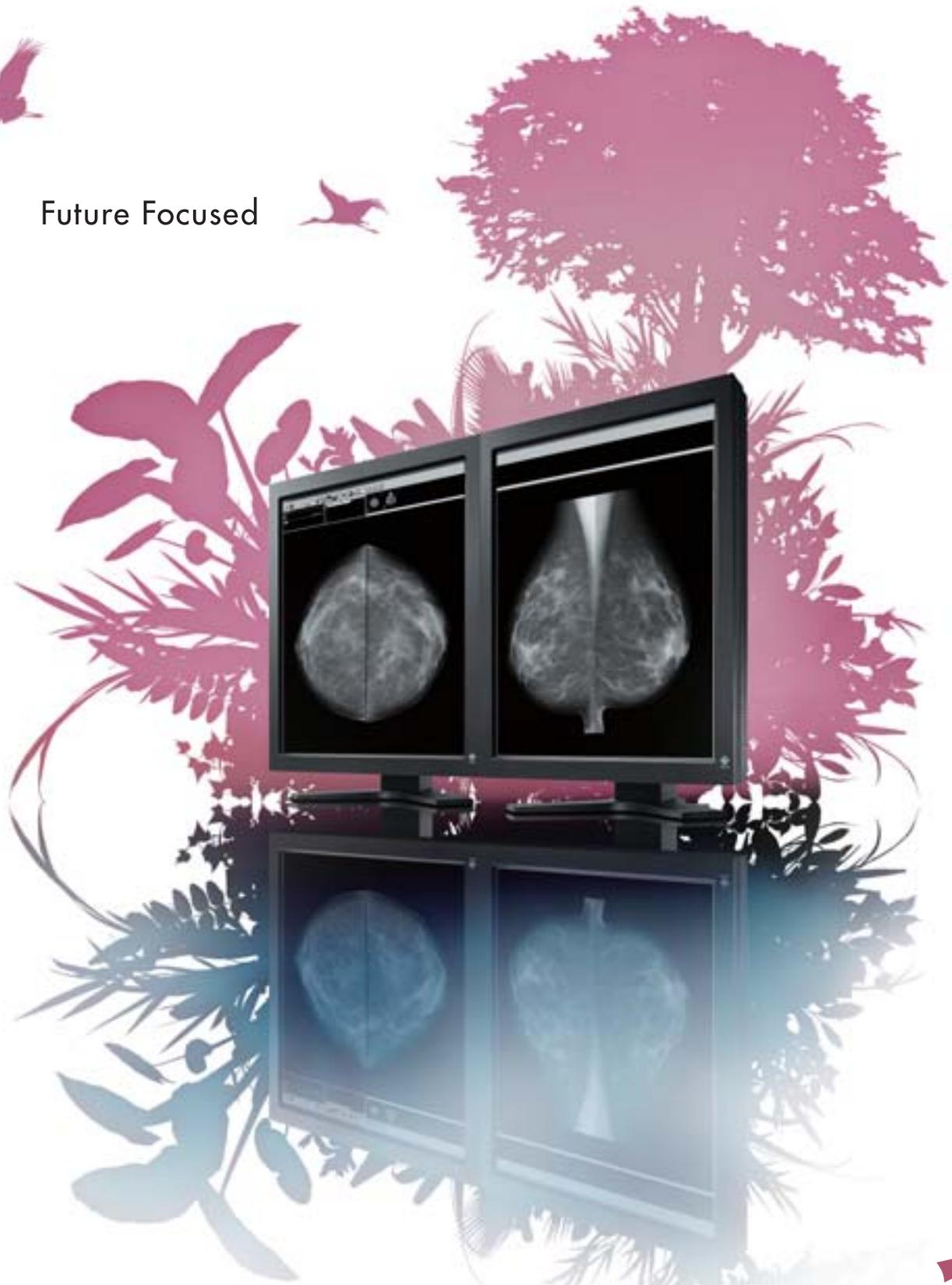




Digital Mammography Monitor
RadiForce® GS521

Future Focused



Film Imaging to Digital Imaging for Mammography Diagnosis

As the incidence of breast cancer rises, regular mammograms are recommended for early detection.

It is vital in the process of early breast cancer detection to find subtle masses and calcifications.

Film imaging for mammography diagnosis has long been the primary methodology.

However, to meet the demand for a higher quality of images and reduction of reading time and cost, digitizing and networking of medical images in a filmless environment is spreading rapidly.

The transition from film to filmless mammography naturally requires a monitor to display extremely precise images equal to or better than film mammography.

In the mammography field today high-performance monitors featuring high resolutions and displaying high density images contribute to the process of early breast cancer detection.

Digital Mammography Requires a High-Performance Monitor



Selecting the Optimum Digital Mammography Monitor

Requirement
1

High-Resolution

High resolutions are required to display the correct “information volume” of a digital mammography image.

Requirement
2

High-Definition & High-Density

For the detection of mammary gland disorders which appear as “distortion,” the monitor needs this required performance in order to display the subtle structures.

Requirement
3

Multi-Grayscale

For the detection of small tumors which appear as delicate “density” differences, the monitor needs the correct display of extremely subtle grayscale shadings.

Requirement
4

Brightness Uniformity

For correct luminance display of delicate “density” differences, the monitor needs uniformity in brightness across the entire screen.

Requirement
5

Image Sharpness

For detection of subtle masses and calcifications, the monitor needs to display the outlines of the images with a high degree of sharpness.

Requirement
6

DICOM Part 14 Compliance

For unified image display between multiple monitors, the monitor’s tone characteristic is required to comply with the grayscale standard DICOM Part 14.

Requirement
7

DICOM Part 14 Calibration

Since the quality characteristics gradually change over time, monitor that is calibration compliant with DICOM Part 14 is required.

Requirement
8

Simple Quality Control Procedures

For the continuous quality maintenance and control, monitor enabling easy-to-follow QC procedures is required.

5MP GS521

54 cm (21.3") Monochrome LCD Monitor

Featuring high definition, a high resolution, and the capability of rendering 15 mega sub-pixels, the RadiForce GS521 is designed specifically for displaying digital mammography images. It comes in a choice of glare panels to meet the needs of its usage environment.

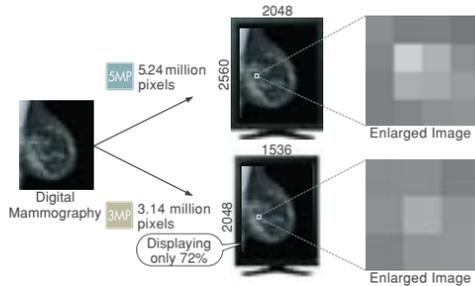
Digital Mammography Monitor RadiForce

Features

High-Definition Images

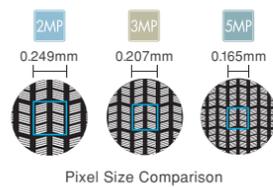
High-Resolution

Requirement 1 "Information volume" of a digital mammography image should exceed 5 million pixels. When a lower resolution monitor displays this "information volume," the monitor stretches the information forcing the mosaic to appear as shadings. With a 2048 x 2560 resolution or 5.24 million pixels, the stretching effect is minimized and the mosaic becomes suitable for rendering subtle masses and calcifications, within the mammography image.



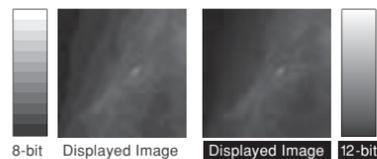
High-Definition and High-Density

Requirement 2 0.165mm pixel size is the smallest pixel size among current EIZO medical monitors providing high-definition and high-density display without shadings appearing granular.



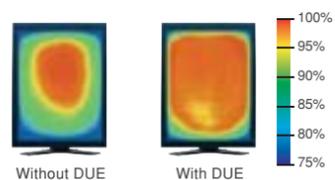
12-Bit Simultaneous Grayscale Display

Requirement 3 Along with EIZO's new frame rate control technology (patent pending), 4,096 (12-bit) grayscale tones can be displayed simultaneously from an abundant palette of 13,771 tones for high-definition digital mammography. 12-bit graphics board and 12-bit viewer software needed for 12-bit display.



DUE Brightness Uniformity

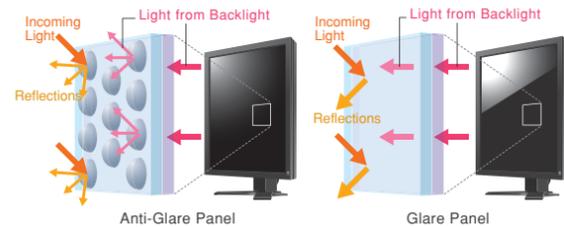
Requirement 4 The Digital Uniformity Equalizer (DUE) function provides optimum backlight luminance uniformity which is considered difficult to attain due to the characteristics of LCD monitors.



GLARE PANEL Distinctive Glare Panel

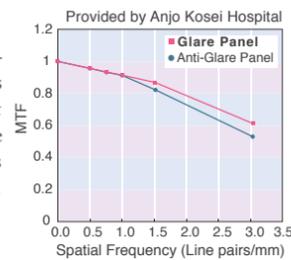
With a distinctive glare panel, there is no diffused reflection by the waffled surface, and the outline of the image is displayed more clearly.

Available with either a glare panel or anti-glare panel.



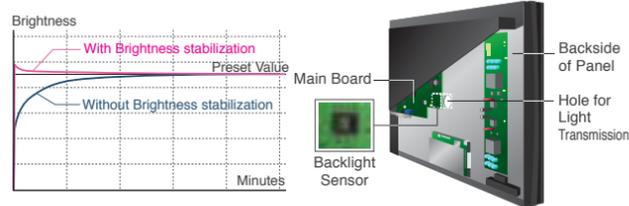
Sharper Image Outline

Requirement 5 MTF (Modulation Transfer Function) incorporates resolution and contrast data of a monitor's panel into a single specification. The glare panel has better MTF characteristics and displays a sharper image outline.



Brightness Stabilization

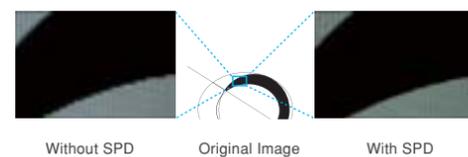
At startup or upon wakeup, the EIZO patented drift correction function quickly stabilizes the brightness level. In addition, a sensor measures the backlight brightness and compensates for brightness fluctuations caused by the ambient temperature and the passage of time. This brightness stabilization function is EIZO patented technology (Japan patent numbers 3171808 and 3193315, US patent number 6188380).



15MsP 15 Mega Sub-Pixels Display

The GS521 comes with a Sub-Pixel Drive (SPD) function capable of displaying 2048 x 7680 super high resolution by controlling each sub-pixel separately. With a 15 mega sub-pixels (MsP), sufficient information volume of the original medical image will be displayed, making the monitor suitable for rendering the outline of a detailed digital mammography image more sharply.

15MsP viewer software needed for 15MsP display. 10-bit simultaneous display supported when displaying 15MsP.



DICOM Part 14 Factory Adjustment

Requirement 6 To ensure the most accurate and consistent shadings possible, EIZO carefully measures and sets every grayscale tone on the production line to produce a monitor compliant with DICOM Part 14.



DICOM Part 14 Calibration

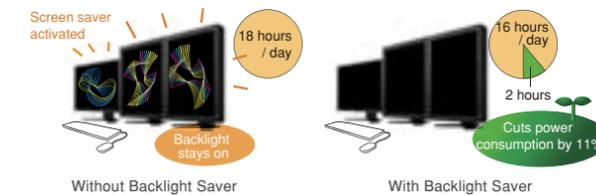
Requirement 7 When the self-diagnosis function, utilized with bundled RadiCS LE quality control software, detects a change in luminance, a warning icon appears on the desktop taskbar enabling prompt correction. Furthermore, the self-calibration function, a simplified calibration compliant with the DICOM Part 14 standard, can periodically be performed to correct the grayscale tones and brightness of the monitor.



Ergonomic Features

Backlight Saver with Screen Saver

With ScreenManager Pro for Medical utility software installed, the Backlight Saver function turns off the monitor's backlight when the screen saver is activated, and turns it on again when the computer comes out of screen saver mode.



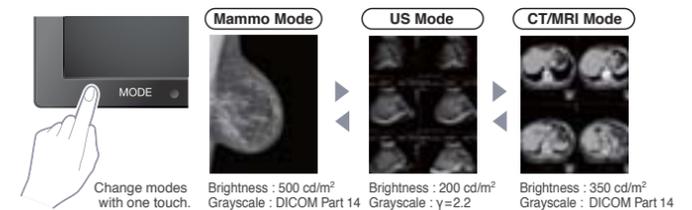
Backlight Saver with Viewer Application

By setting the Backlight Saver function to operate with viewer application, the monitor's backlight is on while the viewer is being used and the backlight is off while the viewer is not being used.



CAL SWITCH Calibration Mode Selection

Selectable with the front panel buttons, the CAL Switch function allows for various display modes of different modalities such as digital mammography, ultrasound, and MRI images. Furthermore, with ScreenManager Pro for Medical installed, auto mode settings can be made with the Auto CAL Switch function.



DisplayPort Connectivity

Next-generation DisplayPort connectivity allows a large volume of information transmitted at once, which means the monitor can more easily adapt to high resolution or multi-grayscale display. DisplayPort cable sold separately.

High Quality Assurance

Brightness Stability Within Usage Time Guaranteed

EIZO's confidence in its product quality extends to brightness stability which is also covered during the usage time specified in the warranty.



Medical Standards

Meets the strictest medical, safety and EMC emissions standards including TÜV/GM, UL60601-1, CE, CB, CSA C22.2 No.601-1, VCCI, FCC, and FDA 510(k).



5 Year Warranty

EIZO and its authorized distributors offer a five-year limited warranty.



Displaying the Optimum Digital Mammography Image

EIZO offers all the necessary components for correct digital mammography image display.

Digital Mammography Monitor

GS521

An option of clear base and blue base backlights are available.

Paired monitors which provides the same color and grayscale for two monitors bundled as a pair in one box, also available.



Standard Configuration



Quality Control Sensor

Clip-On Swing Sensor G2

Requirement 8 Once attached to the top of the monitor the Clip-On Swing Sensor can remain in place and is ready for use. This saves the time and trouble of attaching and removing it when performing quality control tasks.



Quality Control Tool

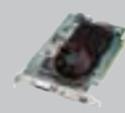
RadiCS[®] UX1

Requirement 7 EIZO's easy-to-use RadiCS quality control software performs precise calibration conforming to DICOM Part 14 and enables quality control complying with ACR Practice Guideline and other QC standard for digital mammography monitors.



Various Graphics Boards

Supports various input signals for compatibility with a wide range of graphics boards so the user can select the board according to budget and performance requirements. This includes single link, dual link, as well as packed-pixel signal.



Xenia Pro

Bit
Compatible OS
Frame Buffer Memory
Bus Interface
Output Terminals
Power Consumption

10-bit / 8-bit
Windows Vista / XP
1,024 MB
PCI-Express x16
DVI-I x 3
36.35 W



MED-V5600

10-bit / 8-bit
Windows XP
512 MB
PCI-Express x16
DVI-I x 2
65 W



MED-V3600

10-bit / 8-bit
Windows XP
256 MB
PCI-Express x16
DVI-I x 2
44 W

Quality Control of Digital Mammography Monitor

As with the use of film mammography, image quality testing of the monitor at installation and regularly during use should be carried out. This ensures that the monitor maintains a consistent display of quality digital mammography.



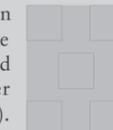
■ ACR "Practice Guideline for Determinants of Image Quality in Digital Mammography"

This guideline was formulated collaboratively by specialists in mammography and medical physics who represent the American College of Radiology (ACR), the American Association of Physicists in Medicine (AAPM), and the Society for Imaging Informatics in Medicine (SIIM).



■ EUREF "European Guidelines for Quality Assurance in Breast Cancer Screening and Diagnosis Fourth Edition"

This guideline was issued by the European Commission in cooperation with EUREF (European Reference Organisation for Quality Assured Breast Screening and Diagnostic Services), EBCN (European Breast Cancer Network), and EUSOMA (European Society of Mastology).



■ PAS 1054

"Requirements and Testing of Digital Mammographic X-ray Equipment" formulated by the German Institute for Standardization (DIN) in cooperation with the German Radiology Society (DRG) and others. This standard defines the details of the quality assurance obliged by the X-ray Ordinance as well as the QS-RL for general X-ray systems and DIN V 6868-57 for image display devices.



Accessories

Dual Height Adjustable Stand	Panel Protector	Monitor Cleaning Kit
<p>LS-HM1-D</p>	<p>RP-901</p>	<p>ScreenCleaner[™]</p>
Mount two panels in either portrait or landscape orientation.	Protect against scratches and dust with high light transmission panel.	Keep your screen free from dust and fingerprints with this screen cleaner kit. Includes pump spray and cloth. <i>Bundled with GS521-CLG.</i>

Environmental Awareness

EIZO Eco Products — A Commitment to Environmental Preservation over the Product Life Cycle

The development, implementation, and revision of the EIZO Eco Products internal environmental label stems from EIZO's longstanding commitment to manufacturing environmentally sound products and its desire to provide consumers with an instantly recognizable means to assess their environmental performance. Based on the 3Rs (Reduce, Reuse, Recycle) and energy savings, EIZO has introduced four versions of this label with EIZO Eco Products 2009 being the most recent.



EIZO Eco Products 2009 Requirements

- 1) User's manual made with chlorine-free, recycled paper.
- 2) Subject to an internal product environmental assessment.
- 3) Partial use of recycled plastic.
- 4) Partial use of soy ink with supplied printed materials.
- 5) Use or partial use of plastic containing raw plant materials.
- 6) Use of recycled Styrofoam or paper in packaging cushioning materials.
- 7) Meets VOC (volatile organic compounds) guidelines for PCs as established by JEITA*.
- 8) Complies with the RoHS directive.
- 9) Power consumption of zero watts when turned off.
- 10) Power consumption of less than 1.5 watts in power-save mode.
- 11) Satisfy the requirements of the International Energy Star Program when in normal operation.
- 12) Eco profile available on website.

*JEITA is the Japan Electronics and Information Technology Industries Association. JEITA established guidelines to limit emission levels of VOCs from PCs. The guidelines are a countermeasure against health hazards caused by VOC contaminants released from furniture, everyday objects, and building materials that accumulate indoors. EIZO carries out evaluations based on these guidelines.

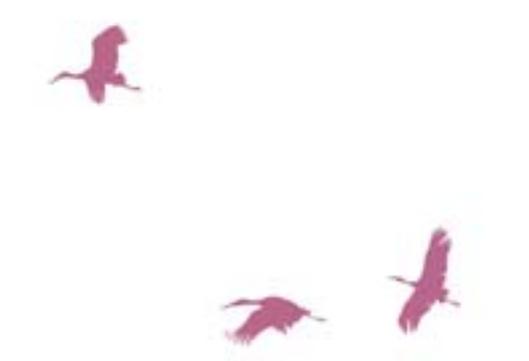
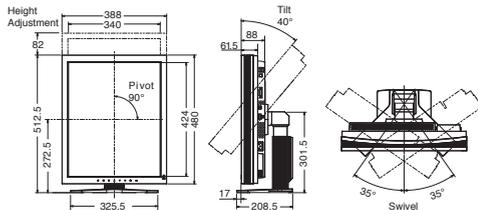


5MP GS521

54 cm (21.3") Monochrome LCD Monitor

Model Variations	GS521- CLG : Clear Base with Glare Panel GS521- CL : Clear Base GS521- BL : Blue Base
Cabinet Color	Black
Panel	TFT Monochrome LCD Panel (IPS)
Active Display Size (H x V)	337.9 x 422.4 mm
Viewable Image Size	Diagonal : 540 mm
Native Resolution	2048 x 2560, SPD On : 2048 x 7680
Pixel Pitch	0.165 x 0.165 mm
Grayscale Tones	12-bit (SPD Off only) : 4,096 from a palette of 13,771 tones 10-bit : 1,024 from a palette of 3,571 tones
Viewing Angles (H, V)	170°, 170°
Brightness	700 cd/m ² (typical)
Recommended Brightness for Calibration	500 cd/m ²
Contrast Ratio	800 : 1 (typical)
On/Off Response Time	50 ms (typical)
Scanning Frequency (H, V)	31 - 135 kHz, 19 - 51 Hz Frame synchronous mode : 24.5 - 25.5 Hz, 49 - 51 Hz
Dot Clock	290 MHz
Input Terminals	DVI-D 24 pin x 1, DisplayPort x 1
USB Ports	1 upstream, 2 downstream
USB Standard	Rev. 2.0
Power Requirements	AC 100 - 120 V, 200 - 240 V : 50 / 60 Hz
Power Consumption / Save Mode	100 W / Less than 1 W
Sensor	Backlight Sensor
Power Management	DVI DMPM, DisplayPort 1.1a
OSD Languages	English, French, German, Italian, Japanese, Simplified Chinese, Spanish, Swedish, Traditional Chinese
Net Weight (With Stand / Without Stand)	10.1 kg / 7.1 kg
Hole Spacing	VESA standard 100 x 100 mm
Certifications and Standards	CE (Medical Device Directive), TÜV/GM (EN60601-1), cTUVus (UL60601-1, CSA C22.2 No. 601-1), CB (IEC60601-1), VCCI-B, FCC-B, Canadian ICES-003-B, c-Tick, FDA 510(k) for Mammography and General Radiography, EIZO Eco Products 2009, RoHS
Supplied Accessories	AC power cord, user's manual, signal cable (DVI-D ~ DVI-D), USB cable, EIZO LCD Utility Disk (RadiCS LE, ScreenManager Pro for Medical), ScreenCleaner (GS521-CLG only), warranty card
Warranty	Five Years

Dimensions [Unit:mm]



 Eizo Nanao Corporation supports Pink Ribbon activities.



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