



A tutorial by Eizo Utsuri,  
the master photographer



# Monitor selection for photo enthusiasts



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FORIS FS2331



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# Monitor selection for photo enthusiasts

## FORIS® FS2331



The FORIS FS2331 provides a new experience in digital entertainment.

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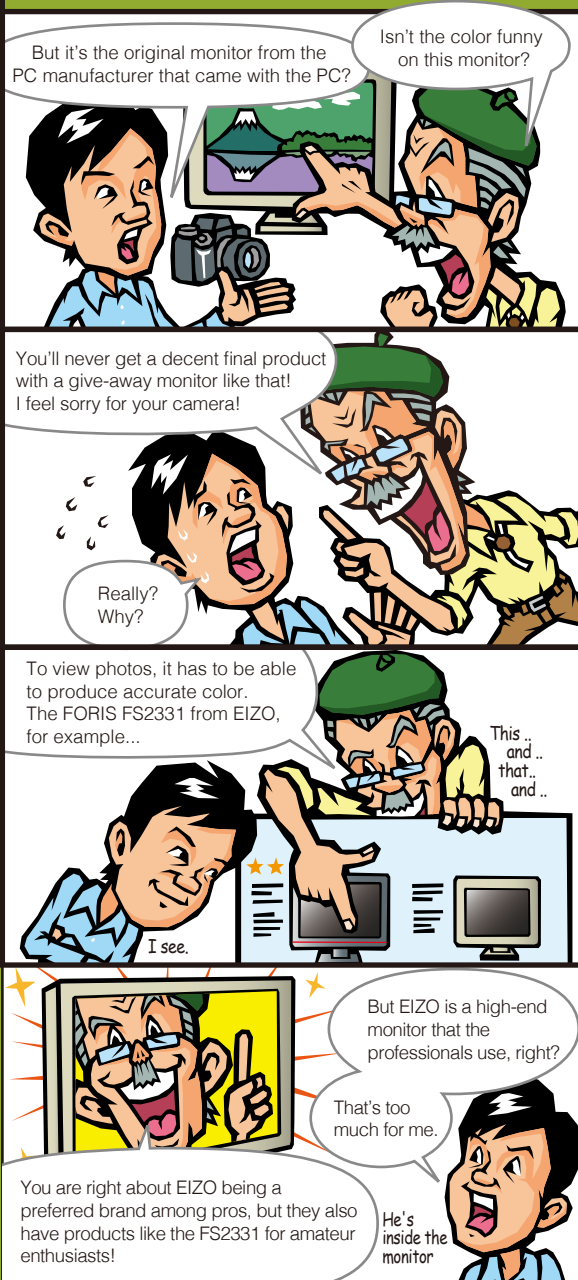


Master photographer  
**Eizo Utsuri**



Eizo Utsuri's  
pupil

# Great photographers choose great monitors



## The inside scoop from Eizo Utsuri, the master photographer — Part 1

What a shock to see the monitor my pupil was using. Even amateurs need to pay attention to the color of their own photographs. As a fellow photographer, it's embarrassing. On the other hand, I couldn't tell him to buy a professional-grade monitor that costs over \$1000, so I recommended the FORIS FS2331.

We shall discuss the benefits of this monitor later on, but you should know that a PC monitor is an essential item for photographers to view, manage, retouch, etc. their photographs. That's why it's important to select a good one.



FORIS FS2331

### The EIZO Difference

From product planning and design, to manufacturing and quality control, EIZO produces its own LCD monitors from start to finish to ensure the highest quality and performance. Commended for their high quality and performance by many, they are widely used by high-end users in the medical and printing industry, as well as for general office and home use.

Of course, the FORIS FS2331 also is produced in-house at EIZO from start to finish to provide high reliability and performance.

#### Adaptability

Insistence on complete in-house production

#### Reliability

Long-term warranty that promises peace of mind

Why EIZO monitors are chosen

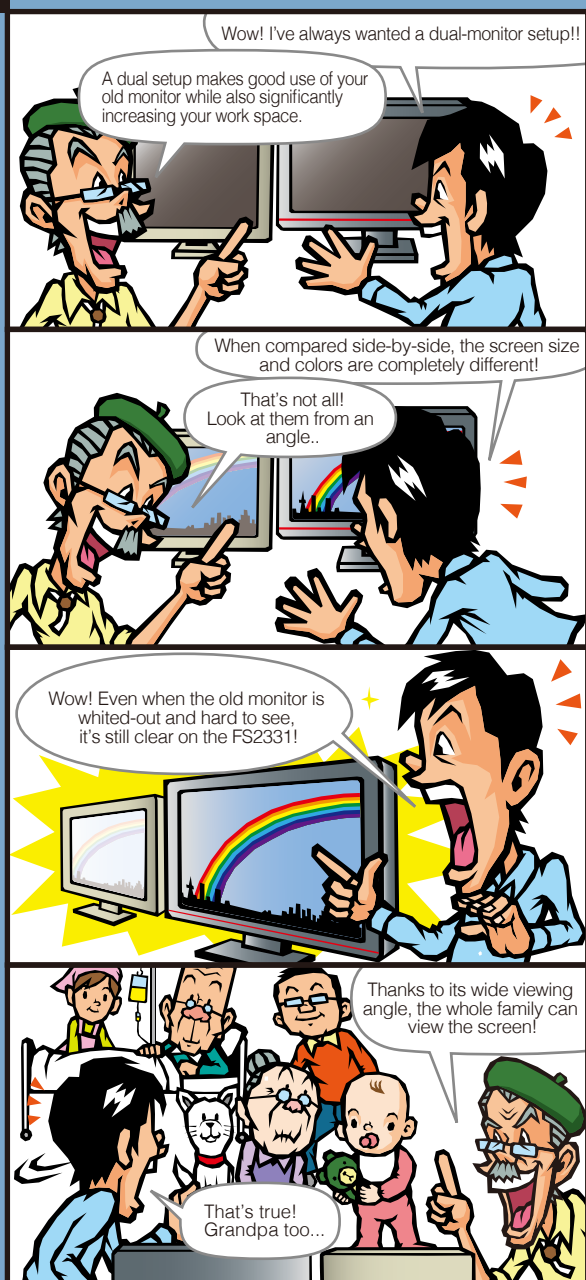
#### Performance and Quality

Technology and know-how

#### Support

Support organization and long-term product supply

# Big screen and wide viewing angle shocks the pupil!



## The inside scoop from Eizo Utsuri, the master photographer — Part 2

One of the attractive points about the FORIS FS2331 is its large screen. A 19" monitor with an aspect ratio (horizontal : vertical ratio) of 4:3 has a display area of 376.3 mm x 301. Compared to this, the FORIS FS2331 23" wide monitor has an area of 509.76 mm x 286.74 mm. This large size makes it easier to view or organize photos, and when retouching photos, it makes it possible to maintain view of the overall photo while working on the details.

Another strength of the FORIS FS2331 is that there is very little color change even when viewed from different angles, an important aspect for photo display. It uses a 178° horizontal / 178° vertical wide viewing angle panel, so elements important to photo viewing such as color, contrast, and brightness are barely affected even when viewed from a different angle.

See!  
Isn't this great?



The screen uses a non-glare panel which prevents surface glare. This minimizes reflection of surrounding objects such as lights, making photo viewing much easier.

You're wonderful, sir!  
I mean ...  
FORIS FS2331!



## Advice from Eizo Utsuri, the master photographer



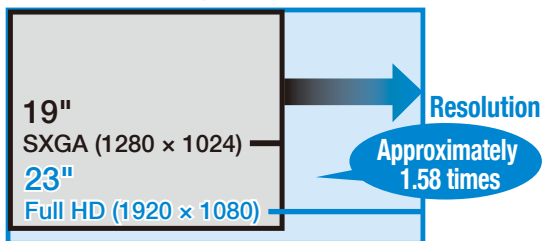
By creating a dual-monitor environment utilizing the old monitor as a sub-monitor, icons and gadgets can be placed in this space to greatly improve work efficiency.

Effective use of the old monitor lets you kill two birds with one stone!

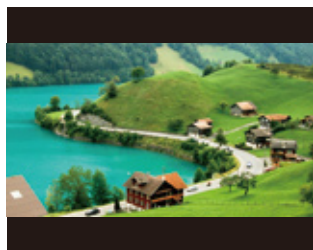
## 23" Full HD (1920 × 1080) LCD Panel

The FORIS FS2331 displays more than 1.5 times the information of a 19" monitor with a 1280 × 1024 resolution. Work efficiency can be greatly enhanced because the need to zoom in/out or scroll across images is reduced.

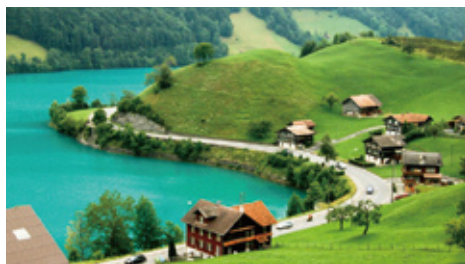
Comparison of display resolutions



When HD contents are displayed



19" monitor (1280 × 1024)  
The top and bottom of the screen are unused, and the image is unclear



FS2331 (1920 × 1080)  
The full screen is used for display

When full HD contents are displayed on a 1280 × 1024 19" monitor, black unused areas can appear at the top and bottom, and the image can appear blurred. The FORIS FS2331 is able to display 1920 × 1080 full HD contents in its original form, so the full screen is used for display of a sharp image.

## Use of a Non-Glare Wide Viewing Angle LCD Panel

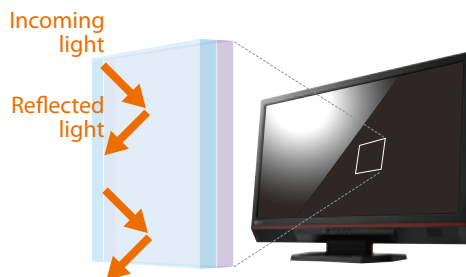


Panel with narrow viewing angle

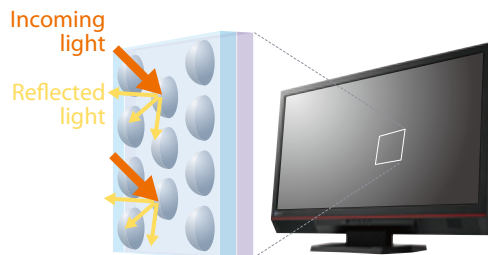


Panel with wide viewing angle

With a wide viewing angle, color change or unevenness in display is minimal, even when viewed from an angle. With a viewing angle of 178° horizontal / 178° vertical, the FORIS FS2331 can be viewed almost from the side. You will be surprised at how smooth and consistent the color is.



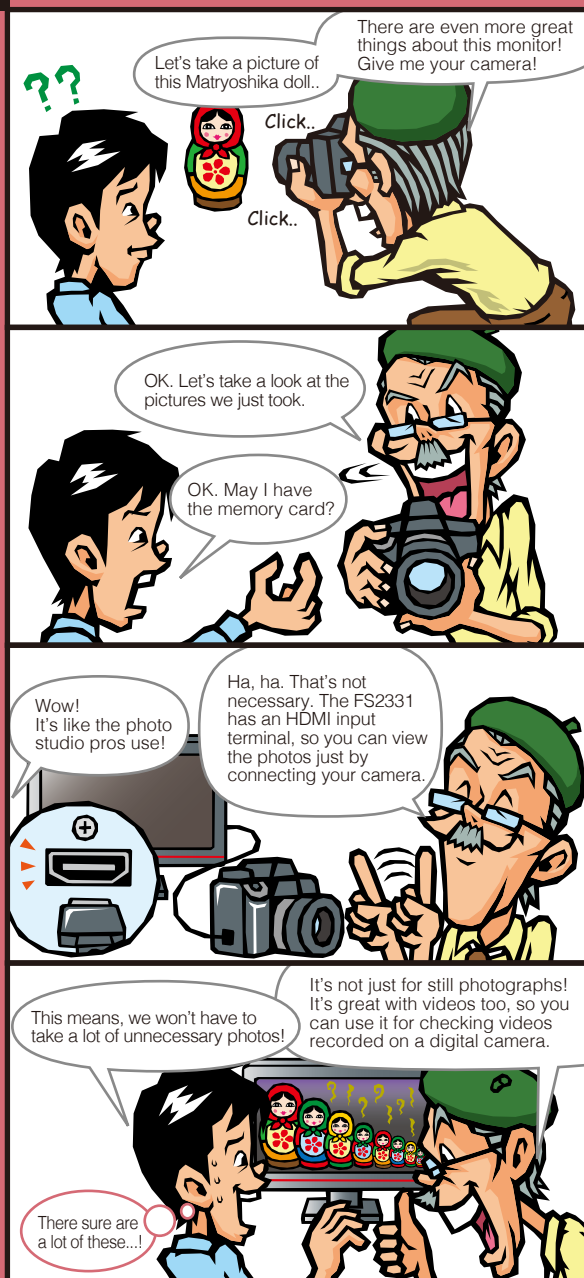
Glare panel



Non-glare panel

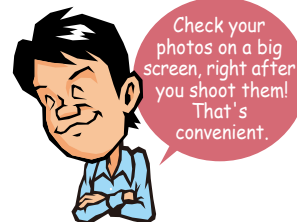
By using a non-glare panel, reflection of objects, such as room lights, is minimized. Too much reflection can affect the accuracy of visual assessment and also can cause your eyes to get tired.

# View the photo on a big screen, right after shooting it!?



The inside scoop from Eizo Utsuri, the master photographer — Part 3

The FORIS FS2331 is equipped with an HDMI terminal. Many people may think of a Blu-ray player or hard disk recorder when they hear the words “HDMI terminal.” But, those are not the only uses for an HDMI terminal. Many newer digital cameras are equipped with an HDMI terminal, so it is possible to connect them directly to a monitor for instant viewing of photos. Many digital cameras can also capture high definition video, so this setup is excellent for video replay too.



With digital SLR cameras, the file size of each photo can be quite big, so it can take some time to copy the files to a PC. It can be even more troublesome if the PC's power is off. However, connection with HDMI provides instant viewing, eliminating all such hassle. Convenient, isn't it? By checking the photos on the big screen of the FORIS FS2331 before copying them to the PC, unwanted photos can be deleted in the camera, and the need for extra photos “just to be sure” can be minimized, greatly reducing the work time.

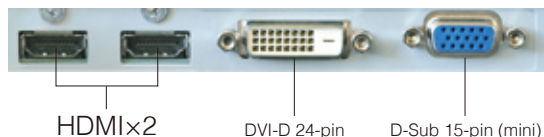
Let me also talk about why the FORIS FS2331 has high image quality. I talked about the LCD panel earlier, but I have not yet talked about the technology that improves the image quality of the display. When RGB (Red, Green, Blue) data is sent from the PC to the FORIS FS2331, the 8-bit data for each color is converted to a higher 10-bit gradation scale inside the monitor. Then, smooth gradation expression is realized by selecting the optimal color from the converted data with gamma correction using a 10-bit LUT (look-up table).



This is a little technical, but in essence, the monitor expands the range of gradations, making richer image display possible. In other words, gradations of the sunset sky or the delicate changes in color of the cobalt blue ocean can also be displayed beautifully.

## Four Input Sources Including Two HDMI Input Terminals

The FORIS FS2331 is equipped with a DVI-D terminal, a D-Sub terminal, and two independent HDMI terminals. The two HDMI terminals can be used effectively by connecting a digital camera on one, and a game console or Blu-ray disk player on the other, for example.



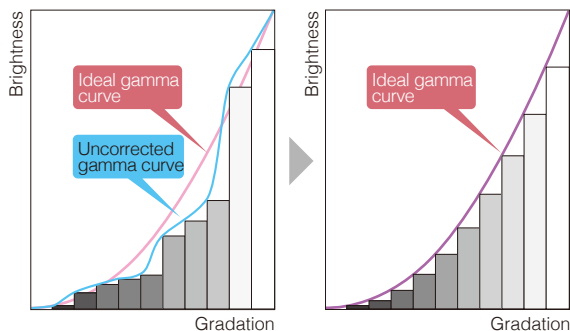
## 10-Bit Gamma Correction / Full-Color Display with Approximately 16.77 Million Colors

Utilizing 10-bit gamma correction, the FORIS FS2331 has an ideal gamma curve. Moreover, with full-color display utilizing approximately 16.77 million colors, it displays the photograph's original color faithfully. With the FORIS FS2331's high resolution, big screen display, and smooth gradation characteristics, even minor focus problems or gradation fusion that are not visible on the camera's small LCD display or a laptop PC's LCD screen, or even a conventional LCD monitor can now be checked.

On-Screen Image



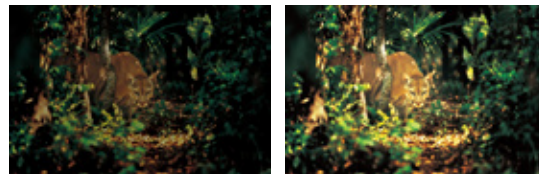
Gamma Curve



## Sharpness of the black Black Brings Video Alive — Maximum 10,000:1 Dynamic Contrast

By utilizing the contrast enhancement function, the normal 3,000:1 contrast can be increased to a maximum of 10,000:1. Videos captured on a digital camera can be instantly reviewed on a TV-like clear high-contrast display with simple HDMI connection.

Contrast enhancement



Contrast enhancement OFF

Contrast enhancement ON

## Overdrive Circuit for Clear Display of Video

The built-in overdrive circuit boosts the response time of the mid-tone gradations that are important in the display of video. This reduces image lag when replaying fast moving scenes while minimizing blown-out highlights and banding in the shadows, recreating crisp and lifelike video images.

Overdrive circuit



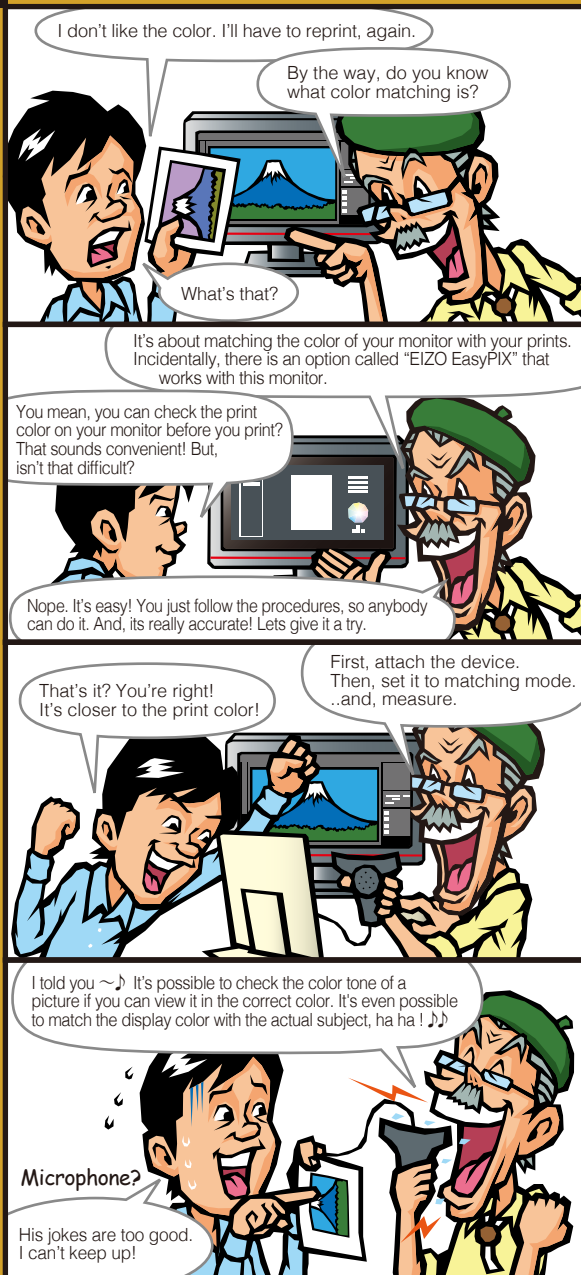
Without over-drive circuit

With over-drive circuit

# A real photographer insists on seeing it in accurate color



The inside scoop from Eizo Utsuri,  
the master photographer — Part 4



If the photograph cannot be displayed in accurate color tones, it may print in a different color or may lead to incorrect retouching. The FORIS FS2331 has high display performance, but as photo enthusiasts, it may be necessary to adjust the display according to the final output form such as a web posting or an inkjet printer output. For this purpose, I recommend purchasing the "EIZO EasyPIX" color matching tool together with the FORIS FS2331. When using EIZO EasyPIX with the FORIS FS2331, it runs on the Windows operating system. Consisting of a sensor and special software, EIZO EasyPIX directly adjusts the monitor's settings to achieve more predictable color.

EIZO EasyPIX is very easy to use. Follow the instruction in the installed software by clicking the appropriate buttons, then set the sensor on the monitor. It has a hardware calibration mode that allows entry of numerical target values for brightness, color temperature, and gamma. Adjustment results can be stored and recalled with a single click, so it is very convenient. It also has three basic modes — "Matching Mode" for matching the color between the monitor and prints; "Photo Viewing Mode" for viewing or retouching photos; and "Web Viewing Mode" which is good for checking photos you plan to post on the Web; all of which can be operated intuitively.

## Supports EIZO EasyPIX Color Matching Tool

For photo viewing and printing, it is essential to display images in their correct color. The EIZO EasyPIX color matching tool broadens the use of the FORIS FS2331. The measurement software "EIZO EasyPIX Software" that comes with EIZO EasyPIX can be downloaded for free from the EIZO web site, so you can try it out before purchase. Without the color sensor, adjustment must be made visually, but it is a quick and easy way to start adjusting your monitor color.

Download  
from here

<http://www.eizo.com/global/downloads/software/index.php>



# EIZO EasyPIX™

Color matching tool (Sensor and software set)

EIZO EasyPIX color matching tool is an all-in-one set that contains the EIZO EasyPIX software and the EX1 sensor. Its simple user interface eliminates the need for any complicated operation, making high precision monitor adjustment possible by just following the easy instructions, even with no knowledge of calibration (monitor color measurement and correction.)

EIZO EasyPIX  
disk (EIZO EasyPIX Software) and  
sensor (EX1)



## Four Adjustment Modes to Match Your Usage

“Matching Mode,” which improves color match between the monitor and prints, will eliminate the frustration of not being able to print in the color intended. It will reduce unnecessary reprints and make production much easier.

Matching mode



Work with reliable color

Reduce reprints

Also available are “Photo Viewing Mode” for viewing the color of digital photos in their near-original environment, and “Web Viewing Mode” that optimizes digital photos for viewing as web content.

In “Calibration Mode,” adjustment targets for brightness, color temperature, and gamma can be set to numerical values, enabling a consistent display environment without relying on subjective visual perception.

## Easy and Convenient Operation

With its intuitive design, EIZO EasyPIX can be operated by simply following screen instructions.

Matching mode

### Setting hue and brightness

Let the sensor do the work!  
Easy measurement of  
the paper's white



Follow screen instructions to measure the white of the printer paper using the sensor (EX1).

Visual fine tuning!



When the white measured by the sensor is displayed on the screen, visually compare it with the actual paper to make any necessary adjustments.

Measure

After adjustment of the monitor is complete, the monitor's white can be fine tuned by visual adjustment. Similarly, when matching the color with prints, the monitor can be fine tuned by visually comparing its display with an actual print, enabling even higher matching precision.



Fine tuning

Fine tuning by comparing with the actual image

Up to 3 adjustment settings can be registered. The display can be switched to optimal settings with a single click.



# It's not just for photos! The ultimate PC monitor



The inside scoop from Eizo Utsuri,  
the master photographer — Part 5

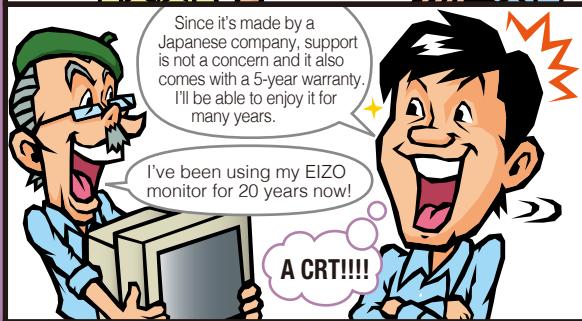
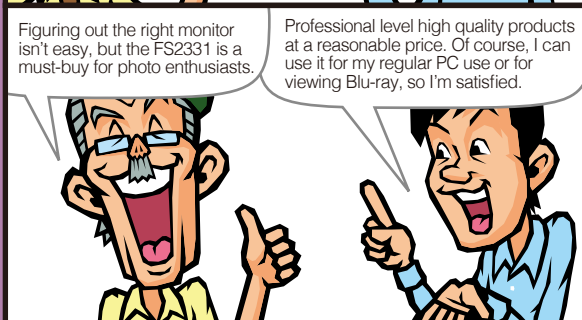
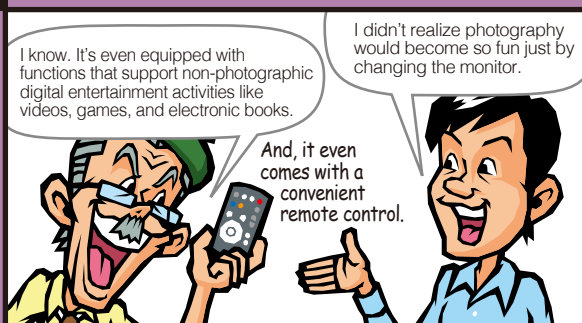
I'm sure you understand by now, how attractive the FORIS FS2331 is for photo enthusiasts, but it's not just for viewing photographs.

Firstly, it comes pre-loaded with many display modes (display color and gamma settings.) In addition to "Cinema," "Paper," "sRGB," and "Game", the 4 basic modes, it is possible to store adjustment results from EIZO EasyPIX and there are two "user preset" settings for storing your desired color settings. So, it is possible to choose the optimal display mode to match the contents displayed.

The settings can even be switched easily with the remote control. It's amazing. On other monitors, you would have to reach to operate the buttons on the monitor. By keeping this remote control by your mouse, you can conveniently switch modes without having to reach.

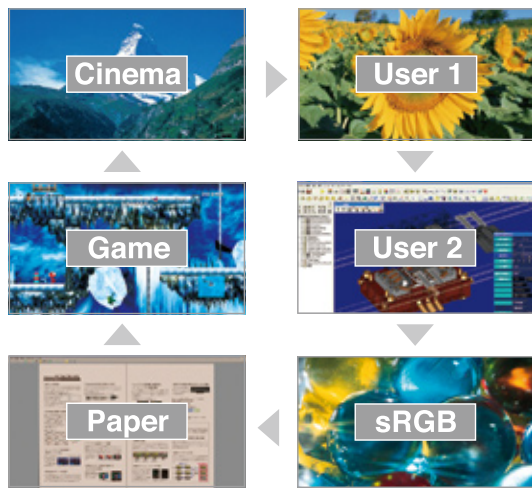
Also, "digital camera videos" are becoming more popular. These are videos shot using digital cameras. Many people are starting to shoot their videos using a digital SLR camera. FORIS FS2331 also has outstanding video performance! Normal PC monitors are designed primarily for still image display. So, unlike televisions, they are not very good for displaying video. When there is fast movement in the video, an image lag shows up. FORIS FS2331, however, has significantly reduced this image lag problem with a built-in overdrive circuit.

It also is equipped with contrast enhancement technology to adjust the contrast to match the video being displayed. With contrast enhancement ON, dynamic contrast is as high as 10,000:1. Enjoy the deep stereoscopic images that come from the sharp lively black. FORIS FS2331 will surely make you feel like your video camera techniques have improved.



## A Wide Variety of Non-Photographic Uses!

With its superior base performance as a monitor, and other features such as the variety of input options including 2 HDMI terminals, as well as its various display modes such as “Game,” “Cinema,” and “Paper,” the FORIS FS2331 can be utilized in many applications besides photography. This single monitor can greatly broaden your digital entertainment world.



### Game mode

Adjusted to a crisp and clear display ideal for gaming.

### Cinema mode

Adjusted to be warm and soft, yet special emphasis is placed on the display of dark gradations.

### Paper mode

Documents and electronic books can be viewed without losing their look and feel of paper.



## Built-In Speakers

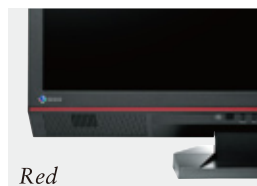
500 mW speakers are built into the compact body. With a headphone jack located on the side for easy plug-in, it is possible to enjoy music without worrying about bothering other people.

## HDCP Support

Capable of displaying HDCP copyright protected contents such as Blu-ray disks.

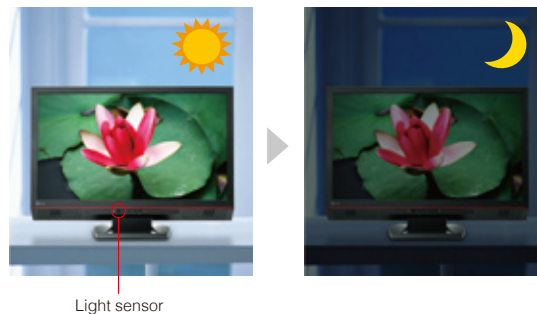
## Customizable Accent Color

Three different color stripes are included with the product. Select your favorite color for a customized look.



## Easy on the Eyes, Easy on the Earth

An ambient light sensor detects the ambient light level and adjusts the brightness of the monitor to an optimal level. This minimizes stress on the eye by ensuring the screen is never too bright or too dark. Automatic brightness control also results in significant energy savings.



## Instant View of Your Energy Conservation Level

The energy conservation level associated with the monitor's brightness can be checked with the single push of a remote control button.



## Free Software for Greater Functionality

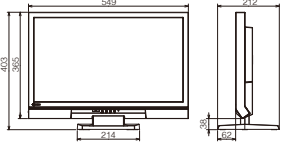
Free utility software such as “EIZO ScreenSlicer” for partitioning the screen or “EyeCare Utility” which displays a message to remind the user to take periodic breaks can be downloaded from the EIZO web site.

## Customer Assurance

A five-year warranty offers a long service life, and compliance with leading industry standards such as TCO Display 5.1 and TUV Ergonomics ensures a better working environment.



## FORIS FS2331

Dimension diagram (unit: mm)		
	PC Input	AV Input
Panel Size	23" / 58 cm (584 mm diagonal)	
Active Display Size (H x V)	509.8 x 286.7 mm	
Panel Type	VA (with overdrive circuit)	
Viewing Angles (H, V)	178°, 178° (at contrast ratio of 10:1)	
Brightness	300 cd/m <sup>2</sup>	
Contrast	3000:1 (10,000:1 with ContrastEnhancer)	
Response Time (Typical)	Gray-to-gray: 7 ms, black-white-black: 25 ms	
Native Resolution	1920 x 1080 (16:9 aspect ratio)	
Pixel Pitch	0.2655 x 0.2655 mm	
Display Colors	16.77 million from a palette of 1.06 billion	
Look-Up Table	10 bits per color	
Cabinet Color	Black	
Dot Clock	Analog: 148.5 MHz, Digital: 148.5 MHz	
Analog Scanning Frequency (H, V)	31 – 81 kHz, 55 – 76 Hz	–
Digital Scanning Frequency (H, V)	31 – 68 kHz, 59 – 61 Hz (VGA Text 69 – 71 Hz)	15 – 68 kHz, 49 – 68 Hz
Video Input Terminals	D-Sub mini 15 pin, DVI-D 24 pin (with HDCP), HDMI x 2	HDMI x 2
Audio Input Terminals	3.5 mm stereo jack x 1, HDMI x 2	HDMI x 2
Audio Output Terminals	3.5 mm headphone jack	
Speakers	0.5 W + 0.5 W (stereo)	
Plug & Play	VESA DDC 2B	
Power Requirements	AC 100 – 120 V / 200 – 240 V, 50 / 60 Hz	
Power Consumption	24 W (typical) 45 W (maximum)	
Power Save Mode	Less than 1 W	
Tilt / Swivel / Pivot	20° Up, 5° Down / – / –	
Dimensions (W x H x D)	With Stand 549 x 403 x 212 mm Without Stand 549 x 393 x 58 mm	
Net Weight	With Stand 6.9 kg Without Stand 6.1 kg	
Preset Modes	User1, User2, sRGB, Paper, Game, Cinema, Auto Fine Contrast <sup>1</sup>	
EcoView Settings	Auto EcoView, EcoView Index	
Screen Adjustment	Clock, Phase, Position, Resolution, Screen (Auto), Range (Auto)	–
Screen Size	Normal, Enlarge, Full Screen	Auto, Normal, Letterbox, Enlarge, Full Screen, OverScan On / Off
Color Adjustment	Brightness, Black Level, Contrast, Gamma, Temperature, Saturation, Hue, Gain, ContrastEnhancer, Power Resolution, Overdrive, Reset	
Power Management	Power Save (VESA DPM and DVI DMPM), Off Timer	
Sound	Volume, Mute, Sound Level, Power Save, Source (HDMI)	
Other Settings	Product Information (name, serial number, resolution, operating time, etc.), OSD Menu Settings, HDMI Color Space, Adjustment Lock, DDC/CI Lock, Languages (English, French, German, Italian, Japanese, Simplified and Traditional Chinese, Spanish, Swedish), Power Indicator, Reset	
Certifications and Standards	TCO Displays 5.1, EPEAT Silver (US), TÜV/Ergonomics (including ISO 9241-307), TÜV/GS, c-Tick, CE, CB, cTUVus, FCC-B, Canadian ICES-003-B, TÜV/S, VCCI-B, EPA Energy Star, RoHS, WEEE, CCC	
Supplied Accessories	AC power cord, signal cable (DVI-D – DVI-D), audio cable, EIZO LCD Utility Disk (PDF user's manual, ScreenManager Pro for LCD [DDC/CI] <sup>2</sup> , EIZO ScreenSlicer software), color sheets (red, blue, and gray), setup guide, 4 screws for mount option, remote control with battery, warranty card	
Warranty	Five Years <sup>3</sup>	

<sup>1</sup> Bundled ScreenManager Pro for LCD is necessary to activate Auto Fine Contrast. <sup>2</sup> ScreenManager Pro for LCD is compatible with the Microsoft Windows 7 and Vista operating systems only. <sup>3</sup> The usage time is limited to 30,000 hours less, and the warranty period of the LCD panel is limited to three years from the date of purchase. With current LCD technology, a panel may contain a limited number of missing or flickering pixels.