

SmartRAD™

ADVANCED DIGITAL RADIOGRAPHY SYSTEM



CMI

EXPANDING THE HORIZONS OF DIGITAL RADIOGRAPHY

CMT introduces the SmartRAD Digital Radiography system, featuring an integrated flat panel digital detector and excellent performance. The system delivers outstanding image quality, ergonomics and performance in digital radiography, thus enhancing the workflow and productivity of Radiology Departments.

The SmartRAD combines CMT's proprietary technology with state-of-the-art object-oriented software and connectivity. The system's intuitive user-friendly console interfaces with the detector and the X-ray generator, providing the necessary connectivity to acquire and transmit patient demographics, examination and image data in digital format.



Setting of the X-ray exposure parameters, review, post-processing operations and filming can be carried out from a single console, significantly increasing clinical efficiency.

The SmartRAD is DICOM-compatible, enabling easy integration into a PACS network.

Available in single or dual detector configurations, the SmartRAD is offered both as a retrofit system for existing X-ray equipment and as a digital subsystem that OEMs can incorporate into their own equipment.

STATE-OF-THE-ART DIGITAL DETECTION TECHNOLOGY

The SmartRAD uses a Pixium 4600 solid-state detector to convert X-rays into electronic signals. The detector consists of a matrix of photodiodes made of amorphous silicon covered by a Cesium Iodide scintillator. X-rays are absorbed in the Cesium Iodide and are converted into visible photons, which in turn generate electric charges in the photodiodes. The charges accumulated in the photodiodes are read out and transmitted via an optical fiber link to the acquisition subsystem where digital processing is performed. Sophisticated electronics for detector control and readout further contribute to the high performance of the detector.

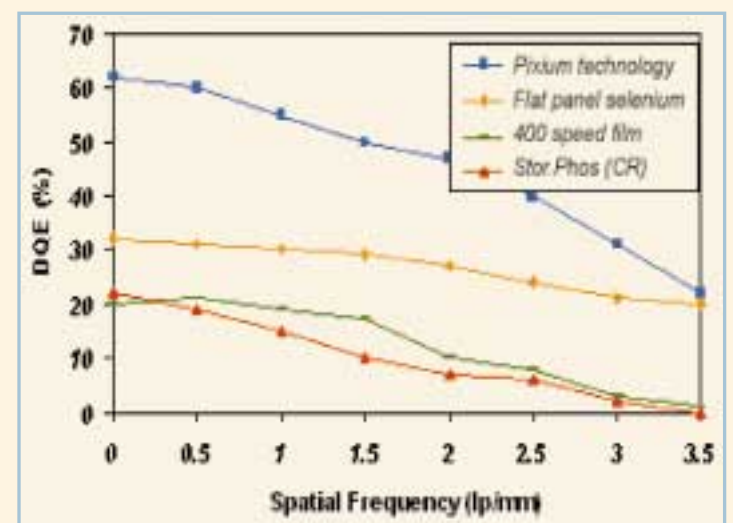
With a 43cm x 43cm image format, the detector offers optimum imaging dimensions – suitable even for large patients. A 3K x 3K matrix size ensures finely detailed imaging of fine bone structures, and the high sensitivity of the detector guarantees that quality images are consistently produced with minimum exposure to the patient, with retakes rarely necessary.

SUPERB IMAGING PERFORMANCE

- 17-inch x 17-inch (43cm x 43cm) active image
- 143 μm pixel size
- 3K x 3K detector element matrix
- Very high DQE to ensure excellent image quality
- 14-bit dynamic range

PROVEN TECHNOLOGY

The reliability and performance of the detector's technology have been proven through years of use. This technology is now the established standard in the digital radiological imaging market.



State-of-the-art
Digital detection
Technology

FULL AUTOMATION FOR INCREASED PRODUCTIVITY

BUCKY ASSEMBLY

Proprietary CMT design significantly improves the detector's long-term performance and reliability.
Easily adaptable to existing tables/wall stands.

SETTING OF X-RAY GENERATOR EXPOSURE PARAMETERS

Programmable exam-specific X-ray technique factors are automatically set upon protocol selection. Manual adjustment of the settings is also possible.

IMAGE FORMATTING

Multiple images can be combined in a single film/frame.

DICOM STORE/PRINT OUTPUTS

Indicates whether acquired images will be automatically transferred to DICOM-compliant PACS and/or laser printers. Manual override is possible.

IMAGES AREA

Displays newly acquired images, for operator convenience.

INTUITIVE TOUCH SCREEN USER INTERFACE

Enables control of patient registration, acquisition, archiving, review and export operations.

SETTING OF FILMING PARAMETERS

Selection of the film size and layout.

ANATOMICALLY PROGRAMMED RADIOGRAPHY (APR)

Operator-programmable settings for different views.
X-ray technique factors and exam-specific algorithms for optimal processing and display of the acquired image.

Full
Automation
For Increased
Productivity

SEAMLESS OPERATION

The SmartRAD system has been engineered to maximize X-ray Department productivity, enabling unprecedented speed in conducting examinations. With SmartRAD, radiography examinations can be conducted faster, with certainty that the proper image has been captured in full.

The intuitive SmartRAD user interface enables easy access to all system functions. Setting of the X-ray generator exposure parameters, patient demographics, selection of organ-specific protocols, display of preview images, and review and processing of the acquired images are invoked using a touch screen interface.



Advanced automation features incorporated into the system enhance productivity. For example:

- Bar-code data entry
- Retrieval of patient demographics from worklist DICOM providers
- Organ-specific protocols, for automatic selection of X-ray generator exposure parameters and image-processing parameters
- Fast display of preview images
- Automatic optimization of the displayed image
- Image review and processing
- Interactive image manipulation
- Film Previewer
- Automatic backup of acquired images in DVD media
- Automatic printing and transfer to PACS

Seamless Operation



SUMMARY OF SPECIFICATIONS

DETECTOR

Pixium 4600 digital flat panel detector

X-RAY SYSTEM INTERFACE

Generator control integrated into the operator console (generator-dependent)

AEC: ion-chamber generator interface included

Grid: customer-defined

Bucky assembly

COMPUTER AND DISPLAY

System Computer

Pentium IV operating at 2.4 GHz (or higher)

Main Memory

512 Mbyte

User Interface

Touch screen and/or mouse

Touch Screen Monitor

1280 x 1024 pixels

18" color

Disk Capacity

80 Gbyte (or larger)

DATA ACQUISITION

Preview image typically within 3 seconds after completion of the exposure

Imaging cycle time: less than 7 seconds

Operator-programmable Anatomically Programmed Radiography (APR)

Exam-specific algorithms for optimized image quality

Subdivided acquisition and processing

Automatic backup, storage and printing of acquired images

IMAGE PROCESSING

Protocol-specific default values with manual adjustment

Accept/reject acquired image

Image rotation/inversion

Image labeling

Dynamic range compression

Digital markers/annotation

True size printing

Automatic fit-to-film

Windowing (automatic and manual)

Continuously variable magnification

Multiformat display

Automatic and manual shutters (masking) on the displayed image

DICOM 3.0 CONNECTIVITY

Storage and Print Service Class Network output

Worklist Management

Modality Performed Procedure Step

Storage Commitment Class

Summary of Specifications

CMT: A LEADER IN MEDICAL IMAGING

With more than 3,000 clinical installations worldwide, CMT Medical Technologies is at the cutting edge of the medical imaging industry. CMT's workforce includes scientists, software engineers and technicians with extensive experience in medical imaging and digital image processing. CMT's unsurpassed clinical images are a result of corporate initiative combined with rigorous discipline, which intensifies the company's focus on the customer and its commitment to quality.

The name CMT has become synonymous with technological innovation in the medical imaging field, providing original solutions to OEM partners, hospitals and imaging centers. The Company's imaging solutions, backed by world-class service and support, keep pace with today's high-productivity demands.

CMT's current product line consists of digital acquisition and processing systems targeted to R&F, angiography and cardiac applications. The introduction of the SmartRAD system is a natural extension of CMT's commitment to provide modern, advanced products at the forefront of medical technology.

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