**Datasheet**

# MOBILETT Elara Max

Stands out from the crowd
in mobile X-ray imaging

**siemens-healthineers.com/mobilett-elara-max**

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# Technical specifications

Discover how you can stand out from the crowd in mobile X-ray imaging with MOBILETT Elara Max

**Unique MAXreach arm**
for outstanding positioning flexibility

**Status indicator lights**
for a visual safety signal

**High-contrast monitor**
for improved visibility

**Intelligent charging concept**
for ready-to-go detectors

**Hygienic system design**
with integrated cables,
smooth and closed surfaces

**Robust, compact and
lightweight design**
for exceptional maneuverability

**Always ready**
even when all batteries are empty

**Size**
Height: 157 cm
Width: 59.8 cm
Depth: 127.8 cm

**MAX mini[1]**
is ideal for incubators
and extremities

**MAX wi-D[1]**
is light, thin, fast

**MAXswap**
for advanced detector sharing

**DiamondView MAX**
for enhanced contrast
and detail

*syngo* **FLC**
for an easy-to-learn,
common user interface

**Virtual workstation[1] and
wireless connectivity**
for unrestricted data access

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# System specifications

| Mobile X-ray unit |
|---|
| General-purpose digital mobile X-ray unit for radiography of the recumbent and seated patient |
| High-frequency generator (50 kHz) |
| Forward/Reverse motor drive for relocating the unit, controlled at main handle |
| Max. incline of 7 degrees, high speed adjustable from 1.2 to 1.5 m/s |
| Ever ready: Even when all batteries are depleted, the unit can be moved manually and examinations can be performed with mains power (with slightly reduced maximum power) |
| Reduced speed feature (creep mode) for fine tuning unit positioning from the arm |
| Counterbalanced arm can be rotated by ± 90 degrees and allows easy adjustment for all the different projections |
| Flexible X-ray tube |
| Exposure release via hand switch or remote control[1] |
| LED collimator light: can be switched on via hand switch, control panel or remote control[1] |
| Automatic cable winder with 4 m (157.5") power cable for connection to any grounded outlet |
| Available with numeric keypad / PIN code (alternative: standard key switch[1]) |
| System can be locked without requiring a shutdown |

| *syngo* FLC hardware |
|---|
| The X-ray system incl. digital image processing is controlled from the central, integrated image and control station |
| High-end PC imaging system based on Windows 10 with *syngo*-like user interface |
| 17" color high-contrast display for touch screen operation |
| Memory capacity approx. 10,000 images |
| Connection to hospital network via LAN (up to 1 Gbit/s) and/or WLAN[1] (up to 65 Mbit/s) |

[1] *Option*

# System specifications

| Generator | |
|---|---|
| Power output | Max. 133 kV at 225 mA<br>Max. 450 mA at 54 kV<br>Max. 35 kW at 96 kV, 365 mA, 10 ms<br>Max. 30 kW at 99 kV, 300 mA, 100 ms (acc. to IEC 60601-2-7)<br>Min. 0.32 mAs |
| kVp range | 40 kV to 133 kV in 47 steps |
| mAs range | 0.32 mAs to 360 mAs in 53 steps |
| kV accuracy | < ± 3 kV (40 kV to 60 kV)<br>< ± 5 % (60 kV to 133 kV) |
| mAs accuracy | < ± 5 % (2 mAs to 360 mAs)<br>< ± 0.1 mAs (0.32 mAs to 2 mAs) |
| Shortest exposure time | 1 ms |
| Max. exposure time | 3.2 s (digital mode) |
| Exposure release | Detachable remote control with 5 m coiled cord |
| Enclosure protection rating | IPX0 (not protected) |
| Protection against electric shock | Class I acc. to IEC 60601-1 |

# System specifications

| X-ray tube | |
|---|---|
| **Tube housing (single tank with rotating-anode tube)** | |
| X-ray tube | Siemens Healthineers P135/30 R |
| Stabilization | Microprocessor-based adjustment and regulation during exposure |
| Focal spot nominal value (IEC 336) | 0.8 |
| Anode angle | 15° |
| Anode speed | Up to 9,000 r.p.m., 150 Hz |
| Heat storage capacity of tube housing | 800,000 J = 1,100,000 HU |
| Heat storage capacity of anode | 90,000 J = 122,000 HU |
| Collimator | Manually adjustable multileaf collimator, rotatable ± 90° |
| Collimator light and light field intensity | LED min. 180 lux at 1 m SID |
| Tube housing assembly | Maximum temperature 60 °C, maximum 2,000 mAs/h, nominal continuous rating 75 W until housing temperature reaches 60 °C |

| Dose Area Product (DAP) measurement chamber | |
|---|---|
| Integrated dose area product measurement system | |
| Automatic transfer of the dose value measured to the imaging system | |
| Part of the DICOM header when image information is transferred | |
| Typical filtration | < 0.4 mm Al equivalent |
| DAP resolution | 0.01 µGym$^2$ |
| Maximum measurable DAP | 1 x 10$^5$ µGym$^2$ |

[1] Option

# System specifications

| MAX wi-D[1] | |
|---|---|
| Detector technology | Cesium iodide scintillator coupled to TFT matrix with amorphous silicon technology |
| Dimensions (active area) | 34.8 cm x 42.4 cm (13.7" x 16.7") |
| Active detector matrix | 2350 x 2866 |
| Dimensions with detector housing | 44 cm x 46.1 cm x 1.9 cm (17.3" x 18.1" x 0.75") |
| Pixel size | 148 µm |
| Semiconductor material | Amorphous silicon (a-Si) |
| Scintillator | Cesium iodide (CsI) |
| Digitization depth | 16 bits |
| DQE in %; 2 µGy (RQA5) | 70 % at 0.05 lp/mm<br>51 % at 1 lp/mm, (IEC 62220)<br>42 % at 2 lp/mm, (IEC 62220)<br>29 % at 3 lp/mm, (IEC 62220)<br>19 % at Nyquist |
| MTF in % (RQA5) | 63 % at 1 lp/mm, (IEC 62220)<br>35 % at 2 lp/mm, (IEC 62220)<br>19 % at 3 lp/mm, (IEC 62220)<br>15 % at Nyquist |
| Data transmission | WLAN [2] < 2 s preview; < 5 s full image |
| Thickness | 19 mm (0.75") |
| Weight | 3.3 kg (7.3 lbs) |
| Max. load capacity | 300 kg (661 lbs) with patient recumbent<br>100 kg (221 lbs) with patient standing |
| Battery | Lithium-ion, rechargeable, exchangeable |
| Charging time | 90 minutes for 80 % battery capacity |
| Battery operation time | Up to 1050 images<br>Up to 6.5 h during regular utilization<br>Up to 11.7 h in standby mode |
| Clip-on grid [1] | Grid, Pb 5/85, $f_0$ = 115 cm; Pb with aluminum interspacing |
| Charging location | Onboard detector holder, or external battery charger[1] |
| WLAN Standard | IEEE 802.11n, 2 x 2 mimo |
| If there is a WLAN or other wireless equipment in your working environment, please consult your Siemens Healthineers representative for optimal set-up of the wireless connection | |
| IEC Regulations | Electromagnetic compatibility: compliance with IEC 60601-1-2 ed. 4<br>This detector does not affect pacemakers that comply with DIN EN 45502-2-1, Section 27 |
| MAXswap | Detectors are shareable between multiple MAX systems |

[1] *Option*
[2] *The preview/full image transmission time depends on the quality of the WiFi link and the selected processing parameters*

# System specifications

| MAX mini[1] | |
|---|---|
| Detector technology | Cesium iodide scintillator coupled to TFT matrix with amorphous silicon technology |
| Dimensions (active area) | 22.5 cm x 28.4 cm (8.9" x 11.2" ) |
| Active detector matrix | 1520 x 1920 |
| Dimensions with detector housing | 26.9 cm x 32.9 cm x 1.6 cm (10.6" x 13" x 0.63") |
| Pixel size | 148 µm |
| Semiconductor material | Amorphous silicon (a-Si) |
| Scintillator | Cesium iodide (CsI) |
| Digitization depth | 16 bits |
| DQE in %; 2 µGy (RQA5) | 70 % at 0.05 lp/mm<br>51 % at 1 lp/mm, (IEC 62220)<br>42 % at 2 lp/mm, (IEC 62220)<br>29 % at 3 lp/mm, (IEC 62220)<br>19 % at Nyquist |
| MTF in % (RQA5) | 63 % at 1 lp/mm, (IEC 62220)<br>35 % at 2 lp/mm, (IEC 62220)<br>19 % at 3 lp/mm, (IEC 62220)<br>15 % at Nyquist |
| Data transmission | WLAN[2] < 1.5 s preview; < 3.5 s full image |
| Thickness | 16 mm (0.63") |
| Weight | 1.6 kg (3.5 lbs) |
| Max. load capacity | 300 kg (661 lbs) with patient recumbent<br>100 kg (221 lbs) with patient standing |
| Battery | Lithium-ion, rechargeable, exchangeable |
| Charging time | 3 h in battery charger for 100% battery capacity |
| Battery operation time | Up to 1050 images<br>Up to 6.5 h during regular utilization<br>Up to 11.7 h in standby mode |
| Charging location | External battery charger[1] |
| WLAN Standard | IEEE 802.11n, 2 x 2 mimo |
| If there is a WLAN or other wireless equipment in your working environment, please consult your Siemens Healthineers representative for optimal set-up of the wireless connection | |
| IEC Regulations | Electromagnetic compatibility: compliance with IEC 60601-1-2 ed. 4<br>This detector does not affect pacemakers that comply with DIN EN 45502-2-1, Section 27 |
| MAXswap | Detectors are shareable between multiple MAX systems |

[1] *Option*
[2] *The preview/full image transmission time depends on the quality of the WiFi link and the selected processing parameters*

# System specifications

| Patient data administration | |
| --- | --- |
| Patient registration | Retrieval of patient list and examination data from the hospital/radiology information system (HIS/RIS) |
| | Emergency patient registration |
| | Patient, study and image data administration |
| | Configurable patient registration page |
| | Advanced user management (see Cyber Security) |

| Virtual Workstation[1] |
| --- |
| Virtualized Windows 10 environment |
| Allows installation of hospital specific applications for viewing and information, e.g. RIS client, PACS viewer, etc. |
| Switch between system screen and virtual workstation with a single interaction |

[1] *Option*

# Clinical workflow

| Cyber Security | |
| --- | --- |
| Secure development cycle | Threat and Risk Analysis, Secure Architecture & Design, Secure Configuration and Hardening, Secure Coding & Testing with Vulnerability Scanning, Penetration Testing |
| Whitelisting | Malware protection based on Microsoft Device Guard |
| Hard Disk Encryption | Encryption of patient data on internal hard disk with Bitlocker (on customer request) |
| IPv6 | It is possible to configure IP adresses in IPv4 or IPv6 format |
| High frequency hotfix delivery | Providing hotfixes for 3rd party components (e.g. Microsoft) every 90 days |
| Advanced security package[1] | Advanced user management: Active directory integration, individual password management and user authorization<br>Audit trail management: Detailed tracking of user and system actions and centralized automated logging<br>DICOM encryption |

| Examination preparation | |
| --- | --- |
| Workflow | Prior to acquisition, the patient data is entered via the patient management system (HIS/RIS) or at the control console<br>The exposure parameters are selected via the organ programs<br>Then the patient and X-ray unit are positioned and the exposure is released<br>The exposure released at the central system control is read by the detector within a few seconds<br>The image is shown on the control display for orientation and is available at the imaging system output for sending in DICOM format, e.g. to reporting workstations, imaging networks, laser cameras, etc.<br>Collection of deleted images, studies and patient data including evaluation options<br>Key-protected by numeric keypad / PIN code<br>(alternative: standard key switch[1]) |

[1] *Option*

# Clinical workflow

| Image acquisition/display/processing | |
| --- | --- |
| Acquisition and preprocessing | Selection of generator parameters, setting of parameters for image preprocessing (amplification, harmonization, edge enhancement and LUT) or DiamondView MAX<br>Display of image markers |
| Image display | Fit to window view of full image |
| Image processing functions | Rotation, vertical and horizontal reversal, zoom, windowing for contrast/brightness, black/white image inversion |
| DiamondView MAX | DiamondView MAX is a specially developed image processing method (multispatial filtering) that optimizes the image display specifically for different organ regions<br>Structures of different frequency ranges are weighted differently, allowing precise detail visualization even with large differences in absorption, such as in bone and soft tissue |
| Graphic functions | Quantification with angle/distance measurement |
| Text functions | Marking, annotation, image comments, R/L markers |
| Gridless Acquisition | Gridless acquisition (esp. Thorax) using DiamondView MAX functionalities for superior contrast and easier handling |
| Image impression | Simplified setting of image impression according to the policy of the customer institution |
| Tube/line enhancement | Amplified display of tubes and lines in the image for position control |

# Clinical workflow

| Data transfer and documentation | |
|---|---|
| **DICOM network interfaces** | |
| DICOM Send/StC | Transmission of images to a DICOM network for viewing and archiving<br>Confirmation from the image archive (StC = Storage Commitment) |
| DICOM Print | Printing of images to a DICOM laser camera via virtual film sheet |
| DICOM Query/Retrieve | Retrieval of images to a picture archival system (PACS) |
| DICOM encryption[1] | Sending encrypted patient data to DICOM nodes which can receive encrytped images |
| DICOM Worklist/MPPS | Get Worklist function for importing patient data from a data management system (RIS/HIS). XRF, CR and DX worklist entries supported, configurable<br>Modality Performed Procedure Step (MPPS) function for sending examination statistics and dose information to a data management system |
| DICOM Dose Structured Report | Sending of dose values for each study to an archiving system |
| | |
| **Documentation** | |
| Image data management | Transmission of images to network<br>Automatic and selective printing with virtual film sheet<br>Up to 3 network nodes at the same time and<br>one laser camera configurable<br>Export of image data to CD/DVD recorder in DICOM or TIFF format<br>Export to USB device in DICOM or TIFF format |
| Recycle bin | This feature can be enabled or disabled<br>Stores rejected and deleted images that are not archived and not printed in a separate folder |
| Clinical Assurance Program (CAP) | Provides statistics of rejected images |
| Exposure index (EXI) monitoring | Provides minimum and maximum EXI value for export<br>IEC standard 62494-1 Ed.1 |
| Printer connection[1] | For paper printing to a Level 2 PostScript printer |
| Smart Remote Service (SRS)[2] | Connects MOBILETT Elara Max to the service experts in our Customer Care Center<br>Allows hardware and software remote diagnosis<br>Allows remote system configurations, e.g. adding a DICOM node etc.<br>Enables delivery of remote software updates<br>Remote Assist (based on TeamViewer®) enables screen sharing between you and our Application Specialists for real-time support |

[1] *Option*
[2] *Depending on service level agreement*

# System options

| Remote control [1] | |
|---|---|
| Infrared remote control unit for exposure release for optimal radiation protection | |
| Operating range | 10 m (33 ft), 180° |
| Battery | For 30,000 exposures |
| Remote finder function | Locates the remote control when it is not in park position |

| WLAN connectivity [1] | |
|---|---|
| Industrial-strength WLAN module for increased reach and improved connectivity | |
| Supported WLAN standards | 802.11 a/b/e/g/h/i/n |
| Supported frequency bands | 2.4 / 5 GHz |
| Security / Authentication | 802.11 i, 802.1x, WPA/WPA2 |
| | WPA2 Enterprise supplicants EAP-TLS, EAP-TTLS (MSCHAPv2), EAP-PEAP (MSCHAPv2) Supports certificates and private key upload / storage (multiple) |
| Data encryption | TKIP, AES |

| Miscellaneous | |
|---|---|
| Pediatric filters[1] | Transparent filters for lowering the patient entry dose, available in strengths of 1.0 mm Al + 0.1 mm Cu and 1.0 mm Al + 0.2 mm Cu |
| Wipe dispenser accessory[1] | Safely stores pens, markers, a cup and a standard, round 5 inch container e.g. for disinfectant wipes |
| Key switch[1] | System access control using a conventional hardware key |
| Giraffe[1] | Giraffe design for the system, creating a friendly atmosphere not only in pediatric environments. |

[1] *Option*

# Working environment

| Operating data | | |
|---|---|---|
| Power supply | Grounded safety power socket (L/N/Gnd) | |
| Overcurrent release | An on-site 15 A/characteristic C overcurrent release (circuit breaker) is recommended by DIN VDE 0100-710 for power supply voltages of 230 V/240 V<br>Country-specific requirements apply for the fuse values to be used for other power supply voltages | |
| Line voltage | 100 V to 240 V~ 50/60 Hz 10 A to 6 A 1.2 kW | |
| Standard battery pack (65 Ah) | Battery | Sealed lead acid batteries (65 Ah), rechargeable |
| | Charging time | 5 h (80 %) |
| | Battery operation time | 6 h/200 exposures at 70 kV/20 mAs |
| | Standby time (On state) | 12 h |
| | Standby time (Off state) | 48 h |
| High power battery pack (90 Ah) [1] | Battery | Sealed lead acid batteries (90 Ah), rechargeable |
| | Charging time | 6.5 h (80 %) |
| | Battery operation time | 8 h/270 exposures at 70 kV/20 mAs |
| | Standby time (On state) | 16 h |
| | Standby time (Off state) | 64 h |

# Working environment

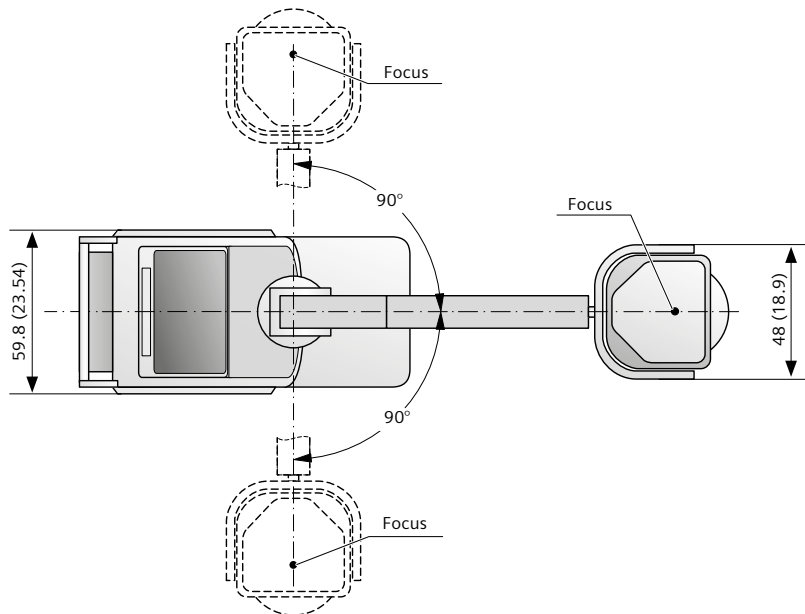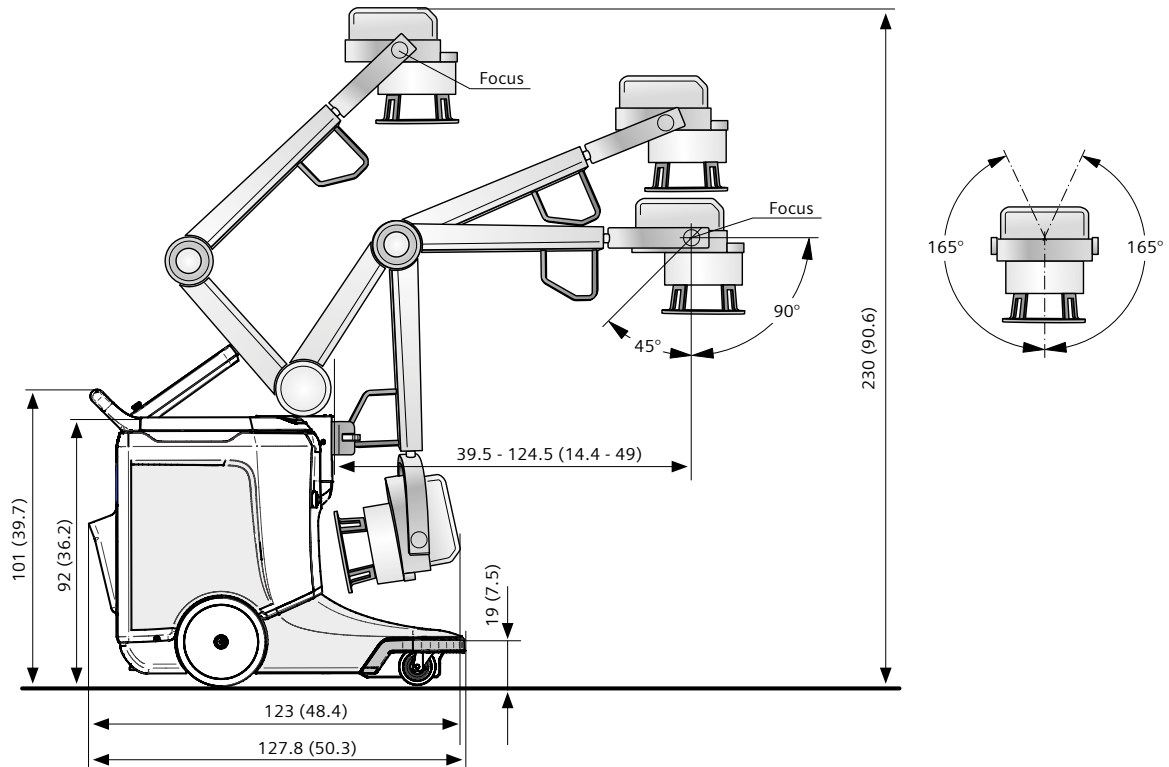| Environmental conditions | |
| --- | --- |
| **Operation** | |
| Temperature range | + 10 °C to + 35 °C |
| Relative humidity | 30 % to 75 %, non-condensing |
| Barometric pressure | 800 hPa to 1060 hPa |
| **Transport/storage** | |
| Temperature range | − 20 °C to + 60 °C |
| Relative humidity | 10 % to 75 % (up to 15 weeks, if FD packed) |
| Barometric pressure | 500 hPa to 1060 hPa |

| Dimensions and weight | |
| --- | --- |
| Footprint (l x w x h) | 127.8 cm x 59.8 cm x 157 cm (50.3" x 23.5" x 61.8") |
| **Tube positioning:** | |
| Max. focal spot height | 213.5 cm (84") |
| Min. focal spot height | 47 cm (18.5") |
| Max. horizontal ext. | 124.5 cm (49") |
| Min. horizontal ext. | 39.5 cm (14.4") |
| Weight (without optional accessories) | Approx. 380 kg |

# Room planning

Focus

Focus

230 (90.6)

90°

45°

39.5 - 124.5 (14.4 - 49)

101 (39.7)

92 (36.2)

19 (7.5)

123 (48.4)

127.8 (50.3)

165°        165°



Focus

90°

Focus

90°

Focus

59.8 (23.54)

48 (18.9)

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MOBILETT Elara Max VF10 is not yet available in all countries. Due to regulatory reasons, its future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

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In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources and waste conservation), we may recycle certain components where legally permissible.
For recycled components we use the same extensive quality assurance measures as for factory-new components.

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MOBILETT Elara Max
144 600 95
VF10