Owner's Guide

19-inch LCD Flat Panel Monitor

Moniteur à écran plat LCD de 19 pouces

19 Zoll LCD Flachbildschirm

Monitor de Pantalla Plana LCD de 19 pulgadas

Sun™ Monitor a schermo piatto LCD da 19 pollici
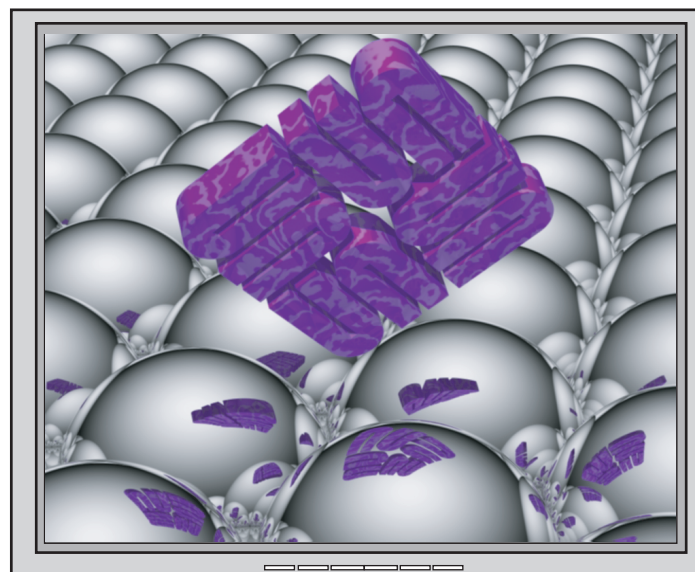
Översikt över 19-tums LCD-bildskärm

19-дюймовый плоскопанельный LCD-монитор

19형 LCD 평면 모니터

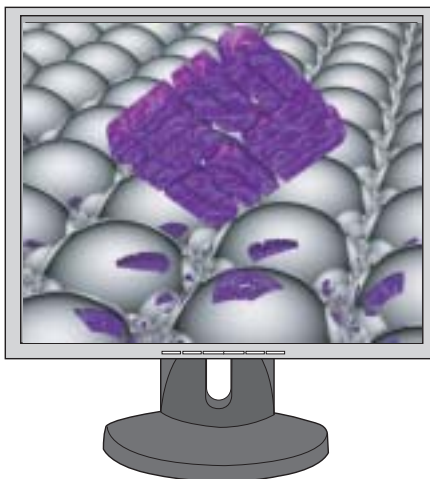**19インチ液晶フラットパネルモニター**

19 英寸液晶平板显示器

19 吋 LCD 平面螢幕

19-inch LCD Flat Panel Monitor

X7144A

Content

Safety Instructions

Notational

Please read the following safety instructions as they are designed to prevent damage to property and harm to the user.

Warning / Caution

⚠️ Failure to follow directions noted by this symbol could result in bodily harm or damage to equipment.

Notational Conventions

🚫 Prohibited

❗ Important to read and understand at all times

🚫 Do not disassemble

Disconnect the plug from the outlet

🚫 Do not touch

⏚ Grounding to prevent an electric shock

Safety Instructions

Power

⚠️ When not used for extended periods of time, set your computer to DPMS (Digital Power Management System). If using a screen saver, set it to the active screen mode.

🔴 **Do not use a damaged or loose plug.**

- This may cause an electric shock or fire.

🔴 **Do not pull the plug out by the wire nor touch the plug with wet hands.**

- This may cause an electric shock or fire.

🔴 **Use only a properly grounded plug and receptacle.**

- An improper ground may cause electric shock or equipment damage.

🔴 **Do not excessively bend the plug and wire nor place heavy objects upon them, which could cause damage.**

- Failure to do so may cause an electric shock or fire.

Safety Instructions

Power

● **Disconnect the plug from the outlet during storms or lightening or if it is not used for a long period of time.**

- Failure to do so may cause an electric shock or fire.

● **Do not connect too many extension cords or plugs to an outlet.**

- This may cause a fire.

Safety Instructions

Installation

● **Do not cover the vents on the monitor cabinet.**
- ● Bad ventilation may cause a breakdown or fire.

● **Put your monitor in a location with low humidity and a minimum of dust.**
- ● An electric shock or fire could result inside the monitor.

● **Do not drop the monitor when moving it.**
- ● This may cause damage to the product or human body.

● **Place the monitor on a flat and stable surface.**
- ● The monitor can cause injury by falling.

● **Set down the monitor carefully.**
- ● It could be damaged or broken.

Safety Instructions

Installation

- 🔴 **Do not place the monitor face down.**
  - ● The LCD surface may be damaged.

Safety Instructions

Clean

When cleaning the monitor case or the surface of the TFT-LCD screen, wipe with a slightly moistened, soft fabric.

● **Do not spray detergent directly on the monitor.**

● **Use the recommended detergent with a smooth cloth.**

● **If the connector between the plug and the pin is dusty or dirty, clean it properly with a dry cloth.**
  ● A dirty connector can cause an electric shock or fire.

● **If the connector between the plug and the pin is dusty or dirty, clean it properly with a dry cloth.**
  ● This may cause damage, electric shock or a fire.
  ● If a foreign substance gets into the monitor, disconnect the plug and then contact an authorized dealer

Safety Instructions

Other

● **Do not remove cover (or back). No user serviceable parts inside.**

- ● This may cause an electric shock or a fire.
- ● Refer servicing to qualified service personnel.

● **If your monitor does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorized dealer.**

- ● This may cause an electric shock or a fire.

● **Do not place any heavy objects on the monitor.**

- ● This may cause an electric shock or a fire.

● **For each hour of looking at the monitor, you should let your eyes rest for 5 minutes.**

- ● This will reduce eye fatigue.

● **Do not use or store inflammable substances near the monitor.**

- ● This may cause an explosion or fire.

Safety Instructions

Other

● **Do not try to move the monitor by pulling on the wire or the signal cable.**

- This may cause a breakdown, electric shock or a fire due to cable damage to the cable.

● **Do not move the monitor right or left by pulling only the wire or the signal cable.**

- This may cause a breakdown, electric shock or a fire due to cable damage to the cable.

● **Never insert anything metallic into the monitor openings.**

- This may cause an electric shock, fire or injury.

● **If you view a fixed screen for an extended period of time, residual image or blurriness may appear.**

- Change the mode to energy save or set a screensaver to a moving picture when you need to be away from the monitor for an extended period of time.

Introduction

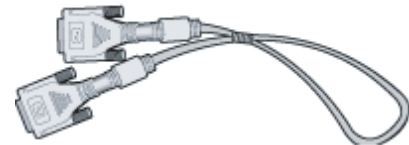## Unpacking

Monitor and Stand

Please make sure the following items are included with your monitor. If any items are missing, contact your dealer.
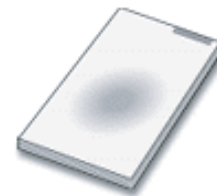
● **Signal cable - D-sub**

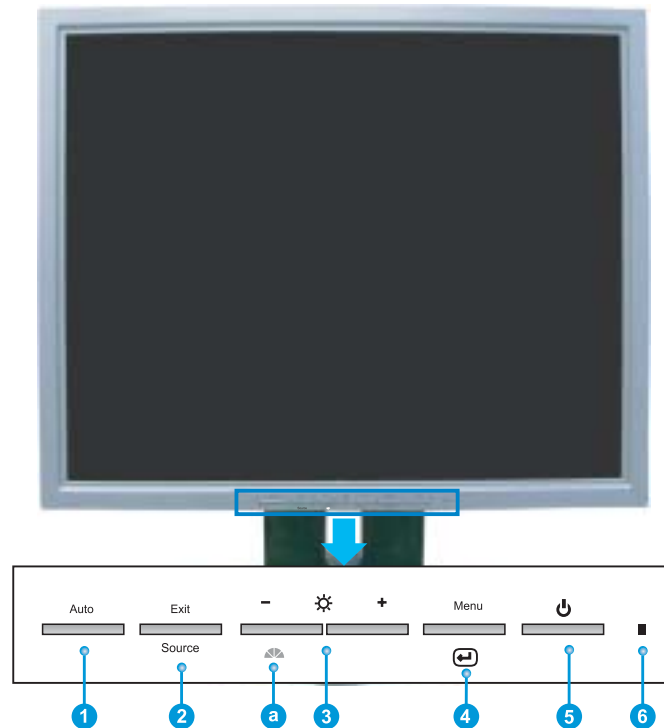● **Signal cable - DVI**

● **Quick Setup Guide**

● **Warranty Card**
(Not available in all locations)

● **User's Guide CD**

Introduction

Front

1. Auto button

Use this button for auto adjustment direct access.

2. Exit / Source button

Use this button to Exit the active menu or the OSD.
Push the 'Source' button to select the video signal input while the OSD is off. (When the Source button is pressed to change the input mode, a message appears in the center of the screen displaying the current mode -- analog or digital input signal.)
Note: If you select the Digital mode, you must connect your monitor to the graphic card's digital port using the DVI cable.

3. Adjust buttons

These buttons allow you to highlight and adjust items in the menu.

4. Menu button

Use this button to open the OSD and activate a highlighted menu item.

5. Power button

Use this button to turn the monitor on and off.

6. Power indicator

This light glows green during normal operation, and blinks green once as the monitor saves your adjustments.

a. Brightness Preset button

Brightness Preset is a new feature providing an optimum viewing environment depending on the contents of the image you are watching. Currently three different modes are available: Text, Internet, and Entertain. Each mode has its own pre-configured brightness value. You can easily select one of three settings by simply pressing Brightness Preset control button.

Note: See PowerSaver described in the manual for further information regarding power saving functions. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods.

	Introduction

Rear
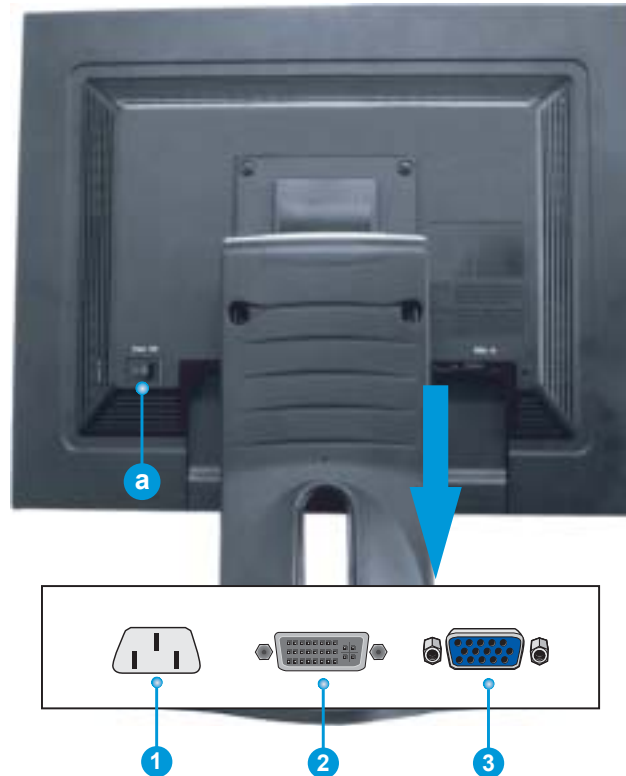
1. Power port   Connect the power cord for your monitor to the power port on the back of the monitor.

2. DVI Port   Connect the DVI Cable to the DVI Port on the back of your Monitor.
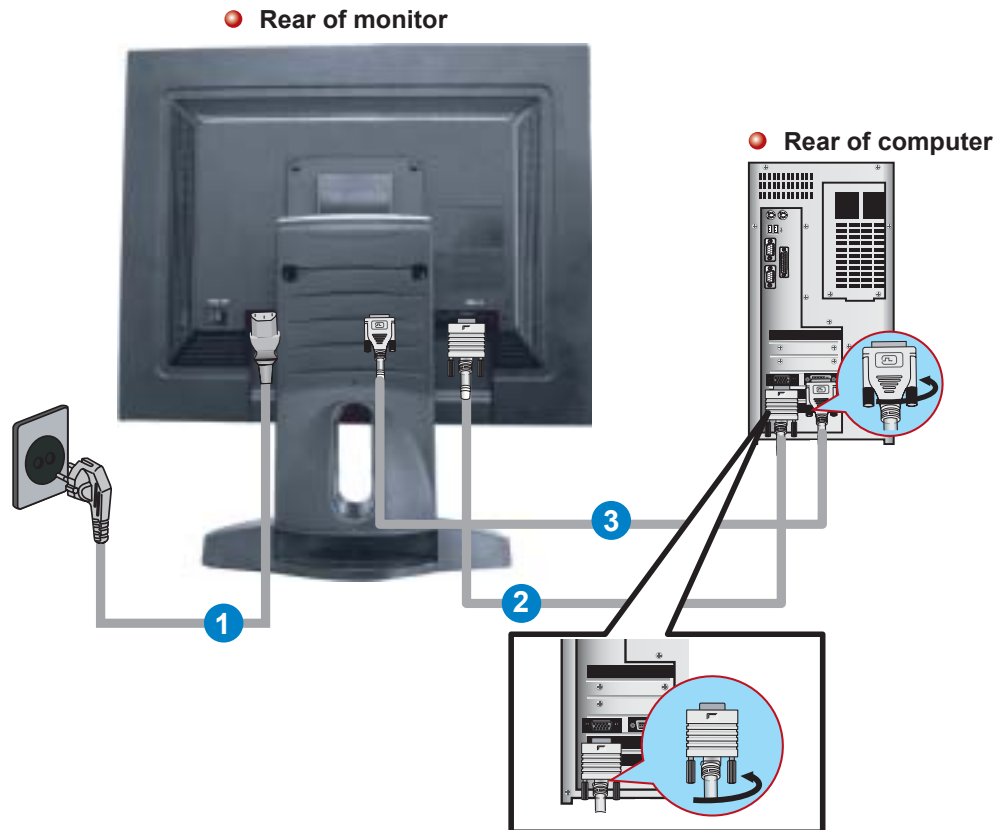
3. Signal port   Connect the signal cable to the 15-pin, D-sub connector on the back of your monitor.

a. Power on/off Switch

Note: See Connecting Your Monitor for further information regarding cable connections.

Setup

Connecting Your Monitor

● **Rear of monitor**

● **Rear of computer**

③

②

①

1. Connect the power cord for your monitor to the power port on the back of the monitor. Plug the power cord for the monitor into a nearby outlet.

2. Using the D-sub (Analog) connector on the video card.
    Connect the signal cable to the 15-pin, D-sub connector on the back of your monitor.
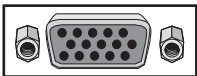
3. Using the DVI (Digital) connector on the video card.
    Connect the DVI Cable to the DVI Port on the back of your Monitor.
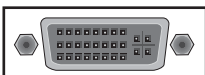
4. Turn on your computer and monitor. If your monitor displays an image, installation is complete.

◆   If you connect both the D-sub and DVI cables to one computer at the same time, you may get a blank screen, depending on the type of video card you are using.

◆   If you properly connect your monitor using the DVI connector but get a blank screen, check to see if the monitor status is set to analog. Press the Source button to have the monitor double-check the input signal source.

Setup

Installing VESA compliant mounting

1. Turn off your monitor and unplug its power cord.
2. Lay the LCD monitor face-down on a flat surface with a cushion beneath it to protect the screen.
3. Remove the four screws and then remove the stand from the LCD monitor.

Installing VESA compliant mounting
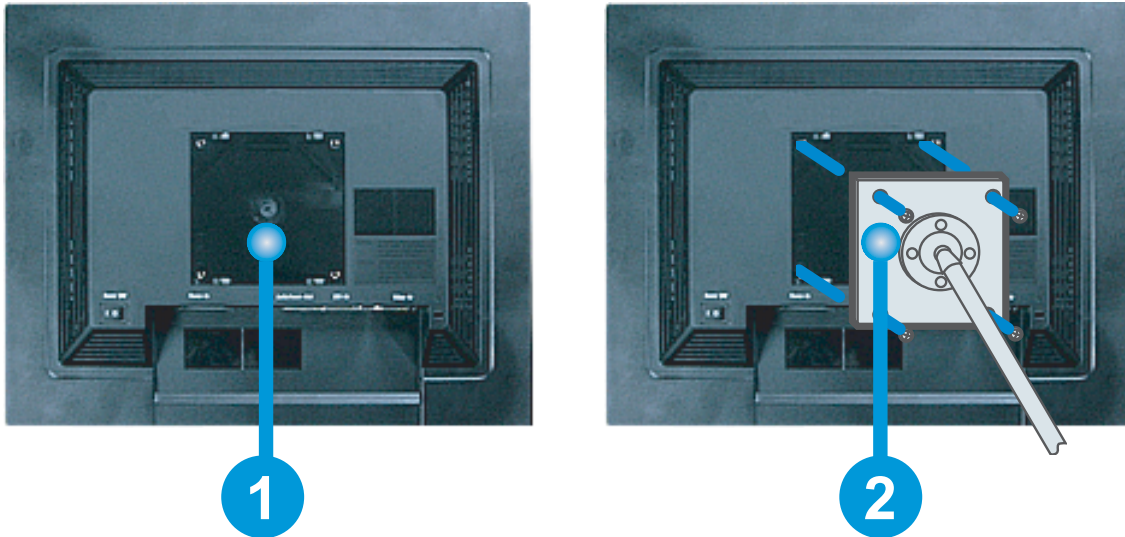
1. Rear cover mounting pad
2. Lay the LCD monitor face-down on a flat surface with a cushion beneath it to protect the screen.

Align the Mounting Interface Pad with the holes in the Rear Cover Mounting Pad and secure it with the four screws that came with the arm-type base, wall mount hanger or other base.

On-Screen Display

Auto   Exit   − ☼ +   Menu

Source

1   2   3   4
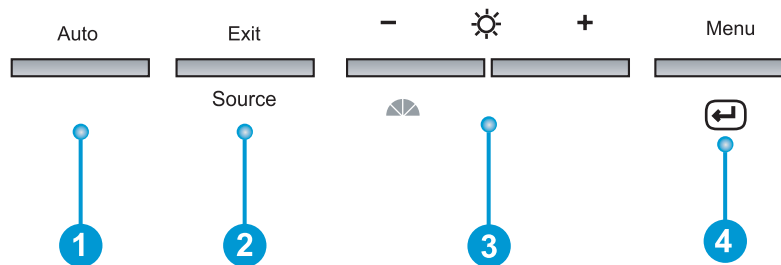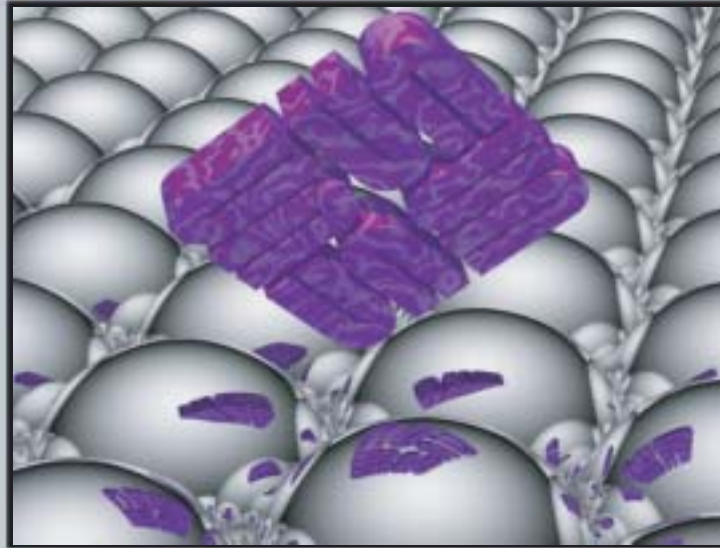
1. Use this button for auto adjustment direct access.

2. Use this button to Exit the active menu or the OSD (On-Screen Display).

3. These buttons allow you to highlight and adjust items in the menu.

4. Use this button to open the OSD and activate a highlighted menu item.

On-Screen Display

Brightness

OSD	How to adjust
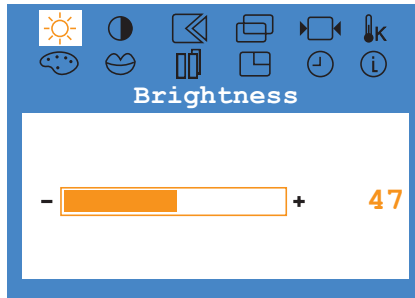
Brightness

Adjust the Brightness.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Brightness** screen is displayed.
3. Push the **Menu** button to open the **Brightness** adjustment screen.
4. Use the [+] button to increase the brightness or [-] button to decrease the brightness.

Note: (Direct Access Feature) When OSD is not on the screen, Push the [+] button to adjust brightness.

Contrast

Contrast

Adjust the Contrast.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Contrast** screen is displayed.
3. Push the **Menu** button to open the **Contrast** adjustment screen
4. Use the [+] button to increase the contrast or [-] button to decrease the contrast.

On-Screen Display

Image Lock

OSD	How to adjust
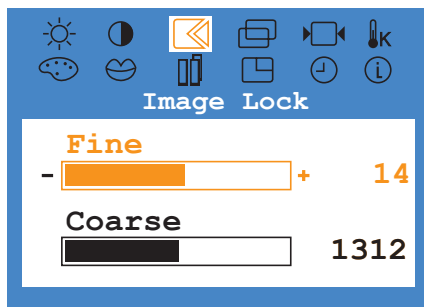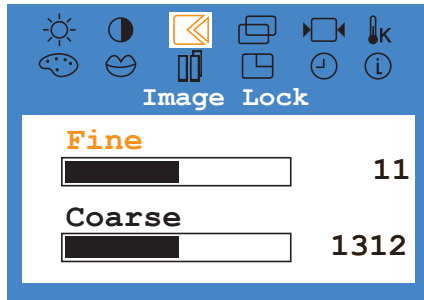
Image Lock (Fine)

Image Lock is used to fine tune and get the best image by removing noise that creates unstable images with jitter and shimmer. If satisfactory results are not obtained using the Fine adjustment, use the Coarse adjustment and then use Fine again.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Image Lock** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **Fine** screen.
4. Push the **Menu** button again and use the [-] or [+] buttons to remove any noise.

Note: Not Available

This function doesn't work in Digital input.

Image Lock (Coarse)

Image Lock is used to fine tune and get the best image by removing noise that creates unstable images with jitter and shimmer. If satisfactory results are not obtained using the Fine adjustment, use the Coarse adjustment and then use Fine again.
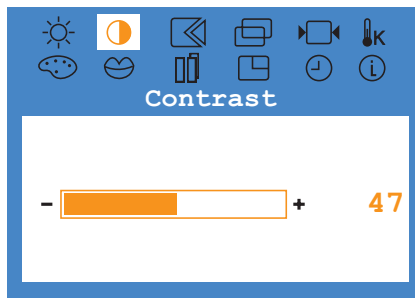
1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Image Lock** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **Coarse** screen.
4. Push the **Menu** button again and use the [-] or [+] buttons to remove any noise.

Note: Not Available

This function doesn't work in Digital input.

On-Screen Display

Position

| OSD | How to adjust |

⬤ Position (H-Position)

**Follow these instructions to change the horizontal position of the monitor's entire display.**

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Position** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **H-Position** screen.
4. Push the **Menu** button again and use the [-] button or [+] button to change the horizontal position of the monitor's viewing area.

Note: Not Available
    This function doesn't work in Digital input.

⬤ Position (V-Position)

Follow these instructions to change the vertical position of the monitor's entire display.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Position** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **V-Position** screen.
4. Push the **Menu** button again and use the [-] button or [+] button to change the vertical position of the monitor's viewing area.

Note: Not Available
    This function doesn't work in Digital input.

On-Screen Display

Reset

OSD	How to adjust
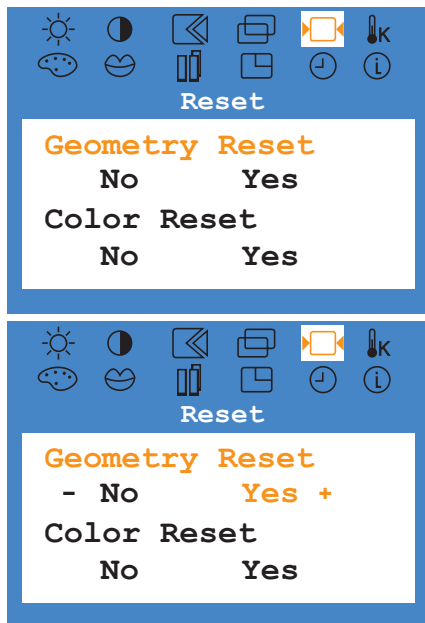
⬤ Reset (Geometry Reset)

Geometry parameters are replaced with the factory default values.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Reset** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **Geometry Reset** screen.
4. Push the **Menu** button to open the **Geometry Reset** adjustment screen.
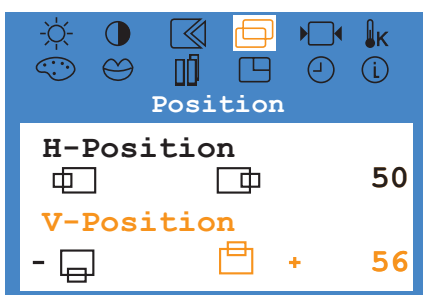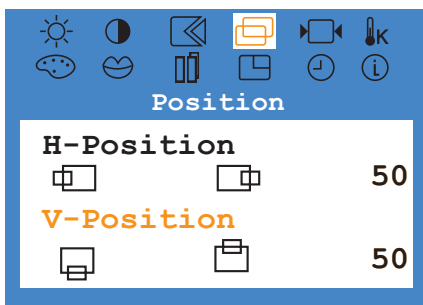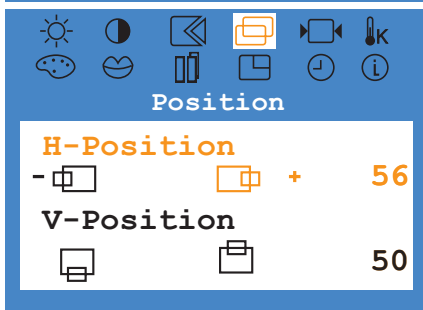5. Push the [+] button to select Yes. If you don't want to reset the monitor, use the [-] button to select No.

Note: Not Available
   This function doesn't work in Digital input.
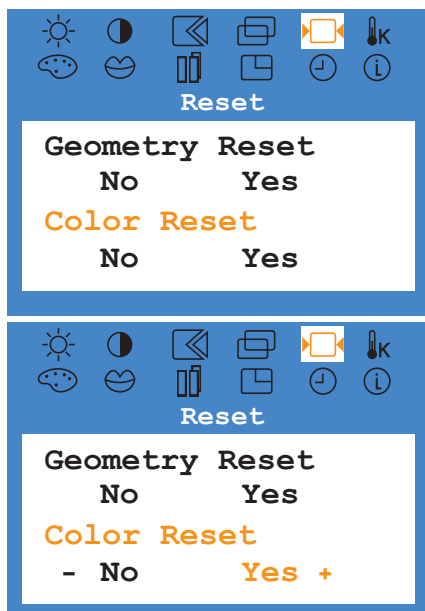
⬤ Reset (Color Reset)

Color parameters are replaced with the factory default values.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Reset** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **Color Reset** screen.
4. Push the **Menu** button to open the **Color Reset** adjustment screen.
5. Push the [+] button to select Yes. If you don't want to reset the monitor, use the [-] button to select No.

Note: Not Available
   This function doesn't work in Digital input.

On-Screen Display

Color Temperature

OSD   **How to adjust**

```
Color Temperature
   User Adjusted
     Reddish
      Bluish
```

```
Color Temperature
   User Adjusted
     Reddish
      Bluish
```
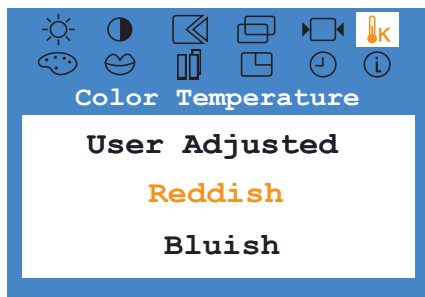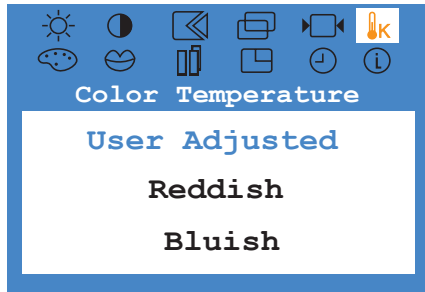
⬤ Color Temperature

Color temperature is a measure of the "warmth"of the image colors.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Color Temperature** screen is displayed.
3. Push the **Menu** button open the **Color Temperature** adjustment screen.
4. Push the [-] or [+] button to select **User Adjusted**, **Reddish** or **Bluish**.

Note: Not Available
    This function doesn't work in Digital input.

Color Control

```
Color Control
R ▮▮▮▮▮         50
G ▮▮▮▮▮         50
B ▮▮▮▮▮         50
```
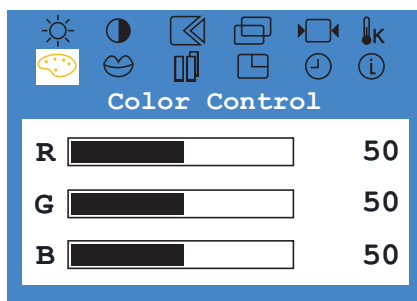
⬤ Color Control

Follow these steps to adjust individual R, G, B color balance.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Color Control** screen is displayed.
3. Push the **Menu** button to open the **Color Control** adjustment screen.
   Use the [-] or [+] button to select **R**(ed), **G**(reen) or **B**(lue).
4. Push the **Menu** button and then press the [-] button or [+] button to adjust the color setting.

Note: Not Available
    This function doesn't work in Digital input.

On-Screen Display

Language

OSD	How to adjust
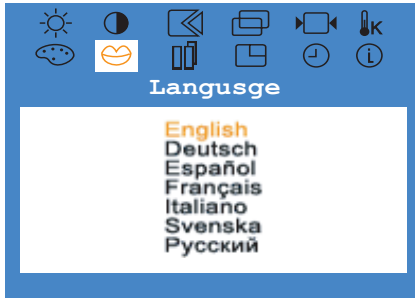
🔵 Language

Follow these steps to change the language used in the menu. You can choose one of Seven languages. (English, German, Spanish, French, Italian, Swedish, Russian)

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Language** screen is displayed.
3. Push the **Menu** button to open the **Language** selection screen.
4. Use the [-] button or [+] button to select the language you would like to use.

Note: The language chosen affects only the language of the OSD. It has no effect on any software running on the computer.

Halftone

🔵 Halftone

Change the opaqueness of the background of the OSD

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Halftone** screen is displayed.
3. Push the **Menu** button to open the **Halftone** selection screen.
4. Use the [-] button or [+] button to select **On** or **Off**

Sun microsystems

On-Screen Display

Menu Position

OSD	How to adjust

Menu Position

H-Position
50

V-Position
50

Menu Position

H-Position
- + 56
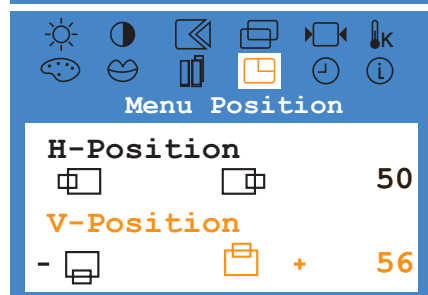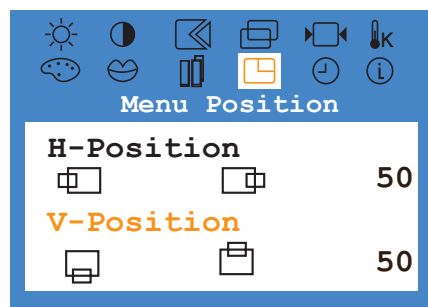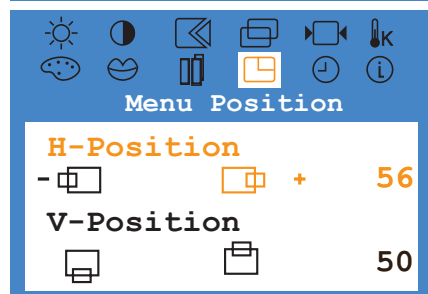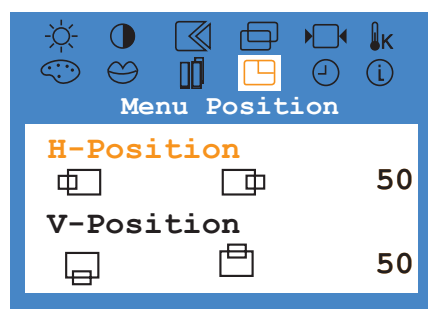
V-Position
50

● Menu Position(H-Position)

You can change the horizontal position where the OSD menu appears on your monitor.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Menu Position** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **H-Position** screen.
4. Push the **Menu** button again and use the [-] and [+] buttons to place the menu in the horizontal position you prefer.

Menu Position

H-Position
50

V-Position
50

Menu Position

H-Position
50

V-Position
- + 56

● Menu Position (V-Position)

You can change the vertical position where the OSD menu appears on your monitor.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Menu Position** screen is displayed.
3. Push the **Menu** button and then press the [-] button or [+] button to open the **V-Position** screen.
4. Push the **Menu** button again and use the [-] and [+] buttons to place the menu in the vertical position you prefer.

On-Screen Display

Menu Display Time

OSD	How to adjust
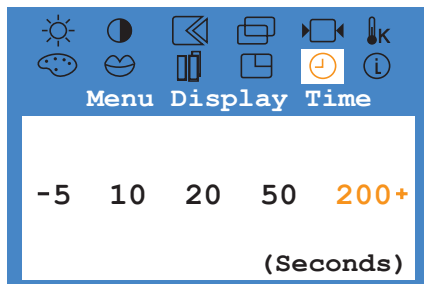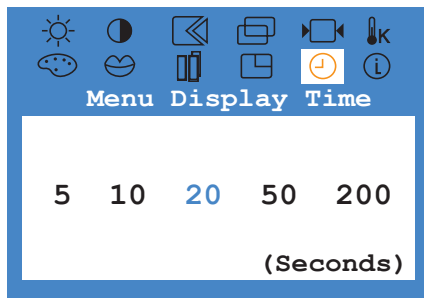
☉ Menu Display Time

The menu will automatically turn off if no adjustments are made for a certain time period.
You can set the amount of time the menu will wait before it turns off.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Menu Display Time** screen is displayed.
3. Push the **Menu** button to open the **Menu Display Time** selection screen.
4. Use the[-] or [+] buttons to select 5, 10, 20, 50, 200 seconds. 20 seconds is the default value.

Source Select
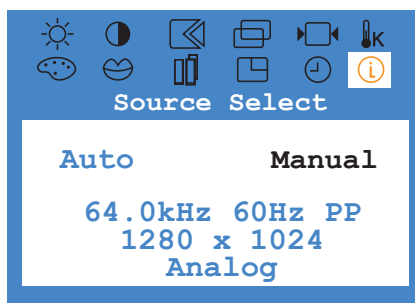
☉ Source Select

Select Auto Source Select for the monitor to automatically select the signal source. Select Manual Source Select to manually select the signal source using the Source button.
You can see the frequency, the polarity of the operational signals and the resolution level.

1. Push the **Menu** button.
2. Push the [-] button or [+] button until the **Source Select** screen is displayed.
3. Push the **Menu** button to open the **Source Select** selection screen.
4. Use the [-] button or [+] button to select **Auto** or **Manual**.

Sun microsystems

On-Screen Display

Auto Adjustment

<div align="center">

OSD   **How to adjust**

</div>

Auto Adjustment

[████████   ] 30
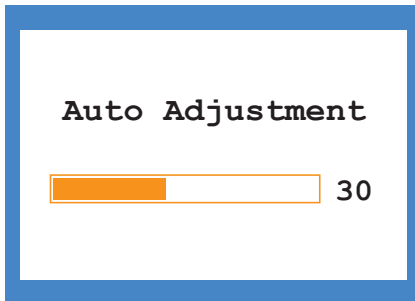
● Auto Adjustment

Auto adjustment allows the monitor to self-adjust to the incoming video signal. The values of fine, coarse and position are adjusted automatically.

   1. Push the **Auto** button.

Note: To make the screen sharper, execute the '**AUTO**' function.
      Not Available
      This function doesn't work in Digital input.

OSD Lock / Unlock

Auto Adjustment
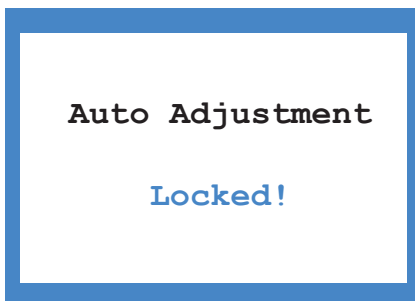
Locked!

● OSD Lock/Unlock

   1. Push and hold in the **Menu** button for 5 seconds or more to Lock the OSD. The power LED will blink once to confirm

   2. Push and hold in the **Menu** button for 5 seconds or more to Unlock the OSD.

Note: When Auto Adjustment is locked, pressing the Auto button will cause the screen on the left to appear.

On-Screen Display

Brightness Preset

OSD   **How to adjust**

```
    Brightness Preset

 User Adjusted
 Text
 Internet
 Entertain
```

```
    Brightness Preset

 User Adjusted
 Text
 Internet
 Entertain
```

```
    Brightness Preset

 User Adjusted
 Text
 Internet
 Entertain
```

```
    Brightness Preset

 User Adjusted
 Text
 Internet
 Entertain
```

⬤ Brightness Preset

1. Push the **Brightness Preset** button.
To select the different modes, press the Brightness Preset button repetedly.

Text: Normal Brightness
For documents or work involving heavy text.

Internet: Medium Brightness
For working with mixture of contents such as text and graphics.

Entertain: High Brightness
For watching motion pictures such as DVD and VCD.

Troubleshooting

Check List

Before calling for service, check the information in this section to see if you can remedy any problems yourself. If you do need assistance, please call the phone number on the Information section or contact your dealer.

Symptom	Check List	Solutions
No images on the screen. I cannot turn on the monitor.	Is the power cord connected properly?	Check the power cord connection and supply.
	Can you see "**No Connection, Check Signal Cable**" on the screen?	**(Connected using the D-sub cable)** Check the signal cable connection. **(Connected using the DVI cable)** If you still see an (error) message on the screen when the monitor is connected properly, check to see if the monitor status is set to analog. Press Source button to have the monitor double-check the input signal source.
	Can you see "**Video mode not supported**" on the screen?	You can see this message when the signal from the video card exceeds the maximum resolution and frequency that the monitor can properly handle. Adjust the maximum resolution and frequency that the monitor can properly handle.
	There is no image on the screen. Is the power indicator on the monitor blinking at 1 second intervals?	The monitor is in PowerSaver mode. Press a key on the keyboard to activate the monitor and restore the image on the screen. If there is still no image, press the 'Source' button. Then press any key on the keyboard again to activate the monitor and restore the image on the screen.
	Connected using the DVI cable?	You may get a blank screen if you boot the system before you connect the DVI cable, or disconnect and then reconnect the DVI cable while the system is running as certain types of graphic cards do not send out video signals. Connect the DVI cable and then reboot the system.

Troubleshooting

Check List

Symptom	Check List	Solutions
I cannot see the On Screen Display.	Have you locked the **On Screen Display (OSD)** Menu to prevent changes?	Unlock the OSD by pressing the MENU button for at least 5 seconds.
The screen shows strange colors or just black and white.	Is the screen displaying only one color as if looking at the screen through a cellophane paper?	Check the signal cable connection. Make sure the video card is fully inserted in it's slot.
	Has the video card been set properly?	Set the video card by referring to the video card manual.
The screen suddenly has become unbalanced.	Have you changed the video card or the driver?	Adjust screen image position and size using the OSD.
	Have you adjusted the resolution or frequency to the monitor?	Adjust the resolution and frequency at the video card. (Refer to the Preset Display Modes).
	The screen can be unbalanced due to the cycle of the video card signals. Readjust Position by referring to the OSD.	
The screen is out of focus or OSD cannot be adjusted.	Have you adjusted the resolution or frequency on the monitor?	Adjust the resolution and frequency of the video card. (Refer to the Preset Display Modes).
LED is blinking but no images on the screen.	Is the frequency properly adjusted when checking the Display Timing on the menu?	Adjust the frequency properly by referring to the video card manual and the Preset Display Modes.

Check the following items if there is trouble with the monitor.

1. Check if the power cord and the video cable(s) are properly connected to the computer.

2. Check if the scanning ratio of the video screen is set at 75Hz.
   (Do not exceed 76Hz when using the maximum resolution.)

Note: If problems repeatedly occur, contact an authorized service center.

Troubleshooting

Self-Test Feature Check

Your monitor provides a self test feature that allows you to check whether your monitor is functioning properly.

Self-Test Feature Check

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.

   If the monitor is functioning properly, you will see a box with a border and text inside as shown in the following illustration:
   The three boxes inside the border are red, green and blue.
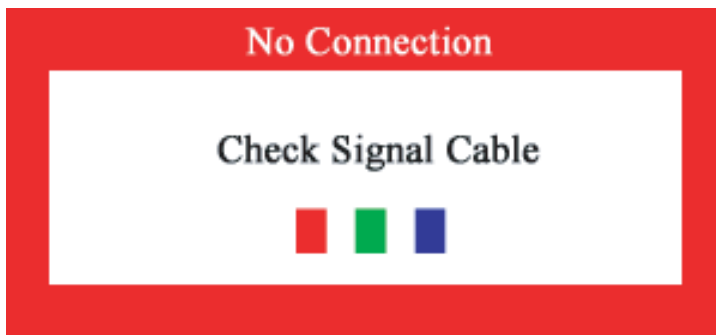
   Failure of any of the boxes to appear indicates a problem with your monitor. This box also appears during normal operation if the video cable becomes disconnected or damaged.

4. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.

   If your monitor screen remains blank after using the previous procedure, check your video controller and computer system; your monitor is functioning properly.

Troubleshooting

Self-Test Feature Check

Warning Messages

If there is something wrong with the input signal, a message appears on the screen or the screen goes blank although the power indicator LED is still on. The message may indicate that the monitor is out of scan range or that you need to check the signal cable.

Environment

The location and the position of the monitor may influence the quality and other features of the monitor.

1. If there are any sub-woofer speakers near the monitor, unplug and relocate the sub-woofer to another room.

2. Remove all electronic devices such as radios, fans, clocks and telephones that are within 3 feet (one meter) of the monitor.

Useful Tips

◆ A monitor recreates visual signals received from the computer. Therefore, if there is trouble with the computer or the video card, this can cause the monitor to become blank, have poor coloring, noise, Video mode not supported, etc. In this case, first check the source of the problem, and then contact a service center or your dealer.

◆ **Judging the monitor's working condition**
If there is no image on the screen or a "**Video mode not supported**" message comes up, disconnect the cable from the computer while the monitor is still powered on.

- If there is a message coming up on the screen or if the screen goes white, this means the monitor is in working condition.

- In this case, check the computer for trouble.

Specification

General

General	
Model Name	GH19PS

LCD Panel	
Size	19.0 inch diagonal
Display area	376.32 (14.815 inch) (H) x 301.056 (11.852 inch) (V)
Pixel Pitch	0.294 (0.011 inch) (H) x 0.294 (0.011 inch) (V)
Type	a-si TFT active matrix

Synchronization	
Horizontal	30 ~ 82 kHz
Vertical	56 ~ 76 Hz

Display Color

16,194,277

Resolution	
Optimum resolution	1280 x 1024@60Hz
Maximum resolution	1280 x 1024@76Hz

Input Signal, Terminated

RGB Analog , DVI Compliant Digital RGB.
Composite H/V Sync, 0.7Vp-p Positive at 75 ohms
Separate H/V sync,TTL level positive or negative

Maximum Pixel Clock

140 MHz

Power Supply

AC 90 ~ 264 VAC rms, 60/50 Hz ± 3Hz

Signal Cable

15pin-to-15pin D-sub cable, detachable
DVI-D to DVI-D connector, detachable

Power Consumption

Less than 42W

Dimensions (WxDxH) / Weight

416.3 x 208.0 x 450.5 mm / 6.1kg
416.3 x 57.9 x 342.0 mm (Without Stand)

Specification

General

VESA Mounting Interface
100mm x 100mm (for use with Specialty(Arm) Mounting hardware.)

Environmental considerations	
Operating	Temperature: 50°F ~ 104°F(10°C ~ 40°C) Humidity: 10% ~ 80%, non-condensing
Storage	Temperature: -4°F ~113°F (-20°C ~ 45°C) Humidity: 5% ~ 95%, non-condensing

Plug and Play Capability
This monitor can be installed on any Plug & Play compatible system. Interaction of the monitor and computer systems will provide the best operating conditions and monitor settings. In most cases, monitor installation will proceed automatically, unless the user wishes to select alternate settings.

Note: Design and specifications are subject to change without prior notice.

Specification

PowerSaver

This monitor has a built-in power management system called PowerSaver. This system saves energy by switching your monitor into a low-power mode when it has not been used for a certain amount of time. The monitor automatically returns to normal operation when you press a key on the keyboard. For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods. The PowerSaver system operates with a VESA DPMS compliant video card installed in your computer. Use a software utility installed on your computer to set up this feature.

State	Normal Operation	Power saving mode EPA/ENERGY 2000	Mechanical Power S/W off(120Vac)
Power Indicator	Green	Green, Blinking	Black
Power Consumption	Less than 42W	Less than 2W	Less than 1W

This monitor is EPA ENERGY STAR ® compliant and ENERGY2000 compliant when used with a computer equipped with VESA DPMS (Digital Power Management System) functionality.

As an ENERGY STAR ® Partner, SAMSUNG has determined that this product meets the ENERGY STAR ® guidelines for energy efficiency.

Specification

Preset Timing Modes

If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

Table 1. Preset Timing Modes

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+,-/+,-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1280 x 1024	63.981	60.020	108.00	+/+
VESA, 1280 x 1024	79.976	75.025	135.00	+/+
SUN, 1152 x 900	61.846	66.003	94.500	-/-
SUN, 1152 x 900	71.810	76.150	108.00	-/-
SUN, 1280 x 1024	81.129	76.106	135.00	-/-

Horizontal Frequency
The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle and the inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Vertical Frequency
Like a fluorescent lamp. the screen has to repeat the same image many times per second to display an image to the user. The frequency of this repetition is called Vertical Frequency or Refresh Rate. Unit: Hz

Information

Terms

- **Dot Pitch**
  The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

- **Vertical Frequency**
  The screen must be redrawn several times per second in order to create and display an image for the user. The frequency of this repetition per second is called Vertical Frequency or Refresh Rate. Unit: Hz

  Example: If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

- **Horizontal Frequency**
  The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

- **Interlace and Non-Interlace Methods**
  Showing the horizontal lines of the screen from the top to the bottom in order is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

- **Plug & Play**
  This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

- **Resolution**
  The number of horizontal and vertical dots used to compose the screen image is called 'resolution'. This number shows the accuracy of the display. High resolution is good for performing multiple tasks as more image information can be shown on the screen.

  Example: If the resolution is 1280 X 1024, this means the screen is composed of 1280 horizontal dots (horizontal resolution) and 1024 vertical lines (vertical resolution).

	Information

Regulatory

- **FCC Information**

  User Instructions

  The Federal Communications Commission Radio Frequency Interference Statement includes the following warning:

  Note: 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 receptions, 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.

  User Information

  Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. If necessary, consult your dealer or an experienced radio/television technician for additional suggestions. You may find the booklet called How to Identify and Resolve Radio/TV Interference Problems helpful. This booklet was prepared by the Federal Communications Commission. It is available from the U.S. Government Printing Office, Washington, DC 20402, Stock Number 004-000-00345-4.

  The party responsible for product compliance:
  SAMSUNG ELECTRONICS CO., LTD
  America QA Lab of Samsung
  3351 Michelson Drive,
  Suite #290, Irvine, CA92612 USA
  Tel) 949-975-7310
  Fax) 949-922-8301

  Warning

  User must use shielded signal interface cables to maintain FCC compliance for the product.

  Provided with this monitor is a detachable power supply cord with IEC320 style terminations. It may be suitable for connection to any UL Listed personal computer with similar configuration. Before making the connection, make sure the voltage rating of the computer convenience outlet is the same as the monitor and that the ampere rating of the computer convenience outlet is equal to or exceeds the monitor voltage rating.
  For 120 Volt applications, use only UL Listed detachable power cord with NEMA configuration 5-15P type (parallel blades) plug cap. For 240 Volt applications use only UL Listed Detachable power supply cord with NEMA configuration 6-15P type (tandem blades) plug cap.

Information

Regulatory

- **IC Compliance Notice**

  This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations of ICES-003.

  Cet appareil Numerique de classe B respecte toutes les exigences du Reglemont NMB-03 sur les equipements produisant des interferences au Canada.

- **MPR II Compliance**

  This monitor complies with SWEDAC(MPR II) recommendations for reduced electric and magnetic fields.

- **European Notice(Europe Only)**

  Products with the CE marking comply with the EMC Directive(89/336/EEC), (92/31/EEC), (93/68/EEC) and the 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:

  - ◆ EN55022:1998+A1:2000 - Radio Frequency Interference
  - ◆ EN55024:1998 - Electromagnetic Immunity of Information Technology Equipment
  - ◆ EN61000-3-2:1995+A1/A2:1998 - Power Line Harmonics
  - ◆ EN61000-3-3:1995 - Voltage Fluctuations

- **PCT Notice**

BE03

- **VCCI**

  This is a Class B product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

- **MIC**

기 기 의 명 칭 (모델명) : 컬러모니터 (GH19PS)
인 증 번 호 : E-B012-02-2558(B)
인 증 받 은 자 의 상 호 : 삼성전자 (주)
제 조 년 월 : 별도표기
제 조 사 / 제 조 국 가 : 삼성전자 (주) / 대한민국

Information

Regulatory

- **TCO'99-Ecological requirements for personal computers (TCO'99 applied model only)**

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.

This product meets the requirements for the TCO'99 scheme which provides for an international environmental and quality labelling 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), Statens Energimyndighet(The Swedish National Energy Administration) and SEMKO AB.

The requirements cover a wide range of issue: environment, ergonomics, usability, reduction of electric and magnetic fields, energy consumption and electrical safety.

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.

Information

Regulatory

What does labelling involve?
The environmental demands has been developed by Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation). These 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.

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

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.

Information

Regulatory

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. There is however one exception. Mercury is, for the time being, permitted in the back light system of flat panel monitors as today there is no commercially available alternative. TCO aims on removing this exception when a Mercury free alternative is available.

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.

Information

For Better Display

1. Adjust computer resolution and screen injection rate (refresh rate) on computer as described below to enjoy the best quality of picture. You can have an uneven quality of picture in the screen if the recommended resolution is not provided in TFT-LCD.

   - ❍ Resolution: 1280 x 1024
   - ❍ Vertical frequency (refresh rate): 60 Hz

2. TFT LCD panel manufactured by using advanced semiconductor technology with precision of 99.999% above is used for this product. But the pixels of RED, GREEN, BLUE and WHITE color seem to be bright sometimes or some of black pixels could be seen. This is not from bad quality and you can use it without uneasiness.

   - ❍ For example, the number of TFT LCD pixels that is contained in this product are 3,932,160.

3. When you clean the monitor and the panel outside, please apply the recommended small amount of cleaner by using soft and dry cloth and polish it. Let LCD area not to be forced but to be scrubbed out softly. If excessive force is applied, you can have a stain on it.

4. If you are not satisfied with the quality of picture, you can get better quality of picture by executing "auto adjustment function" in display screen that is appeared as window termination button is pressed. If there's still noise after automatic adjustment, use FINE/ COARSE adjustment function.

5. If you view a fixed screen for an extended period of time, residual image or blurriness may appear.
   Change the mode to energy save or set a screensaver to moving picture when you need to be away from the monitor for an extended period of time.

Information

Authority

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