



# ColorEdge® CG241W

61 cm (24.1") Color Calibration LCD Monitor



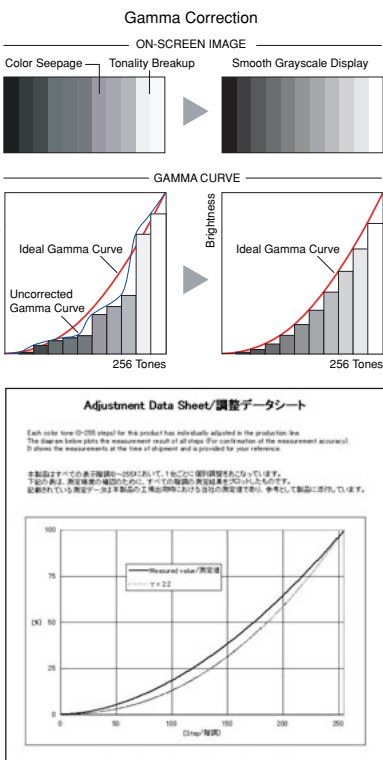
Since their introduction in 2003, EIZO's ColorEdge monitors have made it easy for professionals in still image fields such as printing and digital photography to make the move from CRT to LCD monitors by providing the high-end features they need for accurate color management, such as hardware calibration and brightness uniformity. Now, with the ColorEdge CG241W, professionals in post-production and other moving image fields can make the move as well, thanks to new features such as support for a wide range of scanning frequencies.

### Factory Adjustment of Gamma

The gamma level for each ColorEdge monitor is adjusted at the factory. This is accomplished by measuring the R, G, and B gamma values from 0 – 255, then using the monitor's 12-bit look-up table (4,081 tones per RGB) to select the 256 most appropriate tones to achieve the desired value.



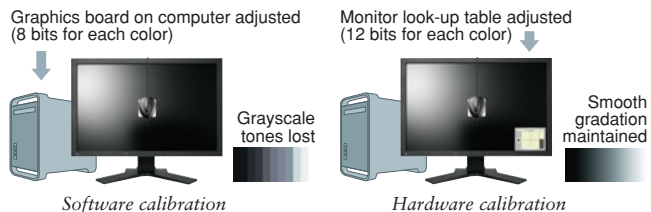
Each monitor adjusted individually at the factory. (For illustrative purposes only. Actual adjustment is performed in a darkroom.)



This is important because accurate, non-fluctuating gamma values are necessary for the proper display of color. If colors are not based on specific values and cannot be adjusted, images will be displayed differently by different monitors. The CG241W provides both precision and consistency, so you can be sure that the final product will look exactly the way you want it to. In fact, each monitor comes with an adjustment data sheet that certifies the measurement results of the gamma value.

### Accurate Hardware Calibration

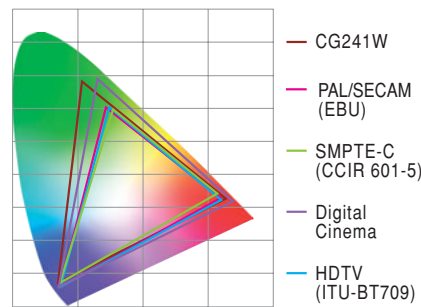
There are two kinds of monitor calibration — software and hardware. With software calibration, colors are adjusted by ma-



nipulating the graphics board's color output, which results in fewer displayable colors. With hardware calibration, colors are adjusted within the monitor itself, so there is no loss of displayable colors. The CG241W and the bundled ColorNavigator software offer hardware calibration for accurate and consistent color.

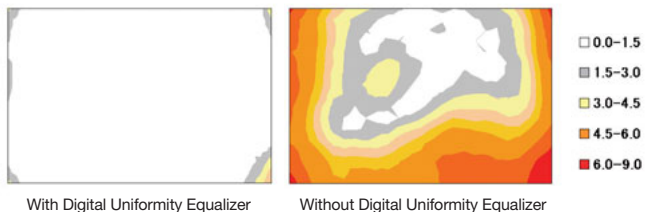
### Wide Color Space

The CG241W's wide color space allows it to reproduce color spaces used in broadcasting such as PAL/SECAM, SMPTE-C, and HDTV almost in their entirety. Content created for broadcasting on these standards can be displayed on the CG241W as it will be seen by the viewer.



### Brightness and Color Uniformity with DUE

Brightness and chroma uniformity errors are characteristic of all LCD panels. To counteract this, EIZO has equipped the CG241W with its latest integrated circuit. This circuit features a Digital Uniformity Equalizer (DUE) function which includes a 12-bit look-up table with a grayscale palette of 4,081 tones and 16-bit internal calculation. DUE compensates brightness and chroma based on data measured at our factory so that the entire screen will be almost uniform at each gray level from 0 to 255. A certificate indicating the uniformity compensation results is packaged with each monitor.



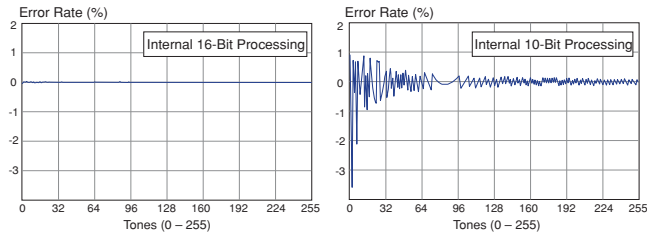
Color-separated image with Delta-E\*ab distribution across the screen (gray level 128 measured)

### 16-Bit Internal Processing

In any color-critical work, the monitor's ability to produce black is a great differentiator. With most LCD monitors, the darkest area of the screen — or black level — is usually too bright. This leads to banding and washing out of dark grays and dark colors.

With 16-bit internal processing, the CG241W not only comes very close to producing a true black, but the lowest grayscale tones can be distinguished from one another for a greater level of detail in dark areas.

### 16-bit v. 10-bit processing

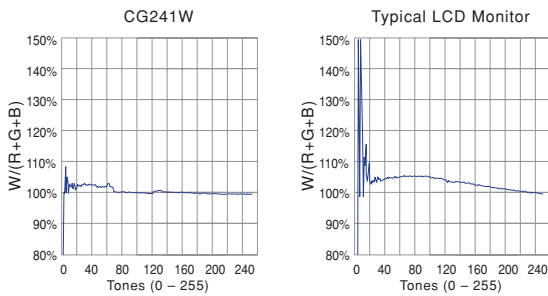


With 10-bit processing, the error rate is high in low tonal areas during calculation. With 16-bit processing, accuracy is significantly improved resulting in fewer conversion errors.

### Accurate Additive Color Mixture

For any particular color tone the combined brightness of the three primary colors — red, green, and blue (RGB) — should equal the brightness of white. This is the additive color mixture and the accuracy with which a monitor can produce it helps determine how accurately color is displayed.

In the following diagram, the horizontal axis depicts the tone value and the vertical axis  $W / (R + G + B)$  shows the divergence between white and  $R + G + B$  (100% = conformity). Standard LCD monitors inaccurately produce low tone values. EIZO has selected an LCD panel with a high level of additive color mixture for the CG241W and equipped it with 12-bit look-up tables and 16-bit internal processing so that divergence between white and RGB is minimal even for low grayscale tones.



Additive color mixture for the CG241W is close to 100% across all grayscale tones while for typical LCD monitors it varies greatly, especially in low tonal areas.

### Color Vision Deficiency Simulation

To accommodate the more than 200 million people worldwide with a color vision deficiency, care must be taken when choosing color schemes, otherwise important details may not be discernible. The CG241W instantly simulates how still and moving images appear to people with red-green color vision deficiency (protanopia and deuteranopia) through internal hardware conversion and the bundled UniColor Pro software. (Compatible with Windows Vista/XP/2000 and Macintosh OS X 10.3.9 or later only.)



Original mode



Deuteranope mode

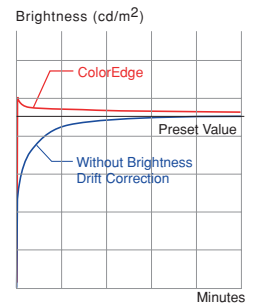
UniColor Pro can support other operating systems such as Linux. Simply use a Windows or Macintosh computer as a control PC and connect it to the CG241W with a USB cable. Conventional color vision deficiency simulation software is limited to OS compatibility, but with the CG241W, simulation is hardware based so it can be done regardless of the OS.



Color vision deficiency simulation with non-Windows, non-Macintosh operating systems such as Linux.

### Short- and Long-Term Brightness Stabilization

Stable brightness is a key factor in achieving accurate color. However, fluctuations in backlight brightness normally occur from startup and can last for up to two hours. Furthermore, changes in ambient temperature can cause brightness levels to fluctuate, as can the inevitable deterioration of the backlight's fluorescent lamp over time. An EIZO patented backlight sensor detects and counteracts these influences so brightness is always stable and product life is extended.



### Placement Flexibility

The stand is height adjustable through an 82 mm range and provides 40° tilt and 70° swivel so you can easily set the ideal position. It also pivots 90° for portrait mode viewing. Compatibility with VESA mounting standards allows for removal from the stand for mounting on an adjustable arm.

### Simple and Precise Calibration

The EIZO-developed ColorNavigator software makes calibration both simple and accurate. Just set the target values for brightness, white point, gamma, and if desired, black level. ColorNavigator works with the measurement device to directly utilize the CG241W's 12-bit look-up table for accurate calibration in less than five minutes. When calibration is complete the settings can be saved as an ICC profile.

### Brightness and Color Temperature Warranty

EIZO offers a five-year warranty for the ColorEdge CG241W that covers parts and labor. The backlight is warranted for three years at a brightness of up to 120 cd/m<sup>2</sup> and color temperature between 5,000 – 6,500 K with the usage time a maximum of 10,000 hours.



## ACCESSORIES

### Monitor Hood

The bundled monitor hood prevents ambient light from reflecting off the screen. It also features a sliding top cover so it does not have to be removed during calibration and an interior made of anti-glare material.



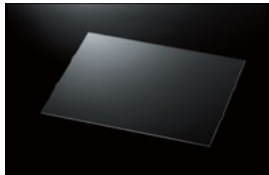
### Screen Cleaner Kit



Keep your screen free from dust and fingerprints with this bundled screen cleaner kit. Includes pump spray and cloth.

### Panel Protector

To prevent dust and scratches, EIZO offers the FP-2400 protection sheet which fits right over the screen surface, allows more than 90% light transmission, and has both anti-glare and glossy sides. (Sold separately.)



## ColorNavigator Compatible Measurement Devices

### X-Rite

MonacoOPTIX<sup>XR</sup>/MonacoOPTIX<sup>XR</sup> Pro<sup>1</sup>  
DTP94/DTP94B<sup>1</sup>  
Eye-One Series<sup>2</sup>

<sup>1</sup> These measurement devices are not compatible with the Mac OS 9.2.2.  
<sup>2</sup> Eye-One Display LT is supported with the Mac OS 10.3.9 or later only.

## ColorNavigator System Requirements

Compatible Operating System	Macintosh	Windows
	Mac OS X 10.2 or later OS 9.2.2	Vista/XP Professional x64 Edition/XP/2000
Colors	32,000 minimum	
Resolution	1024 × 768 minimum recommended	
Additional Requirements	Macintosh system that fulfills the above Mac OS requirements (except iMac and iBook)	
	Two or more available USB ports	
	EIZO USB cable	

## ColorNavigator Calibration Parameters

<b>Brightness</b>	50 cd/m <sup>2</sup> – 300 cd/m <sup>2</sup> in 5 cd/m <sup>2</sup> increments*	
<b>Brightness (Black Level)</b>	0.2 cd/m <sup>2</sup> – 3.5 cd/m <sup>2</sup> in 0.1 cd/m <sup>2</sup> increments	
<b>White Point</b>	<b>Color Temperature</b>	4,000 K – 10,000 K in 100 K increments
	<b>Color Coordinate</b>	x Value, y Value
<b>Gamma</b>	1.0 – 2.6 in 0.1 increments	

\* It may not be possible to calibrate to the CG241W's maximum brightness depending on LCD panel performance.

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Specifications are subject to change without notice.  
Published on chlorine-free paper.  
(070701) Printed in Japan, 7, 2007, 4K



## ColorEdge CG241W

<b>Panel Size and Type</b>	61 cm (24.1") TFT color LCD panel	
<b>Viewing Angles (H, V)</b>	178°, 178° (at contrast ratio of 10:1)	
<b>Brightness</b>	300 cd/m <sup>2</sup> (maximum), 120 cd/m <sup>2</sup> or less (recommended <sup>1</sup> )	
<b>Contrast</b>	850:1	
<b>On/Off Response Time</b>	16 ms (typical)	
<b>Midtone Response Time<sup>2</sup></b>	6 ms (typical)	
<b>Native Resolution</b>	1920 × 1200	
<b>Active Display Size (H × V)</b>	518.4 × 324 mm	
<b>Viewable Image Size</b>	Diagonal: 611 mm	
<b>Pixel Pitch</b>	0.270 × 0.270 mm	
<b>Gamut Coverage</b>	HDTV (ITU-BT709): 98%	
<b>Display Colors</b>	16.77 million from a palette of 68 billion	
<b>Look-Up Table</b>	12-bits per color	
<b>Internal Processing</b>	16-bits per color	
<b>Available Cabinet Colors</b>	Black	
<b>Dot Clock</b>	Analog: 202.5 MHz, Digital: 164.5 MHz	
<b>Scanning Frequency (H, V)</b>	Analog	24 – 94 kHz, 47.5 – 86 Hz
	Digital	26 – 78 kHz, 47.5 – 63 Hz (VGA Text: 69 – 71 Hz)
<b>Input Terminals</b>	DVI-I 29 pin × 2 (switchable), HDCP supported <sup>3</sup>	
<b>USB Port</b>	1 up, 2 down	
<b>Power Requirements</b>	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	
<b>Power Consumption</b>	110 W (maximum)	
<b>Power Save Mode</b>	Less than 2 W	
<b>Height Adjustment Range</b>	82 mm	
<b>Tilt / Swivel / Pivot</b>	40° Up, 0° Down / 35° Right, 35° Left / 90°	
<b>Dimensions (W × H × D)</b>	With Stand: 566 × 456 – 538 × 230 mm Without Stand: 566 × 367 × 85 mm	
<b>Net Weight</b>	With Stand: 11 kg, Without Stand: 7.4 kg	
<b>Display Mode Options</b>	Fine Contrast (Custom, sRGB, Calibration, Emulation)	
<b>Supplied Accessories</b>	AC power cord, signal cables (DVI-D – DVI-D, DVI-I – D-Sub mini 15 pin), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator software, UniColor Pro software <sup>4</sup> , PDF user's manual, ICC Profile), adjustment certificate, ScreenCleaner, monitor hood, quick reference, 4 screws for mount option, warranty registration card	
<b>Warranty</b>	Five Years <sup>1</sup>	

<sup>1</sup> The usage time is limited to 30,000 hours or less, and the warranty period of the LCD panel and backlight is limited to three years from the date of purchase. The warranty period of the backlight is warranted only if the monitor is used within the recommended brightness of up to and including 120 cd/m<sup>2</sup> with a color temperature between 5,000 K – 6,500 K and limited to three years from the date of purchase subject to the usage time being less than or equal to 10,000 hours.

<sup>2</sup> Average response time measured between each grayscale level of 31, 63, 95, 127, 159, 191, and 223.

<sup>3</sup> Display with audio/video devices is not supported.

<sup>4</sup> UniColor Pro Software is compatible with the Microsoft Windows Vista/XP/2000 operating systems and Mac OS X 10.3.9 or later only.

With current LCD technology, a panel may contain a limited number of missing or flickering pixels.

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