SAMSUNG

Color Monitor

Owner's
Instructions

| ⚠	**CAUTION** RISK OF ELECTRIC SHOCK DO NOT OPEN	⚡
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and servicing instructions in the literature accompanying the appliance.

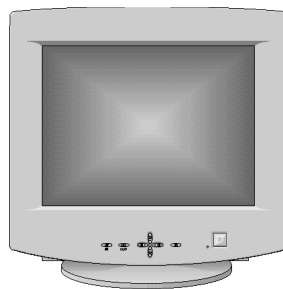# Unpacking your Monitor

Please make sure the following items are included with your computer monitor:
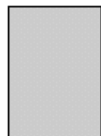
This Manual

Warranty Card

Monitor and Stand

Signal Cable

Power Cable

# Table of Contents

English

Preface: Safety Information

Please read and follow these instructions when connecting and using your computer monitor.

1 Before connecting the AC power cord to an outlet, make sure the voltage designation on your monitor corresponds to the local electrical supply.

2 Never insert anything metallic into the monitor openings. Doing so may create the danger of electric shock.

3 To avoid electric shock, never touch the inside of the monitor. Only a qualified technician should open the monitor's case.

4 Never use your monitor if the power cord has been damaged. Do not allow anything to rest on the power cord, and keep the cord away from where people could trip over it.

5 Be sure to hold the plug, not the cord, when disconnecting the monitor from an electric socket.

6 Openings in the monitor cabinet are provided for ventilation. To prevent overheating, these openings should not be blocked or covered. Also, avoid using the monitor on a bed, sofa, rug, or other soft surface. Doing so may block the ventilation openings in the bottom of the cabinet. If you put the monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.

7 Put your monitor in a location with low humidity and a minimum of dust. Avoid places like damp basements or dusty hallways.

8 Do not expose the monitor to rain or use it near water (in kitchens, next to swimming pools, etc.). If the monitor accidentally gets wet, unplug it and contact an authorized dealer immediately. You can clean the monitor with a damp cloth when necessary, but be sure to unplug the monitor first.

9 Place the monitor on a solid surface and treat it carefully. The screen is made of glass and can be damaged if dropped or sharply hit.

10 Locate your monitor near an easily accessible AC outlet.

11 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 or service center.

12 High temperatures can cause problems. Don't use your monitor in direct sunlight, and keep it away from heaters, stoves, fireplaces, and other sources of heat.

13 Unplug the monitor when it is going to be left unused for an extended period of time.

14 Unplug your monitor from the AC outlet before any service.

Chapter One: Overview of Your Monitor
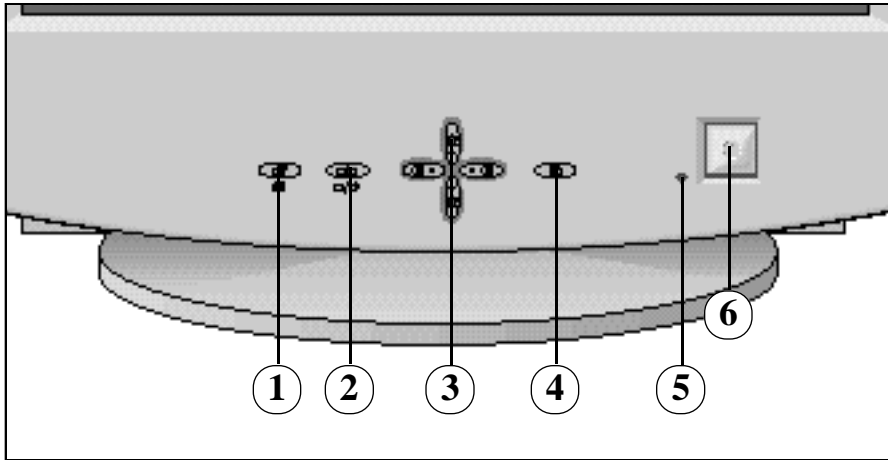
Front Panel

1 ⬜, ⬛ **button**
Use this button to adjust the position or size.

2 ⬜⬜, ⬜⬜ **button**
Use this button to adjust the pincushion/trapezoid or parallel/rotation.

3 s, t, ◀, ▶ **buttons**
Use these buttons to choose or adjust items in the on-screen display.

4 ⮐, **MENU button**
Use this button to activate the on-screen display, to enter a selection in the on-screen display, or to exit the on-screen displays.

5 **Power indicator**
This light glows green during normal operation, and blinks amber once as your adjustments are saved.

6 **Power button**
Use this button to turn the monitor on and off.

Chapter One: Overview of Your Monitor
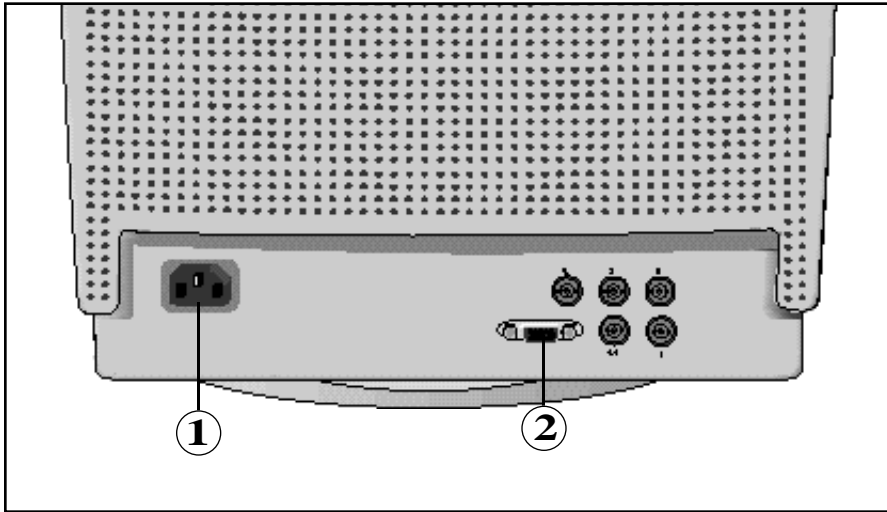
Rear Panel

1 **Power port**
Connect the power cable here.

2 **Signal port**
Connect your signal cable here.

Chapter Two: Installation

Connecting Your Monitor to a Computer

1 Turn off your computer and unplug its power cord.

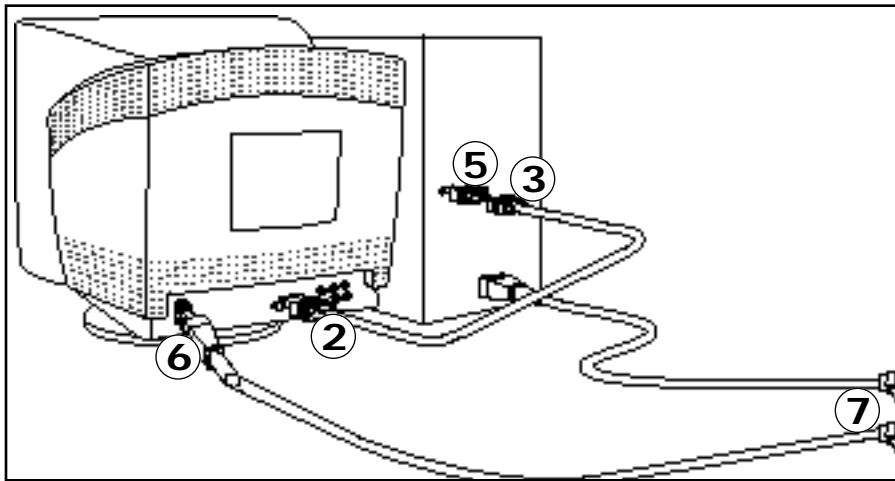2 Connect the signal cable to the signal port on the back of your monitor.

3 If you are using a Macintosh computer, connect the other end of the signal cable to a Macintosh adapter. (The adapter is not included with your monitor. Contact your dealer for more information.) If you are using an IBM-compatible computer, skip to step 5.

4 Follow the instructions included with your adapter to set the pins on your adapter, if necessary.

5 Connect the signal cable (with the adapter if necessary) to the video port on the back of your computer. This port might be directly attached to your computer, or it might be part of a video board, video card, or graphics card.

6 Connect the power cord for your monitor to the power port on the back of the monitor.

7 Plug the power cords of your computer and your monitor into a nearby outlet.

8 Turn on your computer and monitor. If your monitor displays an image, installation is complete.

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Chapter Three: Adjusting Your Monitor

Overview

Your computer monitor allows you to easily adjust the characteristics of the image being displayed. All of these adjustments are made using the control buttons on the front of the monitor. These buttons operate the on-screen menu, which shows you the monitor's settings and allows you to change those settings
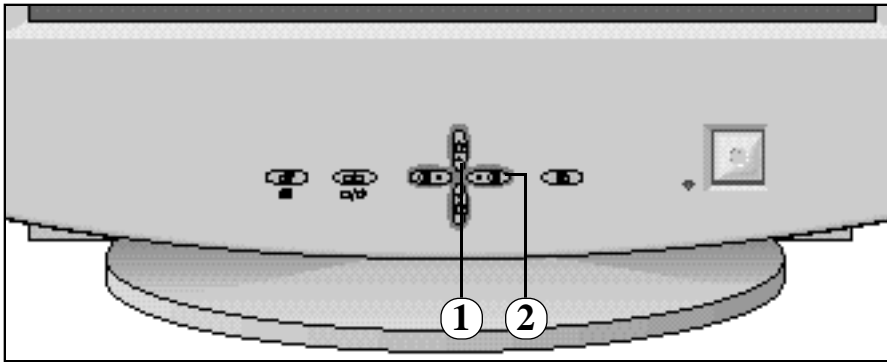
1 **Brightness**
This feature will adjust the overall brightness of the display image. Push the **s** button to increase the brightness or the **t** button to decrease the brightness.

2 **Contrast**
This feature will adjust the monitor's contrast. Push the ▶ button to increase the contrast or the ◀ button to decrease the contrast.
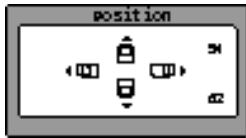
Chapter Three: Adjusting Your Monitor

Direct-Access Features

The features described on this page can be accessed quickly, at the touch of one button. Once you have adjusted one of these features, push the button once or twice to turn off the display.
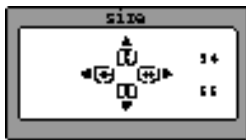
Position

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

1 With the menu off, push the ⬛ button. The position display will appear.

2 Use the **s** and **t** buttons to change the vertical position of the monitor's entire display; use the ◀ and ▶ buttons to change the horizontal position of the monitor's entire display.

Size

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

1 With the menu off, push the ⬛ button twice. The size display will appear.

2 Push the **s** or **t** buttons to change the vertical size of the monitor's display; push the ◀ or ▶ buttons to change the horizontal size of the monitor's display.

Pincushion/Trapezoid

Adjust the pincushion setting when the sides of the display are bowed in or bowed out; adjust the trapezoid setting when the top or bottom of the display is too large or too small.

1 With the menu off, push the ⬛⬛ button. The Pincushion/Trapezoid display will appear.

2 Use the ◀ button or ▶ button to adjust the pincushion setting; use the **s** button or **t** button to adjust the trapezoid setting.

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Chapter Three: Adjusting Your Monitor

Parallel/Rotation
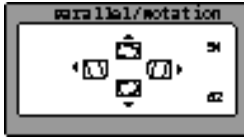
Adjust the parallelogram setting when the display is leaning left or right; adjust the rotation setting when the entire display is tilted left or right.

1   With the menu off, push the ⬚⬚ button twice. The parallelogram/rotation display will appear.

2   Use the ◀ button or ▶ button to adjust the parallel setting; use the **s** button or **t** button to adjust the rotation setting.

Menu Features

The following features can all be accessed using your monitor's on-screen menu system. Follow the instructions below to adjust the features.

Once you are finished making adjustments to a feature, push the MENU button to return to the Main Menu, then push MENU again to turn off the menu.

Color Temperature

Follow these steps to change the color temperature setting. Color temperature is a measure of the "warmth" of the image colors.

1   With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Color Temperature" screen is displayed.

2   Push the ⏎ button. The color temperature adjustment screen will appear.

3   Use the ◀ button or ▶ button to adjust the color temperature. Use the **s** button or **t** button to select "User color" or "Factory color."

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Chapter Three: Adjusting Your Monitor

Color Control

You can change the settings of the saturation and hue of the monitor's display.

1   With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Color Control" screen is displayed.

2   Push the ⏎ button. The color control adjust screen will appear.

3   Use the ◀ button or ▶ button to adjust the satura-tion setting; use the **s** button or **t** button to adjust the hue.

Degauss

The Degauss feature will remove color impurities caused by magnetic fields. Do not use the Degauss feature more than once within a 30-minute period.

1   With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Degauss" screen is displayed.

2   Push the ⏎ button. The monitor will execute the degauss function, then display the degaussing screen.

3   After a few seconds, the degauss main menu will appear.

Note: The monitor may buzz momentarily, the image colors may change and the image will jiggle for a few seconds. These effects are normal.

Chapter Three: Adjusting Your Monitor

Recall

Use the recall feature to reset these monitor settings to their original levels: position, size, pincushion, trapezoid, parallelogram, pinbalance, rotation, and clear moire.

1. With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Recall" screen is displayed.

2. Push the ⏎ button. The recall select screen will appear.

3. Push the ◀ button to select "YES." If you don't want to reset the monitor, use the ▶ button to select "NO."

   NOTE: If you have selected "YES," all settings listed above will be reset. All other settings will remain the same.

   CAUTION: This operation resets all of the data in the user memory area for the current timing signal.

Menu Position
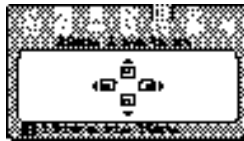
You can change the position where the menu appears on your monitor.

1. With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Menu Position" screen is displayed

2. Push the ⏎ button. The menu position adjustment screen will appear.

3. Use the s ,t ,◀ or ▶ buttons to place the menu in the position you prefer.

Chapter Three: Adjusting Your Monitor

Menu Duration

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.
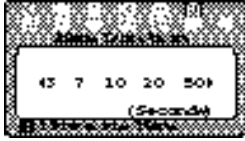
1   With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Menu Duration" screen is displayed.

2   Push the ⏎ button. The menu duration selection screen will appear.

3   Use the ◀ or ▶ buttons to select 3, 7, 10, 20, or 50 seconds.

Pinbalance

Adjust the pinbalance setting when the sides of the display are bowed towards the left or right.
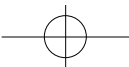
1   With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Pinbalance" screen is displayed.

2   Push the ⏎ button. The pinbalance adjustment screen will appear.

3   Use the ◀ button or ▶ button to adjust the pinbalance setting.

Clear Moire
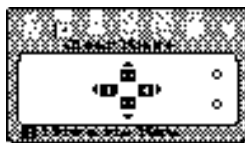
A "moire" pattern can appear on your screen, looking like a series of concentric circles or arcs. To eliminate this pattern, adjust the clear moire.

1   With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Clear Moire" screen is displayed.

2   Push the ⏎ button. The clear moire adjustment screen will appear.

3   Use the s , t , ◀ or ▶buttons to adjust moire is cleared.

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Chapter Three: Adjusting Your Monitor

Language

Follow these steps to change the language used in the menu. This adjustment only changes the language of the monitor's menu; it does not change the language of any other software.

1 With the menu off, push the MENU button. Push the ◄ button or ► button until the "7 Languages" screen is displayed.

2 Push the ⏎ button. The language selection screen will appear.

3 Use the **s** button or **t** button to select the language you would like to use.

Display Timing

This screen displays the settings that are available to your monitor. This screen only displays this information; you cannot select a new setting.

1 With the menu off, push the MENU button. Push the ◄ button or ► button until the "Display Timing" screen is displayed.

2 Push the ⏎ button. The Factory Timing screen will appear.

3 Use the **s** button or **t** button to display the user and factory timing.

Video Input Level

This feature will select the video signal level.

1 With the menu off, push the MENU button. Push the ◄ button or ► button until the "Video Input Level" screen is displayed.

2 Push the ⏎ button. The video input level select screen will appear.

Chapter Three: **Adjusting Your Monitor**

3 Use the ◀ or ▶ buttons to select 0.7V or 1.0V.

NOTE: Some video cards use video singals higher than 1.0V which causes the display to be very bright. For those video cards should be selected 1.0V.

Sync. Input Type

Use this menu to set your monitor to the correct type of synchronization. Select "Separate" if the computer is sending a separate synchronization signal. Select "Sync. On Green" if the computer expects the monitor to synchronize with the green signal it sends. Refer to your computer or video card user's manual to determine the correct setting.

1 With the menu off, push the MENU button. Push the ◀ button or ▶ button until the "Sync. Input Type" screen is displayed.

2 Push the ⏎ button. The sync input type selection screen will appear.

3 Use the **s** button or **t** button to select "Separate" or "Sync. On Green."

Exit

Once you are finished making adjustments to a feature, use this menu to turn off the menu.

1 Once you are finished making adjustments to a feature, push the MENU button.

2 Push the ◀ button or ▶ button until the "Exit" screen is displayed.

3 Push the MENU button to turn off the menu.

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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 available modes are "On," "Standby," "Suspend," and "Off."

This system operates with a VESA DPMS compliant video card installed in your computer. You use a software utility installed on your computer to set up this feature. See the table below for details.

State	Normal Operation	Power Saving function mode EPA/NUTEK		
		Standby mode	Suspend mode / Position A1	Power-off Mode / Position A2
Horizontal Sync Vertical Sync Video	Active Active Active	Inactive Active Blanked	Active Inactive Blanked	Inactive Inactive Blanked
Power Indicator	Green	Amber	Amber/Green Blinking	Amber Blinking
Power Consumption	160W (max.) 140W (nominal)	80W (nominal)	Less than 15W	Less than 5W

NOTE: This monitor automatically returns to normal operation when horizontal and vertical sync return. This occurs when you move the computer's mouse or press a key on the keyboard.

This monitor is EPA ENERGY STAR® compliant and NUTEK compliant when used with a computer equipped with VESA DPMS functionality.

For energy conservation, turn your monitor OFF when it is not needed, or when leaving it unattended for long periods.

Chapter Three: Adjusting Your Monitor

Troubleshooting

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 warranty card, the phone number on the back cover of this manual, or contact your dealer.

There is no screen image.

- Check to see that both the monitor and the computer are plugged in and turned on.

Image area is lightened but No image appears.

- Check the signal cable connection between the computer and the monitor.

The image is too light or too dark.

- Adjust the Brightness or Contrast settings.

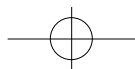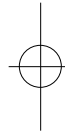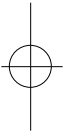### The image is too large or too small.

- Adjust the Size settings.

The colors are distorted with dark or shadowed areas.

- Activate the Degauss feature.

The power indicator is amber, amber/green, or blinking.

- The monitor is using its power management system. Check the power management utility on your computer.

Appendix

Specifications

Picture Tube
- 48.2 cm (19") Full square type [45.7cm (18.0") viewable]
- Flat face, 100˚ deflection
- 0.25 Dot pitch
- Anti-reflection coating with anti-electrostatic properties
- Medium-short persistence phosphor

Synchronization
- Horizontal: 30 kHz to 96 kHz (automatic)
- Vertical: 50 Hz to 160 Hz (automatic)

Display Color
- Unlimited colors

Maximum Resolution
- Horizontal: 1600 dots
- Vertical: 1200 lines

Active Display
- Horizontal: 350 ± 3 mm (13.78 ± 0.12)(4:3)
  328 ± 3 mm (12.91 ± 0.12)(5:4)
- Vertical: 262.5 ± 3 mm (10.33 ± 0.12)
  (Active display size is dependent upon signal timing)

Input Signal,Terminated
- Video signal: Analog 0.714 Vpp positive at 75
- Separate sync: TTL Level, positive or negative
- Composite sync: TTL Level, positive or negative
- Sync-on-Green: Composite sync 0.286 Vpp negative
  (Video 0.714 Vpp positive)

Maximum Pixel Clock
- 207 MHz

Power Supply
- AC 100-240 Volt ± 10%, 60 Hz/50 Hz ± 3 Hz

Power Consumption
- 160 Watt maximum

Dimensions/Weight
- Unit: 460 x 407 x 465.8 mm ; 21.2 kg
  18.1 x 16.0 x 18.3 inch (W x D x H); 46.7 lbs
- Carton: 580 x 510 x 566 mm; 23.5 kg
  22.8 x 20.1 x 22.3 inch (W x D x H); 51.8 lbs
(All measurements are approximate.)

Environmental Considerations
- Operating Temperature: 32˚F to 104˚F (0˚C to 40˚C)
  Humidity: 10% to 80%
- Storage Temperature: -4˚F to 113˚F (-20˚C to 45˚C)
  Humidity: 5% to 95%

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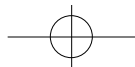
Appendix

Pin Assignments

Sync Type / Pin No.	15-Pin Side of the Signal Cable (Figure 1)			Cable Adapter (Figure 2)
	Separate	Composite	Sync on Green	Apple MAC II
1	Red	Red	Red	GND-R
2	Green	Green	Green+Sync	Red
3	Blue	Blue	Blue	H/V Sync
4	GND	GND	GND	Sense 0
5	DDC Return	DDC Return	DDC Return	Green
6	GND-R	GND-R	GND-R	GND-G
7	GND-G	GND-G	GND-G	Sense 1
8	GND-B	GND-B	GND-B	Reserved
9	Reserved	Reserved	Reserved	Blue
10	GND-Sync/Self-Raster	GND-Sync/Self-Raster	GND-Sync/Self-Raster	Sense 2
11	GND	GND	GND	GND
12	DDC Data	DDC Data	DDC Data	V-Sync
13	H-Sync	H/V-Sync	Not Used	GND-B
14	V-Sync	Not Used	Not Used	GND
15	DDC Clock	DDC Clock	DDC Clock	H-Sync

Figure1: Male Type

Figure2: Male Type

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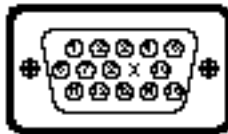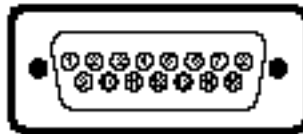
Appendix

BNC Connectors

PIN ASSIGNMENT	SIGNALS		
	SYNC-ON-GREEN	COMPOSITE SYNC	SEPARATE SYNC
R	RED	RED	RED
G	GREEN + SYNC	GREEN	GREEN
B	BLUE	BLUE	BLUE
H / V	NC	H/V COMP. SYNC	H-SYNC
V	NC	NC	V-SYNC

NC = No Connection
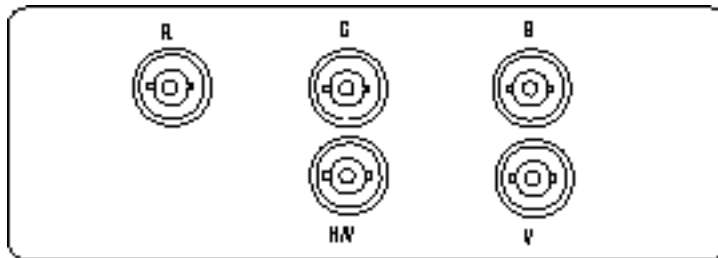
Display Modes Timing Chart

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
IBM, VGA2, 720 x 400	31.469	70.087	28.322	– / +
IBM, VGA3, 640 x 480	31.469	59.940	25.175	– / –
VESA, 640 x 480	43.269	85.008	36.000	– / –
VESA, 800 x 600	53.674	85.061	56.250	+ / +
VESA, 1024 x 768	68.677	84.997	94.500	+ / +
VESA, 1024 x 768	81.400	100.000	113.309	– / +
VESA, 1280 x 1024	79.976	75.025	135.000	+ / +
VESA, 1280 x 1024	91.146	85.024	157.500	+ / +
VESA, 1600 x 1200	93.750	75.000	202.500	+ / +
MAC 1152 x 870	68.681	75.062	100.000	– / –

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Chapter Three: Adjusting Your Monitor

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.

English
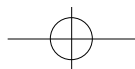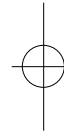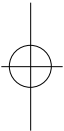
Appendix

Warning

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

Declaration of conformity for products
Marked with FCC Logo

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.
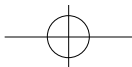
The party responsible for product compliance :

SAMSUNG ELECTRONICS CO., LTD
QA Lab of Samsung America
85 West Tasman Drive
San Jose, CA 95134 USA
Tel) 408-544-5124
Fax) 408-544-5191

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 6015P type (tandem blades) plug cap.

IC Compliance Notice

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

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