controls. The monitor is capable of automatically storing up to 7 additional display standards. The new display information must differ from any of the existing display standards by at least 1kHz for the horizontal scan frequency or 1Hz for the vertical scan frequency or the sync signal polarities must be different.

Table 1. Memory Buffer Factory Presets

Resolution	Fh(kHz)	Fv (Hz)	Polarity	
			H	V
640 x 480 N.I.	35.0	66.7	-	-
832 x 624 N.I.	49.7	74.6	-	-
1152 x 870 N.I.	68.7	75.0	-	-
640 x 350 N.I.	31.4	70.0	+	-
640 x 480 N.I.	31.5	59.9	-	-
640 x 480 N.I.	37.5	75.0	-	-
640 x 480 N.I.	43.3	85.0	-	-
720 x 400 N.I.	31.5	70.0	-	+
800 x 600 N.I.	37.9	60.3	+	+
800 x 600 N.I.	48.1	72.2	+	+
800 x 600 N.I.	46.9	75.0	+	+
800 x 600 N.I.	53.7	85.0	+	+
1024 x 768 N.I.	48.4	60.0	-	-
1024 x 768 N.I.	56.5	70.1	-	-
1024 x 768 N.I.	58.1	72.1	-	-
1024 x 768 N.I.	60.2	75.0	+	+
1024 x 768 N.I.	68.7	85.0	+	+
1280 x 1024 N.I.	64.0	60.0	-	-
1280 x 1024 N.I.	80.0	75.0	+	+

### 1.3 IPM™(Intelligent Power Manager) System

The monitor has a IPM(Intelligent Power Manager) System which reduces the power consumption of the monitor when not in use.

When the horizontal sync signal and/or vertical sync signal is off, after about 10 seconds the monitor is switched to a power saving mode which reduces the monitor power consumption to less than 3W. When the monitor is in power saving mode, the screen is off and the power indicator will illuminate at amber.

After the signals are restored, picture will be displayed within about 3 seconds.

Check your computer's manual for setting this function.

### 1.4 DDC

The monitor includes the DDC™2B feature, more commonly known as "Plug & Play". DDC(Display Data Channel) is a communication channel over which the monitor automatically informs the computer about its capabilities (e.g. each supported resolution with its corresponding timing).

DDC is routed through previously unused pins of the 15-pin VGA connector.

The system will perform "Plug and Play" feature if both, monitor and computer, implement the DDC protocol.

When a Plug and Play computer starts, it identifies the monitor and loads the appropriate driver automatically. If the computer does not have the driver installed, a dialog box will appear asking where the information can be found. The latest drivers may be downloaded from the "Support" section of the NEC-MITSUBISHI Website located at:

<http://www.necmitsubishi.com/>

### 1.5 Display Mode Selection ("DISPLAY MODE"

 P1-10)

The following two display modes are available. You can select either mode suitable to your work, on the OSM™ ( P1-10).

#### **Text Mode**

The contrast is emphasized more than the accuracy of the color appearance in this mode. This mode is suitable for such works that the accuracy of the displayed colors is not so important, e.g. document making, calculation, database making, etc.

#### **Graphic Mode**

The accuracy of the color tone is emphasized in this mode. This mode is suitable for such works where the accuracy of the displayed colors is important, e.g. photograph processing, making of illustration, etc.

#### **NOTE**

- When you receive the monitor, "DISPLAY MODE" is set to "GRAPHIC" mode.
- Before selecting "Graphic Mode", perform "AUTO SETUP". If not, the displayed screen may become too bright.
- Before using "Color Matching", set the "COLOR" to "NATIVE", "DISPLAY MODE" to "GRAPHIC". ( P1-10)

### 1.6 Auto Adjustment Function ("AUTO ADJUST"

 P1-10)

This function is to adjust "CLOCK PHASE" automatically and periodically (once per 30 min.) against changes of the signal condition or ambient temperature and to adjust "CLOCK PHASE", "HORIZONTAL POSITION" and "VERTICAL POSITION" automatically when changing the signal timing.

#### **NOTE**

- When you receive the monitor, "AUTO ADJUST" is set to "OFF".
- When using the monitor with some computers, "AUTO ADJUST" may function negatively. In that case, set "AUTO ADJUST" to "OFF".
- When "AUTO ADJUST" is set to "ON", you may feel the screen stopping when using mouse or displaying an animation. However, it is not a fault condition and it is caused by the "AUTO ADJUST" working.

### 1.7 Screen Auto Expand Function ("EXPAND"

 P1-10)

This function is to expand the screen automatically. By a smoothing function, you can get a clear screen when the screen is expanded by this function. This function is available in case that a signal of 1024 dots by 768 lines or lower is inputted to the monitor.

#### **NOTE**

- With some resolution, even if it meets the condition above, the screen is not expanded fully to the screen area.
- With some signal type inputted, the screen is not expanded vertically or horizontally.
- With some resolution, the image may be slightly blurred.

### 1.8 Signal Input Connector Auto Selection Function ("AUTO SELECT" P1-11)

This function is to select the signal input connector which is in the active condition automatically. In case that two computers are connected with the monitor, another computer will be selected automatically when the first selected computer went into a power saving mode.

#### **NOTE**

- When you receive the monitor, "AUTO SELECT" is set to "ON".

### 1.9 Auto Brightness Function ("AUTO BRIGHTNESS"

 P1-10)

This function is to adjust the brightness automatically to the extent of white display area, against dazzle.

### 1.10 AccuColor® Control Function

The following color modes are available:

1. sRGB: sRGB mode dramatically improves the color fidelity in the desktop environment by a single standard RGB color space. With this color supported environment, the operator could easily and confidently communicate color without further color management overhead in the most common situations. We recommend you set the monitor to "Graphics" mode. (Unadjustable.)
2. VIDEO: Suitable for motion picture. (Unadjustable.)
3. NATIVE: Original color presented by the LCD panel. (Unadjustable.)
4. CUSTOM: The following items are adjustable.
  - ① COLOR TEMPERATURE: 5000K~9600K
  - ② COLOR CONTROL: This function enables independent adjustment of 6 color (Red, Yellow, Green, Cyan, Blue and Magenta) elements and color saturation.
  - ③ COLOR RESET: To restore to the color temperature and color control to the factory preset.

### 1.11 Location Considerations

When setting up and using the monitor, keep the following in mind:

- For optimum viewing, avoid placing the monitor against a bright background or where sunlight or other light sources may reflect on the display area of the monitor; place the monitor just below eye level.
- Avoid covering the slots or openings of the monitor. Allow adequate ventilation around the monitor so the heat from the monitor can properly dissipate. Avoid putting the monitor into any enclosure that does not have adequate ventilation.
- Avoid exposing the monitor to rain, excessive moisture, or dust, as this can cause a fire or shock hazard.
- Avoid placing the monitor, or any other heavy object, on the power cord. Damage to the power cord can cause a fire or electrical shock.
- When transporting the monitor, handle it with care.
- Avoid giving any shock or scratch to the screen, as the screen is fragile.

### 1.12 Cleaning Your Monitor

When clean the monitor, please follow these guidelines:

- Always unplug the monitor before cleaning.
- Wipe the screen and cabinet front and sides with a soft cloth.
- Do not spray directly on the screen as excess cleaner may drip into the monitor causing a damage.

#### **CAUTION**

*Do not use benzene, thinner or any volatile substances to clean the unit as the finish may be permanently marked. Never leave the monitor in contact with rubber or vinyl for an extended time period.*

### 1.13 Unpacking

After you unpack the box you should have all of the items indicated in Figure 1. Save the box and packing materials in case you ship or transport the monitor.

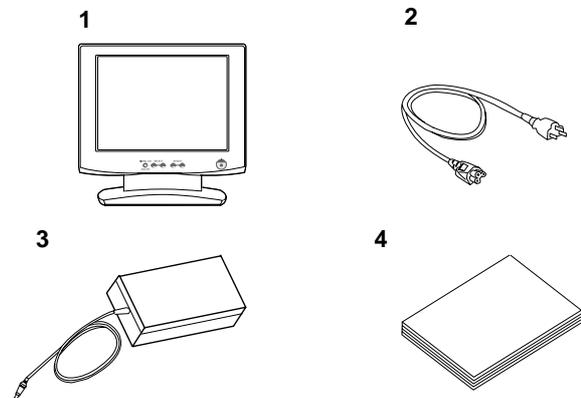


Figure 1

1. Multisync® LCD1800™ Monitor
2. Power Cord
3. AC-Adapter
4. User's Guide (this booklet)

### 1.14 Tilt Base

The monitor comes with a tilt base. This enables you to position the monitor to the best angle for maximum viewing comfort.

#### Screen Position Adjustment

Adjust the tilt of the monitor by placing your hands at opposite sides of the case. You can adjust the monitor as shown in Figure 2.

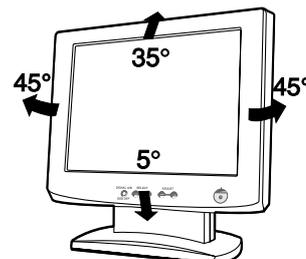


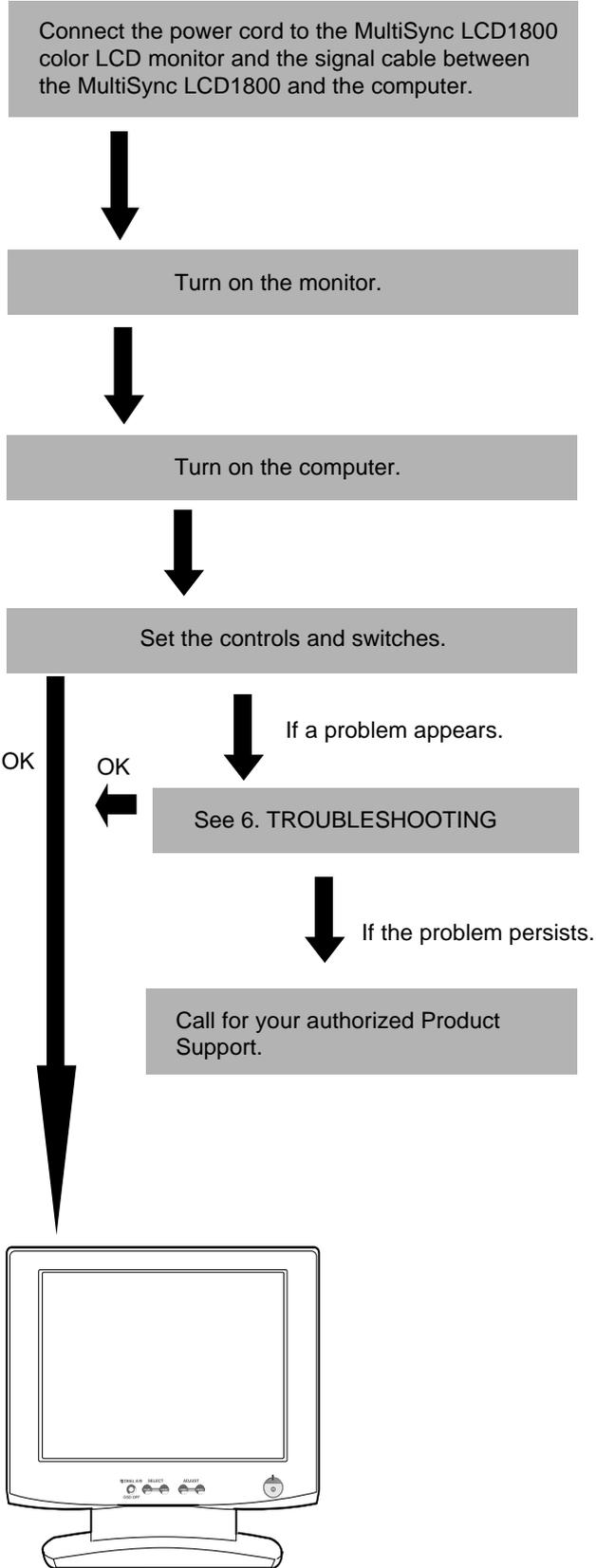
Figure 2

#### **CAUTION**

*Keep your fingers away from the pivot area of the tilt/swivel base.*

### 1.15 Quick Operation Chart

To summarize the steps in connecting your computer and adapter with MultiSync LCD1800™ color LCD monitor and setting the necessary controls and switches, refer to the chart below.



## 2 PART NAME

### 2.1 Control Names

See Figures 3 and 4 for the location of the user controls, indicator and connectors.

Each part is identified by number and described individually.

#### FRONT

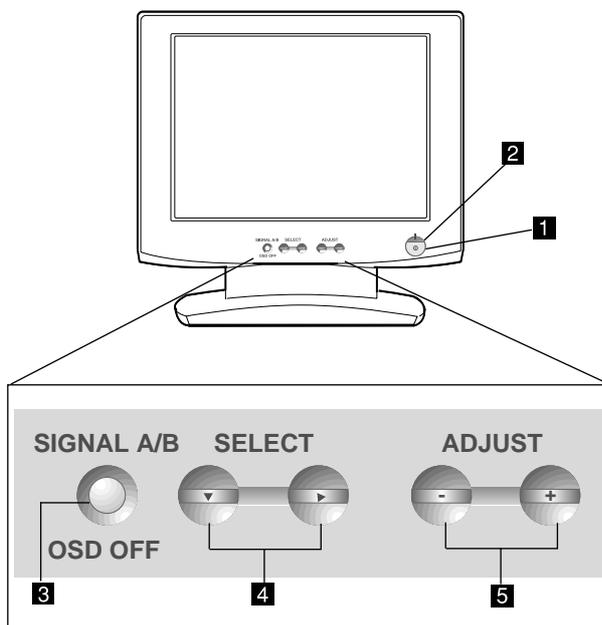


Figure 3

#### REAR

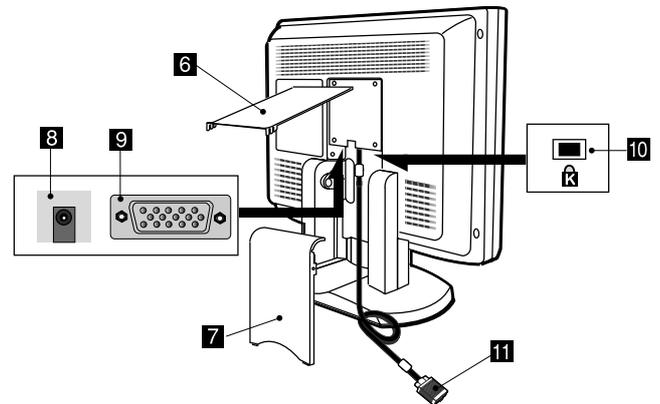


Figure 4

### 2.2 Function

- 1 POWER SWITCH:** A push-on / push-off switch for power input.
- 2 POWER-ON INDICATOR:** This indicator illuminates when power is on.
- 3 SIGNAL A/B and OSD OFF BUTTON:** This button has two functions, as follows.  
Under the OSM off condition: Push to select the signal input connector which is connected to the computer which you want to use.  
Under the OSM on condition: Push to turn off OSM.
- 4 FUNCTION SELECT BUTTONS:** Push the select buttons to choose one of the functions that is superimposed on the display screen.
- 5 FUNCTION ADJUST BUTTONS:** Push the adjust buttons to adjust the image on the screen that is selected via the function select buttons.

- 6 CABLE COVER (UPPER)**
- 7 CABLE COVER (LOWER)**
- 8 DC POWER CONNECTOR**
- 9 SIGNAL INPUT CONNECTOR (SIGNAL B)**
- 10 BURGLARPROOF KEY LOCK HOLE:** available for KENSINGTON® MicroSaver Security System.
- 11 SIGNAL CABLE (SIGNAL A)**

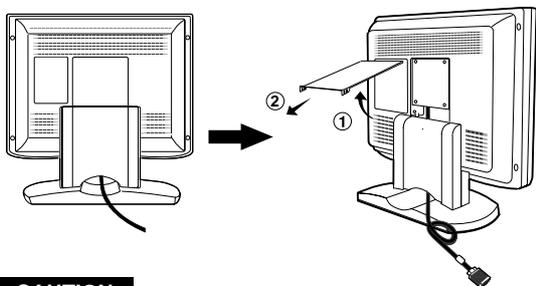
# 3 INSTALLATION AND CONNECTION

On the back of the monitor are three plug-in connections: one for the DC power connection and others for the video signal connection.

## 3.1 AC Power Connection

Remove the cable covers. The DC jack from the AC Adapter is connected into the DC power connector on the back of the monitor. One end of the power cord is connected into the AC Adapter, and another end of the power cord is plugged into a AC outlet. The monitor's auto-sensing AC Adapter can automatically follow the AC input.

<How to remove the covers>

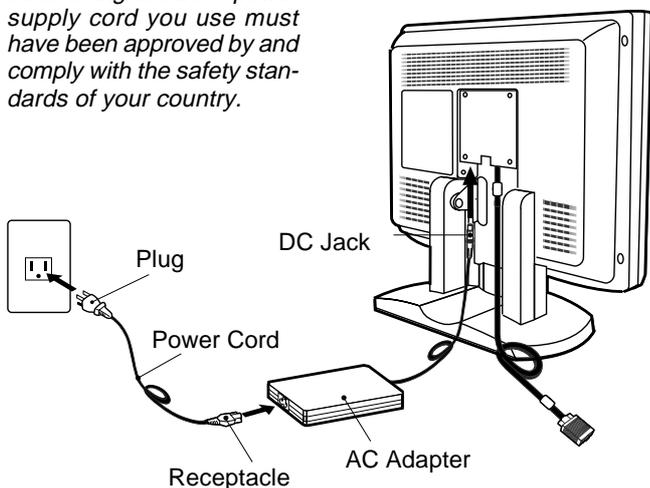
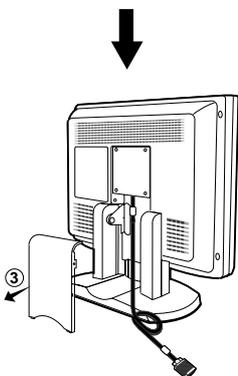


**CAUTION**

The socket-outlet shall be installed near the equipment and shall be easily accessible. During servicing, disconnect the plug from the socket-outlet.

Do not use this AC Adapter to other equipments, as this can cause a fire.

When operating the LCD monitor with its AC220-240V worldwide power supply, use a power supply cord that matches the power supply voltage of the AC power outlet being used. The power supply cord you use must have been approved by and comply with the safety standards of your country.



## 3.2 Signal Cable Connection

The attached video signal cable provides a D-SUB-15P connector for the VGA compatible analog RGB outputs on your computer. Apple Macintosh Computers can also be interfaced using the optional Macintosh adapter.

**NOTE**

- The Sync-On-Green signal involving equalizing pulse is not applicable to the monitor.
- Don't input the Sync-On-Green signal and separate sync signal to the monitor at the same time. It may make the screen abnormal.

### 3.2.1 Connecting to Any IBM VGA Compatible System

Figure 5 shows the signal cable connection to the Video Graphics Array (VGA) port in an IBM Personal System/2® or any VGA compatible system.

1. Power off, the monitor and the computer.
2. Connect the one end of the signal cable to the 15-pin connector on the VGA controller card.
3. Power on the monitor, then the computer.
4. After using the system, power off the monitor, then the computer.

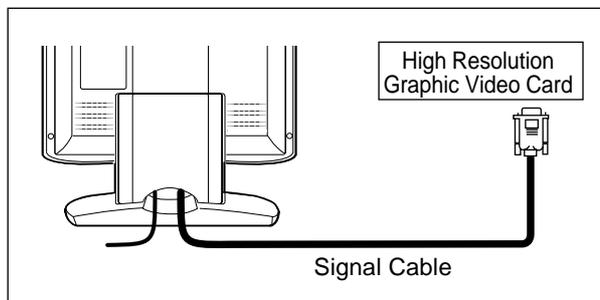


Figure 5

### 3.2.2 Connecting to An Apple Macintosh Computer

Figure 6 shows the signal cable and Macintosh Adapter to the video port in an Apple Macintosh.

1. Power off, both the monitor and the computer.
2. Connect the 15-pin (D-SUB-15P) end of the Macintosh Adapter to the straight 15-pin connector on the Macintosh video port on the computer or on the video board.
3. Connect the sub-miniature 15-pin (D-SUB-15P) end of the Macintosh Adapter to the signal cable.
4. Power on the monitor, then the Macintosh.
5. After using the system, power off the monitor, then the Macintosh.

#### **NOTE**

For the Apple Macintosh Computers having a VGA compatible port, steps 2 through 4 are not necessary. Connect the one end of the signal cable to the port directly.

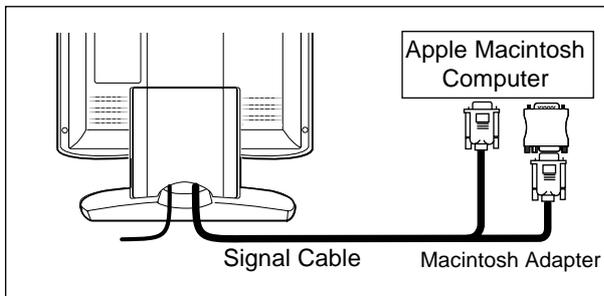


Figure 6

### 3.2.3 Connecting to Two Computers

Figure 7 shows the signal cable connection to two computers.

1. Power off, the monitor and the computers.
2. Connect the one end of the equipped signal cable to the 15-pin connector on a computer.
3. Prepare signal cable. (For the signal cable, contact your dealer.)  
Connect the D-SUB-15P male connector of the signal cable to the 15-pin connector on the monitor and other end to the computer.
4. Power on the monitor, then the computers.
5. After using the system, power off the monitor, then the computers.

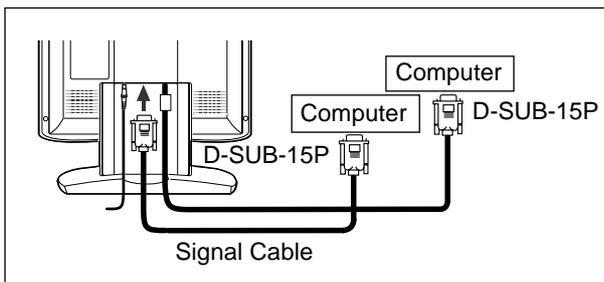


Figure 7

# 4 AUTO SETUP FUNCTION

Two methods, "AUTO SETUP" and "OSM™ Adjustment" are available for adjusting the screen. (For the "OSM Adjustment", see 5. OSM (On Screen Manager) FUNCTIONS.) Conduct the "AUTO SETUP" first. And then, do the "OSM Adjustment" if necessary.

The "AUTO SETUP" is to adjust "CONTRAST", "HORIZONTAL POSITION", "VERTICAL POSITION", "CLOCK", "CLOCK-PHASE" and "BLACK LEVEL" automatically.

**NOTE**

- "AUTO SETUP" function may not work well with some computer. In the case, conduct the "OSM Adjustment".
- In case that the monitor is used with an interface signal of resolution 1280 dots by 1024 lines, one line in the top or bottom of the screen is lost. This condition can not be corrected by any adjustment.

Conduct the "AUTO SETUP" according to the following procedure:

1. Turn on the computer and monitor.

**NOTE**

If you don't recognize the icon on the screen, adjust "CLOCK" until you can, with using the "OSM Function". If you don't see the icon because of the screen shifted to vertical or horizontal direction, adjust "VERTICAL POSITION" or "HORIZONTAL POSITION" until you can, with using the "OSM Function".

2. Select "AUTO SETUP" at the OSM menu. (P1-10)

**NOTE**

In case that the screen area has a black back ground like "MS-DOS PROMPT", the "AUTO SETUP" may not work well.

3. Press "+" button. Then, the "AUTO SETUP" start. During the "AUTO SETUP", "AUTO SETUP" is displayed on the screen and when it finishes, "AUTO SETUP" disappear from the screen. "AUTO SETUP" takes approx. 10 secs to finish.

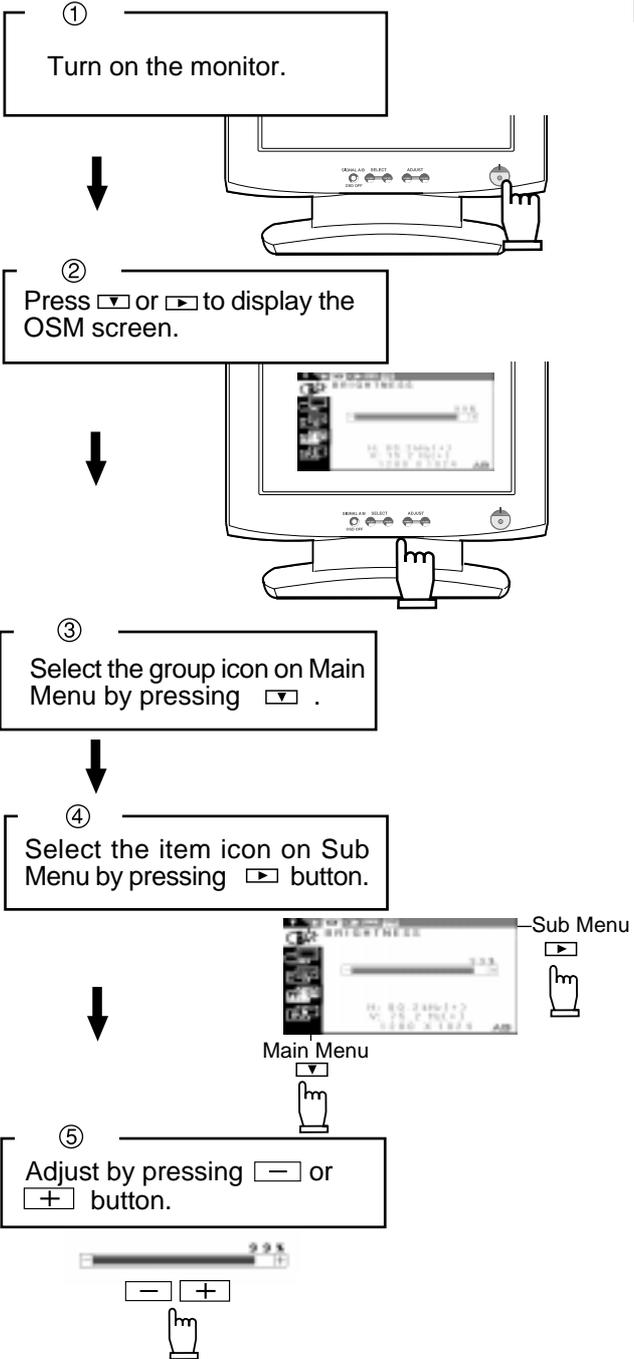
**NOTE**

In case that the monitor is used with an interlace signal, one line in the top or bottom of the screen is lost as a result of the "AUTO SETUP". In the case, adjust the "VERTICAL POSITION" by the "OSM Adjustment".

# 5 OSM(On Screen Manager) FUNCTIONS

## How to Adjust the Screen

The monitor has an OSM (On Screen Manager) function. The following procedure shows how to adjust the screen with using the OSM function.



**NOTE**

If you don't press any button for approximately 30 seconds, the OSM screen will disappear. Or press OSD OFF button, then the OSM screen will disappear quickly.

## 5.1 Adjustment Items

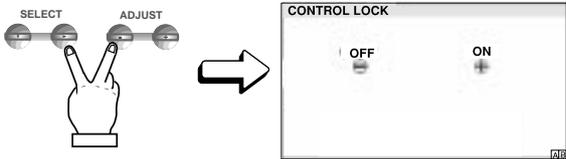
Press "ALL RESET" to restore to the factory preset level.								
Press  and  buttons together, to restore to the factory preset level.								
Set data by each timing.								
Set data does not change by the changing of the signal timing.								
Group Icon	Item Icon	Item	Press the Minus Button:  	Press the Plus Button:  			Factory Presets	User Presets
		BRIGHTNESS	To decrease the brightness.	To increase the brightness.				
		CONTRAST	To decrease the contrast.	To increase the contrast.				
		BLACK LEVEL	To be deep of black color.	To be light of black color.				
		AUTO BRIGHTNESS	To off the Auto Bright Function.	To on the Auto Bright Function.				
		CLOCK	To narrow the width of the image on the screen to the left.	To expand the width of the image on the screen to the right.				
		CLOCK PHASE	To change the snow noise of the image.					
		HORIZONTAL POSITION	To move the image to the left.	To move the image to the right.				
		VERTICAL POSITION	To move the image down.	To move the image up.				
		H RESOLUTION	To adjust the width of the image on the screen.					
		V RESOLUTION	To adjust the height of the image on the screen.					
		AUTO SETUP	_____	To conduct Auto Setup.	-	-	-	-
		AUTO ADJUST	To off the Auto Adjustment Function.	To on the Auto Adjustment Function.				
		EXPAND	To set the normal screen area.	To set the expanded screen area.				
		SHARPNESS	To decrease the distinction.	To increase the distinction.				
		DISPLAY MODE	To display by TEXT mode.	To display by GRAPHIC mode.				
		COLOR	Select the desired Color from sRGB, VIDEO NATIVE and CUSTOM. (  P1-4) (sRGB, VIDEO, NATIVE: Unadjustable.)					
		COLOR TEMPERATURE	To decrease the color temperature.	To increase the color temperature.				
		COLOR CONTROL	The color of screen is adjusted to the "-" symbol's color at Level-bar's left side.		The color of screen is adjusted to the "+" symbol's color at Level-bar's right side.			
		COLOR RESET	_____	To restore to the color temperature and color control to the factory preset.		-	-	-

Press "ALL RESET" to restore to the factory preset level.  
 Press and buttons together, to restore to the factory preset level.  
 Set data by each timing.  
 Set data does not change by the changing of the signal timing.

Group Icon	Item Icon	Item	Press the Minus Button: 	Press the Plus Button: 	Factory Presets		User Presets	
		ALL RESET		To restore to the factory preset mode.	-	-	-	-
		OSD POSITION	To move the OSD position for 5 places.					
		POWER SAVE	To select the constant power mode.	To select the power save mode.				
		AUTO SELECT	To off the Auto Adjustment Function.	To on the Auto Select Function.				
		CLAMP PULSE POSITION	To eliminate an excessive green or white-back ground that may occur when both Sync-On-Green and external sync signals are applied to the monitor. To clamp the video signal at the front of the H-Sync pulse.	To clamp the video signal at the back of the H-Sync pulse. If you connect to an older Macintosh, you may need to press plus button.				
		LANGUAGE	To choose the language used on OSM. ENG...English, DEU...German, ESP...Spanish, FRA...French, ITA...Italian, JPN...Japanese					

**5.2 CONTROL LOCK Mode Operation**

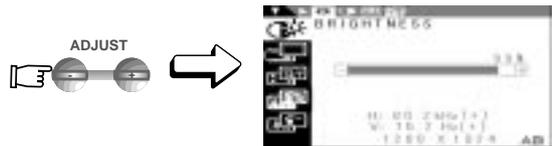
1. Press the right of select button and minus of adjust button together, the "CONTROL LOCK" screen appears.



2. Press the plus button to lock on the OSM™. During the Locked condition, "Key mark " is indicated on the upper-right of the OSM screen and "BRIGHTNESS" is only adjustable. A/B signal change and OSD OFF by front SW are functionable.



3. Press the minus button to lock off the OSM, and if you press any select or adjust button, Key mark is disappeared from the OSD screen. You can operate OSM, again.



# 6 TROUBLESHOOTING

Before calling your Authorized Product Support, please check that the items below are properly connected or set. In case of using a non-standard signal, please check the pin assignments and the signal timing of your computer with the specification outlined in 7. SPECIFICATIONS.

PROBLEM		ITEMS TO CHECK	LOCATION
No picture	LED On (Green)	<ul style="list-style-type: none"> <li>• Contrast and brightness controls.</li> </ul>	<ul style="list-style-type: none"> <li>• Front</li> </ul>
	LED Off	<ul style="list-style-type: none"> <li>• Power switch.</li> <li>• Power cord disconnected.</li> </ul>	<ul style="list-style-type: none"> <li>• Front</li> <li>• Rear</li> </ul>
	LED On (Amber)	<ul style="list-style-type: none"> <li>• Signal cable disconnected.</li> <li>• Computer power switch.</li> <li>• Power management function is active.</li> </ul>	<ul style="list-style-type: none"> <li>• Rear</li> <li>• Computer</li> </ul>
The following message appeared. 		<ul style="list-style-type: none"> <li>• Input signal frequency range is out of specification.</li> <li>• Display Resolution is out of range.</li> </ul>	<ul style="list-style-type: none"> <li>• Check the specification of graphics adapter and monitor</li> </ul>
The following message appeared. 		<ul style="list-style-type: none"> <li>• Signal cable disconnected.</li> <li>• Computer power switch.</li> <li>• Power management function is active.</li> </ul>	<ul style="list-style-type: none"> <li>• Rear</li> <li>• Computer</li> </ul>
Illegible image, abnormal position of screen, or too small or too large of a display size		<ul style="list-style-type: none"> <li>• Adjust, RESOLUTION, CLOCK, CLOCK-PHASE, H-POSITION, and V-POSITION with non-standard signals.</li> <li>• Monitor may not be able to get full-screen image depending on signal. In this case, please select other resolution, or other vertical refresh timing.</li> <li>• Make sure you wait a few seconds after adjusting the size of the image before changing or disconnecting the signal or powering OFF the monitor.</li> </ul>	<ul style="list-style-type: none"> <li>• Front (OSM™)</li> <li>• Front (OSM)</li> </ul>

# 7 SPECIFICATIONS

LCD MODULE	LCD Panel	46cm/18.1" Color TFT Panel	
	Type	Active Matrix	
	Resolution	1280 dots x 1024 lines	
	Pixel Pitch	0.28mm	
	Color Filter	R, G, B vertical stripe type	
	Face Finishing	Anti-glare, Hard Coated	
	Viewing Angle	±80°(Horizontal/Vertical) CR ≥ 5	
INPUT SIGNAL	Video	0.7Vp-p analog RGB	
	Sync	Sync.on Green or Separated H,V or Composite sync.	
	Input Impedance	Video	75 Ω
		Sync	2.2k Ω
SCANNING FREQUENCY	Horizontal	24.0 - 80.0kHz	
	Vertical	50.0 - 86.0Hz	
DISPLAY SIZE	H x V	359mm x 287.2mm	
NUMBER OF COLOR		16.77 Million Colors	
BRIGHTNESS(with standard full white video signal)		200 cd/m <sup>2</sup> (Typ.)	
SIGNAL INPUT CONNECTORS		D-SUB-15P (One is with the detachable signal cable, and another is behind the cable cover.	
OPERATING ENVIRONMENT	Temperature	5 - 35°C	
	Humidity	10 - 90%RH (without condensation)	
POWER SOURCE	Display Monitor	55W MAX	
	AC-Adapter	INPUT: AC100~240V±10%, 50/60Hz OUTPUT: DC15V	
REGULATIONS	Safety	UL1950 (UL), CSA C22.2 No.950 (C-UL), EN60950(TÜV-GS)	
	EMC	FCC Class-B, DOC Class-B, EN55022 Class-B, EN50082-1 VCCI Class-B, EN61000-3-3	
	Other	CE-Marking, MPR-II,TCO '99, ISO 9241-3, ISO 9241-7, ISO 9241-8(TÜV-GS) International ENERGY STAR Energy 2000 Labeling Award	
CABINET		(W)18.1" x (H)18.9" x (D)8.7"/ (W)460mm x (H)481mm x (D)220mm	
WEIGHT		8.2kg (18.1lbs.) (without AC Adapter and cables)	
TILT BASE		-5° ~ +35° Tilt Angle ±45° Swivel Angle	

# LIMITED WARRANTY

NEC-Mitsubishi (hereinafter "NEC-MITSUBISHI"), warrants this Product to be free from defects in material and workmanship and, subject to the conditions set forth below, agrees to repair or replace (at NEC-MITSUBISHI's sole option) any part of the enclosed unit which proves defective for a period of three (3) years from the date of first consumer purchase. Spare parts are warranted for ninety (90) days. Replacement parts or units may be new or refurbished and will meet specifications of the original parts or unit.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty is limited to the original purchaser of the Product and is not transferable. This warranty covers only NEC-MITSUBISHI-supplied components. Service required as a result of third party components is not covered under this warranty. In order to be covered under this warranty, the Product must have been purchased in the U.S.A. or Canada by the original purchaser. This warranty only covers Product distribution in the U.S.A. or Canada by NEC-MITSUBISHI. No warranty service is provided outside of the U.S.A. or Canada. Proof of Purchase will be required by NEC-MITSUBISHI to substantiate date of purchase. Such proof of purchase must be an original bill of sale or receipt containing name and address of seller, purchaser, and the serial number of the product.

It shall be your obligation and expense to have the Product shipped, freight prepaid, or delivered to the authorized reseller from whom it was purchased or other facility authorized by NEC-MITSUBISHI to render the services provided hereunder in either the original package or a similar package affording an equal degree of protection. All Products returned to NEC-MITSUBISHI for service MUST have prior approval, which may be obtained by calling 1-800-632-4662.

The Product shall not have been previously altered, repaired, or serviced by anyone other than a service facility authorized by NEC-MITSUBISHI to render such service, the serial number of the product shall not have been altered or removed. In order to be covered by this warranty the Product shall not have been subjected to displaying of fixed images for long periods of time resulting in image persistence (afterimage effects), accident, misuse or abuse or operated contrary to the instructions contained in the User's Manual. Any such conditions will void this warranty. NEC-MITSUBISHI SHALL NOT BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, OR OTHER TYPES OF DAMAGES RESULTING FROM THE USE OF ANY NEC-MITSUBISHI PRODUCT OTHER THAN THE LIABILITY STATED ABOVE. THESE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME STATES DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES SO THE ABOVE EXCLUSIONS OR LIMITATIONS MAY NOT APPLY TO YOU.

This Product is warranted in accordance with the terms of this limited warranty. Consumers are cautioned that Product performance is affected by system configuration, software, the application, customer data, and operator control of the system, among other factors. While NEC-MITSUBISHI Products are considered to be compatible with many systems, specific functional implementation by the customers of the Product may vary. Therefore, suitability of a Product for a specific purpose or application must be determined by consumer and is not warranted by NEC-MITSUBISHI.

For the name of your nearest authorized NEC-MITSUBISHI service facility, contact NEC-MITSUBISHI at 1-800-632-4662.