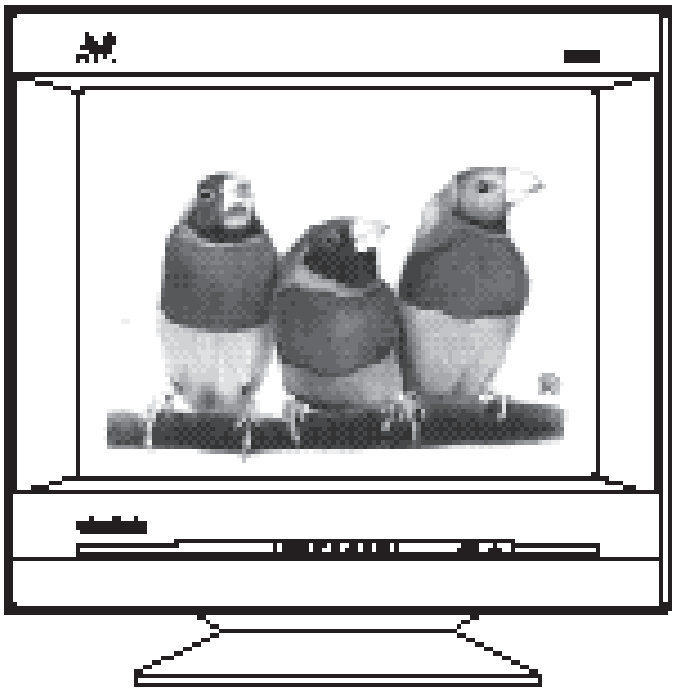
ViewSonic®

EF70 Color Monitor



with Plug & Play+

17" (16" Viewable Diagonal)

User's Guide

Guide de l'utilisateur

Bedienungsanleitung

(Latin American Spanish)

(Italian)

(Brazilian Portuguese)

(Swedish)

(Russian)

(Polish)

(Arabic)

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As an **ENERGY STAR® partner**, ViewSonic Corp. has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

Electronic Warranty Registration

Register your monitor at **www.viewsonic.com**. It's fast, easy, and will simplify future support needs.

For Your Records

The serial number of this product is on the back of the monitor. Write the serial number of this unit in the space below and keep this booklet as a permanent record of your purchase to aid in identification in the event of theft or loss.

Model Name:	**ViewSonic EF70**
Model Number:	**VCDTS21529-1**
Serial Number:	_____
Purchase Date:	_____

Power Cord Safety Guidelines

Caution : Use a power cable that is properly grounded. Always use the AC cords listed below for each area :

USA .....UL
Canada .....CSA
Germany .....VDE
Switzerland .....SEV
Britain .....BASEC/BS
Japan .....Electric Appliance Control Act

In other areas, use AC cord which meets local safety standards.

IMPORTANT NOTICE CONCERNING POWER CORD SELECTION

The power cord for this unit has been packed separately and has been selected according to the country of destination and must be used to prevent electric shock. Use the following guidelines if it is necessary to replace the original cord set.

The female receptacle of the cord set must meet CEE-22 requirements and will look like Figure 1 below:

For the United States and Canada

In the United States and Canada the male plug is a NEMA5-15 style (Figure 2) UL Listed and CSA Labelled. For units which are mounted on a desk or table, type SVT or SJT cord sets may be used. For units which sit on the floor, only SJT type cord sets may be used. The cord set must be selected according to the current rating for your unit. Please consult Table A below for the selection criteria for power cords used in the United States and Canada.

For European Countries

In Europe you must use a cord set which is appropriate for the receptacles in your country. The cord set is HAR-Certified, and a special mark that will appear on the outer sheath, or on the insulation of one of the inner conductors.

If you have any questions concerning which proper power cord to use, please consult with the dealer from whom you purchased your monitor.

Table A

Cord Type	Size of Conductors In Cord	Maximum Current Rating of Unit
SJT	18AWG 16AWG 14AWG	10Amps 12Amps 12Amps
SVT	18AWG 17AWG	10Amps 12Amps

FCC Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Warning:

To assure continued FCC compliance, the user must use the grounded power supply cord and the provided shielded video interface cable with bonded ferrite cores. Also, any unauthorized changes or modifications not express ly approved by the party responsible for compliance could void the user's authority to operate this device.

ENGLISH

Power Supply Cord USA

For units with 100 - 120V input voltage in the USA, use the following :
UL Listed and CSA Certified Type SVT or SJT No. 18/3 AWG rated 125Vac 7A min.
One end terminated in a molded on parallel blade, grounding attachment cap or hooded attachment cap (15A, 125V configuration), other end terminated in a mold-on appliance coupler.

Notice for Germany

The X-rays generated in this unit are shielded sufficiently. High voltage: Max. 30.0 kV. For ergonomic reasons, we recommend that you do not display blue characters on a dark background. Doing so may produce insufficient contrast that could lead to eye strain.

Notice for Japan

This equipment falls under the class B information Technology Equipment based on the standard established by the self-imposed Control Council for Radio interference through information-processing Equipment (VCCI). This equipment is designed to be used in a household environment, However, if it is used near radio and television receiver units, radio disturbances can occur. Use this equipment appropriately according to the instruction manual.

CE Conformity

CE

The device complies with the requirements of the EEC directive 89/336/EEC as amended by 92/31/EEC and 93/68/EEC Art.5 with regard to "Electromagnetic compatibility", and 73/23/EEC as amended by 93/68/EEC Art. 13 with regard to "safety".

Required item	Relative to Standard Value	Relative to those Exceeding Standard Value	Remarks
EMI*	# 1		# 4
ESD*	# 2	# 3	
RADIATED RF*	# 1	# 3	
TRANSIENT F/B*	# 1	# 3	
LINE HARMONICS	# 1		

1: Satisfies the standards with no problems in performance and reliability.
2: Effects may appear temporarily on the screen but there will be no problem in reliability.
3: There is fear of the product breaking down.
4: If a signal cable other than that specified is used, it may be the cause of electromagnetic wave interruption of peripheral devices. To assure continued CE compliance the user must use the provided 1.8m shielded video signal cable with bonded ferrite cores at both ends of the cable.

Handle correctly in accordance with the instruction manual.

*EMI : Electromagnetic Interference *ESD : Electrostatic Discharge *RF : Radio Frequency *F/B : Fast Burst

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*To meet your future needs, and to receive any additional product information as it becomes available, please register your monitor's warranty on the Internet at: **http://www.viewsonic.com**.

Getting Started

Congratulations on your purchase of a **ViewSonic *EF70*** color monitor. ***Important!*** *Save the original box and all packing material for future shipping needs.*

NOTE: This product was designed for operation in the magnetic fields of the hemisphere where it was purchased. Also, the word "Windows®" in this user guide refers to the following Microsoft® operating systems: Windows '95, Windows '98, Windows NT (4.0).

Package Contents

Your **ViewSonic *EF70*** package includes:

- **ViewSonic *EF70*** monitor with attached video cable
- Power cord
- User's guide
- INF or ICM installation files on diskette or CD-ROM

IMPORTANT: The supplied **INF file** assures compatibility with Windows operating systems, and the **ICM file** (Image Color Matching) ensures accurate on-screen colors. ViewSonic® recommends that you install both files.

- For CD-ROM: Insert the CD-ROM into your system, wait for it to auto-start, select "Monitor Drivers," and follow the on-screen instructions.
- For diskette: Insert the diskette into your system, run **install.exe,** and follow the on-screen instructions.

Precautions

- For best viewing conditions sit at least 18" from the monitor.
- AVOID TOUCHING THE SCREEN WITH YOUR FINGERS. Oils from the skin are difficult to remove.
- NEVER REMOVE THE REAR COVER. The monitor contains high-voltage parts. You may suffer serious injury if you touch these parts.
- Avoid exposing the monitor to direct sunlight or another heat source. The monitor should be facing away from direct sunlight to reduce glare.
- Always handle your monitor with care when moving it.
- Choose a well ventilated area to position your monitor. Do not place anything on the monitor that prevents adequate dissipation of heat.
- Ensure the area around the monitor is clean and free of moisture.
- Keep the monitor away from magnets, motors, transformers, speakers, and televisions.
- Do not place heavy objects on the monitor, video cable, or power cord.
- If smoke, abnormal noise, or strange odor is present, immediately switch the monitor off and call your dealer or ViewSonic. It is dangerous to continue using the monitor.

Quick Installation

1 Connect video cable

Make sure both the monitor and computer are powered OFF. Connect the video cable to the computer.

Macintosh® users: Connect a Macintosh adapter to the video cable, then to the computer. To order a ViewSonic® Macintosh adapter, send an email to vsparts @viewsonic.com or contact ViewSonic (see the back cover of this guide). You will need to provide your monitor's serial number.

2 Connect power cord

Connect the power cord from a properly grounded AC outlet to the monitor.

3 Power-ON monitor and computer

Power-ON the monitor, then power-ON the computer. This sequence (monitor before computer) is very important.

NOTE: At this point Windows® 98 users may receive a message asking them to install the EF70's INF file.

4 Install INF and ICM files

- For CD-ROM: Insert the CD-ROM into your system, wait for it to auto-start, select "Monitor Drivers," and follow the on-screen instructions.
- For diskette: Insert the diskette into your system, run **install.exe,** and follow the on-screen instructions.

5 Windows users: Setting the Timing Mode (resolution and refresh rate) *Example: 1024x768 @ 75Hz.*

For instructions on changing the resolution and refresh rate, see the user guide for your computer's graphics card.

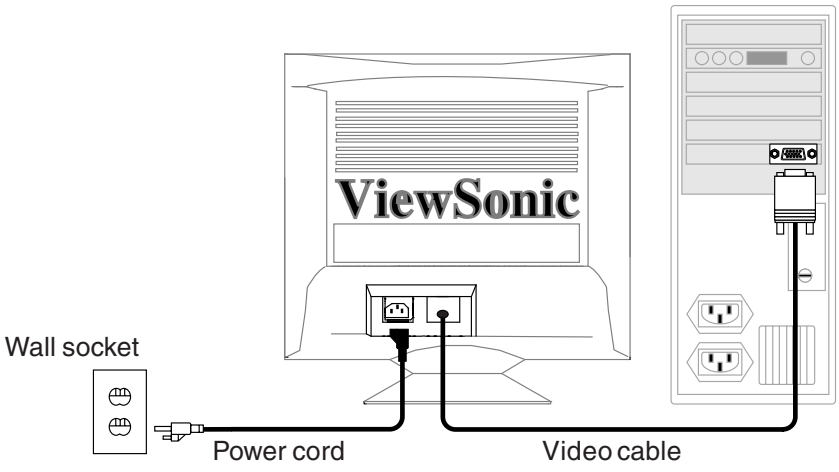
6 Use the OnView® controls to adjust the screen image.

See the *Operations* section in this guide.

Installation is complete!
Enjoy your new EF70 Monitor!

To be best prepared for any future customer service needs:

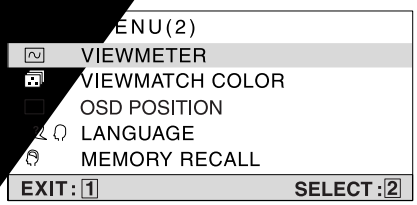
- Write the serial number (see back of the monitor) in *"For your Records"* on page 1 of this guide.
- Register the warranty of your monitor on the Internet at:
  http://www.viewsonic.com



Many controls are paired together on the menu as shown. Press button [2] to toggle between the two controls.

V.LINEARITY CEN / SYM

H. MOIRE / V. MOIRE



ou turn it on. Degaussing removes
ity and convergence. Do not turn
peatedly. Wait 20 minutes before
sible damage. To manually degauss the

To exit a screen and save changes, press button [1].

Press button [2] to toggle between all controls that appear in pairs on the menu.

CONTRAST adjusts foreground white level of screen image.
[▼] *decreases* contrast, [▲] *increases* contrast.

BRIGHTNESS adjusts background black level of screen image.
[▼] *decreases* brightness, [▲] *increases* brightness.

HORIZONTAL SIZE adjusts the width of screen image.
[▼] *decreases* width of screen image, [▲] *increases* width of image.

HORIZONTAL POSITION moves screen image left or right.
[▼] moves screen image to *left*, [▲] moves screen image to *right*.

VERTICAL SIZE adjusts height of screen image.
[▼] *decreases* height of screen image, [▲] *increases* height of image.

VERTICAL POSITION moves screen image up or down.
[▼] moves screen image *down*, [▲] moves screen image *up*.

PINCUSHION adjusts straightness of screen image's vertical edges.
[▼] curves vertical edges *inward*, [▲] curves vertical edges *outward*.

PINBALANCE straightens vertical sides of screen image by curving them to the right or to the left.
[▼] curves vertical edges *to the left*, [▲] curves vertical edges *to the right*.

TRAPEZOID makes vertical edges of screen image parallel.
[▼] makes screen image *narrower at top* and *wider at bottom*.
[▲] makes screen image *wider at top* and *narrower at bottom*.

PARALLELOGRAM slants vertical edges of the screen to the left or right.
[▼] slants vertical edges to left, [▲] slants vertical edges to right.

ENGLISH

V. LINEARITY CENTER (Vertical Linearity Center) adjusts the vertical distortion at the center of the screen image. Press [▼] or [▲] to adjust.

V. LINEARITY SYMMETRY (Vertical Linearity Symmetry) adjusts the vertical distortion by balancing the vertical distortion between the top and the bottom of the screen image. Press [▼] or [▲] to adjust.

NOTE: Both V. LINEARITY CENTER and V. LINEARITY SYMMETRY are advanced controls to be used for set up and calibration only. To return these controls to factory settings use MEMORY RECALL.

TILT rotates entire screen image.
[▼] rotates screen image *counter-clockwise*, [▲] rotates image *clockwise*.

H. MOIRE reduces vertical interference patterns that appear as ripples, waves, or unwanted background color textures. Interference patterns of this type are most noticeable when viewing images having closely spaced lines or finely detailed patterns
Press [▼] or [▲] to minimize interference patterns.

V. MOIRE reduces horizontal interference patterns that appear as ripples, waves, or unwanted background color textures. Interference patterns of this type are most noticeable when viewing images having closely spaced lines or finely detailed patterns
Press [▼] or [▲] to minimize interference patterns.

DEGAUSS corrects irregular colors appearing around edges of screen images. Degaussing removes build-up of magnetic fields that can affect color purity and convergence.
Press button [**2**] to manually degauss monitor.

Important: *After using* Degauss *wait at least 20 minutes before using this feature again. Do not degauss repeatedly. Doing so can be harmful to the monitor.*

VIEWMETER® (Display Frequency) displays signal input coming from your computer.
Press button [**2**] to select this feature.

ENGLISH

VIEWMATCH® COLOR provides three color adjustment modes and *USER.*

Press button [**2**] to select color adjustment mode.

9300K: adds blue to screen image for cooler white (used in most office settings with fluorescent lighting).

6500K: adds red to screen image for warmer white and richer, more vibrant red.

5000K: adds blue and green to the screen image for a darker color.

USER: adjusts the reds (R), greens (G), and blues (B) to meet personal preference.

1 To toggle between Red, Green, and Blue gain adjustments, press button [**2**].
2 To adjust selected color, press [▼] or [▲] .
3 When you are finished making all color adjustments, press button [**1**] *twice.*

OSD H. POSITION (Horizontal On-Screen Display Position) repositions menus and control screens horizontally.

Press [▼] to move OSD to the left, [▲] to move OSD to the right.

OSD V. POSITION (Vertical On-Screen Display Position) repositions menus and control screens vertically.

Press [▼] to move OSD down, [▲] to move OSD up.

LANGUAGE of OnView®screens can be set to English, French, German, Italian, or Spanish. To select a language, press button [**2**].

MEMORY RECALL returns the monitor to factory settings. If you make an adjustment you don't like:

1 Select the Memory Recall icon from the Control Menu.
2 Press button [**2**] to display the Memory Recall screen.
3 Press button [**1**] to recall factory settings.

Exception: This control will not affect changes made with the User color adjustment mode.

NOTE: if you change your mind after accessing the Memory Recall screen and do *not* want to recall factory settings, press button [**2**] to return to the main menu.

Other Information

Specifications

CRT	Type	17" (16.0" viewable diagonal area), 0.25mm AG pitch center, 90° deflection
	Phosphor	RGB, medium persistence
	Glass surface	Anti-reflective and anti-static coating Standard light transmission rate = 41.5%
Input Signal	Video	RGB analog (0.7 Vp-p, 75 ohms),
	Sync	f_h: 30-70 kHz, f_v: 50-160 Hz
Compatibility	PC	up to 1280 x 1024 NI
	Macintosh®*1	Power Mac/G3
Maximum Refresh Rates*2		1280 x 1024 NI @ 66 Hz 1152 x 870 @ 77 Hz 1024 x 768 NI @ 87 Hz 800 x 600 NI @ 110Hz 640 x 480 NI @ 120 Hz
Power	Voltage	AC 90-260 VAC (auto switch) 50/60 Hz
Display Area	Factory setting	300mm (H) x 225mm (V) typical
	Full scan	325mm (H) x 243mm (V)
Operating Conditions	Temperature	32°F to 104°F (0°C to 40°C)
	Humidity	5% to 95% (no condensation)
	Altitude	To 10,000 feet
Storage Conditions	Temperature	-40°F to +140°F (-40°C to +60°C)
	Humidity	5% to 95% (no condensation)
	Altitude	To 40,000 feet
Dimensions	Physical (monitor)	417mm (W) x 425mm (H) x 427mm (D) 16.4" (W) x 16.7" (H) x 16.8" (D)
Weight	Net	19.5 kg (43.0 lb) Monitor only
Regulations		UL, CSA, FCC-B, DHHS, MPR-II, ISO 9241-3 CE, ENERGY STAR, ENERGY 2000
Power saving modes	On	<95W typical (green LED)
	DPMS™ Stand By	<15W (yellow LED)
	DPMS Suspend	<15W (yellow LED)
	DPMS Off	<3W (amber LED)

Preset Timing Modes (the monitor has been pre-adjusted to VESA® 1024x768 @ 75Hz)

VGA 640 x 480 @ 60Hz	VESA 1024 x 768 @ 60Hz, 75Hz, 85Hz
VGA 640 x 480 @ 70Hz	VESA 1280 x 1024 @ 60Hz
VESA 640 x 480 @ 75Hz, 85Hz	Macintosh 640 x 480 @ 67Hz
VESA 800 x 600 @ 75Hz, 85Hz	Macintosh 832 x 624 @ 75Hz

*1 *Macintosh computers require a ViewSonic® Macintosh adapter. To order an adapter, send an email to vsparts@viewsonic.com or contact ViewSonic Customer Support. See the back cover.*

*2 ***Warning: Do not set the graphics card in your computer to exceed these maximum refresh rates. Doing so may result in permanent damage to the monitor. NI= Non Interlaced.***

ENGLISH

Troubleshooting

No power

- Make sure power button (or switch) is ON.
- Make sure A/C power cord is securely connected to the back of the monitor and to a power outlet.
- Plug another electrical device (like a radio) into the power outlet to verify that the outlet is supplying proper voltage.

ENGLISH

Power on but no screen image

- Make sure the video cable supplied with the monitor is tightly secured to the video output port on the back of the computer. If the other end of the video cable is not attached permanently to the monitor, tightly secure it to the monitor.
- Adjust brightness and contrast.
- Check this user's guide to see if an adapter is required for proper signal continuity between graphics card and monitor.

Flickering

- Not enough power supplied. Connect the monitor to a different outlet. If using a surge protector, reduce the number of devices plugged in.
- Check the ViewMeter® from the main menu (page 9) to verify the refresh rate (vertical frequency) is 75 Hz or higher. See Specifications.
- Make sure the graphics card in your computer can use non-interlaced mode at the desired frequencies. To enable your graphics card to support higher refresh rates, try selecting fewer colors or running lower resolutions.
- Remove any devices from the area around the monitor that emits magnetic fields such as radios, surge protectors, unshielded speakers, fluorescent lights, AC power converters, desk fans, etc.

Wrong or abnormal colors

- If any colors (red, green, or blue) are missing, check the video cable to make sure it is securely connected. Loose or broken pins in the cable connector could cause an improper connection.
- Connect the monitor to another computer.
- Select Degauss from the Main Menu. *Do this only once.*
- If you have an older graphics card, contact ViewSonic® Customer Support for a non-DDC adapter.

Entire screen image scrolls (rolls) vertically

- Make sure video input signals are within the monitor's specified frequency range.
- Try the monitor with another power source, graphics card, or computer system.
- Connect the video cable securely.

Control buttons do not work

- Press only one button at a time.

Cleaning the Monitor

- MAKE SURE THE MONITOR IS TURNED OFF.
- NEVER SPRAY OR POUR ANY LIQUID DIRECTLY ONTO THE SCREEN OR CASE.

To clean the screen

1. Wipe the screen with a clean, soft, lint-free cloth. This removes dust and other particles.
2. If still not clean, apply a small amount of non-ammonia, non-alcohol based glass cleaner onto a clean, soft, lint-free cloth, and wipe the screen.

To clean the case

1. Use a soft, dry cloth.
2. If still not clean, apply a small amount of a non-ammonia, non-alcohol based, mild non-abrasive detergent onto a clean, soft, lint-free cloth, then wipe the surface.

DISCLAIMER

ViewSonic® does not recommend the use of any ammonia or alcohol-based cleaners on the monitor screen or case. Some chemical cleaners have been reported to damage the screen and/or case of the monitor. ViewSonic will not be liable for damage resulting from use of any ammonia or alcohol-based cleaners.

LIMITED WARRANTY
VIEWSONIC *EF70* MONITORS

What the warranty covers:

ViewSonic® warrants its products to be free from defects in material and workmanship during the warranty period. If a product proves to be defective in material or workmanship during the warranty period, **ViewSonic** will at its sole option repair or replace the product with a like product. Replacement product or parts may include remanufactured or refurbished parts or components.

How long the warranty is effective:
ViewSonic *EF70* color monitors, including the display tubes, are warranted for three (3) years for all parts and three (3) years for all labor from the date of the first consumer purchase.

ENGLISH

Who the warranty protects:
This warranty is valid only for the first consumer purchaser.

What the warranty does not cover:
1. Any product on which the serial number has been defaced, modified or removed.
2. Damage, deterioration or malfunction resulting from:
   a. Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
   b. Repair or attempted repair by anyone not authorized by **ViewSonic**.
   c. Any damage of the product due to shipment.
   d. Removal or installation of the product.
   e. Causes external to the product, such as electric power fluctuations or failure.
   f. Use of supplies or parts not meeting **ViewSonic**'s specifications.
   g. Normal wear and tear.
   h. Any other cause which does not relate to a product defect.
3. Removal, installation, and set-up service charges.

How to get service:
1. For information on receiving service under warranty, contact **ViewSonic** Customer Support**.** See the back cover of this user's guide. You will need to provide your monitor's serial number.
2. To obtain service under warranty, you will be required to provide (a) the original dated sales slip, (b) your name, (c) your address, (d) a description of the problem, and (e) the serial number of the product.
3. Take or ship the product prepaid in the original container to your **ViewSonic** dealer, any **ViewSonic** service center or **ViewSonic**.
4. For additional information or the name of the nearest **ViewSonic** service center, contact your **ViewSonic** dealer or **ViewSonic**.

Limitation of implied warranties:
THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION CONTAINED HEREIN INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Exclusion of damages:
VIEWSONIC'S LIABILITY IS LIMITED TO THE COST OF REPAIR OR REPLACEMENT OF THE PRODUCT. **VIEWSONIC** SHALL NOT BE LIABLE FOR:
1. DAMAGE TO OTHER PROPERTY CAUSED BY ANY DEFECTS IN THE PRODUCT, DAMAGES BASED UPON INCONVENIENCE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, LOSS OF PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF GOODWILL, INTERFERENCE WITH BUSINESS RELATIONSHIPS, OR OTHER COMMERCIAL LOSS, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
2. ANY OTHER DAMAGES, WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE.
3. ANY CLAIM AGAINST THE CUSTOMER BY ANY OTHER PARTY.

Effect of state law:
This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on implied warranties and/or do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

Sales outside the U.S.A.:
For **ViewSonic** products sold outside of the U.S.A., contact your **ViewSonic** dealer for warranty information and service.

Rev 7/16/98

Customer Service

To receive the most prompt assistance, dial the appropriate number below and *listen to all menu options*

01/2000