

— Attune to every patient's needs —

AMULET Harmony

AMULET Harmony incorporates a range of mammography solutions specifically designed to maintain a harmonious examination environment and foster an atmosphere of trust between mammographers and their patients.



Fit Sweet Paddle

This type of compression paddle fits to the shape of the breast, allowing pressure to be evenly applied while holding the breast securely and ensuring the breast tissue is adequately separated. Models with the lateral shift function are also available in the lineup.



Mood lighting to ease patient anxiety

Warm indirect lighting is used to illuminate the exposure stand, helping patients to relax and allowing examinations to be performed with minimal stress.

Decorative labels adaptable to each room environment

Five different stand labels are available to add a gentle ambience. Each site can choose a stand appearance that best suits the examination environment, thus relieving patient stress and anxiety.



Main specifications

Standard components

- Exposure stand (FDR-3500DRLH): Approx. 624 (W) × 1270 (D) × 1974 (H) mm / Approx. 370kg / AC 200/208/220/230/240V
 - Control cabinet: Approx. 503 (W) × 205 (D) × 530 (H) mm / Approx. 20kg
 - Generator: Approx. 445 (W) × 315 (D) × 825 (H) mm / Approx. 70kg
 - AWS (FDR-3000AWS): Approx. 700 (W) × 420 (D) × 1900 (H) mm / Approx. 90kg (including protective shield and operation table) / Main unit: AC 100-240V
- The appearance and specifications may be subject to change.



AMULET Innovality

FUJIFILM DIGITAL MAMMOGRAPHY SYSTEM



Lasting smiles for women worldwide

Innovation and quality in mammography



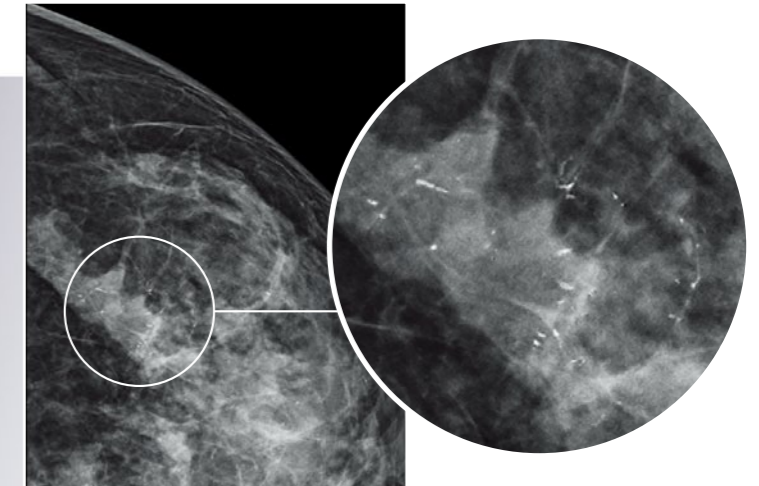
AMULET Innovality – the result of Fujifilm’s ongoing “innovation” and commitment to providing top “quality” mammography services. The Innovality utilises Fujifilm’s unique a-Se direct conversion flat panel detector (FPD)* to produce clear images with a low X-ray dose. This system makes use of intelligent AEC (i-AEC) combined with a new image analysis technology to automatically optimize the X-ray dosage for each breast type. AMULET Innovality is a highly advanced mammography system which offers an extremely fast image interval of just 15 seconds. With this system, Fujifilm furthers the provision of high quality examinations with superior image quality.

*Using a HCP (Hexagonal Close Pattern) TFT array.

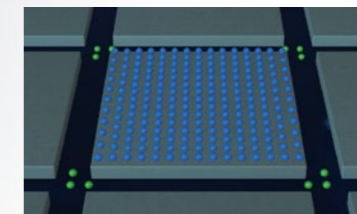
Origin of the name: With its mammography solutions Fujifilm hopes to be an “Amulet” — always there to protect women’s health and allow them to be true to themselves, vibrant and beautiful. The AMULET series aims to provide top-class digital mammography solutions that can be customised to meet every sites needs.



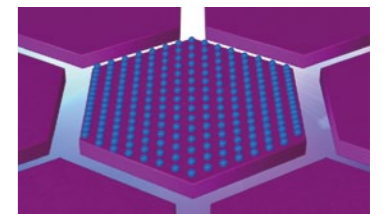
Unique detector for fast, low dose examinations



AMULET Innovality employs a direct-conversion flat panel detector made of Amorphous Selenium (a-Se) which exhibits excellent conversion efficiency in the mammographic X-ray spectrum. The new HCP (Hexagonal Close Pattern) detector efficiently collects electrical signals converted from X-rays to realize both high resolution and low noise. This unique design makes it possible to realize a higher DQE (Detective Quantum Efficiency) than with the square pixel array of conventional TFT panels. With the information collected by the HCP detector, AMULET Innovality creates high definition images with a pixel size of 50 μm ; the finest available with a direct-conversion detector.



Conventional square pixel



AMULET Innovality hexagonal pixel

This low-noise and high-speed switching technology allows tomosynthesis exposures with a low X-ray dosage and short acquisition time to be performed. Fast image display is also possible, realizing a smooth mammography workflow from exposure to image display.

ISC – Optimized contrast and low X-ray dose using a Tungsten Target

Image-based Spectrum Conversion* (ISC) technology can be used to optimize contrast in an image. ISC analyzes images to compensate for variations in contrast due to the density of mammary glands, amount of fat and X-ray spectrum. ISC aims to ensure that images display adequate contrast even with the use of a high energy, low-dose X-ray beam. This technology allows sites that previously exploited the superior contrast of a Molybdenum target to realize the dose advantages offered by the use of Tungsten without having to compromise image contrast.

*Based on Image analysis the appearance is adjusted to emulate the image quality with the simulated “optimal” spectrum.

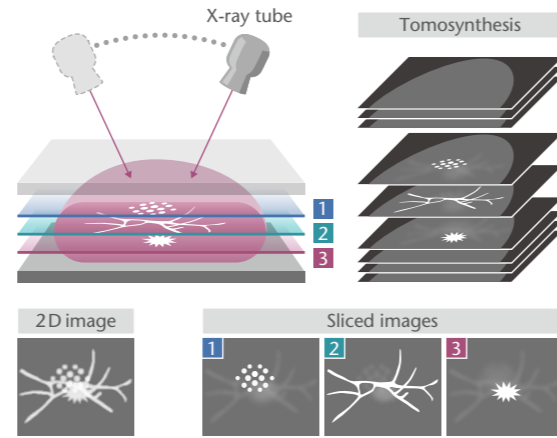
High quality images for easier diagnosis

Tomosynthesis: making it possible to observe the internal structure of the breast

In breast tomosynthesis, the X-ray tube moves through an arc while acquiring a series of low-dose X-ray images. The images taken from different angles are reconstructed into a range of Tomosynthesis slices where the structure of interest is always in focus.

The reconstructed tomographic images make it easier to identify lesions which might be difficult to visualize in routine mammography because of the presence of overlapping breast structures.

The Tomosynthesis function on AMULET Innovality is suitable for a wide range of uses, offering two modes to cater for various clinical scenarios. Standard (ST) mode combines rapid exposure timing and efficient workflow with a low X-ray dose while High Resolution (HR) mode makes it possible to produce images with an even higher level of detail, allowing the region of interest to be brought into clearer focus.



Two modes suitable for a range of clinical purposes

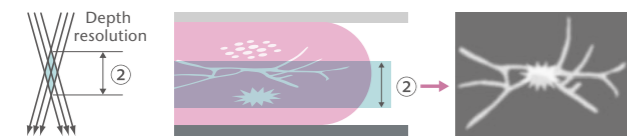
HR (High Resolution) mode	<ul style="list-style-type: none"> •Acquisition angle: $\pm 20^\circ$ •Pixel size: 100/50μm
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With a larger acquisition angle the depth resolution is improved. This allows the region of interest to be defined more clearly and brought into clearer focus.



ST (Standard) mode	<ul style="list-style-type: none"> •Acquisition angle: $\pm 7.5^\circ$ •Pixel size: 100/150μm
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The smaller angular range and fast image acquisition allow Tomosynthesis scans to be quickly performed with a relatively low X-ray dose.



Two types of image processing pattern

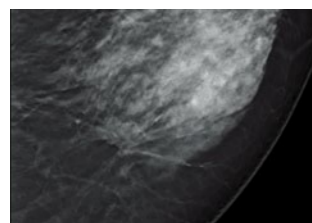


Image Processing Pattern 1

Enhances spicula and calcifications while keeping maximum contrast for the viewing of masses within the glandular tissue.

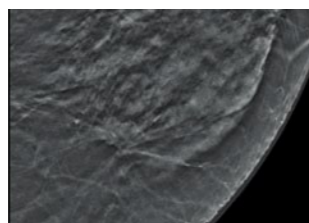


Image Processing Pattern 2

Maximizes the visualization of fine spiculations and calcification.



ISR – Iterative Super-Resolution Reconstruction

Excellent-m 3D

The tomosynthesis iterative super-resolution reconstruction (ISR) method is applied to optimize image quality, achieving significant X-ray dosage reduction.

1. Reducing graininess of image in low-dose tomography

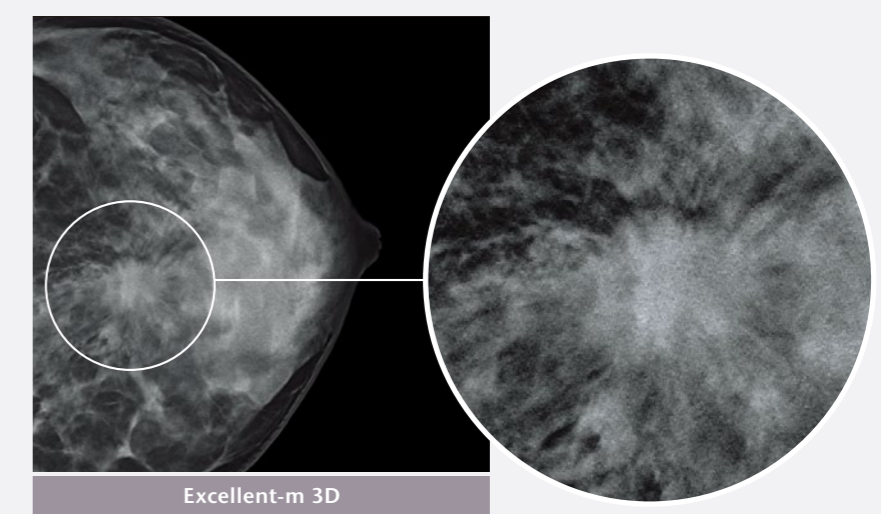
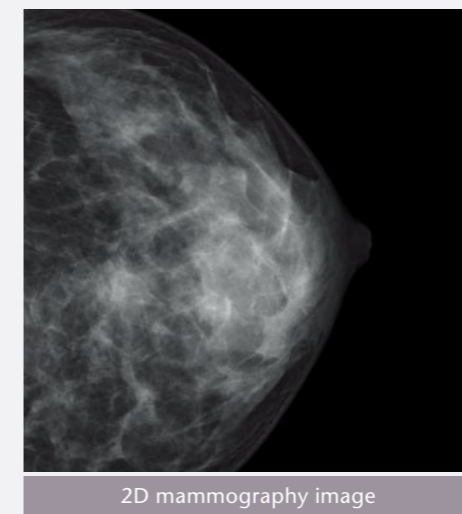
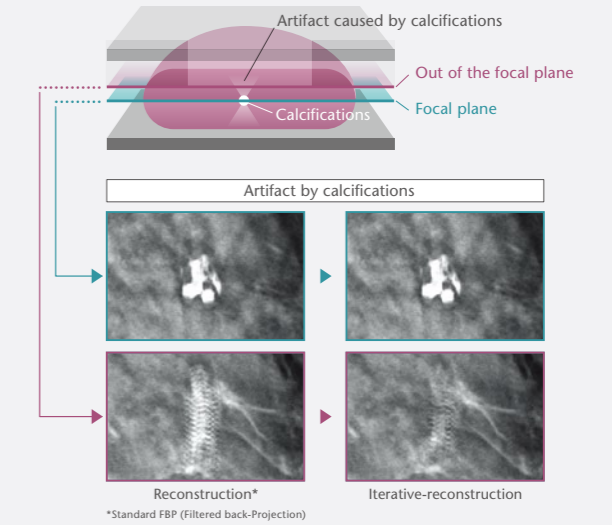
The image patterns are recognized to selectively suppress the patterns that do not exist in human body architectures as noise, to reduce distracting noises in the event of low-dose tomography.

2. Suppressing interference of human body architectures at different depths (as illustrated on the right)

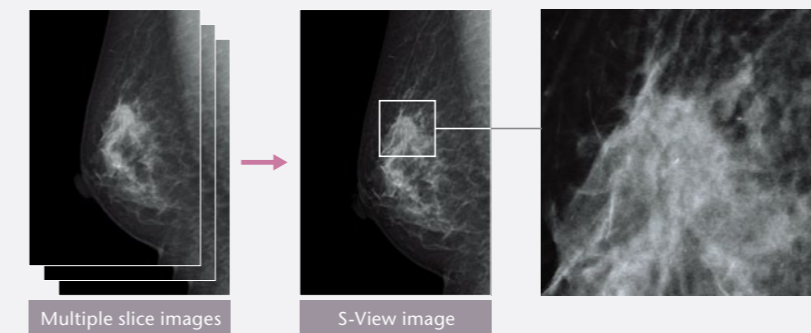
In the process of reconstructing the 3D breast architecture from multiple 2D images, calcification, mass, spicula, mammary gland and other signals that emerge from different depths in the breast architecture are selected off to reproduce the breast architecture at the focus depth with greater fidelity.

3. Restoring the fine-structure

Our super-resolution technology is introduced to restore the fine-structure of calcification and other phenomena, the visibility of which is impaired by the movement of the X-ray tube, to facilitate interpretation of tomosynthesis images.



S-View – synthesized 2D image – function is available



Tomosynthesis by AMULET Innovality automatically produces not only tomograms obtained at 1 mm intervals but also a two-dimensional S-View image combining multiple slice images. With the S-View image showing the overall view added to tomograms offering the views in detail, comprehensive image reading is possible.

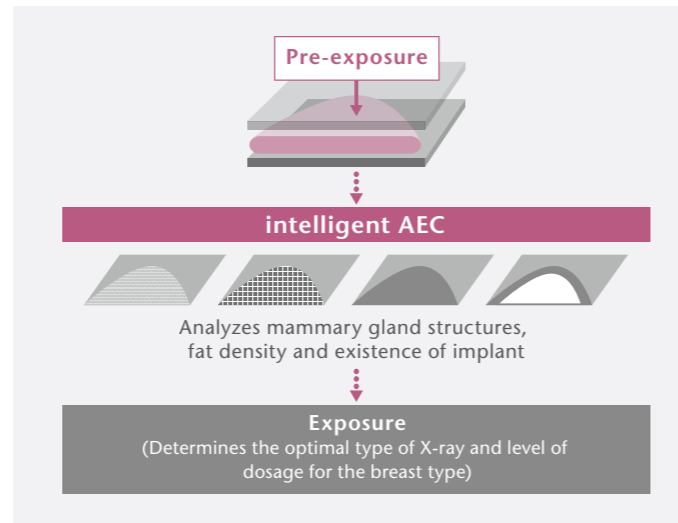
Easy operation and patient comfort

Intelligent AEC optimizes the X-ray dose for each breast type

Intelligent AEC has advantages in defining the optimal dose for an examination compared to conventional AEC systems where the sensor position is fixed.

Through the analysis of information obtained from low-dose preshot images, Intelligent AEC makes it possible to consider the mammary gland density (breast type) when defining the x-ray energy and level of dose required.

Able to be used even in the presence of implants; intelligent AEC enables more accurate calculation of exposure parameters than is possible with conventional AEC systems. By allowing the use of automatic exposure for the implanted breast, Intelligent AEC can further enhance examination workflow.



Patient information display

The information shown on the display **A** at the base of the exposure unit can be switched between patient information (ID, name, date of birth, etc.) and positioning information (angle of swivel arm, compression force and breast thickness). Positioning information can also be confirmed on the display **B** on the compression arm.



Dedicated mammography AWS (Acquisition Workstation)

Optimal examination workflow

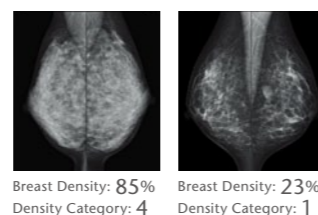
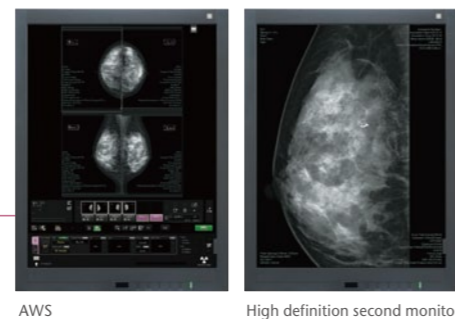
- Integrated X-ray controller allows setting and confirmation of exposure conditions on a single screen.
- Examination screen can be split and switched between 1, 2, or 4 image display.
- Individual images can be immediately output to a PACS, viewer or printer during an examination.
- Density and contrast can be easily adjusted while viewing images.
- Alignment of left and right images can be adjusted both automatically and manually.

High definition second monitor (3M/5M: Optional)

- A second, high resolution monitor can be added to the AWS making it possible to display previous images recalled from a PACS to ensure the mammographer has access to previous images at all times.
- For Tomosynthesis, reconstructed images can be displayed.

Breast Density Measurement Software with Density Category display (Optional)

Immediately after a mammography, the mammary glandular dose information is automatically calculated and displayed on the AWS console for reference. The data can be exported to the DICOM Tag. The threshold of the Density Category can be adjusted.



Other Unique Functions

Shift Compression Paddle

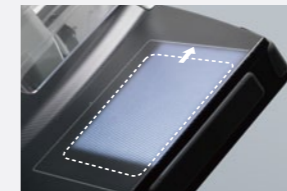
18×24 cm

This small compression paddle can be positioned in the middle, right or left side of the detector at any time of examination according to the positioning of the patient.



24×30 cm

When this compression paddle is used with 18x24 cm radiation field, the radiation field remains in the center for the CC position, while shifting to the upper portion of the detector when the gantry is rotated to a MLO or ML position.



Mammography QC Program

Fujifilm's Mammography QC Program is a dedicated quality control program that can be used on all Fujifilm digital mammography systems. This program monitors system performance to ensure stable image quality is maintained for both screening and diagnosis.



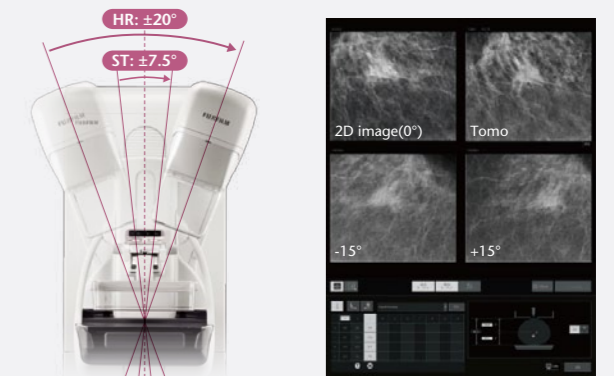
Stereotactic Biopsy Unit

The stereotactic biopsy unit allows accurate and reliable biopsy procedures to be performed using high resolution images. By attaching the optional lateral adapter the needle can be inserted not only vertically but also parallel to the exposure table.



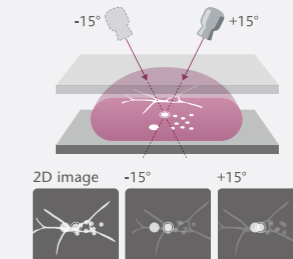
Tomosynthesis Biopsy

Targeting is supported using both tomosynthesis and stereoscopic images: the choice depends on operator confidence and lesion positioning. Tomosynthesis acquisition can be performed in both ST (Standard) and HR(High Resolution) modes, according to desired accuracy and lesion size.



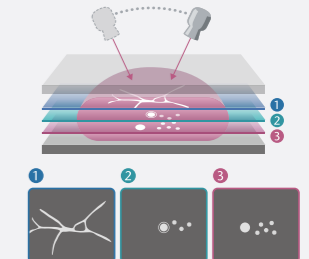
- Using a tomosynthesis image, it makes it possible to target the lesion which cannot be found on 2D image.
- Thanks to easier lesion position identification, tomosynthesis targeting results in a more efficient workflow and more simple operation.

Stereo imaging



- Overlapping breast structures make lesions less visible
- Difficult to identify a particular region

Tomosynthesis



- Reconstructed images show overlapping structures separately
- Easier to locate a target than with the conventional method

AMULET Bellus II (Diagnostic Workstation)

The multi-modality workstation optimized for mammography imaging can display images of MG, CT, PT, MR, CR, DX and US. Selection of a reading protocol and an image pattern is possible, providing efficient diagnosis workflow. Images can be printed at preferred positions and sizes with measurement information.

