

How to Combat Eye Fatigue Right Now

Change your work environment
by changing how you use your monitor

A brief guide that introduces survey results about PC usage and eye fatigue and what to do about it.



CONTENTS

80% of workers experience fatigue from PC use	1
The relationship between PC use and eye fatigue	2
3 steps to combat eye fatigue	
1. Adjust the screen to the proper brightness	5
2. Adjust the screen to the proper position	7
3. Take regular breaks	9

About 80% of workers experience fatigue from PC use

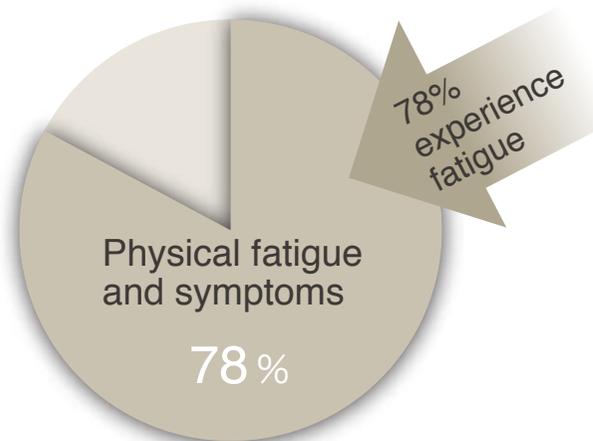


The relationship between PC use and eye fatigue



Physical fatigue from PC use

About 80% of workers experience physical fatigue and symptoms from PC use. More than 90% of these workers experience eye fatigue and pain.

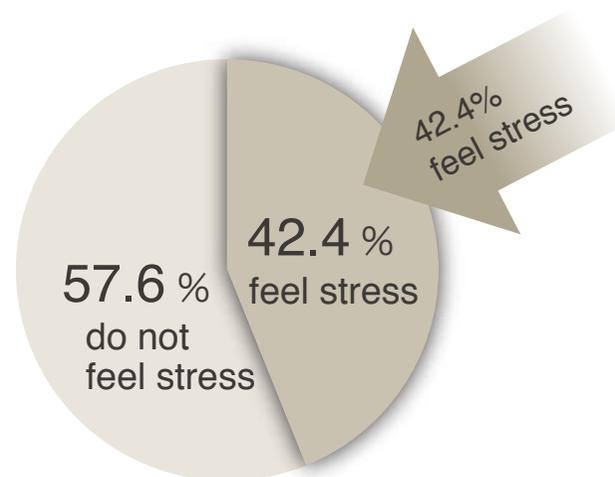


Percentage of people who feel physical fatigue and symptoms from PC use.

Stress due to PC use

According to a 2004 survey by the Japanese Ministry of Health, Labor and Welfare, 40% of workers feel psychological stress from prolonged computer use.

In its "Guidelines for VDT work for Occupational Health" published in 2002, the Japanese Ministry of Health, Labor, and Welfare refers to the display terminals for PCs as "VDTs" (visual display terminals) and issues guidelines for their use.



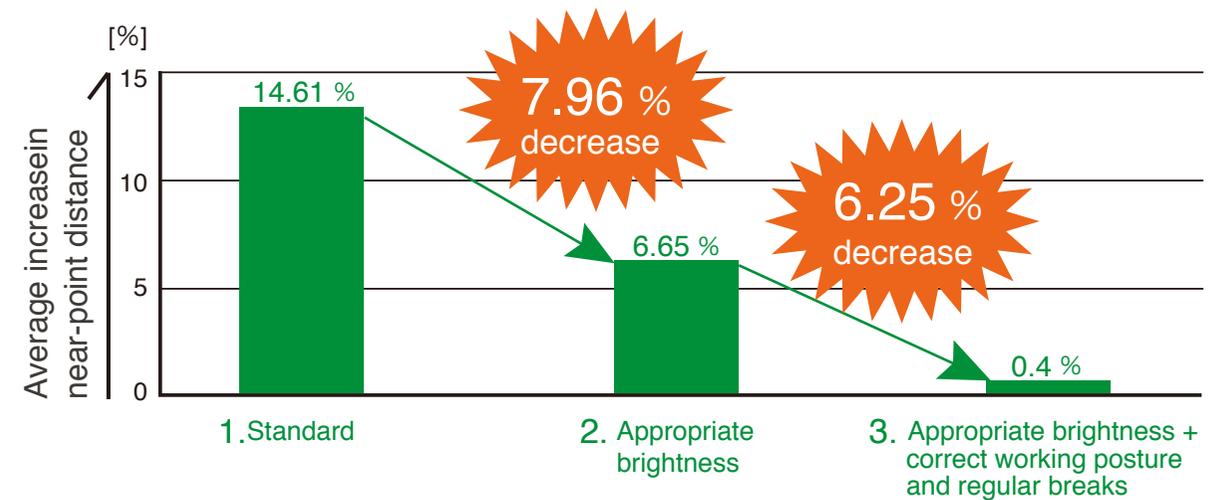
The percentage of people who feel mental fatigue and stress from 6 hours or more of PC use.

Eizo Nanao Corporation undertook a survey of the relationship between fatigue, monitors, and the work environment for VDT work under the supervision and guidance of an ophthalmologist and a VDT occupational safety and health education instructor. The results were surprising.

Report 1

When you lower brightness, the reduction in your ability to focus drops by half and you feel less fatigued.

Comparison between fatigue levels after VDT work



1. Average increase in near-point distance

The average increase in near-point accommodation increased by 14.61%, meaning focus adjustment deteriorated.

2. Decreasing the monitor's brightness leads to less eye fatigue.

The increase in near-point distance fell by about 50% (14.61% to 6.65%) when the monitor's brightness was adjusted to an appropriate level compared to when it was at its maximum setting. This presumably led to less eye fatigue.

3. Working in accordance with VDT instruction further reduces eye fatigue.

In addition to adjusting the monitor's brightness, working in accordance with VDT instruction reduced the increase in near-point distance to 0.48% after a day of work.

* The higher the average near-point distance percentage (the closest point at which an object can be brought into focus by the eye), the higher the fatigue. Results may vary between individuals.

You can reduce eye fatigue!

See Reports 1-3 on pages 3-5.

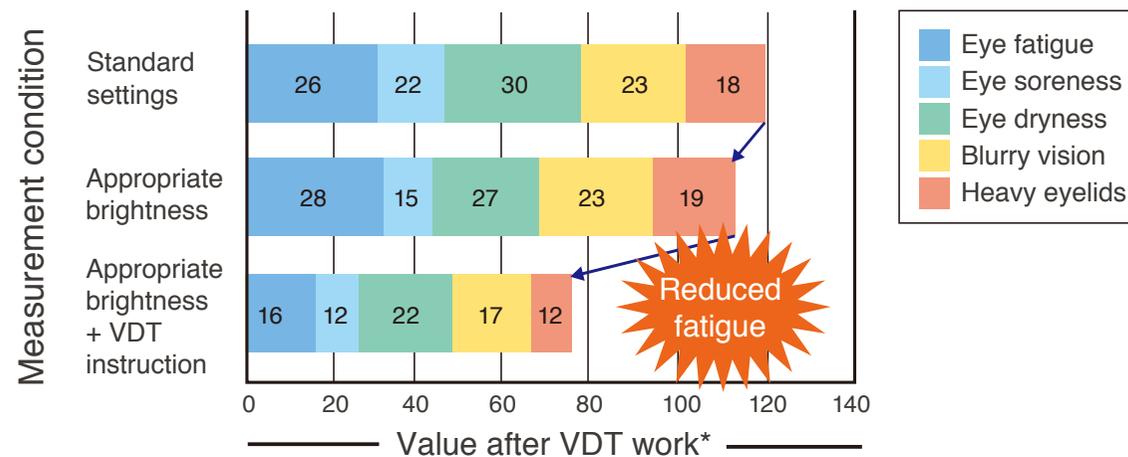
The relationship between PC use and eye fatigue



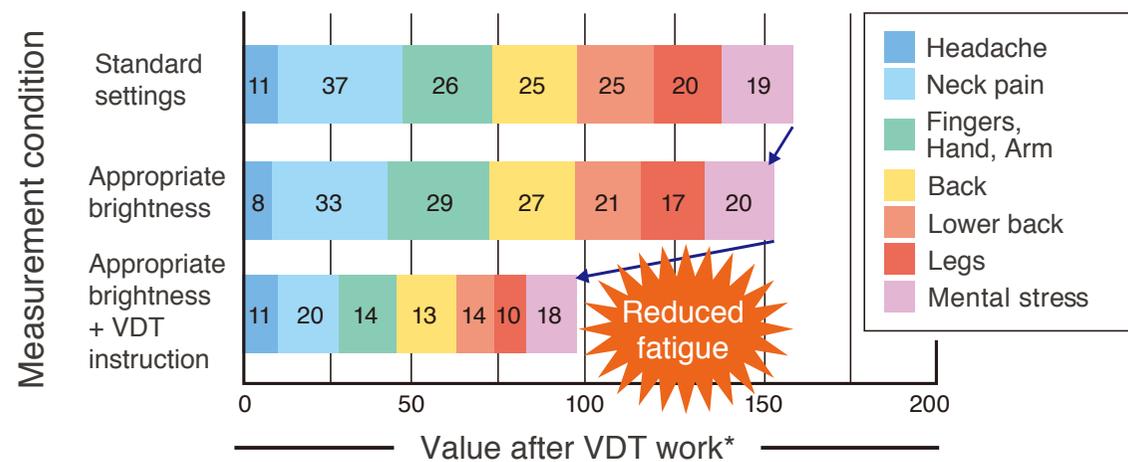
Report 2

Proper brightness settings and correct PC use reduce bodily fatigue.

Visual fatigue questionnaire results after VDT work



Bodily fatigue questionnaire results after VDT work



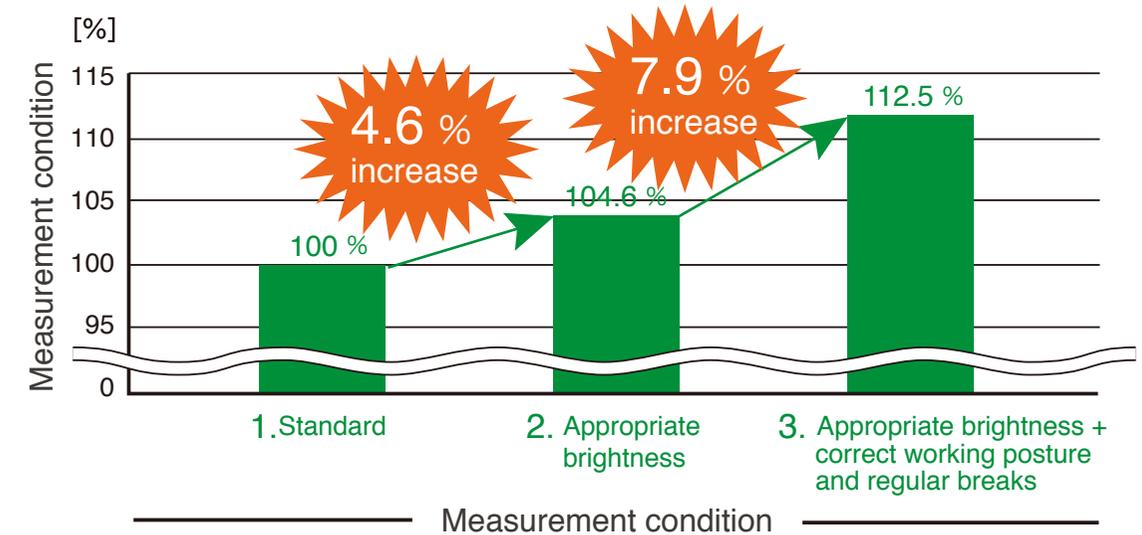
Feelings of fatigue were reduced sequentially by “Standard settings” → “Appropriate brightness settings” → “Appropriate brightness settings + VDT instruction.”

*Results may vary between individuals.

Report 3

Correct PC use increases productivity by 12%.

Quantity of VDT work per unit of time



To assess the effect on work efficiency, we totaled the number of characters inputted for each measurement condition. Reducing monitor brightness to the appropriate level improved work efficiency by 4.6%. Efficiency was also better – by another 7.9% – when work was done according to VDT work instruction. This proves that creating a proper VDT work environment not only puts the mind and body at ease, but raises work efficiency.

*Results may vary between individuals.



The settings of the monitor you use and the VDT working conditions strongly influence eye and mind/body fatigue and determines work efficiency.

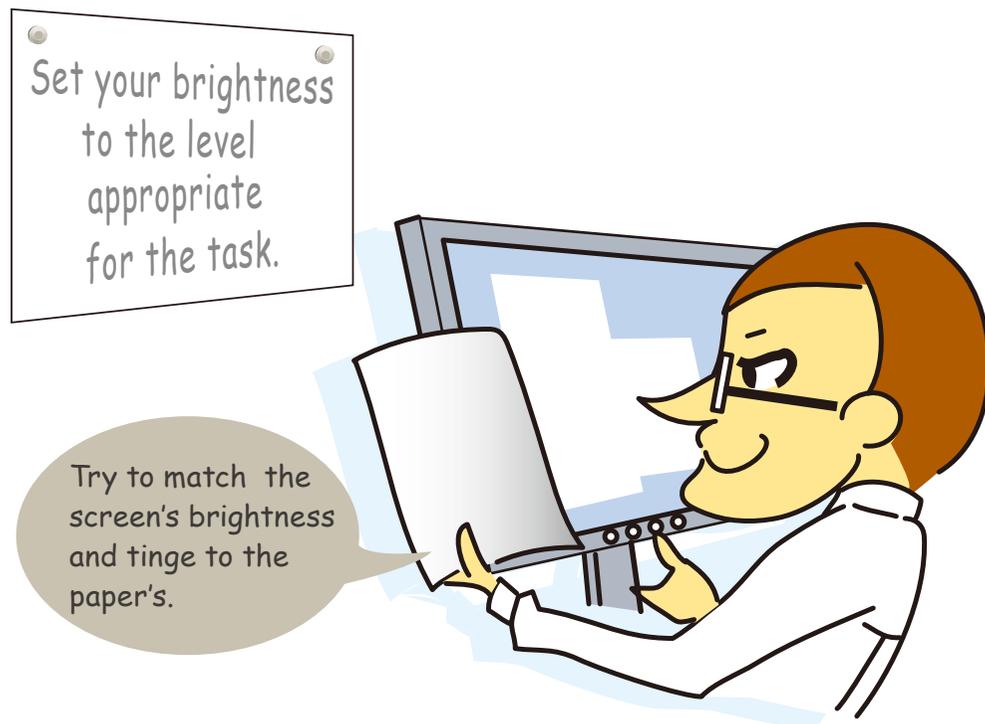
EIZO pursues ergonomics in its product development so that PC users can use their monitors in a healthy and comfortable way.

See the next page for details.

3 steps to preventing eye fatigue

Step 1: Adjust the screen to the proper settings

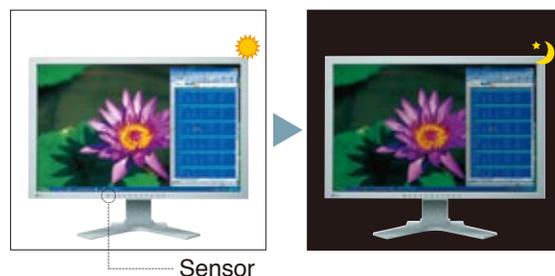
In a typical office where text entry work is done, we recommend matching the monitor's brightness to that of a sheet of paper. The monitor's brightness should be lowered to 100 – 150 cd/m² to match that of typical office lighting (300 – 500 lux). A monitor whose brightness can be easily adjusted for different uses such as word processing or viewing photos will also support a comfortable work environment.



EIZO LCD Monitors *Not applicable to all models.*

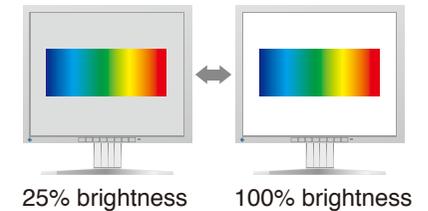
■ Auto brightness adjustment function (Auto EcoView/Bright Regulator)

This function uses a sensor on the front of the monitor to detect the ambient brightness and adjust the monitor's brightness accordingly. Not only does it directly lighten the burden on your eyes caused by the screen's brightness, it also reduces the difference in brightness between the screen and your documents for a comfortable VDT work environment. If you adjust the brightness to your own preference, the monitor records both the screen's and the ambient brightness for reference the next time you adjust the brightness.



■ Brightness Adjustment Control

With LCD monitors, it is important that the brightness can be lowered while maintaining stable display and without the screen flickering. With EIZO LCD monitors, the duty controller used in the backlights maintains stable, accurate display when the brightness is lowered without the need for an added filter.



■ Color Temperature Adjustment

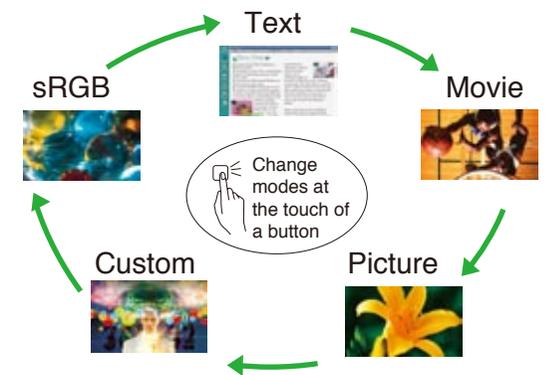
The tint of the monitor's screen can be easily adjusted to a color temperature of 5000 K which is typical for an ambient light environment. Matching the tint of the screen and your documents lessens the frequency with which your eyes have to make color adaptations while working.

■ Fine Contrast

“Fine Contrast” is an EIZO function for selecting preset modes. For example, when using word processing or spreadsheet applications, selecting “Text” mode adjusts the screen's brightness and color temperature more closely to the brightness and tint of the paper on your desk. Switching between modes is done simply by pressing a button on the monitor's front bezel. Furthermore, with EIZO's ScreenManager Pro for LCD software, you can assign a preset mode to an application so that when the application is activated, the screen automatically changes to the assigned mode.

■ Self-Adjustment Function

EIZO monitors identify the input signal from a PC and automatically adjust the clock, phase, image position, and size to prevent flickering and misalignment.

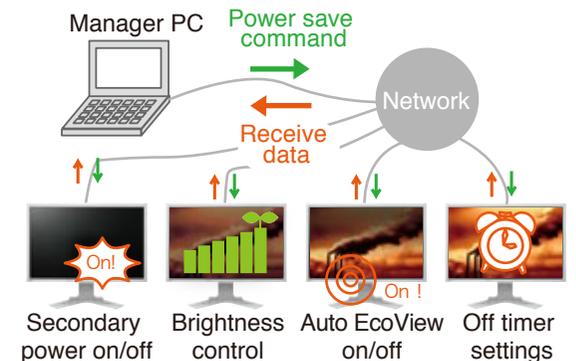


■ EyeCare Mode

Available with select models, EyeCare mode lowers brightness to a mere 4 cd/m² or less. This ultra-low brightness provides a more comfortable viewing experience when working in an environment with very dim ambient lighting such as a CAD studio.

■ EcoView NET

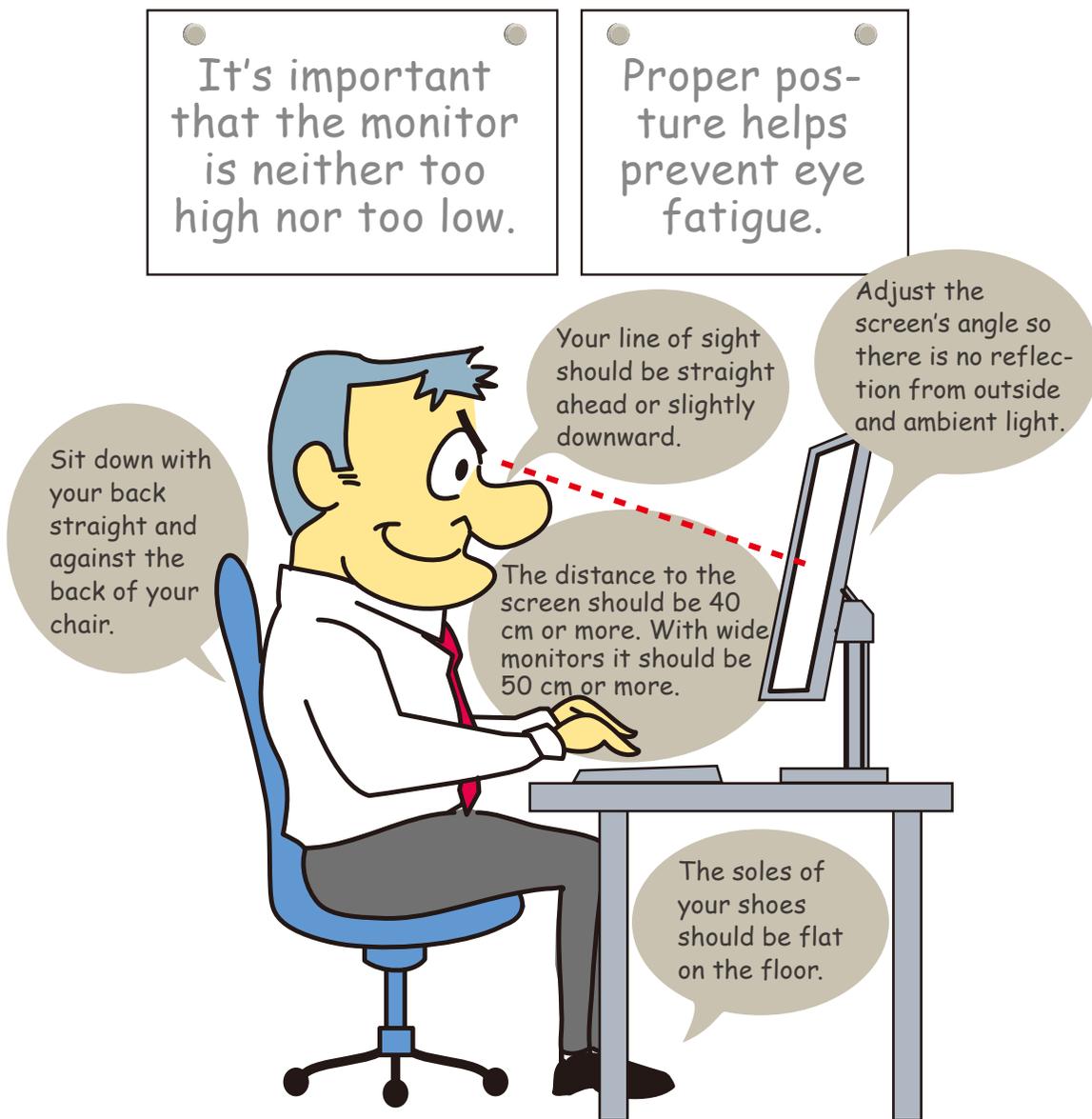
This power management software provides centralized control over the power settings of monitors on a network. With EcoView NET, a systems administrator can confirm the settings for each monitor on the network and if necessary, take measures to combat eye fatigue such as adjust the brightness or activate Auto EcoView/Bright Regulator.



3 steps to preventing eye fatigue

Step 2: Adjust the screen to the proper position

The height and angle your monitor screen is set to affects your work posture and the burden on your eyes. For the screen's vertical height setting, your line of sight should be straight ahead or directed slightly downward diagonally. The screen should be tilted slightly upward so it is easy to view. Your eyes should be 40 cm or more from the screen and your documents and keyboard should be at a comfortable distance. If necessary, adjust the screen's angle so that outside and ambient light do not reflect off the screen.

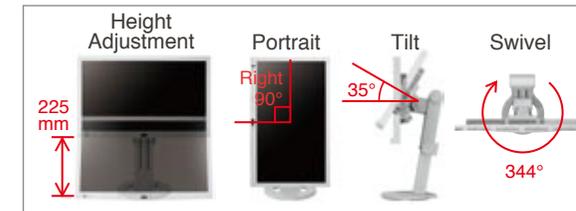


EIZO LCD Monitors *Not applicable to all models.*

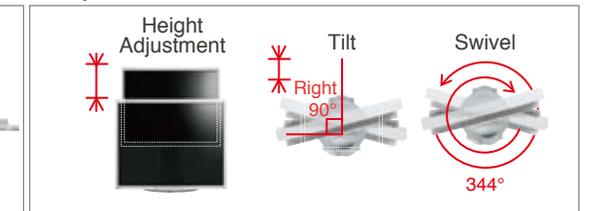
■ Stand Mechanism

EIZO monitors come equipped with stands that are easy to adjust to the ideal position.

FlexStand

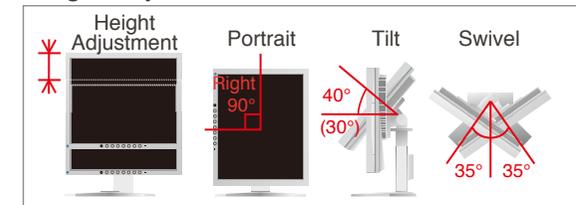


EzUp stand

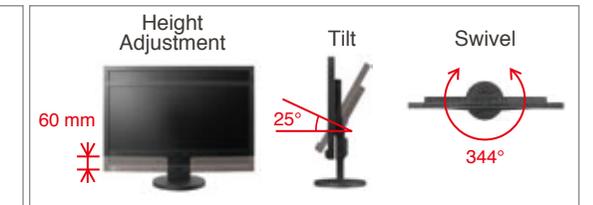


Stands with a wide range of movement.

Height adjustable stand



TriStand



Stands with height adjustment, tilt, and swivel.

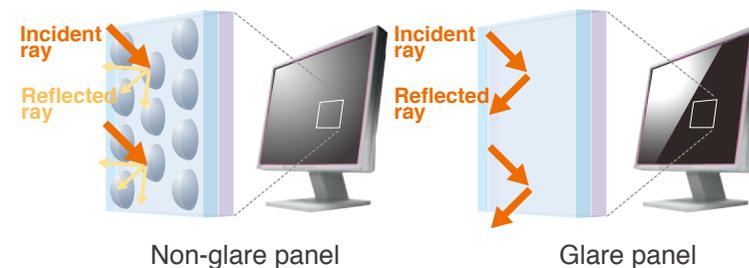
■ Optional Arms

A selection of arms lets you adjust the screen to a wide range of positions.



■ Anti-Glare Treatment

A non-glare screen reduces eye fatigue by dissipating reflective light that otherwise makes the screen difficult to see. For some monitors, an optional shading hood is bundled or sold separately. The surface of the monitors' bezels is treated to prevent light reflection.



3 steps to preventing eye fatigue

Step 3: Take regular breaks



When using a PC, your eyes continually gaze at the monitor's screen at a close distance so the muscle of your eyes are always in a state of tension. After a certain period of time, they begin to tire which leads to pain, dryness, and blurred vision. Once every 60 minutes you should take 10-15 minutes of rest where you do a non-PC related task and spend a moment looking off into the distance or blinking slowly. Other things you can do to increase work efficiency and productivity are stand up, relieve any stiffness either by stretching or some other body movement, drink some liquids to promote blood flow throughout your body, or any other activity to relax your mind and body.



EIZO LCD Monitors

■ EyeCare Utility



The latest version of ScreenManager Pro for LCD can be downloaded for free from www.eizo.com.

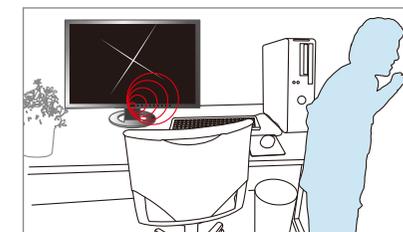
EyeCare Utility is EIZO-developed software that helps promote better VDT work habits. It consists of an "EyeCare Reminder" function that reminds you to take scheduled breaks, and for your reference, an "EyeCare Recorder" function that records the number of hours you use your monitor.

■ Schedule Regular Breaks with EcoView NET

This power management software (see introductory explanation on page 7) can also be used to encourage workers to take regular breaks. For example, a systems administrator can set monitors on a network to power off and then power on again for a period of time such as 10 minutes every day in the mid-afternoon.

■ Presence Sensor – EcoView Sense

An integrated presence sensor called EcoView Sense prompts the monitor to switch to power save mode when it does not detect anyone, and then resume normal operation when the user returns. This ensures energy savings because the user no longer has to remember to turn off the monitor.



Power save mode is activated when the user is away



Normal operation automatically resumes



EIZO Corporation

153 Shimokashiwano, Hakusan, Ishikawa 924-8566 Japan

Phone +81-76-277-6792 Fax: +81-76-277-6793

www.eizo.com