

User's Manual

FlexScan[®] T57S

Color Display Monitor

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INTRODUCTION

About This Manual

This manual explains the precautions, features, specifications, and operation of your EIZO monitor. The separately bound 'Quick Setup Guide' explains how to install your monitor, and how to implement basic adjustments with the ScreenManager utility.

Package Contents:

- Monitor 1
- Power Cord 1
- Signal Cable (MD-C87) 1
- Cleaning Cloth for CRT Screen 1
- User's Manual 1
- Quick Setup Guide 1
- Warranty Registration Card 1
- EIZO FlexScan CRT Utility Disk 1

NOTE

- If any of the above-listed items are missing or damaged, please contact your local dealer for assistance.
- We recommend that you retain the original packing materials in case of future need.

1 FEATURES

Features

FlexScan® for wide compatibility

- 30 to 92 kHz horizontal scanning, 50 to 160 Hz vertical scanning with automatic adjustment.
- The built-in microprocessor allows user-adjustable color control adjustments to control screen distortion, and memorization of user-adjusted settings.
- High resolution 1280 dots × 1024 lines with flicker free 85 Hz (Max.) refresh rate.

High Resolution Color CRT

- 45 cm (17 inch) class, Actual Viewing Diagonal 40.5 cm (15.9 inches), 90° deflection, 0.25 mm screen pitch, high contrast, Aperture Grille Type CRT.



- Dynamic Beam Spot Control (D.B.S.C.) systems achieve both brightness and sharp focus over the entire screen.



- S/S DY (saddle/saddle deflection yoke) prevents interference between two or more monitors that are close together (allow approximately 15 cm distance between the monitors to avoid interference).

Ecological & Ergonomic Design



- Anti-Reflective SuperErgoCoat® not only eliminates reflection of ambient light, but also improves the focus level over the entire display area, and reduces static electricity accumulation on the CRT surface.



- This model complies with TCO '99 (The Swedish Confederation of Professional Employees) guidelines for low frequency electric fields, magnetic fields, static electricity and visual ergonomic requirements. Furthermore, this model is produced with concern for the environment and contains no harmful substances in any of its components.



- EIZO products conforms to the CE European directive which limits EMI (Electromagnetic Interference) and EMS (Electromagnetic Susceptibility/Immunity) and is unaffected by such fields created by general office electrical equipment.

A declaration of conformity statement can be found at the end of this manual.

Functions

Windows 95/98 Plug & Play Readme.txt in the EIZO Utility Disk



- This model complies with VESA DDC1/DDC2B standards and supports the Plug & Play function proposed in Windows 95/98.

ScreenManager™ Quick Setup Guide & Pages 9-25



- ScreenManager allows the setting and adjustment of the displayed image using the QuickSet™ Control Pad and intuitive graphic icons for easy identification of each function.

Auto-Sizing Function Quick Setup Guide



- The auto-sizing function lets the microprocessor calculate and automatically adjust the screen size and position for the selected display mode.

Customized Color Controls Page 12

- Dynamic color control provides WYSIWYG (What You See Is What You Get) color matching.
To meet individual preferences, two color modes are provided: a Standard mode with selection of color temperature and a Custom mode for adjustment of color tone.

PowerManager™ Page 17



- The PowerManager function automatically reduces unnecessary power consumption when the monitor is not in active use. This function complies with the NUTEK specification, the VESA DPMS system and the EPA Energy Star Program¹⁾.

Input Priority Page 23



- When dual inputs are used, this model has the capability for priority to be given to one signal over the other, either the D-Sub or BNC video input.

1) As an Energy Star Partner, EIZO NANA O CORPORATION has determined that this product meets the Energy Star guidelines for energy efficiency.

Maintenance Port

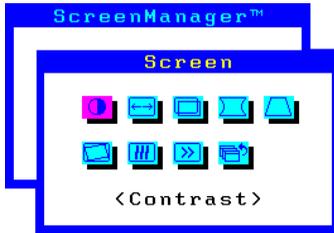
- The monitor is equipped with a maintenance port on the rear panel. This is provided so that complementary products can be utilized. ScreenManager Pro, a utility software kit (supplied as optional), is available which allows screen color, convergence and various geometric compensation adjustments to be made via a mouse through a serial cable connected to the port and the PC.

Optional *i*Sound™ speaker system Page 29

- The EIZO *i*Sound speaker system is available as an option for multimedia applications. Please contact EIZO dealers for more information.

2 IMAGING ADJUSTMENT

- Screen menu -



All of the icons shown in the ScreenManager 'Screen' menu are described below.

NOTE

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

Brightness, Contrast, Size, Position



These functions are used to adjust the brightness, contrast, size and position of the screen. For more information about how to adjust each of them, please refer to the 'Quick Setup Guide', page 8.

Geometry, Tilt, Bright Uniformity



Image distortion, tilting and/or the imbalance of brightness over the entire screen may be caused by the Earth's magnetic field. Use the 'Screen' menu's geometry (Side-Pincushion, Side-Pin Balance, Trapezoidal, Parallelogram) adjustment function to correct any geometric distortion.

The tilt adjustment function adjusts both the image tilting and the bright uniformity (the balance of brightness over the entire screen). For information about how to adjust them, please refer to the Troubleshooting on page 33.

Image distortion, tilting and/or the imbalance of brightness may also be caused by any device that generates a magnetic field. If the above adjustments are not effective, try the following approaches.

- Check to see if there are any nearby interfering electronic devices such as another monitor, an electric motor, or a speaker (other than an optional EIZO *i*-Sound speaker unit). If so, move the device or move the monitor.
- It is sometimes possible to correct distortion, tilting or the imbalance of brightness by reorienting the monitor.

Convergence



Displayed characters and images may appear fuzzy or have tinges of red, green, or blue if the electron beams do not converge correctly. These can be adjusted by the convergence adjustment feature in the ScreenManager.

What is convergence?

Convergence is the monitor's ability to precisely illuminate specific phosphors and line them up properly in order to produce pure color.

In order to properly adjust convergence, it is best to have an image that makes it easy to see any convergence error. A black background with white letters or lines is the best. This could be a DOS text mode or an image created with a "paint" program.

When adjusting convergence, look at the adjustment across the whole screen. When adjusting horizontal convergence, look at the left and right edges of vertical lines or characters. When adjusting vertical convergence, look at the top and bottom edges of horizontal lines or characters. Proper adjustment is when the effect of red and blue tinges are minimized.

NOTE

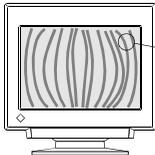
- The convergence adjustment adjusts the entire screen. It is not possible to limit adjustment to specific screen areas.

Moiré Reduction

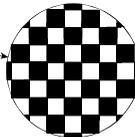


What is moiré?

Moiré refers to an interference pattern of dark wavy lines on the screen. It is not a defect, but rather an interference phenomenon caused by the relationship between the phosphor layout and the imaging signal. Moiré is often an indication of a good focus level. Moiré is particularly noticeable when using a light-gray or every-other-dot pattern background. Although moiré can not be eliminated, it can be reduced with the moiré reduction feature.



(Moiré)



(Every-other-dot pattern)

Moiré can be reduced in a variety of ways.

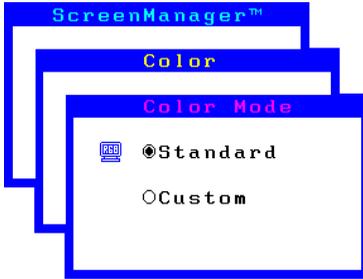
- 1) Adjust with the ScreenManager's moiré reduction function.
Adjust so that moiré becomes almost unnoticeable. Before adjusting, set the desktop to an every-other-dot pattern (see picture, page 10) so that moiré will be visible. Following the adjustment, change to a different desktop background to reduce moiré even further.
- 2) Change the horizontal and vertical dimensions.
Adjust the horizontal and vertical dimensions of the display area as necessary to reduce moiré.
- 3) Change the selected desktop or wallpaper pattern.
Use the PC software to change the desktop or wallpaper pattern. Any solid color pattern is recommended. For detailed information on how to change these patterns, refer to the documentation for the PC and operating system.

NOTE

- The screen image may shake slightly while the ScreenManager moiré reduction function is ON. Switching the function OFF will improve image stability and clarity at the expense of slightly greater moiré.

3 COLOR ADJUSTMENT

- Color menu -



Outline

EIZO monitors have incorporated two color adjustment mode, standard and custom. The “Standard” mode allows the adjustment of the color spectrum. The “Custom” mode allows extensive controls over the colors of the displayed image on the screen.

All adjustments for either mode can be made quickly and easily through the ScreenManager 'Color' Menu - offering a tool to create customized color environment.

Please find the details of the color mode adjustment capabilities below:

Contents	Application
Standard mode Sets color temperature. Temperature can be set from 4000K to 10000K, in 500K increments. (Additionally, industry standard of 9300K is set as default.)	For routine work and printing.
Custom mode Sets color temperature. Allows for specific adjustments to Red, Green and Blue (R/G/B). This consists of the Cutoff and Gain functions.	For use when high precision color adjustment is necessary (i.e. when there is a need to obtain identical colors on multiple monitors* or match the display color with printout color**.)

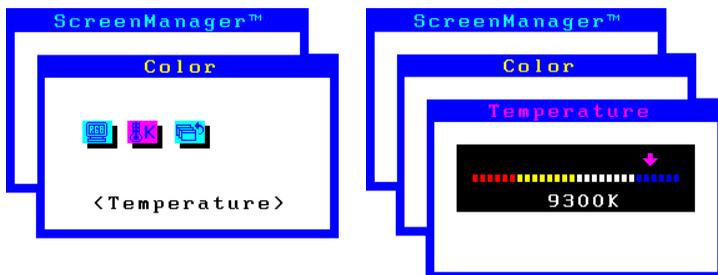
* The color adjustment spectrum may vary between monitors.

** A color calibrator can be used for even higher-precision color adjustment.

NOTE

- Each monitor is slightly different, if two monitors are set to the same color temperature value (i.e. 6500K), they may not necessarily look the same.

Adjusting the Standard mode



NOTE

- Users should allow at least 30 minutes for the monitor to stabilize before setting the color adjustments or color matching.

Procedure

- 1) Go to the 'Color' menu.
- 2) Select the "Standard mode" setting from the 'Color mode' menu.
- 3) Select the 'Temperature' icon. A color temperature bar will appear.
- 4) Adjust the temperature by using the right or left Arrow keys.
- 5) Press the ENTER key to save the data.

What is color temperature?

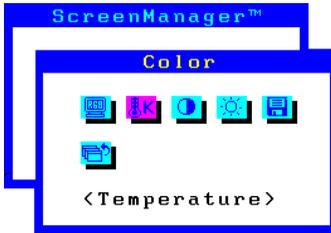
Color temperature is a method to measure the white color tone, generally indicated in degrees Kelvin. At high temperatures the white tone appears somewhat blue, while at lower temperatures it appears somewhat red. Computer monitors generally give best performance at high temperature settings.

5000K: Slightly reddish white. Often used in printing industry.

6500K: Warm-white tone, similar to white paper or daylight. This temperature is good for video-image display.

9300K: Slightly bluish white. This is the default setting for your EIZO monitor.

Adjusting the Custom mode



Cutoff and Gain adjustments

Monitors use red, green and blue (R, G, and B) to convey color information. They use an additive method to combine different amounts of the primary colors to produce a desired color. In other words, monitors start with no light (black) and add percentages of red, green and blue to make colors. White is usually produced by adding the same amount of all three colors, where black is usually produced by adding no color.

However, colors are not only determined by the balance but also the intensities of R, G, and B (how bright they are) which we call Gain, and the saturation of R, G and B (how vivid or dull they are) which we call Cutoff.

NOTE

- Users should allow at least 30 minutes for the monitor to stabilize before setting the color adjustments or color matching.
- Before you attempt to change the colors, always start with the color settings set to the "default settings" by using the 'Reset' function in the ScreenManager 'Others' menu.
- If only a quick setting is required, that is close to the desired color, but not exact, skip making any changes to the Cutoff adjustment (step 4). If a precise match is desired, adjustment of the Cutoff levels must be made. We recommend that for exact matching, use a color calibrator.

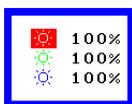
Procedure

- 1) For optimum results, before beginning the custom color adjustment, go to the 'Screen' menu and set the display to maximum brightness and contrast. (Use the 'Screen' menu's 'Brightness' and 'Contrast' icons.)
- 2) Then, return to the 'Color' menu and select the 'Custom mode' setting.
- 3) Set the color temperature.

- a) Select the 'Temperature' icon from the sub menu.
 - b) Select the temperature as desired by moving the arrow keys in any direction.
- 4) Adjust the Cutoff

Cutoff

The Cutoff adjustment is the most powerful adjustment. It alters the starting point (the black level) and the ending point (the white level). If the Cutoff level for color is raised or lowered, black, white, and all levels between are raised or lowered by the same degree.



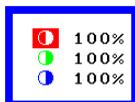
Before adjusting the Cutoff, it is best to display a screen with a black background (such as the DOS command screen).

- a) Select 'Cutoff' icon. The screen shown on the left will appear.
- b) Adjust each color until you can create a uniform black screen.

- 5) Adjust the Gain

Gain

The Gain adjustment has no effect on the starting point (the black level). It changes only the ending point (the white level). The Gain adjustment is used to fine tune the whites and light grays to a good balance.



Before adjusting the Gain, it is best to display a screen image that has a white or grayscale background, such as the operating window for Windows.

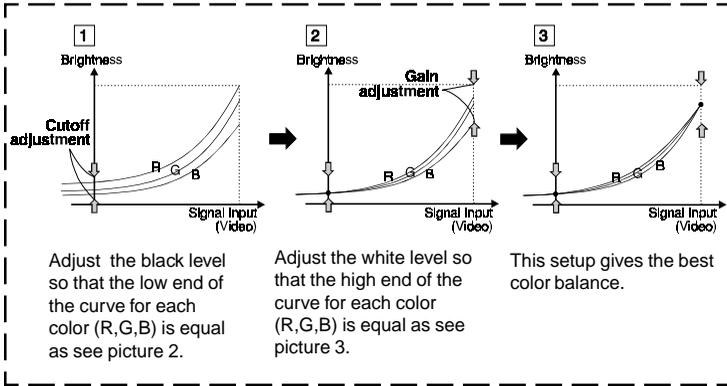
- a) Select 'Gain' icon. The screen shown on the left will appear.
- b) Adjust each color until you can create a uniform white screen.

- 6) To register the adjustment, select the "Save" icon and then press the ENTER key. If the settings are not saved, all adjustments will be lost.
- 7) Finally, readjust the contrast in the 'Screen' menu to get the best image clarity.

NOTE

- If an inappropriate adjustment is made, corrections can be made by repeating the above procedure starting from Step 3 (temperature setting).
- The values shown in percentages (%) for both the Cutoff and Gain adjustments represent the current level within the specific adjustment only. They are available only as a reference tool. (To create a uniform white or black screen, the percentages for each will probably not be the same.)

- These diagram explains how the color curves were changed for the best adjustment in steps 4 and 5.



What is the relation between the color and the brightness adjustment?

Brightness uniformly adjusts the amount of light output for the entire screen and its background. If it is increased too high the background will become white, too low and many dark colors will not be displayed. It affects all color controls.

Contrast varies the difference in light output from the lowest to the highest screen intensities. It is the brightness adjustment for the video signal area.

After making the color settings, readjust the contrast to get the best definition and intensity of the colors for the displayed image.

4 POWER-SAVE SETUP

- PowerManager menu -

E



What is PowerManager?

The PowerManager feature automatically reduces the monitor's power consumption during idle periods, in accordance with the PC's ScreenSaver software.

There are two PowerSaving modes in the EIZO PowerManager: Mode 1 and Mode 2. Even if the monitor is in a power saving mode, it will return to a normal display immediately when the mouse or keyboard is operated.

The EIZO PowerManager functions comply with NUTEK, the VESA DPMS standard, and the EPA's Energy Star guidelines.

Power consumption:

In operation: up to 135 W (Max.)

PowerManager Mode 1: less than 10 W
(Power Indicator flashing green)

PowerManager Mode 2: less than 5 W
(Power Indicator solid yellow)

NOTE

- Do your part to conserve energy, turn off the monitor when your finished using it. Complete energy use can only be stopped by disconnecting the monitor from the power supply.
- When the monitor is in a power saving mode, the optional EIZO *i*:Sound speaker unit will turn off.

Set-up Procedure

Set the monitor's power-save environment to match the PC's ScreenSaver software.

NOTE

- For the PC setup, please refer to the user's manuals for the PC and graphics board.

There are two power-save settings for the monitor:

'VESA DPMS' system works with the VESA DPMS signal.

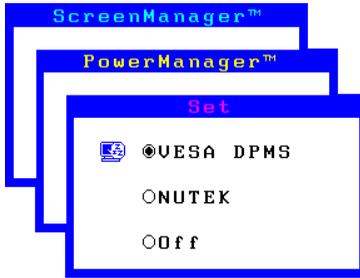
'NUTEK's system works with a screen saver software and Energy Saver for Macintosh which blanks the screen (totally black screen).

Set the monitor to match the PC's power-saving software, as follows.

Monitor setting for matching the PC:

PC	PC Power saving	Monitor setting
PC/AT and compatibles (VESA DPMS activated)	VESA DPMS (Signal)	VESA DPMS
PC/AT and compatibles (VESA DPMS inactivated)	Windows (Control Panel/Desktop/ ScreenSaver: "Blank Screen")	NUTEK
Macintosh	Energy Saver	NUTEK
	ScreenSaver software After Dark/"Blank" settings	NUTEK

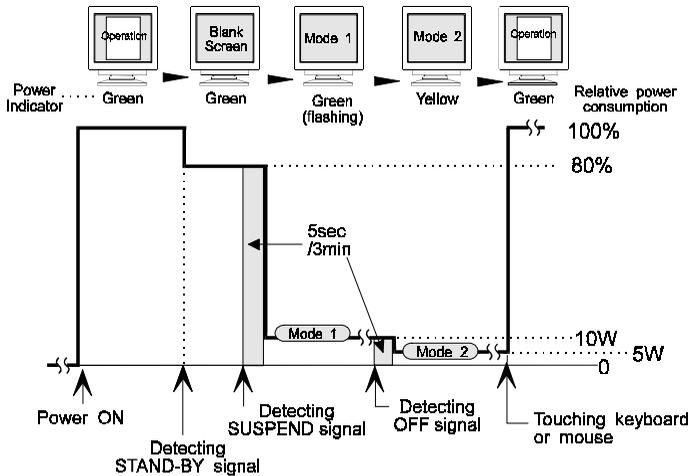
VESA DPMS System



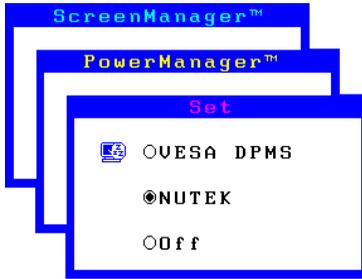
- 1) First, make the appropriate settings for the PC. (See note, page 18.)
- 2) Then select 'VESA DPMS'.
- 3) Set the delay period, which is the interval that the monitor will wait after receiving a power-save signal from the PC, before entering into Mode 1 or Mode 2.

VESA DPMS power-saving method

VESA DPMS utilizes four signals: ON, STANDBY, SUSPEND, and OFF. The monitor detects these signals from the graphics board and executes power-saving accordingly, as illustrated below.



NUTEK System



1) First make the appropriate ScreenSaver settings (Macintosh/Energy Saver) for the PC.

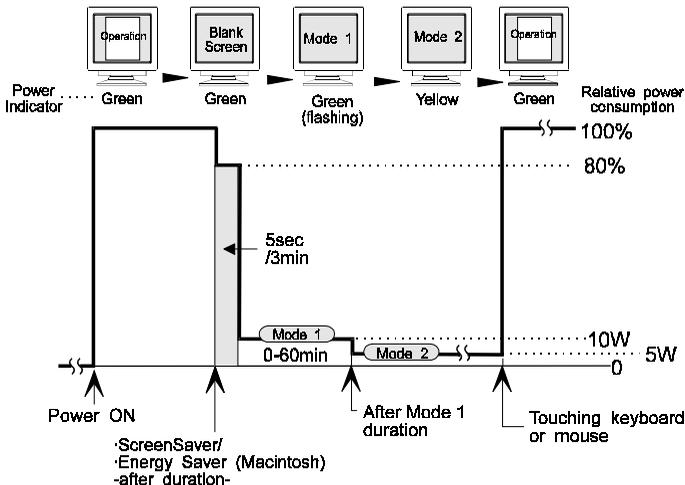
2) Then select 'NUTEK'.

 3) Set the delay time, which is the interval between the time that the ScreenSaver (Macintosh/EnergySaver) blanks the screen and the time that the monitor enters Mode 1.

 4) Set the Mode 1 duration time which is the user definable time (0-60 minutes) before the monitor enters Mode 2.

NUTEK power-saving method

Mode 1 operates for a user-definable period in 'Duration' (in 0-60 minutes) before the monitor enters Mode 2. If the keyboard or the mouse are not in use during this period, the monitor will then enter PowerManager Mode 2.



What is VESA DPMS?

The acronym VESA stands for “Video Electronics Standards Association,” and DPMS stands for “Display Power Management Signaling.” DPMS is a communication standard that PCs and graphics boards use to implement power savings at the monitor side.

What is NUTEK?

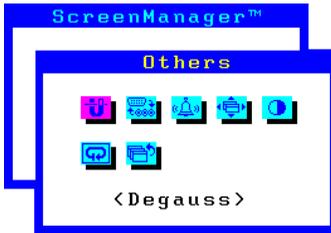
NUTEK is the acronym for the Swedish National Board for Industrial and Technical Development, an organization that works to promote power-saving technologies.

What is Energy Star?

“Energy Star” is a set of power-saving guidelines issued by the U.S. Environmental Protection Agency (EPA). The guidelines apply to PC systems and peripherals.

5 OTHER SETTINGS

- Others, Information and Language menus -



All of the icons shown in the ScreenManager 'Others' menu are described below.

Degaussing



The monitor automatically degausses every time the power is turned ON and every time it is reactivated from the PowerManager power-saving Mode 2. A degaussing function is provided in the ScreenManager for use at other times. Note that the image vibrates slightly while degaussing is in progress, but will return to normal when degaussing is completed.

NOTE

- The degauss circuitry takes about 30 minutes to regain maximum power following degaussing before it can work again.

What is degaussing?

“Degaussing” refers to the process of removing magnetic-field effects from the monitor. Operation of the monitor within a magnetic field may adversely effect color purity. Degaussing can be used to correct the problem.

Input Priority



This unique feature of the ScreenManager is for those users who utilize two PCs. It allows the user to set the priority on the PC of choice.

The monitor automatically detects the selected 'Input Priority' setting every time the power is turned ON (see note). Once the priority is set, whenever a signal is detected at that connection, the monitor will convert to that signal and display the data being sent.

There are three settings available: D-Sub, BNC or Manual. Since the monitor comes with a standard D-Sub cable, the default priority setting is set to D-Sub.

If only a single PC is connected and the standard bundled cable is used, no special setting is required.

How to use

Use this function to select which of two connected PCs controls the monitor. The following table indicates the available selections. For additional information, refer to "Getting the Most from your Monitor" on page 27.

Priority setting	Performance
D-Sub	The monitor automatically detects and displays signals received from the D-Sub or BNC input. If signals from both inputs are present, the monitor displays the D-Sub signal.
BNC	The monitor automatically detects and displays input signals received at the BNC or D-Sub input. If signals from both inputs are present, the monitor displays the BNC signal.
Manual	The monitor does not detect signals automatically. Select the active input by pressing the BNC/D-Sub selection button on the monitor's front panel.

NOTE

- The ScreenManager priority setting can be overridden at any time by using the BNC/D-Sub selection button on the front panel. Priority selection will be restored when the PC or monitor is switched ON again.

Beep



Use this feature to set the beeper ON or OFF. If the beeper is ON, the monitor will generate beep signals as shown below. If the beeper is OFF, the monitor will not beep.

Short beep	<ul style="list-style-type: none">• ScreenManager item selected.• ScreenManager parameter adjusted to minimum or maximum limit.• BNC/D-Sub selection button pressed.
Long beep	<ul style="list-style-type: none">• AUTO-SIZING button pressed.• ScreenManager data-save executed.
Four short beeps	<ul style="list-style-type: none">• Monitor not connected correctly.• PC turned off.• Monitor received unsupported signal frequency.

Menu Position, Menu Contrast



Use these functions to adjust the position, contrast and brightness of the ScreenManager menu. When adjusting color, it is useful to adjust the



contrast and brightness of the ScreenManager menu according to the background.

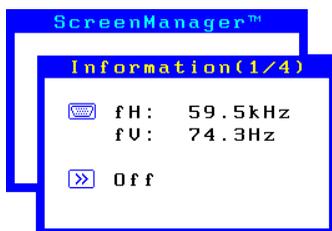
Reset



Use this function to return all ScreenManager parameters (size, position, geometry, color, PowerManager etc.) to their factory default settings. Default settings are as follows.

- Screen: Moiré = OFF
- Color: Standard/9300K
- PowerManager: VESA
- Others: Input Priority = D-Sub
Beep = ON
- Language: English

Information status report



Use this feature to review the current ScreenManager settings. The menu contains four pages. Pressing the ENTER key selects the different pages in order. The information displayed on each page is as follows.

- Page 1: Input port, horizontal and vertical frequencies, moiré reduction setting
- Page 2: Color-adjustment settings
- Page 3: PowerManager settings
- Page 4: Input priority (see note), and beep settings

NOTE

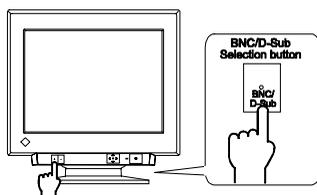
- The current ScreenManager setting is displayed even if the input selection has been manually overridden by the use of the BNC/D-Sub selection button.

Language menu



Use this menu to select the ScreenManager language. Six languages are available to choose from: English, German, French, Spanish, Italian and Swedish. The menu text will appear in the language that is selected here.

Selecting the active input

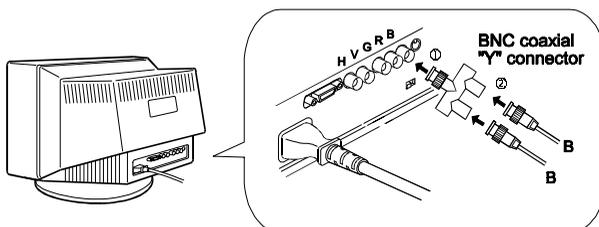


- The front panel's BNC/D-Sub selection button can be used to select BNC or D-Sub as the active input.
- The ScreenManager's "Input Priority" setting (in the 'Others' menu) can be used to set up the automatic selection of the input. See page 23 for details.

Linking monitors in a chain

Three to four monitors can be chained together so that they can be controlled from a single source. All monitors will display the same image. This feature is useful, for example, when giving a presentation.

The connection is made through the BNC inputs. Specifically, you attach BNC coaxial "Y" connectors to the BNC inputs on each monitor. Then connect the BNC signal cables. Please make sure the termination switch on each monitor is set appropriately, as described in the chaining procedure.

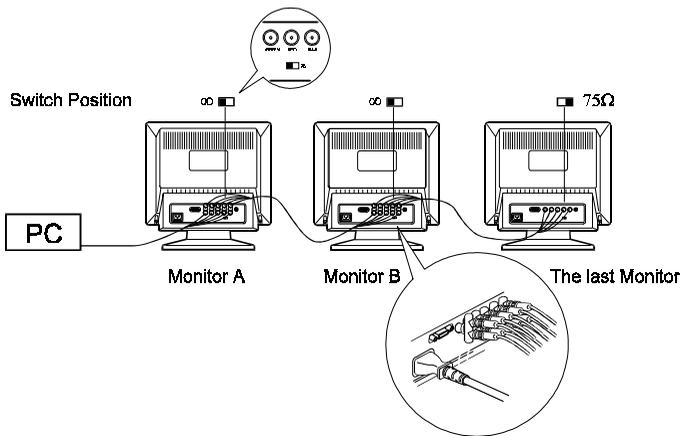


NOTE

- Any EIZO monitor with a termination switch can be added to the chain.
- In order to maintain image clarity, the total length of chained cables should not exceed approximately 8 m (about three to four chained monitors).
- Termination switches are effective only with BNC connections.
- If a video color printer is included in the configuration, it should be placed at the end of the chain.

Chaining procedure

- 1) Attach BNC coaxial “Y” connectors to each of the BNC inputs (H, V, G, R and B) on the first monitor in the chain (call this Monitor A). Then connect the monitor to the PC, using a signal cable equipped with BNC connectors at the monitor side.
- 2) Attach BNC coaxial “Y” connectors to the next monitor (monitor B). Connect monitors A and B, this time using a signal cable with BNC connectors at both sides.
- 3) Connect monitor B to monitor C, and continue in the same manner until all the monitors have been connected in the chain.
- 4) Set the termination switch on the last monitor in the chain to 75 ohms. Set the termination switches on all other monitors to HIGH IMPEDANCE (∞).

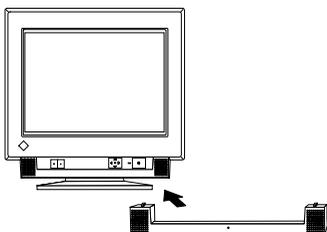


NOTE

- Use a pen or other implement to set the termination switch. Do not push the switch with a screwdriver or other hard object, as this may cause damage to the switch or the monitor.
- When returning to a one-monitor configuration, be sure to reset the termination switch on the monitor to 75 ohms.

Optional *i*-Sound™ speaker system

The optional speaker system *i*-Sound connects directly to the monitor and can be used to support multimedia applications. The speaker also has a microphone function. For details, consult EIZO dealers.



7 TROUBLESHOOTING

Troubleshooting

This page presents problems that can be corrected by the user. If a problem persists even after applying the suggested remedies, contact an EIZO dealer.

Problems

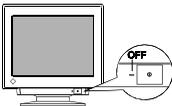
Points to check with possible solutions

Problems caused by incorrectly setting of the termination switch.

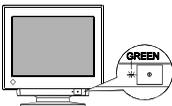
- | | |
|---|--|
| <p>1) Misconvergence of colors.</p> <p>2) Focus is dull.</p> <p>3) PowerManager does not work properly in VESA setting.</p> <p>4) Slight shadow appears on the edges of the screen image or text. (only for the BNC connections.)</p> | <ul style="list-style-type: none">• The termination switch on the rear of the monitor should be set to 75 Ω position (default) for connection to a single monitor. <p>If it is set to the ∞ position when using a single monitor, some problems like 1) ~ 4) may occur.</p> <p>Check that the switch position is set to 75 Ω position.</p> |
|---|--|

No picture

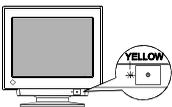
- | | |
|---------------------------------|---|
| <p>1) Indicator status: OFF</p> | <ul style="list-style-type: none">• Check that the power cord is correctly connected. |
|---------------------------------|---|



- | | |
|-----------------------------------|---|
| <p>2) Indicator status: GREEN</p> | <ul style="list-style-type: none">• Try pressing a key on the keyboard, or clicking the mouse. (The screen-saver software may be active.)• Check brightness and contrast settings. Minimum settings will cause screen to be blank. |
|-----------------------------------|---|



- | | |
|------------------------------------|---|
| <p>3) Indicator status: YELLOW</p> | <ul style="list-style-type: none">• Try pressing a key on the keyboard, or clicking the mouse. (The screen-saver software may be active.) |
|------------------------------------|---|



If the problem persists, switch off the monitor power for a few minutes, then switch it back on and try again.

4) “No signal detected” error message appears.



5) “Out of range” error message appears.

(Example)

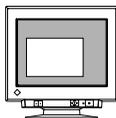


NOTE

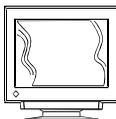
- Error messages will remain on the screen for 30 seconds, and then disappear. An error message may not appear at all if the signal frequency is extremely high or extremely low.

Imaging problems

1) Display size and/or position is incorrect.



2) • The image vibrates on the screen.
• A slight shaking movement of the screen image or text.



- Check that the PC is switched ON.
- Check that the signal cable is properly connected to the graphics board or PC.
- Check that the graphics board is correctly inserted in the PC.
- Switch the signal input by pushing the BNC/ D-Sub selection button on the front control panel.
- Use the graphics board's utility software to change the frequency setting. (Refer to the manual of the graphics board.)
- Whenever an error signal message appears, the signal frequency will be displayed in red.
- Press the AUTO-SIZING button on the front panel. See Quick Setup Guide, page 8.
- Adjust the image size and/or position using the icons in the ScreenManager 'Screen' menu. See page 9.
- Use of the “moiré reduction” feature may cause a slight vibration. To eliminate the vibration, switch the feature OFF or reduce the moiré reduction level. See page 10.
- Check that the signal cable is properly connected to the graphics board or PC.
- Check that the graphics board is correctly mounted in the PC.

-
- The signal cable might be damaged. Please contact the dealer.
 - The monitor may be located close to a device that is generating a magnetic field. Such devices include speakers (other than the EIZO optional *i*Sound speaker), electric motors, high-voltage cables, and other monitors. It may be solved by switching off or moving the interfering device, or by relocating the monitor.
 - If the volume level of the EIZO optional *i*Sound speaker is too high, it may, in some cases, cause a slight vibration. To eliminate, turn down the volume of the speaker.

NOTE

- A unstable signal from the graphics board may be the cause of the above problem when using the monitor with a high resolution or in a high refresh mode. (The video signal from the graphics board might be made irregular due to the use of a high speed dot clock.) Change the resolution or the refresh rate to another setting.
- 3) The image has a background shadow.
- Try adjusting the convergence in the ScreenManager's Screen menu. See page 10.
 - This problem can occur when using BNC connection and the termination switch is set incorrectly. The termination switch should be set to 75 ohms for a connection to a single monitor. See page 27.
- 4) The image is flickering.
- Flicker will occur with interlaced scanning, or non-interlaced scanning with a low refresh rate. All EIZO monitors are capable of reproducing high refresh rates for non-interlaced scanning. If a problem occurs when using a non-interlaced signal, try adjusting the graphics board to increase the refresh rate (if possible). Refer to the graphics board manual for information.

Non-Interlaced / Interlaced

In a "non-interlaced" scan, the electric guns draw the entire image in one vertical pass, with each pass covering every horizontal line.

In a "interlaced" scan, the guns draw the entire image by scanning vertically twice.

At the first scanning, the guns draw every other horizontal line. At the second, they draw the other lines. Thus, in a "interlaced scan", the image flickers more visibly when compared with a "non-interlaced" scan.

Flicker

The term "flicker" refers to noticeable shimmering that occurs when the image on the screen is redrawn ("refreshed") too slowly. A refresh rate of 80 Hz means the image is redrawn 80 times per second. Most people will notice flicker at image refresh rates as high as 60 or 70 Hz, whereas refresh rates of 72 Hz or above usually is not noticeable. Flicker is known to be the cause of visual fatigue.

- 5) The screen is too bright or too dark.
- Adjust the contrast and brightness using the ScreenManager's Screen menu. See page 9.
- 6) The screen is partly dark.
- The CRT is not warmed up. Allow 30 minutes for the monitor to stabilize.

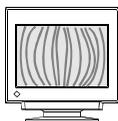


- This problem can be caused by earth magnetism. If this condition is noticeable, please follow the procedure below.

(Procedure)

- 1) Degauss the screen by using the "Degaussing" feature in the ScreenManager's 'Others' menu.
- 2) Select the "Tilt" function through the ScreenManager's 'Screen' menu.
- 3) Adjust the screen for the best balance between bright uniformity and tilt compensation.
- 4) If after performing the above adjustment the vertical sides of the screen image may be at a slight angle, this can be corrected by using the "Parallelogram" adjustment in the ScreenManager's 'Screen' menu.

- 7) Moiré patterns are distracting.



- Go to the ScreenManager's Screen menu. Switch on the moiré reduction feature and adjust as necessary. See page 10.

Color problems

1) The entire screen appears bluish or reddish.

- The CRT is not warmed up. Allow 30 minutes for the monitor to stabilize.

2) Color purity is not uniform.



- Allow 30 minutes for the monitor to warm up.
- Degauss the screen. (Use the degaussing feature in the ScreenManager's 'Others' menu. See page 22.)

3) Misconvergence of colors.
(red, green, blue)



- Allow 30 minutes for the monitor to warm up.
- Adjust the convergence using the Convergence feature in the ScreenManager's Screen menu. See page 10.
- This problem can occur when using a BNC connection and the termination switch is set incorrectly. The termination switch should be set to 75 ohms for connection to a single monitor. See page 27.

Explanation of the Characteristics of CRTs

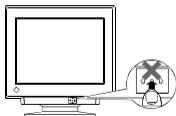
When the monitor is not fully warmed up, the screen may look slightly colored, e.g. reddish or bluish. This phenomenon is due to the unstableness of the electron gun during its warm-up period. Please wait for about 30 minutes until the monitor stabilizes in order to gain its proper color.

Others

1) The monitor beeps or hums.

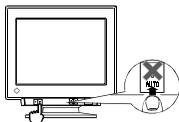
- The monitor emits a humming noise when executing automatic degaussing at power-ON. This is not a problem.
- The monitor beeps at any time. This is not a problem. See page 24 for full details.

2) Control Pad "ENTER key" does not operate.



- The Adjustment Lock is probably on. To unlock: switch off the monitor power, then hold down the AUTO-SIZING button and switch the monitor back on. See page 26.

3) AUTO-SIZING button does not operate.



- The Adjustment Lock is probably on. To unlock: switch off the monitor power, then hold down the AUTO-SIZING button and switch the monitor back on. See page 26.

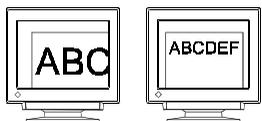
4) AUTO-SIZING button does not work properly.

- The Auto-sizing function is intended for use on the Macintosh and on IBM compatibles running Windows. It may not work properly if either of the following applies.
 - You are running an AT-compatible PC on MS-DOS (not Windows).
 - The background color for the "wallpaper" or "desktop" pattern is set to black.
- Some signals from graphics boards may not function properly.

NOTE

- A solid-color screen (i.e. red, green, blue) may appear for an instant while performing the auto-sizing function, this phenomenon is not a failure.

5) Characters are too large.



Low resolution

High resolution

- Change the resolution of the graphics board to a higher setting. (Refer to the manual for the graphics board or PC.)

What is Resolution?

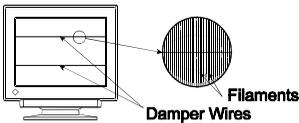
Resolution is expressed as the number of dots (pixels) displayed on the screen. A larger number of dots produces a more sharply defined (a higher-resolution) image.

Note that for a given screen size the dot size decreases as the number of dots increases: a 640 × 480 (dot × line) resolution uses larger pixels than a 1024 × 768 resolution. The display size of a given font therefore varies according to the resolution. Higher resolutions allow you to display more information on the screen.

Changing the resolution

If you are using a Macintosh, you can change the resolution from the APPLE menu by selecting "Option" from "Monitor" or "Sound & Display." If you are using a PC other than a Macintosh, refer to the manual for your PC or graphics board for information. Please refer to both the graphics board and monitor manuals for the scanning frequency compatibility.

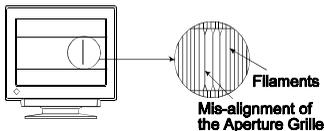
6) Two horizontal hairlines are visible on the screen.



- These are dampening wires. Dampening wires are used to support the CRT's aperture grille, and are visible as thin dark lines across the screen. All EIZO aperture-grille type CRTs include two such horizontal wires.

The aperture grille itself is a grid of taut metal filaments that spans the entire screen from top to bottom.

7) Faint black vertical lines are visible on the screen.



- The aperture grille may be misaligned. Shock or vibration during transport may, in some cases, cause the aperture grille to fall out of alignment. The problem will appear as one or more faint black lines across the screen.

If this problem occurs, it may be able to be solved by:

- degaussing the screen, or
- lightly tapping (do not hit) the side of the monitor.

If neither of these methods works, try executing the following procedure.



- 1) Display a bright white field over the area where the black line(s) appear, with a black field over the unaffected areas. (Do this by opening a bright-white window on top of a black desktop or wallpaper background. Position the window so that it just covers the area of misalignment.)
- 2) Set brightness and contrast to maximum values, and keep the display ON until the problem is corrected. Try tapping the side of the display lightly to help expedite realignment. The white field will heat up the misaligned area of the grille, returning it to proper alignment.

8 CLEANING

WARNING



- **Keep liquids away from the monitor.**

Spillage into the cabinet may result in fire, electric shock, or equipment damage.

If an object or liquid falls/spills into the cabinet, unplug the monitor immediately. Have the unit checked by a qualified service engineer before using it again.

Using the monitor in this condition could cause serious injury or equipment damage.

CAUTION



- **To ensure safety, always unplug the monitor before cleaning it.** Failure to do so may result in electric shock.
- **Periodically clean the area around the plug.** Buildup of dust, water, or oil on the plug may result in fire.
- **Never use thinner, benzene, or other strong solvents or abrasive cleaners, as these may cause damage to the cabinet or CRT.**
- **Dust accumulation within the monitor may result in fire or equipment failure. Please keep the monitor in a dust-free environment.**

Periodic cleaning is recommended to keep the monitor looking new and to prolong its operational lifetime. Clean the cabinet and CRT areas as follows.

Cabinet

To remove stains, wipe the cabinet with a soft, lightly moistened cloth using a mild detergent. Do not spray wax or cleaner directly onto the cabinet. Do not clean with compressed air.

CRT Surface



The monitor comes with a special cloth specifically designed to remove fingerprints and dust from the screen. The cloth is washable, and will remain effective regardless of the number of times it is washed. If the supplied cloth is not available, you can clean the CRT surface with gauze, cotton, or lens paper.

If necessary, stubborn stains can be removed by moistening part of a cloth with water or alcohol (ethanol, methanol, or isopropyl alcohol) to enhance its cleaning power.

9 SPECIFICATIONS

Electrical Specifications

CRT AG Pitch	0.25 mm (Aperture Grille)
CRT Size	45 cm (17 inch) class
	90° deflection Aperture Grille type
CRT Surface	Anti-Reflective SuperErgoCoat®
Scan Frequency	
Horizontal:	30 kHz-92 kHz (Automatic)
Vertical:	50 Hz-160 Hz (Automatic)
Max. Active Display Area	326 mm (H) × 241 mm (V) (Diagonal: 405 mm)
	* Display size can be set by the user through microprocessor control panel.
	* The actual size displayed can be dependent on the graphics board or PC utilized.
Power Supply	220-240 VAC±10%, 50 Hz, 0.8 A
Power Consumption	
Normal:	115 W
Max.:	135 W (EIZO optional speaker attached: 138 W)
PowerManager Mode 1:	Less than 10 W
PowerManager Mode 2:	Less than 5 W
Input Connector	D-Sub mini 15-pin and BNC × 5 (H(H/V), V, G, R, B,) (switchable)
Display Colors	Unlimited Colors
Recommended Resolution	1280 dots × 1024 lines
Input Signal	
Sync:	<ul style="list-style-type: none">• H/V Separate, TTL, Positive/Negative• H/V Composite, TTL, Positive/Negative• H/V Composite, Sync on Green 0.3 Vp-p, Negative
Video:	<ul style="list-style-type: none">• RGB Separate, Analog 0.7 Vp-p/75 Ω, Positive• RGB Separate, Analog plus Composite Sync on Green

Mechanical Specifications

Dimensions	410 mm (W) × 413 mm (H) × 439 mm (D) (net) 529 mm (W) × 537 mm (H) × 597 mm (D) (gross)
Weight	21.0 kg (net), 25.0 kg (gross)

Environmental Specifications

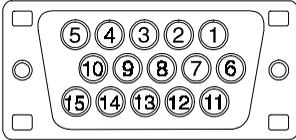
Temperature	operating: 0°C to 40°C storage: -20°C to 60°C
Humidity	30% to 80% R.H. Non-condensing

APPENDIX
ANHANG
ANNEXE

APPENDIX

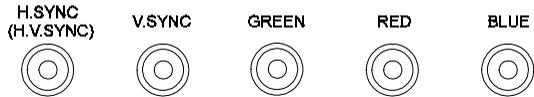
Pin Assignment Pin-Belegung Affectation des Broches

D-Sub mini 15 pin connector



Pin No.	Signal	Pin No.	Signal
1	Red video	9	No pin
2	Green video	10	Ground
3	Blue video	11	(shorted)
4	Ground	12	Data
5	No pin	13	H. Sync
6	Red ground	14	V. Sync
7	Green ground	15	Clock
8	Blue ground		

BNC connector



Connector Input signal	H. SYNC	V. SYNC	GREEN	RED	BLUE
Sync on green	N/A	N/A	GREEN Composite sync	RED	BLUE
Composite sync	TTL H/V composite sync	N/A	GREEN	RED	BLUE
Separate sync	TTL H. SYNC	TTL V. SYNC	GREEN	RED	BLUE

Preset Timing Chart

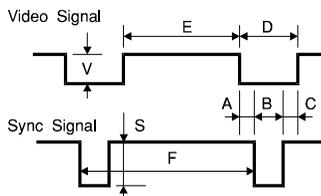
Timing-Übersichten

Synchronisation des Signaux

Based on the signal diagram shown below, 4 factory presets have been registered in the monitor's microprocessor.

Der integrierte Mikroprozessor des Monitors unterstützt 4 werkseitige Standardeinstellungen (siehe hierzu die nachfolgenden Diagramme).

4 signaux ont été enregistrés en usine dans le microprocesseur du moniteur, conformément au diagramme de synchronisation ci-dessous.



A	Front Porch	Vordere Schwarzschulter	Front avant
B	Sync Period	Synchronimpuls	Délai de synchronisation
C	Back Porch	Hintere Schwarzschulter	Front arrière
D	Blanking Period	Austastzeit	Délai de clignotement
E	Display period	Display-Zeit	Délai d'affichage
F	Total cycle	Kompletter Zyklus	Cycle total
S	Sync signal level	Sync-Signalpegel	Niveau du signal de synchronisation
V	Video signal level	Video-Signalpegel	Niveau du signal vidéo

The sync pulse, for both the horizontal and vertical signals, has positive or negative polarity combination (as shown following) to encode different modes.

Der Sync-Impuls für Horizontal- und Vertikalsignale weist eine kombinierte (d. h. eine positive und negative) Polarität auf (siehe unten). Auf diese Weise ist eine Codierung der verschiedenen Betriebsarten möglich.

L'impulsion de synchronisation, pour les signaux horizontaux et verticaux, a une combinaison de polarités positives ou négatives (présentée page suivante) qui permet de coder différents modes.

VGA (text)

■ 720 dots × 400 lines mode

	Unit	A	B	C	D	E	F
H	μs	0.636	3.813	1.907	6.356	25.422	31.778
	Dot	18	108	54	180	720	900
V	ms	0.381	0.064	1.111	1.556	12.712	14.268
	Line	12	2	35	49	400	449

Frequencies: fd/28.322 MHz, fH/31.468 kHz, fV/70.087 Hz
Interlace: Non
Sync Polarity: H/Negative, V/Positive
Video Signal Level: 0.7 Vp-p/75 Ω

VESA

■ 1280 dots × 1024 lines mode

	Unit	A	B	C	D	E	F
H	μs	0.305	1.016	1.524	2.844	8.127	10.971
	Dot	64	160	224	448	1280	1728
V	ms	0.011	0.033	0.483	0.527	11.235	11.761
	Line	1	3	44	48	1024	1072

Frequencies: fd/157.50 MHz, fH/91.15 kHz, fV/85.02 Hz
Interlace: Non
Sync Polarity: H/Positive, V/Positive
Video Signal Level: 0.7 Vp-p/75 Ω

Apple Macintosh

■ 832 dots × 624 lines mode

	Unit	A	B	C	D	E	F
H	μs	0.559	1.117	3.910	5.586	14.524	20.111
	Dot	32	64	224	320	832	1152
V	ms	0.020	0.060	0.784	0.865	12.549	13.414
	Line	1	3	39	43	624	667

Frequencies: fd/57.28 MHz, fH/49.73 kHz, fV/74.55 Hz
Interlace: Non
Sync Polarity: Separate sync, TTL, Negative
Video Signal Level: 0.7 Vp-p/75 Ω

■ **1152 dots × 870 lines mode**

	Unit	A	B	C	D	E	F
H	μs	0.320	1.280	1.440	3.040	11.520	14.560
	Dot	32	128	144	304	1152	1456
V	ms	0.044	0.044	0.568	0.655	12.667	13.322
	Line	3	3	39	45	870	915

Frequencies: fd/100 MHz, fH/68.68 kHz, fV/75.06 Hz

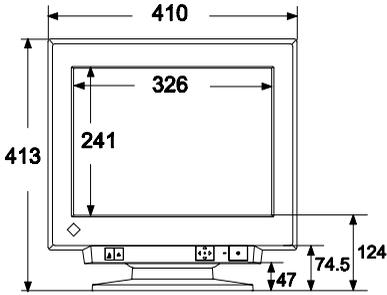
Interlace: Non

Sync Polarity: Separate sync, TTL, Negative

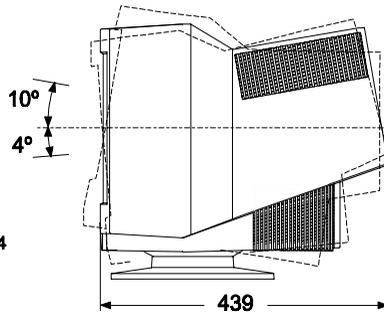
Video Signal Level: 0.7 Vp-p/75 Ω

**Dimensions
Abmessungen
Dimensions**

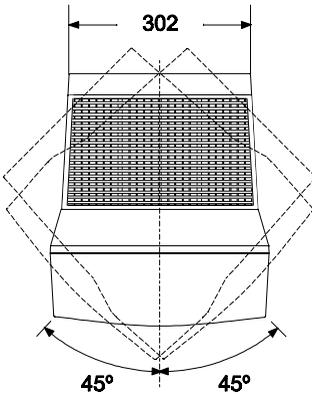
(mm)



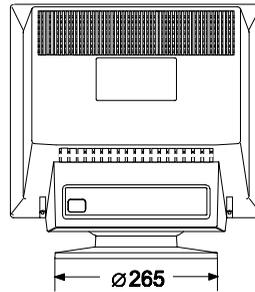
**FRONT VIEW
VORDERANSICHT
VUE DE FACE**



**SIDE VIEW
SEITENANSICHT
VUE DE COTE**



**TOP VIEW
DRAUFSICHT
VUE D'EN HAUT**



**REAR VIEW
RÜCKANSICHT
VUE DE DERRIERE**



Congratulations!

You have just purchased a TCO'99 approved and labelled product! Your choice has provided you with a product developed for professional use. Your purchase has also contributed to reducing the burden on the environment and also to the further development of environmentally adapted electronics products.

Why do we have environmentally labelled computers?

In many countries, environmental labelling has become an established method for encouraging the adaptation of goods and services to the environment. The main problem, as far as computers and other electronics equipment are concerned, is that environmentally harmful substances are used both in the products and during their manufacture. Since it is not so far possible to satisfactorily recycle the majority of electronics equipment, most of these potentially damaging substances sooner or later enter nature.

There are also other characteristics of a computer, such as energy consumption levels, that are important from the viewpoints of both the work (internal) and natural (external) environments. Since all methods of electricity generation have a negative effect on the environment (e.g. acidic and climate-influencing emissions, radioactive waste), it is vital to save energy. Electronics equipment in offices is often left running continuously and thereby consumes a lot of energy.

What does labelling involve?

This product meets the requirements for the TCO'99 scheme which provides for international and environmental labelling of personal computers. The labelling scheme was developed as a joint effort by the TCO (The Swedish Confederation of Professional Employees), Svenska Naturskyddsforeningen (The Swedish Society for Nature Conservation) and Statens Energimyndighet (The Swedish National Energy Administration).

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

The environmental demands impose restrictions on the presence and use of heavy metals, brominated and chlorinated flame retardants, CFCs (freons) and chlorinated solvents, among other things. The product must be prepared for recycling and the manufacturer is obliged to have an environmental policy which must be adhered to in each country where the company implements its operational policy.

The energy requirements include a demand that the computer and/or display, after a certain period of inactivity, shall reduce its power consumption to a lower level in one or more stages. The length of time to reactivate the computer shall be reasonable for the user.

Labelled products must meet strict environmental demands, for example, in respect of the reduction of electric and magnetic fields, physical and visual ergonomics and good usability.

Below you will find a brief summary of the environmental requirements met by this product. The complete environmental criteria document may be ordered from:

TCO Development

SE-114 94 Stockholm, Sweden

Fax: +46 8 782 92 07

Email (Internet): development@tco.se

Current information regarding TCO'99 approved and labelled products may also be obtained via the Internet, using the address: <http://www.tco-info.com/>

Environmental requirements

Flame retardants

Flame retardants are present in printed circuit boards, cables, wires, casings and housings. Their purpose is to prevent, or at least to delay the spread of fire. Up to 30% of the plastic in a computer casing can consist of flame retardant substances. Most flame retardants contain bromine or chloride, and those flame retardants are chemically related to another group of environmental toxins, PCBs. Both the flame retardants containing bromine or chloride and the PCBs are suspected of giving rise to severe health effects, including reproductive damage in fish-eating birds and mammals, due to the bio-accumulative* processes. Flame retardants have been found in human blood and researchers fear that disturbances in foetus development may occur.

The relevant TCO'99 demand requires that plastic components weighing more than 25 grams must not contain flame retardants with organically bound bromine or chlorine. Flame retardants are allowed in the printed circuit boards since no substitutes are available.

Cadmium**

Cadmium is present in rechargeable batteries and in the colour-generating layers of certain computer displays. Cadmium damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries, the colour-generating layers of display screens and the electrical or electronics components must not contain any cadmium.

Mercury**

Mercury is sometimes found in batteries, relays and switches. It damages the nervous system and is toxic in high doses. The relevant TCO'99 requirement states that batteries may not contain any mercury. It also demands that mercury is not present in any of the electrical or electronics components associated with the labelled unit.

CFCs (freons)

The relevant TCO'99 requirement states that neither CFCs nor HCFCs may be used during the manufacture and assembly of the product. CFCs (freons) are sometimes used for washing printed circuit boards. CFCs break down ozone and thereby damage the ozone layer in the stratosphere, causing increased reception on earth of ultraviolet light with e.g. increased risks of skin cancer (malignant melanoma) as a consequence.

Lead**

Lead can be found in picture tubes, display screens, solders and capacitors. Lead damages the nervous system and in high doses, causes lead poisoning. The relevant TCO'99 requirement permits the inclusion of lead since no replacement has yet been developed.

For Europe, etc. (220-240 Vac) Only

CE Marking

Declaration of Conformity

Kind of equipment:	Monitor
Type-designation:	T57S (Model No. MA-1792)

is in compliance with:

Council Directive 73/23/EEC	EN60950:1992+A1+A2+A3	
Council Directive 89/336/EEC	EN55022 (classB):1995	EN50082-1:1992
	EN61000-3-2:1995	EN61000-3-3:1995

Konformitätserklärung

Geräteart :	Monitor
Gerätetyp :	T57S (Modell-Nr. MA-1792)

den folgenden Normen oder Vorschriften entspricht:

EU-Richtlinie 73/23/EEC	EN60950:1992+A1+A2+A3	
EU-Richtlinie 89/336/EEC	EN55022 (classB):1995	EN50082-1:1992
	EN61000-3-2:1995	EN61000-3-3:1995

Déclaration de conformité

Nature de l'équipement :	Moniteur
Type-désignation :	T57S (No. de modèle MA-1792)

est en conformité avec :

Directive Européenne 73/23/EEC	EN60950:1992+A1+A2+A3	
Directive Européenne 89/336/EEC	EN55022 (classB):1995	EN50082-1:1992
	EN61000-3-2:1995	EN61000-3-3:1995

Hinweis zur Ergonomie :

Dieser Monitor erfüllt die Anforderungen an die Ergonomie nach ZH1/618/10.80 (GS-VW-SG7/01.97) mit dem Videosignal, 1280 Punkte x 1024 Zeilen, RGB analog, 0,7Vp-p und mindestens 85,0Hz Bildwiederholfrequenz, non interlaced.

Weiterhin wird aus ergonomischen Gründen empfohlen, die Grundfarbe Blau nicht auf dunklem Untergrund zu verwenden (schlechte Erkennbarkeit, Augenbelastung bei zu geringem Zeichenkontrast.)

Lärmemission kleiner 70dBA laut ISO 7779.

PTB Note

Eigensichere Kathodestranlröhre nach Anlage III Röntgenverordnung. Die in diesem Geraet entstehende Röntgenstrahlung ist durch die eigensichere Kathodenstrahlrohre ausreichend abgeschirmt.

Recycle Auskunft

Die Rücknahme dieses Produktes nach Nutzungsende übernimmt EIZO in Deutschland zusammen mit dem Partner von Roll MBB Recycling GmbH. Dort werden die Geräte in ihre Bestandteile zerlegt, die dann der Wiederverwertung zugeführt werden. Um einen Abholtermin zu vereinbaren und die aktuellen Kosten zu erfahren, benutzen Sie bitte folgende Rufnummer: 02153-73 35 00. Weitere Informationen finden Sie auch unter der Internet-Adresse: www.eizo.de.

Hinweis

Die Bildrohre dieses Monitors is frei von Cadmium.