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## Mobilett Mira Max

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### Description

The system is used as a universal, portable, digital radiography system for all skeletal acquisitions on recumbent and sitting patients. Application areas include trauma, routine and emergency diagnostics, thoracic diagnostics, and all types of bedside acquisitions.

#### X-ray system, basic unit

- Compact design
- Microprocessor-controlled high-frequency generator with single tank tube unit, multipulse voltage waveform
- High generator output with hybrid power technology  
35 kW at 96 kV 10 ms, 30 kW at 102 kV 100 ms according to IEC 601-2-7/1987
- Maximum tube current: 450 mA
- kV range 40 kV to 133 kV in 24 or 47 steps

#### - mAs range in battery mode:

At 40 kV to 43 kV: 0.32 mAs to 360 mAs

- At 44 kV to 49 kV: 0.32 mAs to 320 mAs
- At 50 kV to 56 kV: 0.32 mAs to 280 mAs
- At 57 kV to 62 kV: 0.32 mAs to 250 mAs
- At 63 kV to 70 kV: 0.32 mAs to 220 mAs
- At 61 kV to 77 kV: 0.32 mAs to 200 mAs
- At 79 kV to 85 kV: 0.32 mAs to 180 mAs
- At 88 kV to 96 kV: 0.32 mAs to 160 mAs
- At 99 kV to 109 kV: 0.32 mAs to 140 mAs
- At 113 kV to 125 kV: 0.32 mAs to 125 mAs
- At 129 kV to 133 kV: 0.32 mAs to 110 mAs

#### - mAs range in mains power mode:

At 40 kV to 44 kV: 0.32 mAs to 125 mAs

- At 45 kV to 50 kV: 0.32 mAs to 110 mAs
- At 51 kV to 55 kV: 0.32 mAs to 100 mAs
- At 56 kV to 60 kV: 0.32 mAs to 90 mAs
- At 62 kV to 68 kV: 0.32 mAs to 80 mAs
- At 70 kV to 77 kV: 0.32 mAs to 71 mAs
- At 79 kV to 90 kV: 0.32 mAs to 63 mAs
- At 93 kV to 102 kV: 0.32 mAs to 56 mAs
- At 105 kV to 113 kV: 0.32 mAs to 50 mAs
- At 117 kV to 125 kV: 0.32 mAs to 45 mAs
- At 133 kV: 0.32 mAs to 40 mAs

- Shortest exposure time: 1 ms
- Maximum exposure time in digital mode: 3.2 sec.
- High-voltage generator with built-in P135/30 R rotating anode tube, 9000 rpm, nominal focal spot size 0.8 (IEC 336/1982).
- Manual multileaf collimator with light localizer integrated in the tube assembly housing (LED, at least 180 lux)

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with an SID of 1 m).

- Free setting of the kV and mAs values via touchscreen (digital mode) or generator panel buttons (analog mode).
- Remote control of the light localizer lamp from the control panel
- Counterbalanced tube support arm
- Connection to any wall outlet with protective ground conductor
- 4 m long, automatically retracting power cable
- Footprint dimensions: 113 x 59.5 x 157 cm (L x W x H).
- Weight 375 kg (without options)
- Motorized drive operated via the drive control handle
- Forward, reverse drive, with deadman switch
- Maximum incline 7 degrees
- High speed adjustable from 1.2 - 1.6 m/s
- Reduced speed for fine positioning operated from the tube support arm (micro inch mover).
- Manual movement possible in case of system batteries being down.
- Detector holder with automatic charging functionality for MAX wi-D. Additional holders for MAX mini, additional spare battery (both without charging functionality), as well as clip-on grid. (MAX wi-D, MAX mini, spare batteries and grid not included with the main unit.)
- High-capacity system battery with maintenance-free lead batteries

### Imaging and control station

The communication of the radiography system including digital image processing takes place from a central integrated imaging and control station.

This includes:

- A high-end PC imaging system, based on Windows 7 with *syngo* user interface  
Storage capacity approx. 3000 images.
- A 17" color flat display as the control display, with touch screen operation
- CD/DVD drive for digital image storage on CD-R/DVD for offline data exchange in DICOM format.
- Manual button for exposure release  
Option: Infrared remote control
- Network connection via LAN
- Option: Network connection via WLAN

### Functions of the imaging and control station

Patient and study administration:

- Importing of patient lists and examinations from the HIS/RIS
- Manual patient registration including emergency shortcut
- Patient, study and image data management
- Configuration functions

Acquisition and postprocessing:

- Organ program selection (automatic / manual) and configuration.
- Selection of generator and organ program parameters.  
Parameterization of image preprocessing: enhancement, harmonization, edge enhancement and look-up tables (LUT).
- Display of current acquisition in 5 s max. (preview); complete image 10 s maximum.
- Display of image markers (L/R, a.p./p.a.)
- DiamondView Plus: image post-processing for high detail contrast and reduced noise

DiamondView is a multi-scale procedure, i.e. filter size and strength are weighted differently and are used for adaptation to the overall image content

- DiamondView expands the utilization of the dynamic range signal and enhances the organ-specific detail contrast (soft tissue and bones)

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- DiamondView can be selected via the "Pre-processing card"
- By entering "0", the image can be displayed without DiamondView

Image processing functions:

- Image rotation, zoom, pan, flip horizontal / vertical
- Windowing, cropping (automatic / rectangle / 4-point)
- Filters for edge enhancement and noise reduction

Image documentation and archiving:

- Image transfer into the network
- Automatic, user-configurable data distribution (DICOM Send, see also DICOM system interfaces)
- Automatic filming with virtual film sheet (DICOM Print, see also DICOM system interfaces)
- Image data export (12 bit, DICOM format) to CD/DVD or USB memory stick (storage media not included)

## Workflow

- Prior to exposure the patient data is transferred via the radiology information system or entered manually. The exposure parameters are selected through the organ programs.
- Then the detector, patient and/or the acquisition system are positioned and exposure is released
- Within a few seconds, the resulting image is transferred from the detector to the imaging system. It is displayed at the control display for check and post processing, and made available in DICOM format for sending e.g. to reporting workstations, image networks, laser cameras, etc.
- Clinical Assurance Program (CAP): Collection of deleted images, studies and patient data, including evaluation capabilities.

Access protection:

- System access is protected by either a) hardware key or b) numeric keypad with PIN (purchase choices).
- System can be locked for motor movement, radiation and access to patient data/images without requiring a shutdown.

Option:

Security Package: SW option with enhanced security features such as User Management (incl. password protection) and Audit Trail function (if offered, see text of the corresponding components).

## DICOM system interfaces

- DICOM Send: Sending of images into the DICOM network.  
The DICOM Send function enables fully automatic transfer of generated image data to a DICOM archive or a DICOM workstation. The user can perform his examinations without interruption while the system fully automatically transfers the images to the archive. This image data transfer takes place entirely in the background and thus does not affect acquisitions performed at the same time.
- DICOM Modality Worklist/MPPS: Import of patient/examination data from an external RIS/HIS patient management system with DICOM MWL (Modality Worklist). Notification of examination status as well as sending of dose data, patient data, and examination data to an external RIS/HIS patient management system with DICOM MPPS (Modality Performed Procedure Step).
- DICOM Storage Commitment (StC): Feedback from the image archive.  
The DICOM StC function automatically gives feedback on whether the generated image data were successfully transferred. This way the user can be sure that the acquisitions stored locally in the imaging system can be deleted.
- DICOM Print: Printing of images by means of a virtual filmsheet on a DICOM laser camera.  
Selecting "Auto-Print" automatically forwards the images stored in the virtual filmsheet to the laser camera. This optimizes the workflow, eliminating the need for user interaction. In addition, a specific layout can be configured on the virtual filmsheet, which the user can review and edit on the monitor at any time. As a result, printing is only required after the layout has been optimized on the monitor, saving time and costs.

## Note concerning DICOM interface(s)

For diagnostic purposes only hardcopy cameras/laser printers explicitly approved for this system may be used.

## Description

The description in the DICOM Conformance Statement, which can be downloaded from the Internet, is binding for the functionality of the DICOM interface(s) exclusively.

Functionalities across system borders with/between partner systems require explicit validation, since the interpretation of the interface by the partner/target system is not part of the product's responsibility.

A modification of the interface that might be required is not included in the offer; e.g. for the rare case that available configurations are not sufficient. The agreements according to the product maintenance/service contract apply to any costs incurred by necessary interface configurations.

### Siemens Remote Service

Prepared for optional Siemens Remote Service SRS™ (exclusively with service contract):

- Hardware and software remote diagnosis.
- System remote configuration, e.g. adding of a DICOM node.
- The functions are made available as part of the maintenance contract package.

Mobile, wireless flat detector (MAX wi-D) for image acquisition, CsI scintillator, amorphous silicon (a-Si).

- Detector acquisition matrix approx. 2872 x 2354
- Pixel size 148 µm
- Acquisition depth (gray scales) 16 bit.
- Acquisition formats up to 34.9 cm x 42.5 cm (13.7" x 17").
- Thickness: 19 mm
- Data transfer via W-LAN.
- Operation time:
  - min. 3.5 hours during regular utilization
  - min. 6 hours in standby mode
- Detector weight 3 kg
- Max. load 150 kg (patient lying down) and 100 kg (patient standing).

Alternative set of batteries with 40% greater capacity of 90 Ah, for max 270 acquisitions at 70 kV / 20 mAs, max. stand-by time of 16 hrs. when switched on.

Keyboard for entering text and control commands in English, for service and application