



Color Calibration LCD Monitors for Video

ColorEdge®

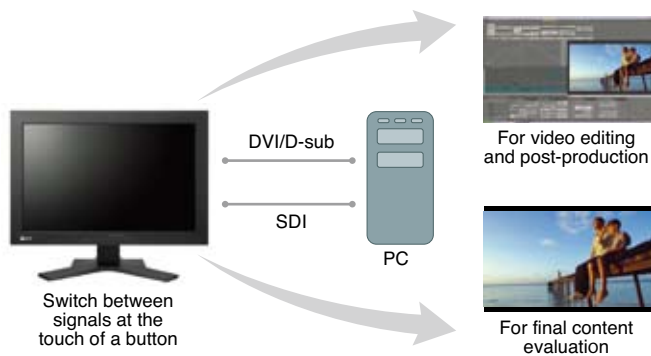


ColorEdge monitors deliver the picture consistency and color reproduction that studio professionals demand. Color management features like hardware calibration and uniformity compensation are standard and select models offer 3D look-up tables and preset color modes for working in common broadcast and digital cinema color spaces. ColorEdge even boasts the unique CG232W, the world's only video editing and master monitor. With ColorEdge you can be sure that the colors you use during editing and post-production will be the same as those enjoyed by your audience.

Editing and Master Monitor

CG232W

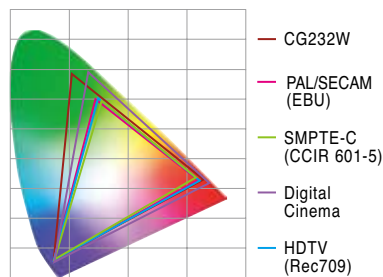
This unique monitor offers multiple features that meet the various demands of post-production, including color grading, image evaluation and nonlinear editing for broadcasting. A button on the monitor's front bezel for switching between PC and SDI signals lets studio professionals do everything from video editing to reference (playback) on a single monitor.



Preset Color Modes

CG232W

This model offers preset color modes that reproduce the color spaces used in broadcasting and digital cinema such as EBU, SMPTE-C, Rec709 and DCI almost in their entirety. To correct color drift that naturally occurs over time with any LCD monitor, the bundled ColorNavigator software comes with a reset function for returning the preset modes to their factory settings.



Color Modes	Reproduced Color Space
Custom	Your preferred color settings.
sRGB	sRGB color gamut and gamma.
EBU	EBU (European Broadcasting Union) color gamut and gamma.
Rec709	ITU-R Rec.709 color gamut and gamma. HDTV studio standard (international standard).
SMPTE-C	SMPTE-C color gamut and gamma. The standard North American TV broadcast color space.
DCI	DCI color gamut and gamma.
CAL	Calibration using ColorNavigator software.

Dual-link SDI Signal Support

CG232W

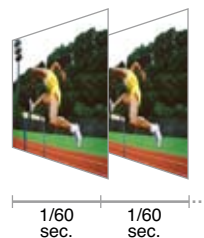
Input support includes BNC × 2 (SD-SDI/HD-SDI × 2 or dual-link SDI × 1) for transferring uncompressed video signals, DVI-D, and D-Sub for direct connection to broadcast and studio sources as well as desktop PCs. YCbCr 4:2:2, YCbPr 4:2:2, YPbPr 4:4:4 and RGB 4:4:4 SDI signal formats are all supported.

Black Frame Insertion and Pseudo-Interlace

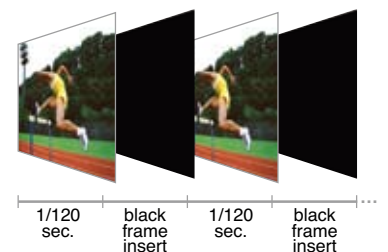
CG232W

A panel display frame rate of 120 Hz allows for black screen insertion (pseudo-impulse), which virtually eliminates motion artifacts and blur when showing moving images. With interlace signals, a pseudo-interlace feature minimizes motion artifacts, giving this LCD monitor smooth motion picture playback akin to that of a CRT.

60 Hz Input



120 Hz Input



Range Extension

CG232W

A range extension feature gives studio professionals the advantage of using the monitor's entire 10-bit grayscale range to see more detail when doing fine editing work in very dark and very light tones. Setting the screen to show the entire 10-bit grayscale range reveals either 6% or 14% more gray tones from 0 (true black) to 1023 (true white) compared to common broadcast signal display range capabilities.

2K × 1K Signal Support

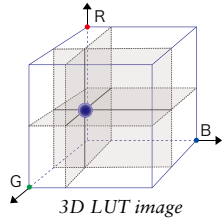
CG232W · CG301W

These monitors support 2048 × 1080 signals which are compliant with the DCI standard. A left and right screen panning feature operated from the monitor's on-screen display menu (OSD) allows viewing of all areas of an image on the CG232W.

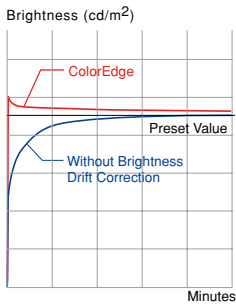
3D LUT

CG232W · CG242W

All ColorEdge models incorporate a look-up table (LUT) for accurate color and grayscale rendering, but the ColorEdge CG232W and CG242W utilize a new EIZO-developed 3D LUT. While a typical 1D LUT adjusts color on separate tables for each of red, green, and blue, a 3D LUT accomplishes this using a single, mixed-color cubic table. This improves the monitor's additive color mixture (combination of RGB), a key factor in its ability to display neutral gray tones.



Short- and Long-Term Brightness Stabilization



CG232W · CG242W · CG301W

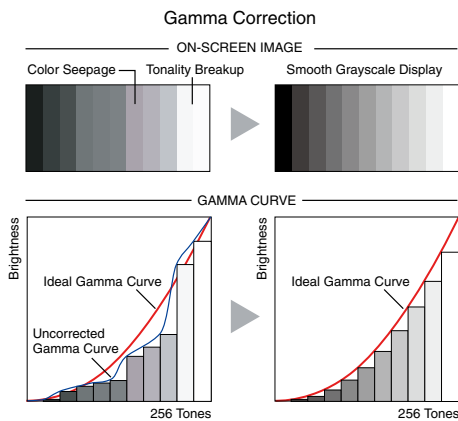
Stable brightness is a key factor in achieving accurate color. However, fluctuations in backlight brightness normally occur from startup and can last for up to two hours. Furthermore, changes in ambient temperature can cause brightness levels to fluctuate, as can the inevitable deterioration of the backlight's fluorescent lamp over

time. An EIZO patented backlight sensor detects and counteracts these influences so brightness is always stable and product life is extended.

Factory Adjustment of Gamma

CG232W · CG242W · CG301W

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 comes with an adjustment data sheet that certifies the measurement results of the gamma value.

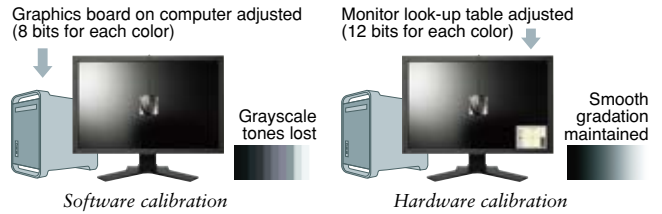


Accurate Hardware Calibration

CG232W · CG242W · CG301W

There are two kinds of monitor calibration — software and hardware. With software calibration, colors are adjusted by manipulating 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. These ColorEdge monitors and the bundled ColorNavigator software offer hardware calibration for accurate and consistent color.

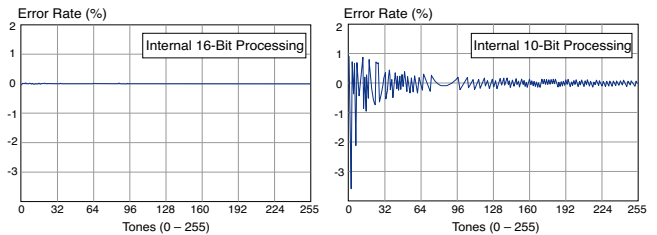


16-Bit Internal Processing

CG232W · CG242W · CG301W

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, these ColorEdge monitors not only come 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

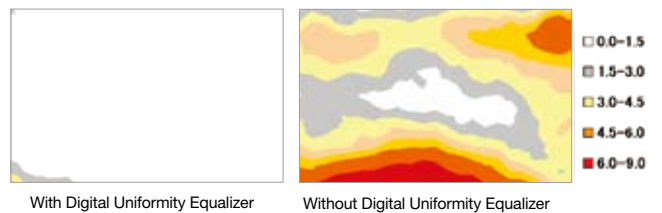


With 10-bit processing, the error rate is high in low tonal areas during calculation. With 16-bit processing, accuracy is significantly improved resulting in fewer conversion errors.

Brightness and Color Uniformity with DUE

CG232W · CG242W · CG301W

Brightness and chroma uniformity errors are characteristic of all LCD panels. To counteract this, EIZO has equipped these ColorEdge monitors with its latest integrated circuit. This circuit features a Digital Uniformity Equalizer (DUE) function. 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 on the CG232W (gray level 128 measured).



SPECIFICATIONS

	ColorEdge CG232W	ColorEdge CG242W	ColorEdge CG301W	
Panel Size and Type	57 cm (22.5") TFT color LCD panel	61 cm (24.1") TFT color LCD panel	76 cm (29.8") TFT color LCD panel	
Viewing Angles (H, V)	170°, 170° (at contrast ratio of 10:1)	178°, 178° (at contrast ratio of 10:1)	178°, 178° (at contrast ratio of 10:1)	
Brightness	380 cd/m ² (maximum) 100 cd/m ² or less (recommended ¹)	270 cd/m ² (maximum) 120 cd/m ² or less (recommended ¹)	260 cd/m ² (maximum) 120 cd/m ² or less (recommended ¹)	
Contrast	720:1 (typical)	1100:1 (typical)	850:1 (typical)	
On/Off Response Time	12 ms (typical)	12 ms (typical)	12 ms (typical)	
Native Resolution	1920 × 1200	1920 × 1200	2560 × 1600	
Active Display Size (H × V)	483.8 × 302.4 mm	518.4 × 324 mm	641.2 × 400.8 mm	
Viewable Image Size	Diagonal: 570 mm	Diagonal: 611 mm	Diagonal: 756 mm	
Pixel Pitch	0.252 × 0.252 mm	0.270 × 0.270 mm	0.2505 × 0.2505 mm	
Gamut Coverage²	sRGB: 97%; Rec709: 97%; EBU: 97%; SMPTC-C: 98%; Adobe RGB: 97%; DCI: 88%	sRGB: 99%; Rec709: 99%; EBU: 99%; SMPTC-C: 100%; Adobe RGB: 97%; DCI: 91%	sRGB: 99%; Rec709: 99%; EBU: 99%; SMPTC-C: 100%; Adobe RGB: 98%; DCI: 90%	
Display Colors	1.07 billion from a palette of 68 billion	16.77 million from a palette of 68 billion	16.77 million from a palette of 68 billion	
Look-Up Table	12-bits per color	12-bits per color	12-bits per color	
Internal Processing	16-bits per color	16-bits per color	16-bits per color	
Screen Uniformity³	Entire Screen: ΔE≤3	Entire Screen: ΔE≤3	Center: ΔE≤3; Perimeter: ΔE≤5	
Cabinet Colors	Black	Black	Black	
Dot Clock	Analog: 162 MHz, Digital: 162 MHz	Analog: 204 MHz, Digital: 164.5 MHz	269 MHz	
Scanning Frequency (H, V)	Analog	26 – 92 kHz, 23.8 – 86 Hz (non-interlace)	24 – 130 kHz, 47.5 – 120 Hz	–
	Digital	26 – 78 kHz, 23.8 – 61 Hz (VGA Text: 68 – 71 Hz) (non-interlace)	26 – 78 kHz, 23.75 – 63 Hz (VGA Text: 69 – 71 Hz)	26 – 100 kHz, 29.5 – 30.5 Hz/59 – 61 Hz (VGA Text: 69 – 71 Hz)
Input Signals	Analog: RGB Analog, Digital: DVI Standard 1.0, SD / HD-SDI (dual link)	Analog: RGB Analog, Digital: DVI Standard 1.0	Digital: DVI Standard 1.0	
Input Terminals	DVI-D × 1, D-sub × 1, BNC × 2 (single link × 2 or dual link × 1)	DVI-I 29 pin × 1, DisplayPort × 1	DVI-D 24 pin × 2 (dual link × 1, single link × 1)	
Output Signal	SDI: SD / HD-SDI (loop-through)	–	–	
Output Terminals	BNC × 2 (single link × 2 or dual link × 1)	–	–	
USB Port / Standard	1 up, 2 down / USB 2.0	1 up, 2 down / USB 2.0	1 up, 2 down / USB 2.0	
HDCP Supported⁴	DVI-D	DVI-I	DVI-D (single link)	
Power Requirements	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	AC 100 – 120 V, 200 – 240 V: 50 / 60 Hz	
Power Consumption	110 W (maximum)	105 W (maximum)	170 W (maximum)	
Power Save Mode	Less than 7 W	Less than 1.5 W	Less than 2 W	
Height Adjustment Range	118 mm	82 mm	118 mm	
Tilt / Swivel / Pivot	40° Up, 0° Down / 35° Right, 35° Left / –	40° Up, 0° Down / 35° Right, 35° Left / 90°	40° Up, 0° Down / 35° Right, 35° Left / 90°	
Dimensions (W × H × D)	With Stand: 567 × 481 – 599 × 255 mm Without Stand: 567 × 389 × 113 mm	With Stand: 566 × 456 – 538 × 230 mm Without Stand: 566 × 367 × 85 mm	With Stand: 689 × 511.5 – 629.5 × 254.7 mm Without Stand: 689 × 450 × 90 mm	
Net Weight	With Stand: 13.4 kg; Without Stand: 8.8 kg	With Stand: 10.7 kg; Without Stand: 7.1 kg	With Stand: 15.7 kg; Without Stand: 11.2 kg	
Color Modes	Custom, sRGB, EBU, Rec709, SMPTC-C, DCI, Calibration	Custom, sRGB, Calibration, Emulation	Custom, sRGB, Calibration, Emulation	
Supplied Accessories	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, PDF user's manual), adjustment certificate, ScreenCleaner, quick reference, 4 screws for mount option, warranty card	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, PDF user's manual, ICC Profile), adjustment certificate, ScreenCleaner, monitor hood, quick reference, 4 screws for mount option, warranty card	AC power cord, signal cables (DVI-D – DVI-D, DVI-I – DVI-D [dual link supported]), USB cable, setup guide, EIZO LCD Utility Disk (ColorNavigator software, PDF user's manual, ICC Profile), adjustment certificate, ScreenCleaner, monitor hood, quick reference, 4 screws for mount option, warranty card	
Warranty	Five Years ¹	Five Years ¹	Five Years ¹	

¹ 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 100 cd/m² for the CG232W and 120 cd/m² for the CG242W and CG301W with a color temperature up to 5,000 K on the CG301W and 6,500 K on the CG232W and CG242W and limited to three years from the date of purchase subject to the usage time being less than or equal to 10,000 hours. ² Gamut coverage for the CG242W and CG301W was measured using Custom color mode. ³ Measured at gray level 128 and color temperature of 5000 K. ⁴ Display with audio/video devices is not supported. With current LCD technology, a panel may contain a limited number of missing or flickering pixels.

ACCESSORIES

Monitor Hood

A bundled monitor hood with the CG242W and CG301W 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.



Cover photo courtesy of McRAY Corporation, Tokyo, Japan.

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WARRANTY

Brightness and Color Temperature Warranty

EIZO offers a five-year warranty for the ColorEdge series that covers parts and labor. The backlight is warranted for three years at a brightness of up to 100 cd/m² on the CG232W and 120 cd/m² on the CG242W and CG301W and color temperature between 5,000 – 6,500 K depending on model with the usage time a maximum of 10,000 hours.



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