

24-Inch FD Premium (22.5-inch Viewable) Color Monitor Guide

Operating Instructions Page 3

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Mode d'emploi Page 21

Avant la mise en service de cet appareil, prière de lire attentivement ce mode d'emploi que l'on conservera pour toute référence ultérieure.

Bedienungsanleitung Seite 39

Lesen Sie vor der Inbetriebnahme diese Anleitung sorgfältig durch und bewahren Sie sie zum späteren Nachschlagen gut auf.

Manual de instrucciones Página 57

Antes de utilizar la unidad, lea este manual detenidamente y consérvelo para futuras referencias.

Istruzioni per l'uso Pagina 75

Prima di usare l'apparecchio, leggere con attenzione questo manuale e conservarlo per riferimenti futuri.

Bruksanvisning Sid 93

Innan du använder monitorn bör du läsa igenom denna bruksanvisning och sedan spara den för framtida behov.

取扱説明書 111ページ

お買い上げいただきありがとうございます。
お使いになる前に、この取扱説明書をお読みください。
お読みになった後は、後日お役に立つこともありますので、必ず保存してください。

KR Page 133

Before operating the unit, please read this manual thoroughly and retain it for future reference.

CS (Simple Chinese) Page 151

Before operating the unit, please read this manual thoroughly and retain it for future reference.

CT (Traditional Chinese) Page 169

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Owner's Record

The model and serial numbers are located at the rear of the unit. Record these numbers in the spaces provided below. Refer to them whenever you call upon your dealer regarding this product.
 Model No. _____ Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

Dangerously high voltages are present inside the unit. Do not open the cabinet. Refer servicing to qualified personnel only.

FCC Notice

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.
- You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

INFORMATION

This product complies with Swedish National Council for Metrology (MPR) standards issued in December 1990 (MPR II) for very low frequency (VLF) and extremely low frequency (ELF).

INFORMATION

Ce produit est conforme aux normes du Swedish National Council for Metrology de décembre 1990 (MPR II) en ce qui concerne les fréquences très basses (VLF) et extrêmement basses (ELF).

INFORMACIÓN

Este producto cumple las normas del Consejo Nacional Sueco para Metrología (MPR) emitidas en diciembre de 1990 (MPR II) para frecuencias muy bajas (VLF) y frecuencias extremadamente bajas (ELF).

Declaration of Conformity

Trade Name: Sun Microsystems, Inc.
 Model No.: GDM-FW9010
 Responsible Party: Sun Microsystems, Inc.
 Address: 901 San Antonio Rd. MPK15-102
 Palo Alto, Ca 940303-4900, USA
 Telephone No.: 650-786-3255

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.

이 기기는 가정용으로 전자파 적합등록을 한 기기로서 주거지역에서는 물론 모든 지역에서 사용할 수 있습니다.

NOTICE

This notice is applicable for USA/Canada only. If shipped to USA/Canada, install only a UL LISTED/CSA LABELLED power supply cord meeting the following specifications:

SPECIFICATIONS

Plug Type	Nema-Plug 5-15p
Cord	Type SVT or SJT, minimum 3 × 18 AWG
Length	Maximum 15 feet
Rating	Minimum 7 A, 125 V

NOTICE

Cette notice s'applique aux Etats-Unis et au Canada uniquement.

Si cet appareil est export* aux Etats-Unis ou au Canada, utiliser le cordon d'alimentation portant la mention UL LISTED/CSA LABELLED et remplissant les conditions suivantes:

SPECIFICATIONS

Type de fiche	Fiche Nema 5-15 broches
Cordon	Type SVT ou SJT, minimum 3 × 18 AWG
Longueur	Maximum 15 pieds
Tension	Minimum 7 A, 125 V



As an ENERGY STAR Partner, Sun Microsystems, Inc. has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

当社は国際エネルギースタープログラムの参加事業者として、本製品が国際エネルギースタープログラムの基準に適合していると判断します。

この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをしてください。

本製品は、「高調波ガイドライン適合品」であり、通商産業省資源エネルギー庁公益事業部作成の家電・汎用品高調波抑制対策ガイドラインを満たしています。

本製品は社団法人日本電子工業振興協会が定めた「表示装置の静電気および低周波電磁界」に関するガイドラインに適合しています。



This monitor complies with the TCO'99 guidelines.

Production Model name: GDM-FW9010 (22.5" viewing image)

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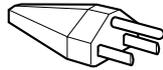
GB

- Trinitron® is a registered trademark of Sony Corporation.
- VESA and DDC™ are trademarks of the Video Electronics Standard Association.
- ENERGY STAR is a U.S. registered mark.
- All other product names mentioned herein may be the trademarks or registered trademarks of their respective companies.
- Furthermore, “™” and “®” are not mentioned in each case in this manual.

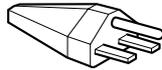
Precautions

Warning on power connections

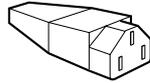
Use an appropriate power cord for your local power supply.



115 Volts



230 Volts
(not provided on
standard cord set)



CEE-22 cord set,
female end (all
power cord sets)

United States, Canada, Taiwan, Korea, Japan	Continental Europe	United Kingdom, Ireland	Australia, New Zealand
Plug Type NEMA S-15P	Plug Type CEE7/VII (Schuko)	Plug Type B S 1363	Plug Type SAA AS 3112
Cord Type SJT	Cord Type HAR(HO5VV -F3G1.0)	Cord Type HAR(HO5VV -F3G1.0)	Cord Type CDB03PLP
Min. cord set rating 10 A/125 V 18/3AWG	Min. cord set rating 10 A/250 V	Min. cord set rating 10 A/250 V	Min. cord set rating 10 A/250 V
Cord Length (+/- 0.1 m) 2 m	Cord Length (+/- 0.1 m) 2.5 m	Cord Length (+/- 0.1 m) 2.5 m	Cord Length (+/- 0.1 m) 2.5 m
Safety Approval UL/CSA	Safety Approval HAR	Safety Approval BSI, ASTA	Safety Approval Dept. of Energy of New South Wales

Autoranging universal power supply works anywhere; the monitor self-adjusts if the appropriate power cord and plug for the local voltage are used.

- Before disconnecting the power cord, wait at least 30 seconds after turning off the power to allow the static electricity on the screen's surface to discharge.
- After the power is turned on, the screen is demagnetized (degaussed) for about 3 seconds. This generates a strong magnetic field around the screen which may affect data stored on magnetic tapes and disks placed near the monitor. Be sure to keep magnetic recording equipment, tapes, and disks away from the monitor.

The equipment should be installed near an easily accessible outlet.

Installation

Do not install the monitor in the following places:

- on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies, etc.) that may block the ventilation holes
- near heat sources such as radiators or air ducts, or in a place subject to direct sunlight
- in a place subject to severe temperature changes
- in a place subject to mechanical vibration or shock
- on an unstable surface
- near equipment which generates magnetism, such as a transformer or high voltage power lines
- near or on an electrically charged metal surface

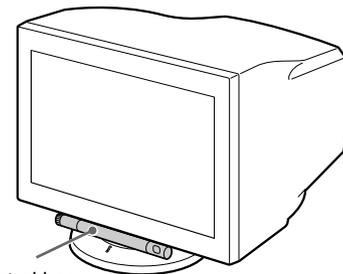
Maintenance

- Clean the screen with a soft cloth. If you use a glass cleaning liquid, do not use any type of cleaner containing an anti-static solution or similar additive as this may scratch the screen's coating.
- Do not rub, touch, or tap the surface of the screen with sharp or abrasive items such as a ballpoint pen or screwdriver. This type of contact may result in a scratched picture tube.
- Clean the cabinet, panel and controls with a soft cloth lightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent, such as alcohol or benzene.

Transportation

When you transport this monitor for repair or shipment, use the original carton and packing materials.

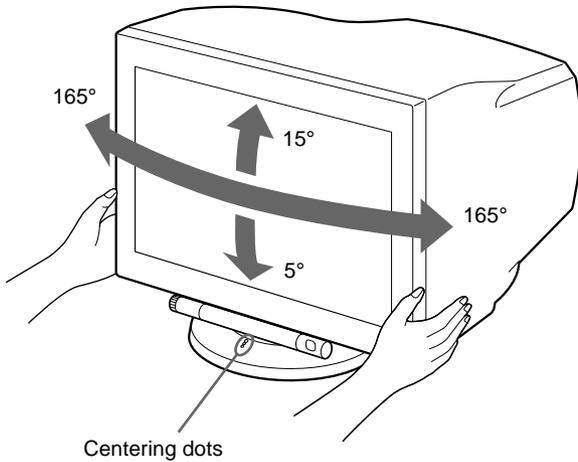
Never grasp the control bar when you transport the monitor.



Control bar

Use of the tilt-swivel

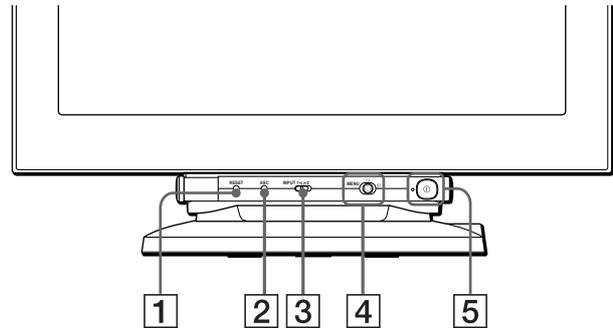
This monitor can be adjusted within the angles shown below. To find the center of the monitor's turning radius, align the center of the monitor's screen with the centering dots on the stand. Hold the monitor at the bottom with both hands when you turn it horizontally or vertically.



Identifying parts and controls

See the pages in parentheses or further details.

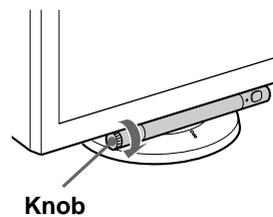
Front



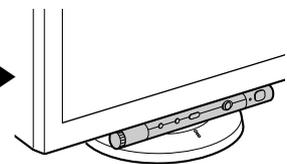
To use the control bar

This monitor has a cylindrical swivel control bar. To operate the controls, turn the knob on the left side downward to expose the control buttons. When the control buttons are not needed, turn the knob up to hide the control buttons.

When not using



When using



1 RESET (reset) button (page 16)

This button resets the adjustments to the factory settings.

2 ASC (auto sizing and centering) button (page 9)

This button automatically adjusts the size and centering of the picture.

3 INPUT (input) switch (page 9)

This switch selects the 13W3 or HD15 video input signal.

4 Joystick (page 11)

The joystick is used to display the menu and make adjustments to the monitor, including brightness and contrast adjustments.

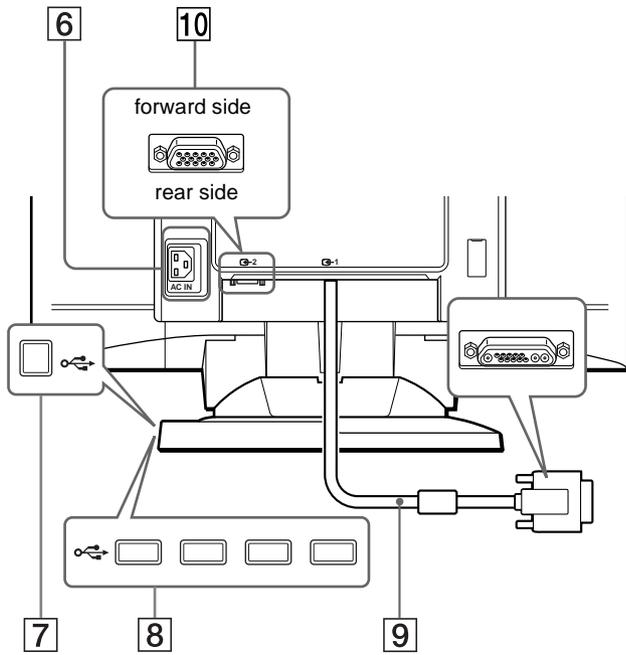
5 ⓐ (power) switch and indicator (pages 7, 16, 20)

This button turns the monitor on and off. The power indicator lights up in green when the monitor is turned on, and either flashes in green and orange, or lights up in orange when the monitor is in power saving mode.

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(continued)

Rear



6 AC IN connector (page 7)

This connector provides AC power to the monitor.

7 USB (universal serial bus) upstream connector (page 8)

Use this connector to link the monitor to a USB compliant computer.

8 USB (universal serial bus) downstream connectors (page 8)

Use these connectors to link USB peripheral devices to the monitor.

9 Video input 1 connector (13W3) (page 7)

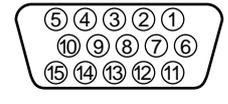
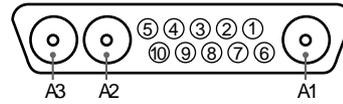
This connector inputs RGB video signals (0.700 Vp-p, positive) and sync signals.

10 Video input 2 connector (HD15) (page 7)

This connector inputs RGB video signals (0.700 Vp-p, positive) and sync signals.

9 13W3

10 HD15



No.	9 Signal	10 Signal
A1	Red	—
A2	Green	—
A3	Blue	—
1	Data Clock (SCL)*	Red
2	DDC + 5V*	Green (Composite Sync on Green)
3	—	Blue
4	DDC Ground*	ID (Ground)
5	C Sync**	DDC Ground*
6	Bi-Directional Data (SDA)*	Red Ground
7	V. Sync	Green Ground
8	ID (100Ω)	Blue Ground
9	ID (100Ω)	DDC + 5V*
10	Ground	Ground
11	—	ID (Ground)
12	—	Bi-Directional Data (SDA)*
13	—	H. Sync
14	—	V. Sync
15	—	Data Clock (SCL)*

* DDC (Display Data Channel) is a standard of VESA.

**Pins serve a dual purpose as combined sync input and as H.sync input if V.Sync is present on pin no. 7.

Setup

This monitor works with platforms running at horizontal frequencies between 30 and 121 kHz.

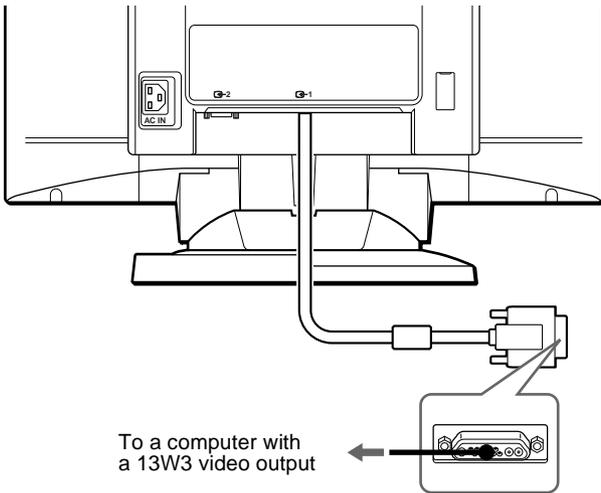
Step 1: Connect your monitor to your computer

Turn off the monitor and computer before connecting.

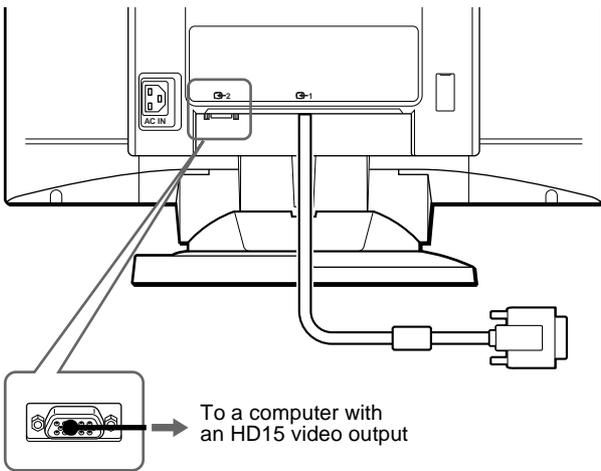
Notes

- Do not touch the pins of the video signal cable connector as this might bend the pins.
- When connecting the video signal cable, check the alignment of the connector. Do not force the connector in the wrong way or the pins might bend.

■ Connecting to the 13W3 connector

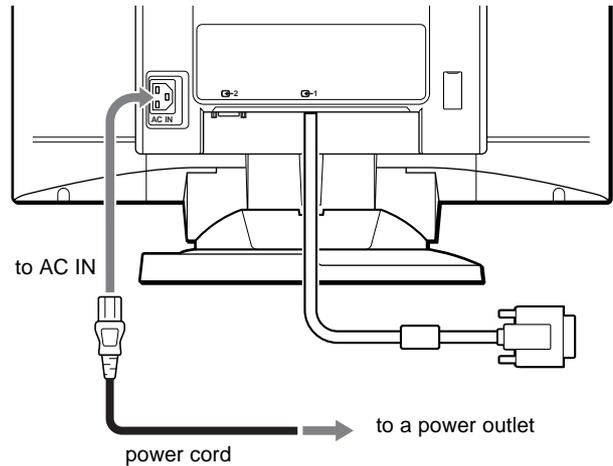


■ Connecting to the HD15 connector



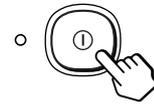
Step 2: Connect the power cord

With the monitor and computer switched off, first connect the power cord to the monitor, then connect it to a power outlet.



Step 3: Turn on the monitor and computer

First turn on the monitor, then turn on the computer.



The installation of your monitor is complete.

If necessary, use the monitor's controls to adjust the picture.

If no picture appears on your screen

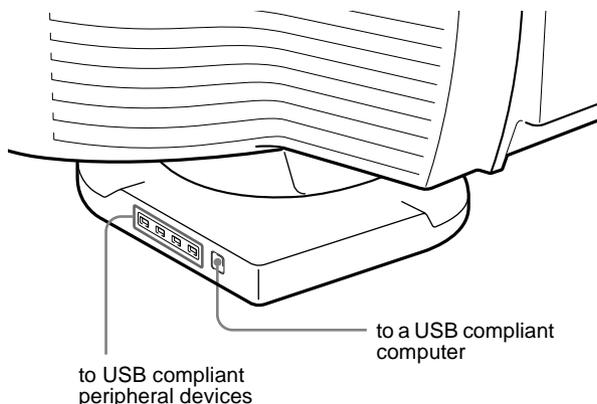
- Check that the monitor is correctly connected to the computer.
- If NO INPUT SIGNAL appears on the screen, try changing the input signal (page 9), and confirm that your computer's graphic board is completely seated in the correct bus slot.
- If you are replacing an old monitor with this model and OUT OF SCAN RANGE appears on the screen, reconnect the old monitor. Then adjust the computer's graphic board so that the horizontal frequency is between 30 – 121 kHz, and the vertical frequency is between 48 – 160 Hz.

For more information about the on-screen messages, see "Trouble symptoms and remedies" on page 18.

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Connecting Universal Serial Bus (USB) compliant peripherals

Your monitor has one upstream and four downstream USB connectors. They provide a fast and easy way to connect USB compliant peripheral devices (such as keyboards, mice, printers and scanners) to your computer using a standardized USB cable. To use your monitor as a hub for your peripheral devices, connect the USBs as illustrated below.



- 1 Turn on the monitor and computer.
- 2 Connect your computer to the square upstream  connector using the USB cable (supplied).
- 3 Connect your USB compliant peripheral devices to the rectangular downstream  USB connectors.

Notes

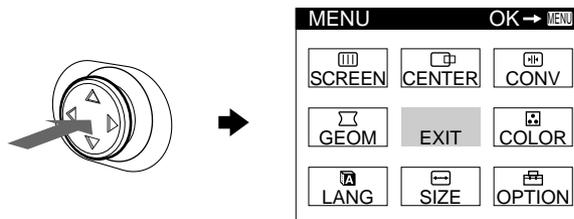
- Not all computers and/or operating systems support USB configurations. Check your computer's instruction manual to see if you can connect USB devices.
- In most cases, USB driver software needs to be installed on the host computer. Refer to the peripheral device's instruction manual for further details.
- The monitor functions as a USB hub as long as the monitor is either "on" or in power saving mode.
- If you connect a keyboard or mouse to the USB connectors and then boot your computer for the first time, the peripheral devices may not function. First connect the keyboard and mouse directly to the computer and set up the USB compliant devices. Then connect them to this monitor.

Selecting the on-screen menu language (LANG)

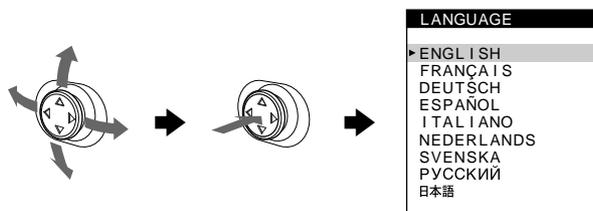
English, French, German, Spanish, Italian, Dutch, Swedish, Russian and Japanese versions of the on-screen menus are available. The default setting is English.

1 Press the joystick.

See page 11 for more information on using the joystick.



2 Move the joystick to highlight LANG and press the joystick again.



3 Move the joystick up or down to select a language and press the joystick again.

- ENGLISH
- FRANÇAIS: French
- DEUTSCH: German
- ESPAÑOL: Spanish
- ITALIANO: Italian
- NEDERLANDS: Dutch
- SVENSKA: Swedish
- РУССКИЙ: Russian
- 日本語: Japanese

To close the menu

Press the joystick once to return to the main menu, and twice to return to normal viewing. If no buttons are pressed, the menu closes automatically after about 30 seconds.

To reset to English

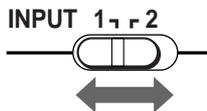
Press the RESET button while the LANGUAGE menu is displayed on the screen.

Selecting the input signal

You can connect two computers to this monitor using the video input 1 (13W3) and video input 2 (HD15) connectors. To switch between the two computers, use the INPUT switch.

Move the INPUT switch.

The currently selected connector (“INPUT 1” : 13W3 or “INPUT 2” : HD15) appears on the screen for a few seconds.



Note

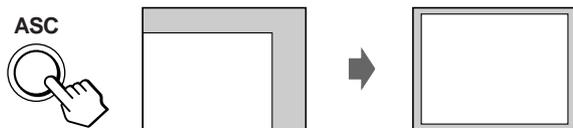
If no signal is input to the selected connector, NO INPUT SIGNAL appears on the screen. After a few seconds, the monitor enters the power saving mode.

Automatically sizing and centering the picture (AUTO)

You can easily adjust the picture to fill the screen by pressing the ASC (auto sizing and centering) button.

Press the ASC button.

The picture automatically fills the screen.



Notes

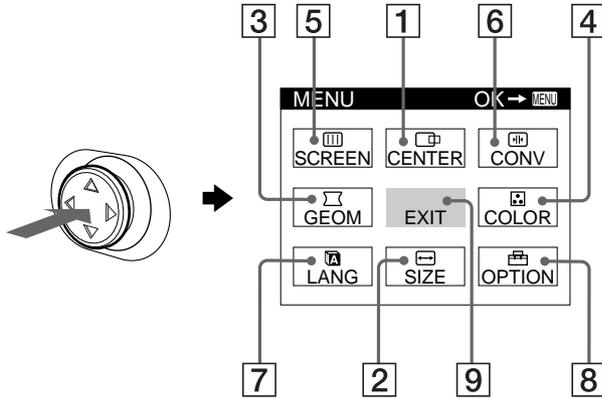
- This function is intended for use with a computer that provides a full-screen picture. It may not work properly if the background color is dark or if the input picture does not fill the screen to the edges.
- The picture will fill the screen to the edges only if the aspect ratio of the picture is 16:10. Pictures with an aspect ratio other than 16:10 are displayed at their actual resolution and do not fill the screen to the edges.
- The displayed image moves for a few seconds while this function is performed. This is not a malfunction.

Customizing Your Monitor

You can make numerous adjustments to your monitor using the on-screen menu.

Navigating the menu

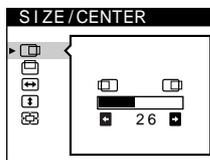
Press the joystick to display the main MENU on your screen. See page 11 for more information on using the joystick.



Use the joystick to select one of the following menus.

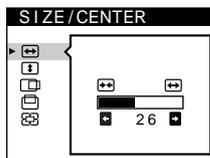
1 CENTER (page 12)

Select the CENTER menu to adjust the picture's centering or zoom.



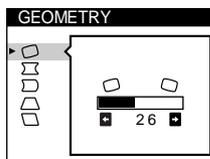
2 SIZE (page 12)

Select the SIZE menu to adjust the picture's size or zoom.



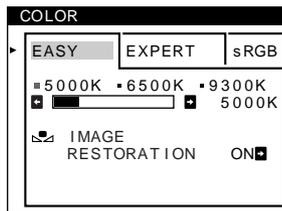
3 GEOM (page 12)

Select the GEOM menu to adjust the picture's rotation and shape.



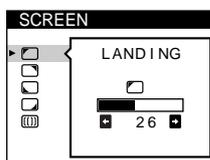
4 COLOR (page 12)

Select the COLOR menu to adjust the picture's color temperature. You can use this to match the monitor's colors to a printed picture's colors.



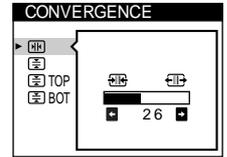
5 SCREEN (page 14)

Select the SCREEN menu to adjust the picture's quality. You can adjust the landing and moire cancellation effect.



6 CONV (page 15)

Select the CONV menu to adjust the picture's horizontal and vertical convergence.



7 LANG (page 8)

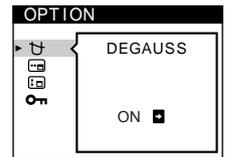
Select the LANG menu to choose the on-screen menu's language.



8 OPTION (page 15)

Select the OPTION menu to adjust the monitor's options. The options include:

- degaussing the screen
- changing the on-screen menu position
- locking the controls

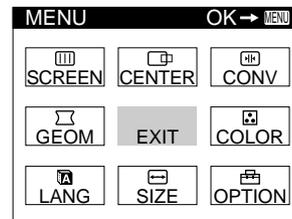


9 EXIT

Select EXIT to close the menu.

■ Displaying the current input signal

The horizontal and vertical frequencies of the current input signal are displayed under the main MENU. If the signal matches one of this monitor's factory preset modes, the resolution is also displayed.



the resolution of the current input signal — 107.1kHz / 85Hz — the horizontal and vertical frequencies of the current input signal — 1920x1200

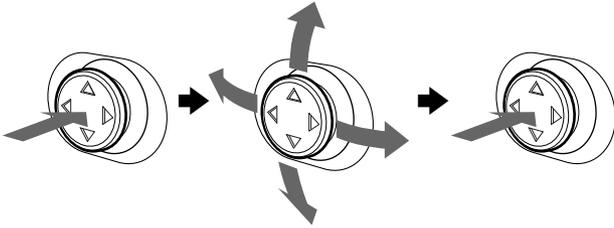
Note

In some cases, even though the aspect ratio of the current input signal is 4:3 or 5:4, the resolution may be displayed with an aspect ratio of 16:10 or 16:9.

■ Using the joystick

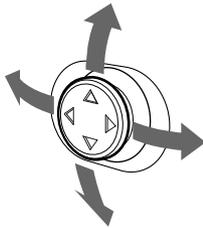
1 Display the main MENU and select the menu you want to adjust.

Press the joystick once to display the main MENU. Then move the joystick up, down, left, or right to highlight the desired menu. Press the joystick to select the menu item.



2 Adjust the menu.

Move the joystick up, down, left, or right to make the adjustment.



3 Close the menu.

Press the joystick once to return to the main menu, and twice to return to normal viewing. If no buttons are pressed, the menu closes automatically after about 30 seconds.



■ Resetting the adjustments

Press the RESET button. See page 16 for more information on resetting the adjustments.

RESET



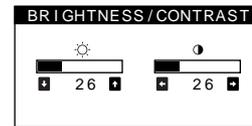
Adjusting the brightness and contrast

Brightness and contrast adjustments are made using a separate BRIGHTNESS/CONTRAST menu.

These settings are stored in memory for the signals from the currently selected input connector.

1 Move the joystick in any direction.

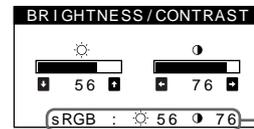
The BRIGHTNESS/CONTRAST menu appears on the screen.



2 Move the joystick up or down to adjust the brightness (☀), and left or right to adjust the contrast (●).

If you select the sRGB mode in the COLOR menu

Confirm that the brightness (☀) and contrast (●) values are adjusted respectively to the numbers to be set in the sRGB mode shown in the BRIGHTNESS/CONTRAST menu. If not, press the RESET button (for less than 2 seconds).



Values to be set in the sRGB mode

For more information about using the sRGB mode, see “Adjusting the color of the picture (COLOR)” on page 12.

The menu automatically disappears after about 3 seconds.

Adjusting the centering of the picture (CENTER)

This setting is stored in memory for the current input signal.

- 1 Press the joystick.**
The main MENU appears on the screen.
- 2 Move the joystick to highlight  CENTER and press the joystick again.**
The SIZE/CENTER menu appears on the screen.
- 3 First move the joystick up or down to select  for horizontal adjustment, or  for vertical adjustment. Then move the joystick left or right to adjust the centering.**

Adjusting the size of the picture (SIZE)

This setting is stored in memory for the current input signal.

- 1 Press the joystick.**
The main MENU appears on the screen.
- 2 Move the joystick to highlight  SIZE and press the joystick again.**
The SIZE/CENTER menu appears on the screen.
- 3 First move the joystick up or down to select  for horizontal adjustment, or  for vertical adjustment. Then move the joystick left or right to adjust the size.**

Enlarging or reducing the picture (ZOOM)

This setting is stored in memory for the current input signal.

- 1 Press the joystick.**
The main MENU appears on the screen.
- 2 Move the joystick to highlight  SIZE or  CENTER and press the joystick again.**
The SIZE/CENTER menu appears on the screen.
- 3 Move the joystick up or down to select  (zoom), and move the joystick left or right to enlarge or reduce the picture.**

Note

Adjustment stops when either the horizontal or vertical size reaches its maximum or minimum value.

Adjusting the shape of the picture (GEOM)

The  (rotation) setting is stored in memory for all input signals. All other settings are stored in memory for the current input signal.

- 1 Press the joystick.**
The main MENU appears on the screen.
- 2 Move the joystick to highlight  GEOM and press the joystick again.**
The GEOMETRY menu appears on the screen.
- 3 First move the joystick up or down to select the desired adjustment item. Then move the joystick left or right to make the adjustment.**

Select	To
	rotate the picture
	expand or contract the picture sides
	shift the picture sides to the left or right
	adjust the picture width at the top of the screen
	shift the picture to the left or right at the top of the screen

Adjusting the color of the picture (COLOR)

The COLOR settings allow you to adjust the picture's color temperature by changing the color level of the white color field. Colors appear reddish if the temperature is low, and bluish if the temperature is high. This adjustment is useful for matching the monitor's color to a printed picture's colors.

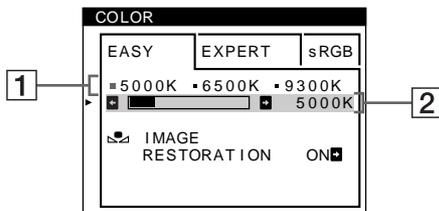
- 1 Press the joystick.**
The main MENU appears on the screen.
- 2 Move the joystick to highlight  COLOR and press the joystick again.**
The COLOR menu appears on the screen.
- 3 Move the joystick left or right to select the adjustment mode.**
There are three types of adjustment modes, EASY, EXPERT, and sRGB.

Adjust the selected mode according to the instructions on the next page.

You can set the color temperature in EASY or EXPERT mode for each of the video input connectors.

■ EASY mode

In EASY mode, you can fine tune the color temperature by changing the three preset temperatures — 5000K, 6500K, or 9300K.



- 1 Move the joystick up or down to select the color temperature row [1]. Then move the joystick left or right to select a color temperature.

The preset color temperatures are 5000K, 6500K, and 9300K. The default setting is 9300K. The whites will change from a bluish hue to a reddish hue as the temperature is lowered to 6500K and 5000K.

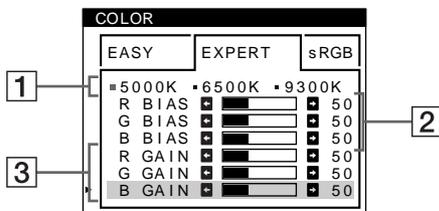
- 2 If necessary, fine tune the color temperature. Move the joystick up or down to select the color temperature row [2]. Then move the joystick left or right to fine tune the color temperature.

If you fine tune the color temperature, the new color settings are stored in memory for each of the three color temperatures and item [1] of the on-screen menu changes as follows.

- [5000K] → [1]
- [6500K] → [2]
- [9300K] → [3]

■ EXPERT mode

You can make additional adjustments to the color in greater detail by selecting the EXPERT mode.



- 1 Move the joystick up or down to select the color temperature row [1]. Then move the joystick left or right to select a color temperature.

- 2 Move the joystick up or down to select the adjustment item [2]. Then move joystick left or right to adjust the BIAS (black level).

This adjusts the dark areas of an image.

- 3 Move the joystick up or down to select the adjustment item [3]. Then move the joystick left or right to adjust the GAIN (white level).

This adjusts the light areas of an image.

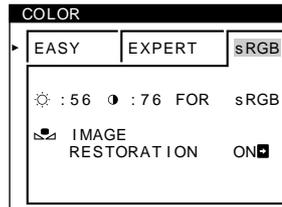
You can adjust the R (red), G (green), B (blue) component of the input signal when making changes to items [2] and [3].

If you fine tune the color temperature, the new color settings are stored in memory for each of the three color temperatures and item [1] of the on-screen menu change as follows.

- [5000K] → [1]
- [6500K] → [2]
- [9300K] → [3]

■ sRGB mode

The sRGB color setting is an industry standard color space protocol designed to correlate the displayed and printed colors of sRGB compliant computer products. To adjust the colors to the sRGB profile, simply select the sRGB mode in the COLOR menu. Once you select the sRGB mode, the brightness (☀) and contrast (●) values are automatically set to the values to be set in the sRGB mode.



In order to display the sRGB colors correctly ($\gamma = 2.2$, 6500K), confirm that:

- the brightness (☀) and contrast (●) values are adjusted respectively to the numbers shown in the BRIGHTNESS/CONTRAST menu. If not, press the RESET button (for less than 2 seconds). For information on how to change the brightness and contrast, see “Adjusting the brightness and contrast” on page 11.
- the color settings of your computer are set to the sRGB profile.

Note

Your computer and other connected products (such as a printer), must be sRGB compliant.

GB

(continued)

Restoring the color from the EASY or sRGB menus (IMAGE RESTORATION function)

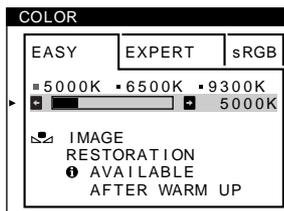
The colors of most display monitors tend to gradually lose brilliance over several years of service. The IMAGE RESTORATION feature found in the EASY and sRGB menus allows you to restore the color to the original factory quality levels.

- 1 Move the joystick left or right to select EASY or sRGB mode.
- 2 First move the joystick up or down to select  (IMAGE RESTORATION). Then move the joystick to the right.

The picture disappears while the color is being restored (about 2 seconds). After the color is restored, the picture reappears on the screen again.

Notes

- Before using this feature, the monitor must be in normal operation mode (green power indicator on) for at least 30 minutes. If the monitor goes into power saving mode, you must return the monitor to normal operation mode and wait for 30 minutes for the monitor to be ready. You may need to adjust your computer's power saving settings to keep the monitor in normal operation mode for the full 30 minutes. If the monitor is not ready, the following message will appear.



- The monitor may gradually lose its ability to perform this function due to the natural aging of the picture tube.

Adjusting the quality of the picture (SCREEN)

The SCREEN settings allow you to adjust the quality of the picture by controlling the moire and landing.

- If the color is irregular at the corners of the screen, adjust the landing.
- If elliptical or wavy patterns appear on the screen, cancel the moire.

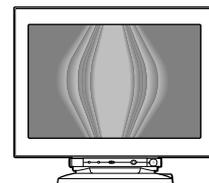
The CANCEL MOIRE and MOIRE ADJUST settings are stored in memory for the current input signal. All other settings are stored in memory for all input signals.

- 1 Press the joystick.
The main MENU appears on the screen.
- 2 Move the joystick to highlight  SCREEN and press the joystick again.
The SCREEN menu appears on the screen.
- 3 First move the joystick up or down to select the desired adjustment item. Then move the joystick left or right to make the adjustment.

Select	To
 LANDING	reduce any color irregularities in the screen's top left corner to a minimum.
 LANDING	reduce any color irregularities in the screen's top right corner to a minimum.
 LANDING	reduce any color irregularities in the screen's bottom left corner to a minimum.
 LANDING	reduce any color irregularities in the screen's bottom right corner to a minimum.
 CANCEL MOIRE*	turn the moire cancellation function ON or OFF.  (MOIRE ADJUST) appears in the menu when you select ON.
 MOIRE ADJUST	adjust the degree of moire cancellation until the moire is at a minimum.

* Moire is a type of natural interference which produces soft, wavy lines on your screen. It may appear due to interference between the pattern of the picture on the screen and the phosphor pitch pattern of the monitor.

Example of moire



Note

The picture may become fuzzy when CANCEL MOIRE is set to ON.

Adjusting the convergence (CONV)

The CONV settings allow you to adjust the quality of the picture by controlling the convergence. The convergence refers to the alignment of the red, green, and blue color signals.

If you see red or blue shadows around letters or lines, adjust the convergence.

These settings are stored in memory for all input signals.

1 Press the joystick.

The main MENU appears on the screen.

2 Move the joystick to highlight CONV and press the joystick again.

The CONVERGENCE menu appears on the screen.

3 First move the joystick up or down to select the desired adjustment item. Then move the joystick left or right to make the adjustment.

Select	To
	horizontally shift red or blue shadows
	vertically shift red or blue shadows
 TOP V CONVER TOP	vertically shift red or blue shadows at the top of the screen
 BOT V CONVER BOTTOM	vertically shift red or blue shadows at the bottom of the screen

Additional settings (OPTION)

You can manually degauss (demagnetize) the monitor, change the menu position, and lock the controls.

1 Press the joystick.

The main MENU appears on the screen.

2 Move the joystick to highlight OPTION and press the joystick again.

The OPTION menu appears on the screen.

3 Move the joystick up or down to select the desired adjustment item.

Adjust the selected item according to the following instructions.

■ Degaussing the screen

The monitor is automatically demagnetized (degaussed) when the power is turned on.

To manually degauss the monitor, first move the joystick up or down to select  (DEGAUSS). Then move the joystick to the right.

The screen is degaussed for about 3 seconds. If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result.

■ Changing the menu's position

Change the menu's position if it is blocking an image on the screen.

To change the menu's on-screen position, first move the joystick up or down to select  (OSD H POSITION) for horizontal adjustment, or  (OSD V POSITION) for vertical adjustment. Then move the joystick left or right to shift the on-screen menu.

■ Locking the controls

To protect adjustment data by locking the controls, first move the joystick up or down to select  (CONTROL LOCK). Then move the joystick to the right, to select ON.

Only the  (power) switch, EXIT, and  (CONTROL LOCK) of the  OPTION menu will operate. If any other items are selected, the  mark appears on the screen.

To cancel the control lock

Repeat the procedure above and set  (CONTROL LOCK) to OFF.

Resetting the adjustments

This monitor has the following three reset methods. Use the RESET button to reset the adjustments.



■ Resetting a single adjustment item

Use the joystick to select the adjustment item you want to reset, and press the RESET button.

■ Resetting all of the adjustment data for the current input signal

Press the RESET button when no menu is displayed on the screen. Note that the following items are not reset by this method:

- on-screen menu language (page 8)
- adjustment mode in the COLOR menu (EASY, EXPERT, sRGB) (page 12)
- on-screen menu position (page 15)
- control lock (page 15)

■ Resetting all of the adjustment data for all input signals

Press and hold the RESET button for more than 2 seconds.

Note

The RESET button does not function when  (CONTROL LOCK) is set to ON.

Technical Features

Preset and user modes

When the monitor receives an input signal, it automatically matches the signal to one of the factory preset modes stored in the monitor's memory to provide a high quality picture at the center of the screen. For input signals that do not match one of the factory preset modes, the digital Multiscan technology of this monitor ensures that a clear picture appears on the screen for any timing in the monitor's frequency range (horizontal: 30 – 121 kHz, vertical: 48 – 160 Hz). If the picture is adjusted, the adjustment data is stored as a user mode and automatically recalled whenever the same input signal is received.

Preset mode timing table

No.	Resolution (dots × lines)	Horizontal Frequency	Vertical Frequency
1	1920 × 1200	87.192 kHz	70 Hz
2	1600 × 1000	79.934 kHz	76 Hz
3	1600 × 1000	68.598 kHz	66 Hz
4	1440 × 900	71.809 kHz	76 Hz
5	1280 × 800	64.490 kHz	76 Hz

Power saving function

This monitor meets the power-saving guidelines set by VESA, ENERGY STAR, and NUTEK. If the monitor is connected to a computer or video graphics board that is DPMS (Display Power Management Signaling) compliant, the monitor will automatically reduce power consumption in three stages as shown below.

Power mode	Power consumption*	① (power) indicator
normal operation	≤ 170 W	green
1 standby	≤ 15 W	green and orange alternate
2 suspend (sleep)**	≤ 15 W	green and orange alternate
3 active off*** (deep sleep)**	≤ 1 W	orange
power off	0 W	off

* Figures reflect power consumption when no USB compatible peripherals are connected to the monitor.

** "Sleep" and "deep sleep" are power saving modes defined by the Environmental Protection Agency.

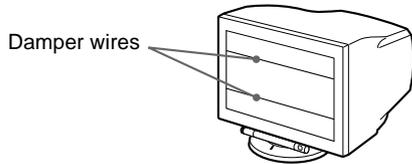
*** When your computer enters power saving mode, the input signal is cut and NO INPUT SIGNAL appears on the screen before the monitor enters active off mode. After a few seconds, the monitor enters power saving mode.

Troubleshooting

Before contacting technical support, refer to this section.

If thin lines appear on your screen (damper wires)

The visible lines on your screen especially when the background screen color is light (usually white), are normal for the Trinitron monitor. This is not a malfunction. These are shadows from the damper wires used to stabilize the aperture grille. The aperture grille is the essential element that makes a Trinitron picture tube unique by allowing more light to reach the screen, resulting in a brighter, more detailed picture.

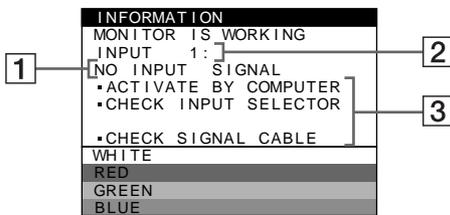


On-screen messages

If there is something wrong with the input signal, one of the following messages appears on the screen.

If NO INPUT SIGNAL appears on line 1

This indicates that no signal is input from the selected connector.



2 The selected connector

This message shows the currently selected connector (INPUT 1 or INPUT 2).

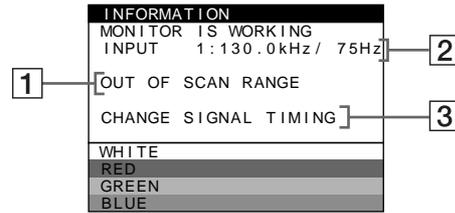
3 The remedies

One or more of the following messages may appear on the screen.

- If ACTIVATE BY COMPUTER appears on the screen, try pressing any key on the computer or moving the mouse, and confirm that your computer's graphic board is completely seated in the correct bus slot.
- If CHECK INPUT SELECTOR appears on the screen, try changing the input signal (page 9).
- If CHECK SIGNAL CABLE appears on the screen, check that the monitor is correctly connected to the computer (page 7).

If OUT OF SCAN RANGE appears on line 1

This indicates that the input signal is not supported by the monitor's specifications.



2 The selected connector and the frequencies of the current input signal

This message shows the currently selected connector (INPUT 1 or INPUT 2). If the monitor recognizes the frequencies of the current input signal, the horizontal and vertical frequencies are also displayed.

3 The remedies

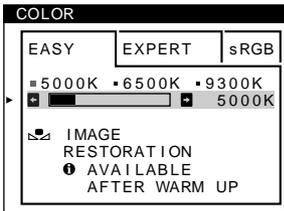
CHANGE SIGNAL TIMING appears on the screen. If you are replacing an old monitor with this monitor, reconnect the old monitor. Then adjust the computer's graphic board so that the horizontal frequency is between 30 - 121 kHz, and the vertical frequency is between 48 - 160 Hz.

For more information, see "Trouble symptoms and remedies" on page 18.

Trouble symptoms and remedies

If the problem is caused by the connected computer or other equipment, please refer to the connected equipment's instruction manual. Use the self-diagnosis function (page 20) if the following recommendations do not resolve the problem.

Symptom	Check these items
No picture	
If the ① (power) indicator is not lit	<ul style="list-style-type: none">• Check that the power cord is properly connected.• Check that the ① (power) switch is in the “on” position.
If the NO INPUT SIGNAL message appears on the screen, or if the ① (power) indicator is either orange or alternating between green and orange	<ul style="list-style-type: none">• Check that the video signal cable is properly connected and all plugs are firmly seated in their sockets (page 7).• Check that the INPUT switch setting is correct (page 9).• Check that the video input connector's pins are not bent or pushed in. <p>■ Problems caused by the connected computer or other equipment</p> <ul style="list-style-type: none">• The computer is in power saving mode. Try pressing any key on the keyboard or moving the mouse.• Check that the computer's power is “on.”• Check that the graphic board is completely seated in the proper bus slot.
If the OUT OF SCAN RANGE message appears on the screen	<p>■ Problems caused by the connected computer or other equipment</p> <ul style="list-style-type: none">• Check that the video frequency range is within that specified for the monitor. If you replaced an old monitor with this monitor, reconnect the old monitor and adjust the frequency range to the following. Horizontal: 30 – 121 kHz Vertical: 48 – 160 Hz
If no message is displayed and the ① (power) indicator is green or flashing orange	<ul style="list-style-type: none">• Use the Self-diagnosis function (page 20).
Picture flickers, bounces, oscillates, or is scrambled	<ul style="list-style-type: none">• Isolate and eliminate any potential sources of electric or magnetic fields such as other monitors, laser printers, fluorescent lighting, televisions, or electric fans.• Move the monitor away from power lines or place a magnetic shield near the monitor.• Try plugging the monitor into a different AC outlet, preferably on a different circuit.• Try turning the monitor 90° to the left or right. <p>■ Problems caused by the connected computer or other equipment</p> <ul style="list-style-type: none">• Check your graphic board manual for the proper monitor setting.• Confirm that the frequency of the input signal is supported by this monitor (page 16). Even if the frequency is within the proper range, some graphic boards may have a sync pulse that is too narrow for the monitor to sync correctly.• Adjust the computer's refresh rate (vertical frequency) to obtain the best possible picture.
Picture is fuzzy	<ul style="list-style-type: none">• Adjust the brightness and contrast (page 11).• Degauss the monitor* (page 15).• If CANCEL MOIRE is ON, the picture may become fuzzy. Decrease the moire cancellation effect or set CANCEL MOIRE to OFF (page 14).
Picture is ghosting	<ul style="list-style-type: none">• Eliminate the use of video cable extensions and/or video switch boxes.• Check that all plugs are firmly seated in their sockets.
Picture is not centered or sized properly	<ul style="list-style-type: none">• Press the ASC button (page 9).• Adjust the size or centering (page 12). Note that some video modes do not fill the screen to the edges.
Edges of the image are curved	<ul style="list-style-type: none">• Adjust the geometry (page 12).

Symptom	Check these items
Wavy or elliptical pattern (moire) is visible	<ul style="list-style-type: none"> Set CANCEL MOIRE to ON and adjust the degree of moire cancellation until the moire is at a minimum (page 14). <p>■ Problems caused by the connected computer or other equipment</p> <ul style="list-style-type: none"> Change your desktop pattern.
Color is not uniform	<ul style="list-style-type: none"> Degauss the monitor* (page 15). If you place equipment that generates a magnetic field, such as a speaker, near the monitor, or if you change the direction the monitor faces, color may lose uniformity. Adjust the landing (page 14).
White does not look white	<ul style="list-style-type: none"> Adjust the color temperature (page 12).
Letters and lines show red or blue shadows at the edges	<ul style="list-style-type: none"> Adjust the convergence (page 15).
Monitor buttons do not operate (O-M appears on the screen)	<ul style="list-style-type: none"> If the control lock is set to ON, set it to OFF (page 15).
IMAGE RESTORATION function does not operate	<ul style="list-style-type: none"> Before using this function, the monitor must be in normal operation mode (green power indicator on) for at least 30 minutes. For more information on using the IMAGE RESTORATION function, see page 14. Adjust the computer's power saving settings to keep the monitor in normal operation mode for more than 30 minutes. The monitor may gradually lose its ability to perform this function due to the natural aging of the picture tube.
	
USB peripherals do not function	<ul style="list-style-type: none"> Check that the appropriate USB connectors are securely connected (page 8). Check that the Ⓞ (power) switch is in the “on” position. <p>■ Problems caused by the connected computer or other equipment</p> <ul style="list-style-type: none"> Check that the power of any self-powered USB compliant peripheral devices is “on.” Install the latest version of the device driver on your computer. Contact your device's manufacturer for information about the appropriate device driver. If your USB compliant keyboard or mouse does not function, connect them directly to your computer, reboot your computer, and make any necessary adjustments to the USB settings. Then reconnect the keyboard or mouse to the monitor. If you connect a keyboard or mouse to the USB connectors and then boot your computer for the first time, the peripheral devices may not function.
A hum is heard right after the power is turned on	<ul style="list-style-type: none"> This is the sound of the auto-degauss cycle. When the power is turned on, the monitor is automatically degaussed for 3 seconds.

GB

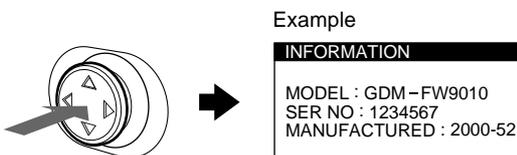
* If a second degauss cycle is needed, allow a minimum interval of 20 minutes for the best result. A humming noise may be heard, but this is not a malfunction.

Displaying this monitor's name, serial number, and date of manufacture.

While the monitor is receiving a video signal, press and hold the joystick for more than 5 seconds to display this monitor's information box.

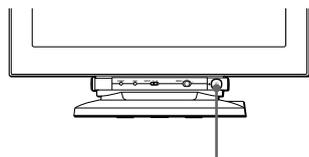
If the problem persists, call your service representative and give the following information.

- Model name: GDM-FW9010
- Serial number
- Name and specifications of your computer and graphic board.



Self-diagnosis function

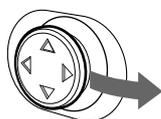
This monitor is equipped with a self-diagnosis function. If there is a problem with your monitor or computer(s), the screen will go blank and the ① (power) indicator will either light up green or flash orange. If the ① (power) indicator is lit in orange, the computer is in power saving mode. Try pressing any key on the keyboard or moving the mouse.



① (power) indicator

■ If the ① (power) indicator is green

- 1 **Disconnect any plugs from the video input 1 and 2 connectors, or turn off the connected computer(s).**
- 2 **Press the ① (power) button twice to turn the monitor off and then on.**
- 3 **Move the joystick to the right for 2 seconds before the monitor enters power saving mode.**



If all four color bars appear (white, red, green, blue), the monitor is working properly. Reconnect the video input cables and check the condition of your computer(s).

If the color bars do not appear, there is a potential monitor failure. Inform your service representative of the monitor's condition.

■ If the ① (power) indicator is flashing orange

Press the ① (power) button twice to turn the monitor off and then on.

If the ① (power) indicator lights up green, the monitor is working properly.

If the ① (power) indicator is still flashing, there is a potential monitor failure. Count the number of seconds between orange flashes of the ① (power) indicator and inform your service representative of the monitor's condition. Be sure to note the model name and serial number of your monitor. Also note the make and model of your computer and graphic board.

Specifications

CRT	0.23 – 0.27 mm aperture grille pitch 24 inches measured diagonally 90-degree deflection FD Trinitron
Viewable image size	Approx. 482.1 × 308.2 mm (w/h) (19 × 12 ¹ / ₄ inches) 22.5" viewing image
Resolution	Recommended (16:10) Horizontal: 1920 dots Vertical: 1200 lines
Input signal levels	Video signal Analog RGB: 0.700 Vp-p (positive), 75 Ω SYNC signal H/V separate or composite sync: TTL 2.2 kΩ, Polarity free Sync on Green: 0.3 Vp-p (negative)
Standard image area	16:10 Approx. 474 × 296 mm (w/h) (18 ³ / ₄ × 11 ³ / ₄ inches) 4:3 Approx. 395 × 296 mm (w/h) (15 ⁵ / ₈ × 11 ³ / ₄ inches) 5:4 Approx. 370 × 296 mm (w/h) (14 ⁵ / ₈ × 11 ³ / ₄ inches)
Deflection frequency*	Horizontal: 30 to 121 kHz Vertical: 48 to 160 Hz
AC input voltage/current	100 to 240 V, 50/60 Hz, 2.2 – 1.2 A
Power consumption	Approx. 170 W (with no USB devices connected)
Operating temperature	10°C to 40°C
Dimensions	Approx. 571.5 × 500 × 522.5 mm (w/h/d) (22 ¹ / ₂ × 19 ³ / ₄ × 20 ⁵ / ₈ inches)
Mass	Approx. 42 kg (92 lb 10 oz)
Plug and Play	DDC1/DDC2B/DDC2Bi, GTF**

- * Recommended horizontal and vertical timing condition
- Horizontal sync width duty should be more than 4.8% of total horizontal time or 0.8 μs, whichever is larger.
 - Horizontal blanking width should be more than 2.3 μsec.
 - Vertical blanking width should be more than 450 μsec.

** If the input signal is Generalized Timing Formula (GTF) compliant, the GTF feature of the monitor will automatically provide an optimal image for the screen.

Design and specifications are subject to change without notice.

