

# **APPENDIX G :**

## **USER'S MANUAL**

## Important Precautions

**This unit has been engineered and manufactured to ensure your personal safety, however improper use may result in potential electrical shock or fire hazards. In order to allow the proper operation of all safeguards incorporated in this monitor, observe the following basic rules for its installation, use, and servicing.**

### On Safety

Use only the power cord supplied with the unit. In case you use another power cord, make sure that it is certified by the applicable national standards if not being provided by the supplier. If the power cable is faulty in any way, please contact the manufacturer or the nearest authorized repair service provider for a replacement.

The power supply cord is used as the main disconnect device. Ensure that the socket-outlet is easily accessible after installation.

Operate the monitor only from a power source indicated in the specifications of this manual or listed on the monitor. If you are not sure what type of power supply you have in your home, consult with your dealer.

Overloaded AC outlets and extension cords are dangerous. So are frayed power cords and broken plugs. They may result in a shock or fire hazard. Call your service technician for replacement.

Do not Open the Monitor.

- There are no user serviceable components inside.
- There are Dangerous High Voltages inside, even when the power is OFF.
- Contact your dealer if the monitor is not operating properly.

To Avoid Personal Injury :

- Do not place the monitor on a sloping shelf unless properly secured.
- Use only a stand recommended by the manufacturer.
- Do not try to roll a stand with small casters across thresholds or deep pile carpets.

To Prevent Fire or Hazards:

- Always turn the monitor OFF if you leave the room for more than a short period of time. Never leave the monitor ON when leaving the house.
- Keep children from dropping or pushing objects into the monitor's cabinet openings. Some internal parts carry hazardous voltages.
- Do not add accessories that have not been designed for this monitor.
- During a lightning storm or when the monitor is to be left unattended for an extended period of time, unplug it from the wall outlet.
- Do not bring magnetic devices such as magnets or motors near the picture tube.

## Important Precautions

### On Installation

Do not allow anything to rest upon or roll over the power cord, and do not place the monitor where the power cord is subject to damage.

Do not use this monitor near water such as near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Monitors are provided with ventilation openings in the cabinet to allow the release of heat generated during operation. If these openings are blocked, built-up heat can cause failures which may result in a fire hazard. Therefore, NEVER:

- Block the bottom ventilation slots by placing the monitor on a bed, sofa, rug, etc.
- Place the monitor in a built-in enclosure unless proper ventilation is provided.
- Cover the openings with cloth or other material.
- Place the monitor near or over a radiator or heat source.

### On Cleaning

- Unplug the monitor before cleaning the face of the monitor screen.
- Use a slightly damp (not wet) cloth. Do not use an aerosol directly on the monitor screen because overspray may cause electrical shock.

### On Repacking

- Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it in its original material.

## Connecting the Monitor

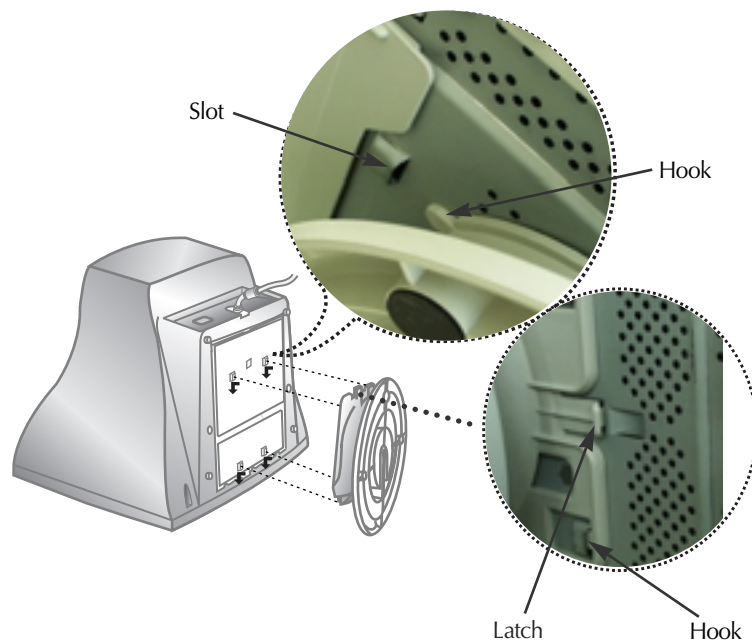
- Before setting up the monitor, ensure that the power is turned off to the monitor, computer system, and other attached devices.
- Carefully set the monitor face-down with the underside facing you.

### Connecting the Tilt/Swivel stand

1. Align the hooks on the tilt/swivel stand with the matching slots in the base of the monitor.
2. Insert the hooks into slots.
3. Slide the tilt/swivel stand toward the front of the monitor until the latches click into the locked position.

#### NOTE

- This illustration depicts the general model of connection. Your monitor may differ from the items shown in the picture.



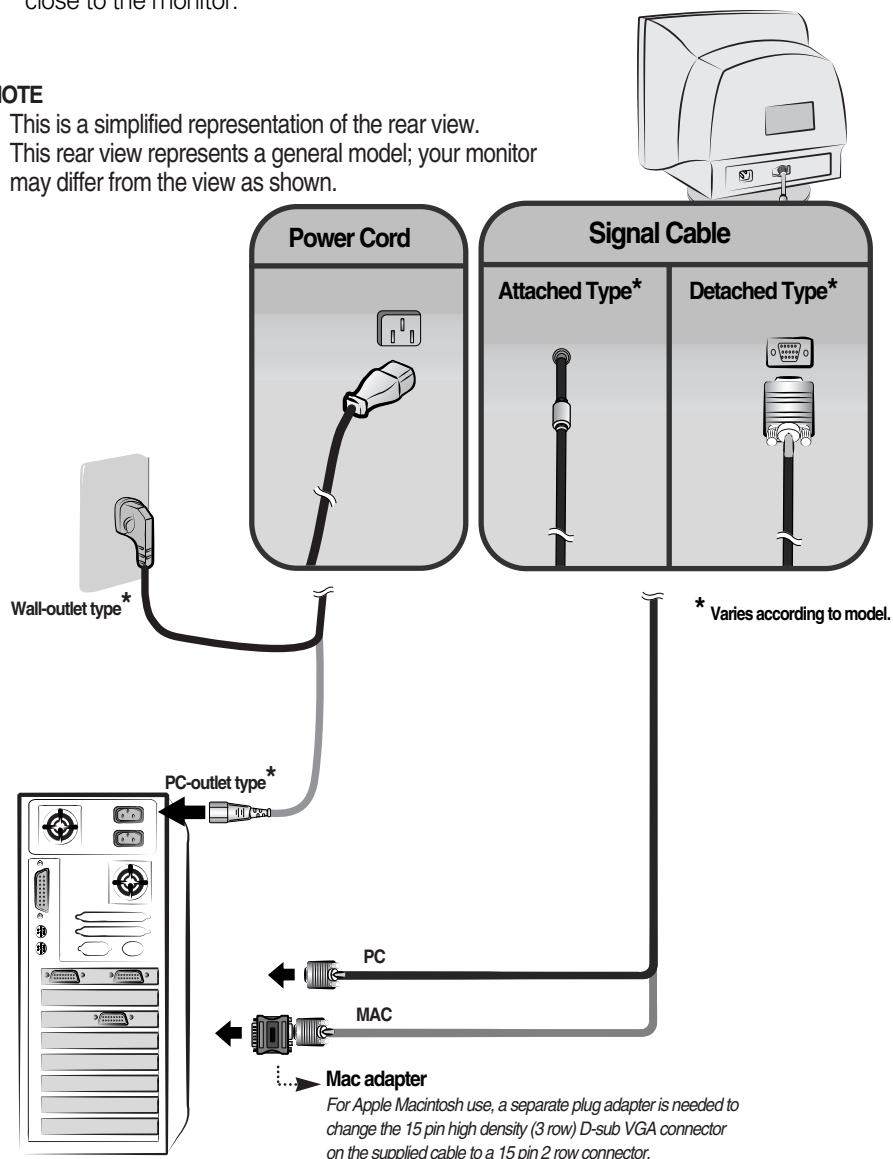
## Connecting the Monitor

### Using the Computer

1. Connect the signal cable. When mated, tighten the thumbscrews to secure the connection.
2. Connect the power cord into a properly power outlet that is easily accessible and close to the monitor.

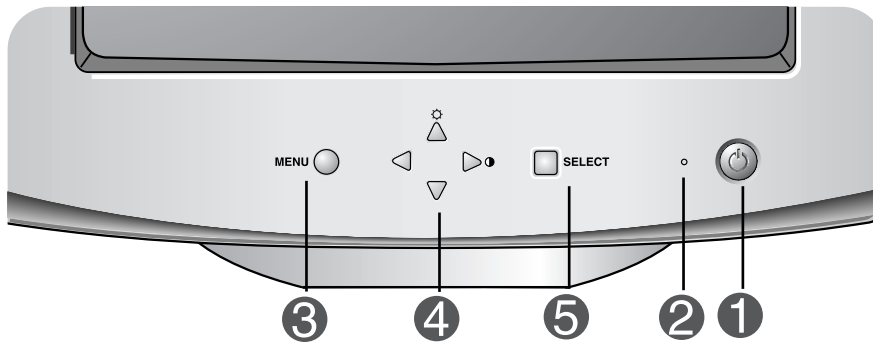
#### NOTE

- This is a simplified representation of the rear view.
- This rear view represents a general model; your monitor may differ from the view as shown.



# Control Panel Functions

## Front Panel Controls



Control	Function
<b>1</b> Power Button	Use this button to turn the monitor on or off.
<b>2</b> Power (DPMS) Indicator	This Indicator lights up green when the monitor operates normally. If the monitor is in DPM (Energy Saving) mode, this indicator color changes to amber.
<b>3</b> MENU (or OSD) Button	Use this button to enter or exit the on screen display.
<b>4</b> ▲▼/◀▶ Buttons	Use these buttons to choose or adjust items in the on screen display.
<b>5</b> SELECT (or SET) Button	Use this button to enter a selection in the on screen display.

Control	Direct Access Function
	<b>▶ Button</b> Bring up Contrast adjustment
	<b>▲ Button</b> Bring up Brightness adjustment
The Contrast and Brightness functions are also available in the On Screen Display (OSD) menu.	

## On Screen Display (OSD) Control Adjustment

### Screen Adjustment

Making adjustments to the image size, position and operating parameters of the monitor is quick and easy with the On Screen Display Control system. A short example is quick and easy given below to familiarize you with the use of the controls. The following section is an outline of the available adjustments and selections you can make using the OSD.

#### NOTE

- Allow the monitor to stabilize for at least 30 minutes before making image adjustments.

To make adjustments in the On Screen Display, follow these steps:

#### ■ Case 1

MENU → ▲ ▼ → SELECT → ▲ ▼ ◀ ▶ → SELECT → MENU








#### ■ Case 2

OSD → ▲ ▼ → SET → ▲ ▼ ◀ ▶ → SET → OSD

- 1 Press the MENU (or OSD) Button, then the main menu of the OSD appears.
- 2 To access a control, use the ▲ or ▼ Buttons. When the icon you want becomes highlighted, press the SELECT (or SET) Button.
- 3 Use the ▲ ▼ / ◀ ▶ Buttons to adjust the item to the desired level.
- 4 Accept the changes by pressing the SELECT (or SET) Button.
- 5 Exit the OSD by Pressing the MENU (or OSD) Button.

## On Screen Display(OSD) Selection and Adjustment

The following table indicates all the On Screen Display control, adjustment, and setting menus.

Main menu	Sub menu		Reference		
 BRIGHTNESS/ CONTRAST	Brightness	●	To adjust the brightness and contrast of the screen		
	Contrast	●			
 POSITION	V Position	●	To adjust the position of the screen		
	H Position	●			
 SIZE	V Size	●	To adjust the size of the screen		
	H Size	●			
 SHAPE	Tilt	●	To adjust the shape of the screen		
	Side Pincushion	●			
	S Pincushion Balance	●			
	Parallelogram	●			
	Trapezoid	●			
	H Corner				
	Top Corner	●			
	Bottom Corner	●			
 COLOR	PRESET	6500K	●	To customize the color of the screen	
		9300K	●		
	Temp		●		
	R/G/B(User Color)		●		
 SETUP	Video Level		●	To customize the screen status for a user's operating environment	
	Language		●		
	OSD Time		●		
 SPECIAL	Degauss		●	To improve the clarity and stability of the screen	
	Recall		●		
	Reset		●		
	Moire	H Moire			●
		V Moire			●
	Purity				
			● :Adjustable		



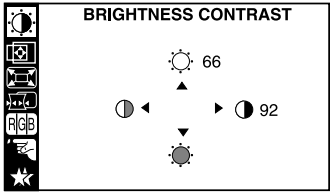
## On Screen Display(OSD) Selection and Adjustment

You were introduced to the procedure of selecting and adjusting an item using the OSD system. Listed below are the icons, icon names, and icon descriptions of the all items shown on the Menu.

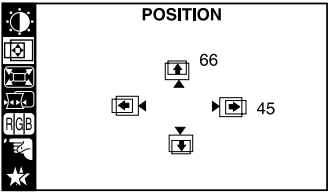
### NOTE

- The order of icons may differ depending on the model (A8~A11).

### To adjust the brightness and contrast of the screen

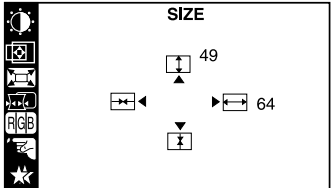
OSD Adjust	Description
	<p><b>Brightness</b> To adjust the brightness of the screen.</p> <p><b>Contrast</b> To adjust the contrast of the screen.</p>

### To adjust the position of the screen

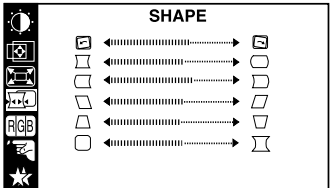
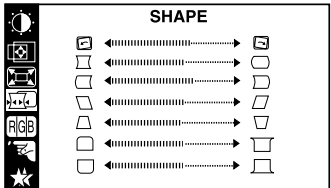
OSD Adjust	Description
	<p><b>Vertical Position</b> To move image up and down.</p> <p><b>Horizontal Position</b> To move image left and right.</p>

# On Screen Display(OSD) Selection and Adjustment

## To adjust the size of the screen

OSD Adjust	Description
	<p><b>Vertical Size</b> To adjust image height.</p> <p><b>Horizontal Size</b> To adjust image width.</p>

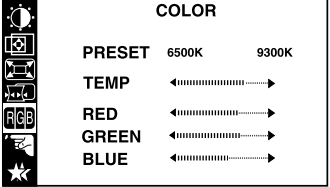
## To adjust the shape of the screen

OSD Adjust	Description
	<p><b>Tilt</b> To correct image rotation.</p> <p><b>Side Pincushion</b> To correct a concave or convex bowing of the image.</p> <p><b>Side Pincushion Balance</b> To correct the balance of both sides bowing.</p> <p><b>Parallelogram</b> To correctly adjust the skew of the image.</p> <p><b>Trapezoid</b> To correct geometric distortion.</p> <p><b>H Corner*</b> <b>Top Corner*</b> <b>Bottom Corner*</b> To correct an irregular distortion of the displayed image.</p>
	

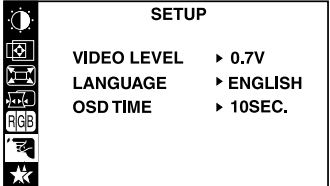
\* This function is available for designated models only. **PAGE A7**

## On Screen Display(OSD) Selection and Adjustment

### To customize the color of the screen



OSD Adjust	Description
 <p><b>COLOR</b></p> <p>PRESET 6500K 9300K</p> <p>TEMP ←————→</p> <p>RED ←————→</p> <p>GREEN ←————→</p> <p>BLUE ←————→</p>	<p><b>PRESET 6500K/ 9300K</b> Select the screen color.</p> <ul style="list-style-type: none"> <li>• 6500K: Slightly reddish white.</li> <li>• 9300K: Slightly bluish white.</li> </ul> <p><b>TEMP</b> Select the screen temperature which you prefer among reddish or bluish or any color in between.</p> <p><b>RED</b> <b>GREEN</b> <b>BLUE</b> Set your own color levels.</p>

### To customize the screen status for a user's operating environment

OSD Adjust	Description
 <p><b>SETUP</b></p> <p>VIDEO LEVEL ▶ 0.7V</p> <p>LANGUAGE ▶ ENGLISH</p> <p>OSD TIME ▶ 10SEC.</p>	<p><b>VIDEO LEVEL</b> This item is used to select the monitor's input signal level. The normal level used for most PCs is 0.7V. If the screen becomes suddenly washed-out or blurred, please select 1.0V and try again.</p> <p><b>LANGUAGE</b> To choose the language in which the control names are displayed. OSD Menus are available in 12 languages: English, German, French, Spanish, Italian, Swedish, Finnish, Portuguese, Korean, Chinese, Russian and Polish.</p> <p><b>OSD TIME</b> Set the OSD time, i.e. the length of time a menu will remain on-screen before it shuts off automatically. Adjust the time to 5, 10, 20, 30 or 60 seconds.</p>

# On Screen Display(OSD) Selection and Adjustment

## To improve the clarity and stability of the screen

OSD Adjust	Description																
 <table border="1"> <thead> <tr> <th colspan="2">SPECIAL</th> </tr> </thead> <tbody> <tr> <td>DEGAUSS</td> <td>▶ ON</td> </tr> <tr> <td>RECALL</td> <td>▶ ON</td> </tr> <tr> <td>RESET</td> <td>▶ ON</td> </tr> <tr> <td>MOIRE</td> <td>▶ H: 0/V: 0</td> </tr> <tr> <td>PURITY</td> <td>▶ 50</td> </tr> <tr> <td colspan="2">1024X768 /85 Hz</td> </tr> <tr> <td colspan="2">PRESET MODE</td> </tr> </tbody> </table>	SPECIAL		DEGAUSS	▶ ON	RECALL	▶ ON	RESET	▶ ON	MOIRE	▶ H: 0/V: 0	PURITY	▶ 50	1024X768 /85 Hz		PRESET MODE		<p><b>DEGAUSS</b> To manually demagnetize the screen to avoid showing incorrect images or colors.</p> <p><b>RECALL</b> You can use this function to reload the modified parameters for screen display operation, as specified by the user after purchase: <i>Position, Size, Side Pincushion, Side Pincushion Balance, Parallelogram, Trapezoid</i> (These recalled options may differ depending on the mode selected: <i>Preset, User, or New</i>). If you don't want to recall the monitor to these modified settings, use the ▲ ▼ button to select CANCEL and then press the SELECT (or SET) button.</p> <p><b>RESET</b> Return to all factory default settings except "LANGUAGE": <i>Brightness, Contrast, Tilt, Color 9300K, Video Level, OSD Time, Moire</i> (These reset options may differ depending on the mode selected: <i>Preset, User, or New</i>). If you don't want to reset the monitor, use the ▲ ▼ button to select CANCEL and then press the SELECT (or SET) button.</p> <p><b>MOIRE</b> This item allows you to reduce the degree of moire. (Moire is caused by interference Horizontal Scan Line with the periodical dot screen). It is normally OFF(H:0/V:0). The moire adjustments may affect the focus of the screen. Moire adjustments may shake slightly while the moire reduction function is on.</p> <p><b>PURITY*</b> Use to adjust the purity on the screen if the color appears uneven.</p>
SPECIAL																	
DEGAUSS	▶ ON																
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<p>* This function is available for designated models only.  PAGE A7</p>																	

## Troubleshooting

Check the following before calling for service.

No image appears	
<ul style="list-style-type: none"><li>● Is the power cord of the monitor connected?</li></ul>	<ul style="list-style-type: none"><li>• Check and see if the power cord is connected properly to the power outlet.</li></ul>
<ul style="list-style-type: none"><li>● Is the power indicator light on?</li></ul>	<ul style="list-style-type: none"><li>• Press the Power button.</li></ul>
<ul style="list-style-type: none"><li>● Is the power on and the power indicator green?</li></ul>	<ul style="list-style-type: none"><li>• Adjust the brightness and the contrast.</li></ul>
<ul style="list-style-type: none"><li>● Is the power indicator amber?</li></ul>	<ul style="list-style-type: none"><li>• If the monitor is in power saving mode, try moving the mouse or pressing any key on the keyboard to bring up the screen.</li></ul>
<ul style="list-style-type: none"><li>● Do you see an "OUT OF FREQUENCY" message on the screen?</li></ul>	<ul style="list-style-type: none"><li>• This message appears when the signal from the PC (video card) is out of horizontal or vertical frequency range of the monitor. See the 'Specifications' section of this manual and configure your monitor again.</li></ul>
<ul style="list-style-type: none"><li>● Do you see a "SELF DIAGNOSTICS" message on the screen?</li></ul>	<ul style="list-style-type: none"><li>• This message appears when the signal cable between your PC and your monitor is not connected. Check the signal cable and try again.</li></ul>

The screen is flickering.	
<ul style="list-style-type: none"><li>● Is the vertical frequency less than 70Hz or is your monitor set to the interlaced mode?</li></ul>	<ul style="list-style-type: none"><li>• Set the vertical frequency to 72Hz or higher, and consult the video card user manual for instructions on converting to a non-interlaced mode. (You can set this option under the Display icon of the Control Panel.)</li></ul>
<ul style="list-style-type: none"><li>● Do you have any magnetic material such as adapter, or high-voltage line near to your monitor?</li></ul>	<ul style="list-style-type: none"><li>• Remove magnetic sources, such as power adapters, speakers, or high-voltage lines, away from the monitor.</li></ul>
<ul style="list-style-type: none"><li>● Do you hear a "~ding" sound while the monitor is flickering?</li></ul>	<ul style="list-style-type: none"><li>• Use the normal degaussing function. This function clears the screen and reduces any screen blur that may occur due to the surrounding magnetic field. The screen may flicker for about 5 seconds, accompanied by a "~ding" sound.</li></ul>

## Troubleshooting

### The screen color is not normal.

<ul style="list-style-type: none"><li>● Do you see basic discoloration (16 colors)?</li><li>● Is the screen color unstable or monochrome?</li><li>● Do you see black dots on the screen?</li><li>● Do you see a partial blurring on the screen?</li></ul>	<ul style="list-style-type: none"><li>• Set the color depth to 256 colors or higher. use 'Control Panel' → 'Display' → 'Settings' → 'Color Palette'</li><li>• Check the connection of the signal cable. Or pull out the video card of the PC and insert it again.</li><li>• This is due to a small amount of foreign or abnormally florescent material that became fastened on the mask during manufacturing. It will not affect product performance.</li><li>• This happens due to interference from surrounding magnetic fields, as created when speakers, steel structures, or high-voltage lines are placed near the monitor. Remove any such materials from the immediate vicinity and use the DEGAUSS icon on the screen adjustment menu to fix the screen.</li></ul>
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### I see an after-image on the screen.

<ul style="list-style-type: none"><li>● Do you see the after-image even when you turn off the monitor?</li></ul>	<ul style="list-style-type: none"><li>• A premature aging of the monitor pixels may cause the prolonged display of a single image on the screen. Be sure to use a screen saver to maximize the service life of the monitor.</li></ul>
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### I see waves on the screen.

<ul style="list-style-type: none"><li>● Do you see the wave directly on the screen?</li></ul>	<ul style="list-style-type: none"><li>• This occurs in inverse proportion to the screen focus, which can be caused by a particular frequency or video card. Brighten the screen and use the 'MOIRE' icon on the screen adjustment menu to adjust the screen.</li></ul>
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### Have you installed the monitor driver?

<ul style="list-style-type: none"><li>● Have you installed the monitor driver?</li></ul>	<ul style="list-style-type: none"><li>• Be sure to install the monitor driver from the monitor driver CD (or diskette) that comes with your monitor. Or, you can also download the driver from our web site: <a href="http://www.lge.com">http://www.lge.com</a>.</li></ul>
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## Specifications

<b>Picture Tube</b>	17 inches (16.0 inches viewable) 90 degree deflection 0.25mm dot pitch AGARAS(Anti-Glare Anti-Reflective Anti-Static) coating	
<b>Sync Input</b>	<b>Horizontal Freq.</b>	30 - 71kHz (Automatic)
	<b>Vertical Freq.</b>	50 - 160Hz (Automatic)
	<b>Input Form</b>	Separate TTL, Positive/Negative
	<b>Signal Input</b>	15 pin D-Sub Connector
<b>Video Input</b>	<b>Input Form</b>	Separate, RGB Analog, 0.7Vp-p/75 ohm, Positive
<b>Resolution</b>	<b>Max</b>	VESA 1280 x 1024@60Hz
	<b>Recommend</b>	VESA 1024 x 768@85Hz
<b>Plug&amp;Play</b>	DDC 2B	
<b>Power Consumption</b>	<b>Normal</b>	73W
	<b>Stand-by/Suspend</b>	≤ 15W
	<b>Power Off</b>	≤ 5W
<b>Dimensions &amp; Weight (with tilt/ swivel stand)</b>	<b>Width</b>	40.0 cm / 15.7 inches
	<b>Height</b>	39.5 cm / 15.6 inches
	<b>Depth</b>	42.4 cm / 16.7 inches
	<b>Net</b>	15.5 kg (34.17 lbs)
<b>Power Input</b>	AC 100-240V 50/60Hz 2.0A	
<b>Environmental Conditions</b>	<b>Operating Conditions</b>	
	<b>Temperature</b>	0°C to 40 °C
	<b>Humidity</b>	10 % to 90 % non-Condensing
	<b>Storage Conditions</b>	
	<b>Temperature</b>	-20°C to 60 °C
	<b>Humidity</b>	5 % to 90 % non-Condensing
<b>Tilt/Swivel Stand</b>	Attached( <input type="checkbox"/> ), Detached ( <input type="checkbox"/> )	
<b>Signal cable</b>	Attached( <input type="checkbox"/> ), Detached ( <input type="checkbox"/> )	
<b>Power cord</b>	Wall-out type or PC-outlet type	
<b>Regulations</b>	E700S:MPR-II	
	E700B:TCO99	

### NOTE

- Information in this document is subject to change without notice.

## Specifications

### Preset Modes (Resolution)

	Display Modes (Resolution)		Horizontal Freq. (kHz)	Vertical Freq. (Hz)
1	VESA	640 x 480	37.50	75
2	VESA	800 x 600	46.88	75
3	VESA	800 x 600	53.68	85
4	VESA	1024 x 768	68.677	85



## Regulatory Information

### FCC Compliance Statement

This equipment has been tested and found to comply within the limits of 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 on and off), the user is encouraged to try to correct the interference by using one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the 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.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's (or your) authority to operate the equipment. Only peripherals (digital input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this monitor. Operation with non-certified peripherals is likely to result in interference to radio and TV reception.

Only shielded signal cables may be used with this System.

#### NOTICE

The regulations are applied only to the products with the ID LABEL indicating specific requirements.

### Canadian DOC Notice

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

#### NOTICE

The regulations are applied only to the products with the ID LABEL indicating specific requirements.

### CE Conformity Notice (for Europe)

Products with the "CE" Marking comply with the EMC Directive(89/336/EEC) and LOW VOLTAGE Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms :

- EN 55022 ; Radio Frequency Interference
- EN 50082-1:1992 ; Electromagnetic Immunity
- EN 60555-2 ; Power Line Harmonics
- EN 60555-3 ; Voltage Fluctuations
- EN 60950 ; Product Safety

#### NOTICE

The regulations are applied only to the products with the ID LABEL indicating specific requirements.

### Low Radiation Compliance (MPR II)

This monitor meets one of the strictest guidelines available today for low radiation emissions, offering the user extra shielding and an antistatic screen coating. These guidelines, set forth by a government agency in Sweden, limit the amount of emission allowed in the Extremely Low Frequency (ELF) and Very Low Frequency (VLF) electromagnetic range.

### TCO95



#### Congratulations!

You have just purchased a TCO'95 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 to the further development of environmentally-adapted electronic 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 electronic equipment are concerned is that environmentally harmful substances are used both in the products and during their manufacture. Since it has not been possible so far for the majority of electronic equipment to be recycled in a satisfactory way, 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 both the working and natural environment viewpoints. Since all types of conventional electricity generation have a negative effect on the environment (acidic- and climatic-influencing emissions, radioactive waste, etc.), it is vital to conserve energy. Electronic equipment in offices consumes an enormous amount of energy, since it is often routinely left running continuously.

#### What does the environmental labelling involve?

This product meets the requirements for the TCO'95

## Regulatory Information cont.

scheme, which provides for international environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Naturkyddsföreningen (The Swedish Society for Nature Conservation), and NUTEK (The National Board for Industrial and Technical Development in Sweden), and SEMKO AB (an international certification agency).

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

The environmental demands concern, among other things, restriction on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons), and chlorinated solvents. The product must be prepared for recycling, and the manufacturer is obliged to have an environmental plan, 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, along with physical and visual ergonomics and good usability.

The following is a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development Unit  
Linnegatan 14, S-11494 Stockholm, Sweden  
FAX +46-8 782 92 07  
E-mail (Internet): development@tco.se

Current information regarding TCO'95 approved and labelled products may also be obtained on the Internet using the address: <http://www.tco-info.com/>

TCO'95 is a co-operative project between:



Naturskydds  
föreningen



NUTEK

SEMKO

Närings- och teknikutvecklingsverket

### Environmental requirements

Brominated flame retardants are present in printed circuit boards, cabling, casings, and housings, and are added to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame-retardant substances. These are related to another group of environmental toxins, PCBs, and are suspected of giving rise to similar harm, including reproductive damage in fish-eating birds and mammals. Flame retardants have been found in human blood, and researchers fear that they can disturb fetus development.

Bio-accumulative<sup>1</sup> TCO'95 demands require that plastic components weighing more than 25 grams must not contain flame retardants with organically bound chlorine or bromine.

Lead can be found in picture tubes, display screens, solder, and capacitors. Lead damages the nervous system and in higher doses causes lead poisoning. The relevant bio-accumulative TCO'95 requirement permits the inclusion of lead, as no replacement has yet been developed.

Cadmium is present in rechargeable batteries and in the color-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant bio-accumulative TCO'95 requirement states that batteries may not contain more than 25 ppm (parts per million) of cadmium. The color-generating layers of display screens must not contain any cadmium.

Mercury is sometimes found in batteries, relays and switches. Mercury damages the nervous system and is toxic in high doses. The relevant bio-accumulative TCO'95 requirement states that batteries may not contain more than 25 ppm of mercury and that no mercury is present in any of the electrical or electronic components concerned with the display unit.

CFCs (freons) are sometimes used for washing printed circuit boards and in the manufacture of expanded foam for packaging. CFCs break down ozone and thereby damage the ozone layer in the atmosphere, causing increased reception on Earth of ultra-violet light with consequent increased risks of skin cancer (malignant melanoma). The relevant TCO'95 requirement: Neither CFCs nor HCFCs may be used during the manufacture of the product or its packaging.

<sup>1</sup> Bio-accumulative means that the substance accumulates within living organisms.

### Shipping Package

The packaging material can be recycled, or you can save it to return the monitor to a service center for repair or disposal.

### CFC Compounds in Distribution Packaging

Cushioning material used for shipping finished monitors are not manufactured with nor do they contain any CFC compounds.

### Design for Disassembly/Recycling

These monitors have been designed for easy end-of-life disassembly and recycling. Fasteners are generally of the same type for efficient disassembly. Components made of different materials can be easily separated and plastics have been identified using international symbols to aid in recycling.

### Monitor Disposal

#### WARNING

If you need to dispose of a monitor, ask a qualified service representative for the proper procedure. Improper disposal could result in personal injury from implosion.

## Regulatory Information cont.

### TCO99



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)

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#### 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.

## Regulatory Information cont.

### 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.

## EPA (U.S.A only)

ENERGYSTAR is a set of power-saving guidelines issued by the U.S. Environmental Protection Agency(EPA).



As an ENERGY STAR Partner LGE U.S.A.,Inc. has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

## NOM MARK (Mexico only)



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