

## Detailed Technical Specifications

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	<p><b>System Configuration</b> Ysio Max is an universal digital radiographic workplace with various flat detectors (MAX wi-D, MAX static) for image acquisition.</p> <p>The Ysio Max digital workplace is especially suited for a high patient throughput. As a universal workplace, the system is primarily used in X-ray departments of hospitals, in radiological and partly radiological offices with high patient throughput and standardized acquisition technology.</p> <p><b>Basic system components:</b></p> <ul style="list-style-type: none"> <li>- A ceiling-mounted tube assembly support with X-ray tube assembly and motorized multileaf collimator.</li> <li>- An imaging and control station with application and evaluation programs, as well as DICOM system interfaces.</li> <li>- CD/DVD drive for digital image storage on CD-R/DVD for offline data exchange in DICOM format.</li> </ul> <p><b>Tube assembly support</b> with X-ray tube assembly and motorized collimator.</p> <p>All projection-relevant tube assembly positions can be manually adjusted with handles symmetrically mounted to the tube assembly collimator unit.</p> <p>The ceiling-mounted tube assembly support can be adjusted in 3 axes for longitudinal, transverse, and height adjustment (x, y, and z-axes).</p> <ul style="list-style-type: none"> <li>- Horizontal travel range in longitudinal direction 346 cm.</li> <li>- Horizontal travel range in transverse direction 220 cm.</li> <li>- Vertical lift 180 cm.</li> </ul> <p>In 2 further axes (<math>\alpha</math>- and <math>\beta</math>-axes) the tube assembly collimator unit can be manually adjusted for oblique acquisitions of the recumbent patient, or for horizontal, oblique, or lateral acquisitions on the portable detector, or for free bedside acquisitions.</p> <ul style="list-style-type: none"> <li>- Rotation around the vertical axis of the ceiling-mounted support from +154° to -182°. Lock-in positions every 90°.</li> <li>- Rotation around the horizontal axis of the tube assembly support arm <math>\pm 140^\circ</math>. Lock-in positions at 0° and <math>\pm 90^\circ</math>.</li> </ul> <p><u>X-ray tube assembly OPTITOP 150/40/80 HC-100:</u> Single-track dual-focus rotating anode tube with compound anode (rhenium-tungsten, molybdenum, graphite), with high heat storage capacity and high load capacity for small focal spots. Integrated overpressure safety device in the tube protective housing.</p> <ul style="list-style-type: none"> <li>- 150 kV nominal voltage acc. to IEC 613.</li> <li>- Nominal power (focal spot nominal values acc. to IEC 336): 40 kW: small focus 0.6 80 kW: large focus 1.0</li> <li>- Anode speed <math>\geq 8,500</math> r/min, anode angle 12°.</li> <li>- Heat storage capacity of the anode 580 kJ (783 kHU) acc. to IEC 613.</li> <li>- Total filtration (IEC 601-1-3) <math>\geq 2.5</math> mm Al equiv.</li> </ul> <p><u>Multileaf collimator:</u> With full field and laser line light localizer. Rectangular collimation, manual and motorized, via organ programs.</p> <ul style="list-style-type: none"> <li>- Multileaf collimator rotatable by <math>\pm 45^\circ</math> around the center beam axis, e.g. for correct positioning of objects.</li> <li>- A tape measure is integrated to check the focus-to-object distance.</li> <li>- To improve radiation quality through dose reduction of the soft radiation parts, Cu filters (0.1Cu; 0.2 CU and</li> </ul>

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	<p>0.3 Cu) are inserted into the primary beam projection, depending on the organ program selected. They can also be selected manually.</p> <p><u>Option:</u> A measuring chamber for the Dose Area Product can be integrated into the multileaf collimator.</p> <p><b>Controls and displays</b> The control elements at the tube assembly and the multileaf collimator are ergonomically arranged for single-handed operation.</p> <p>Controls and displays at the tube assembly support (MAXTouch): Multifunctional control display with color touchscreen for adaptation of acquisition parameters directly in the examination room.</p> <p><u>Displays include:</u></p> <ul style="list-style-type: none"> <li>- The collimation size of the acquisition field (in cm x cm).</li> <li>- The selected SID.</li> <li>- The selected Cu additional filters.</li> <li>- Rotation from the 0-position.</li> <li>- Tube assembly and detector centering.</li> <li>- Operating states such as "ACSS/Manual", "Ready", "Selected", etc.</li> <li>- Current detector angle (MaxAlign feature) – to eliminate the need to guess the tube angle and to protect the patient by reducing repeat exposures. Available with MAX wi-D and MAX mini.</li> </ul> <p>The display follows the tube assembly orientation.</p> <p><u>The following functions can be set manually at the multileaf collimator:</u></p> <ul style="list-style-type: none"> <li>- Full field light localizer with timer for optical display of the collimated acquisition format and an optionally coverable laser line light localizer.</li> <li>- The collimation of the acquisition format set last can be retrieved via a memory button.</li> <li>- The rectangular collimation of the radiation field is pre-defined through the organ program and can be set manually by means of two dials.</li> <li>- The motorized insertion of the Cu additional filters is controlled via the organ program, but can also be selected freely.</li> </ul> <p><b>Imaging and control station (syngo FLC)</b> The entire control and communication of the radiography system incl. digital image processing takes place from a central operating site - the imaging and control station.</p> <p><u>It includes:</u></p> <ul style="list-style-type: none"> <li>- A high-end PC imaging system, based on Windows 7 with syngo user interface. Storage of original data 14 bit. Storage of image data 12 bit. Storage capacity approx. 10,000 images.</li> <li>- Keyboard and mouse.</li> <li>- One 19" color flat-screen as control display or diagnostic display.</li> <li>- Manual button for exposure release.</li> </ul> <p><b>Functions of the imaging and control station</b> <u>Patient and study administration:</u></p> <ul style="list-style-type: none"> <li>- Importing of patient lists and examinations from the HIS/RIS</li> <li>- Manual patient registration</li> <li>- Patient, study, and image data management</li> <li>- Configuration functions</li> </ul> <p><u>Acquisition and postprocessing:</u></p> <ul style="list-style-type: none"> <li>- Organ program selection and configuration</li> </ul>

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	<ul style="list-style-type: none"> <li>- Selection of generator and diaphragm parameters. Parameterization of image preprocessing: enhancement, harmonization, edge enhancement, and look-up tables (LUT)</li> <li>- Display of current acquisition between 1.5 and 3.5 seconds (preview); complete image in 3.5 to 6 seconds max. depending on detector type</li> <li>- Display of image markers (L/R, a.p./p.a.)</li> <li>- DiamondView Plus: multi-scaling procedure for image post-processing with high detail contrast and reduced noise</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>- DiamondView enhances the signal exploitation of the dynamic range and improves the organ-specific detail contrast (soft tissue and bone).</li> <li>- DiamondView can be selected via the "Pre-processing card".</li> <li>- By entering "0", the image can be displayed without DiamondView.</li> </ul> <p><u>Image processing functions:</u></p> <ul style="list-style-type: none"> <li>- Image rotation</li> <li>- Horizontal/vertical image mirroring</li> <li>- Image zoom</li> <li>- Pan</li> <li>- Windowing</li> <li>- Filters for edge enhancement and noise reduction</li> </ul> <p><u>Image documentation and archiving:</u></p> <ul style="list-style-type: none"> <li>- Image transfer to the network</li> <li>- Automatic, user-configurable data distribution (DICOM Send, see also system interfaces DICOM)</li> <li>- Automatic filming with virtual film sheet (DICOM Print, see also system interfaces DICOM)</li> <li>- Image data export (12 bit) on CD/DVD</li> </ul> <p><b>Workflow</b> Routine workflows are largely automated.</p> <ul style="list-style-type: none"> <li>- Prior to exposure the patient data is transferred via the patient management system (HIS/RIS: option) or entered through the control console. The exposure parameters are selected through the organ programs.</li> <li>- Then the patient or the acquisition system is positioned and exposure is released.</li> <li>- The exposure released at the central system control is read out within a few seconds by the detector. It is displayed at the control display for orientation and made available in DICOM format at the imaging system output for sending e.g. to reporting workstations, image networks, laser cameras, etc.</li> <li>- Clinical Assurance Program (CAP): Collection of deleted images, studies and patient data, including evaluation capabilities.</li> </ul> <p><u>Password protection:</u> System access protected by password.</p> <p><u>Option:</u> Security Package: SW option with enhanced security features such as User Management and Audit Trail function (if offered, see text of the corresponding components).</p> <p><b>DICOM system interfaces</b></p> <ul style="list-style-type: none"> <li>- <u>DICOM Send:</u> 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</li> </ul>

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	<p>background and thus does not affect acquisitions performed at the same time.</p> <ul style="list-style-type: none"> <li>- <u>DICOM Storage Commitment (StC)</u>: Feedback from the image archive.</li> </ul>

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	<p>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.</p> <ul style="list-style-type: none"> <li>- <u>DICOM Print</u>: Printing of images by means of a virtual film sheet 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.</li> </ul> <p><u>Options:</u></p> <ul style="list-style-type: none"> <li>- DICOM Modality Worklist/MPPS</li> <li>- DICOM Query/Retrieve</li> </ul> <p><b>Note concerning DICOM interface(s)</b> For diagnostic purposes, only hardcopy cameras/laser printers explicitly approved for this system may be used.</p> <p>The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).</p> <p>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.</p> <p>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. With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply.</p> <p><b>syngo Remote Assist</b> syngo Remote Assist is a standalone service option. With syngo Remote Assist, Siemens uses a secure broadband VPN connection (VPN = virtual private network) to establish a connection to your Siemens imaging console in order to offer you direct, real-time support and training. This seamless and simultaneous virtual interaction will contribute to improvements in image quality and optimization of system use.</p> <p><b>Siemens Remote Service</b> <u>Prepared for optional Siemens Remote Service SRS (during warranty period, subsequently with service contract):</u></p> <ul style="list-style-type: none"> <li>- Hardware and software remote diagnosis.</li> <li>- System remote configuration, e.g. adding of a DICOM node.</li> <li>- Early warning system to secure system operation.</li> <li>- Functions according to the selected maintenance package.</li> </ul> <p><b>Customer Care. Life - the customer care solution by Siemens Healthcare</b> From the moment you purchase your Siemens system you will benefit from many services that are offered by "Customer Care. Life" offers, e.g.:</p> <ul style="list-style-type: none"> <li>- initial application training</li> <li>- interactive e-learning for various applications</li> <li>- free customer magazines</li> <li>- arrangements for clinical training via a global network</li> <li>- and free trial licenses</li> </ul> <p>You will find detailed information on our e-learning program and further details on general "Customer Care. Life" services on the internet.</p>

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	* "Customer Care. Life" offerings are not necessarily available to the full extent for all systems.
	Technical details: - Cesium iodide (Csl) scintillator with Amorphous silicon (a-Si) material

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	<ul style="list-style-type: none"> <li>- Detector acquisition matrix approx.: 2872 x 2354</li> <li>- Pixel size: 148 µm</li> <li>- Acquisition depth (gray scales): 16 bits</li> <li>- Acquisition formats up to: 34.9 cm x 42.5 cm (13.7" x 17").</li> <li>- Thickness: 19 mm</li> <li>- Detector weight: 3 kg</li> <li>- Max. load 150 kg (patient lying down) and 100 kg (patient standing).</li> <li>- MAX wi-D - 1 battery</li> <li>- Data transfer via W-LAN.</li> </ul> <p><u>Operation time:</u></p> <ul style="list-style-type: none"> <li>- At least 525 images</li> <li>- Min. 3.5 hours under normal load</li> <li>- Min. 6 hours in standby mode</li> </ul>
	Technical details: <ul style="list-style-type: none"> <li>- Grid ratio 5:1, 85 lines/cm</li> <li>- Siemens lead/fibre technology</li> <li>- Grid focusing for source-image-distance (SID) of 115 cm (45")</li> <li>- Dimensions (W x H x D): 472.1 mm x 410.1 mm x 28.4 mm (18.58"x 16.14"x 1.1")</li> <li>- Weight: 1.1 kg (2.4 lbs)</li> </ul>
	<p><b>Detector Bucky</b>            The detector Bucky with single-handed operation includes an IONTOMAT three-field chamber for automatic exposure control (incl. three-field templates) and a device for symmetric positioning of the flat detector.</p> <ul style="list-style-type: none"> <li>- Front plate - detector distance ≤45 mm.</li> <li>- Radiation absorption of the front plate ≤0.5 mm Al.</li> <li>- A stationary, exchangeable transparent grid for scattered radiation reduction; 13/92. Optionally for SID 115 cm and/or 180 cm, or universal grid with a field from 115 to 180 cm (see tender further down).</li> </ul> <p><b>Integrated MAX static 43 x 43 flat detector</b>            Integrated, fixed flat detector for digital image acquisition, Csl-scintillator, amorphous silicon (a-Si).</p> <ul style="list-style-type: none"> <li>- Detector acquisition matrix: 2869 x 2874</li> <li>- Pixel size: 148 µm</li> <li>- Acquisition depth (gray scales): 16 bit</li> <li>- Acquisition formats: up to 42.5 cm x 42.5 cm</li> </ul> <p><b>Accessories</b>            Scope of delivery:</p> <ul style="list-style-type: none"> <li>- Lateral patient handles for optimum patient positioning, e.g. during PA thorax exposures.</li> <li>- Patient overhead handle, swiveling around the horizontal axis, for optimal patient positioning for lateral acquisitions.</li> </ul>
	Height-adjustable patient positioning table with floating tabletop and detector Bucky for wireless MAX wi-D detector.

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	<p><b>Ysio Max table:</b></p> <ul style="list-style-type: none"> <li>- Free access to table and patient from all sides.</li> <li>- Patient positioning tabletop 80 cm x 240 cm.</li> <li>- Longitudinal and transverse travel: <math>\pm 48</math> cm and <math>\pm 14</math> cm (<math>\pm 0.4</math> cm). (maximum longitudinal coverage without patient repositioning 190 cm)</li> <li>- Height adjustment of the tabletop 44 cm: from 51.5 to 95.5 cm (<math>\pm 0.5</math> cm).</li> </ul>

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	<ul style="list-style-type: none"> <li>- Radiation absorption <math>\leq 0.65</math> mm Al</li> <li>- Max. patient weight 300 kg.</li> <li>- Longitudinal movement of detector tray (from edge to edge) <math>\geq 100</math> cm.</li> </ul> <p><b>Accessories</b> <u>Scope of delivery:</u></p> <ul style="list-style-type: none"> <li>- Lateral patient handles. The grips make patient positioning easier, and being able to hold on to the grips gives the patient a feeling of security.</li> <li>- An adapter for positioning film/screen cassettes and/or image plate systems also designed for use with a flat detector tray.</li> </ul>
	<p>Height adjustment, release, and locking of the floating tabletop is done through a foot kick switch. The foot kick rails are located in the foot area both at the front side and the rear side of the patient positioning table and can be programmed individually at the time of installation. This prevents accidental operation by patients or accompanying persons.</p>
	<p>Charger unit for charging the MAX wi-D rechargeable battery when the detector is in the charging cradle (table or BWS). The charger unit is required if a MAX wi-D cradle was selected for the table or BWS. Also required for the configuration of the wi-D charging cradle on the table or BWS.</p>
	<p>Space for 3 batteries, with LED indicator for charge status. The charger connects to a wall socket using a power cord. This item includes the following components:</p> <ul style="list-style-type: none"> <li>- 1x battery charger</li> <li>- 1x power supply</li> <li>- 1x battery</li> </ul>
	<p>High-frequency X-ray generator with multipulse voltage waveform for diagnostic acquisition procedures at workplaces without FL function. The multi-pulse voltage waveform enables high data accuracy, precise reproducibility and short exposure times.</p> <ul style="list-style-type: none"> <li>- Multi-processor system for organ programs.</li> <li>- Free selection of radiographic parameters.</li> <li>- Electronic generator monitoring during exposure.</li> <li>- Tube load computer with acoustic alarm and interval display.</li> <li>- Integrated automatic exposure control.</li> </ul> <p>Generator control fully integrated in the system console.</p> <p>Rating:</p> <ul style="list-style-type: none"> <li>- 80 kW at 100 kV acc. to IEC 601. max. 800 mA at 100 kV</li> <li>- Tube voltage: between 40 kV and 150 kV</li> </ul>

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	<p>Workplaces:</p> <ul style="list-style-type: none"> <li>- max. 3 selectable workplaces (Bucky table, Bucky wall stand, and free acquisition).</li> <li>- One (1) dual focus X-ray tube assembly can be connected.</li> </ul> <p>Power connection: 3 phase current: 380 V, 400 V (<math>\pm 10\%</math>); 50/60 Hz.</p>
	<p>CAREMAX plus Dose Area Product (DAP) meter is connected to the collimator via CAREMAX adapter cable. The Dose Area Product (DAP) is being displayed on the FLC image system and recorded in the exam protocol.</p>
	<p>The monitor features a very high contrast even under very bright ambient light conditions. The Gamma curve was precisely adapted to the CIE/DICOM recommendation and is thus suited especially for gray scale display.</p> <p>Technical details:</p> <ul style="list-style-type: none"> <li>- 19" (48 cm) screen size</li> <li>- Resolution: 1.280 x 1.024 (pixel)</li> <li>- Maximum brightness (typ.): 280 cd/m<sup>2</sup></li> <li>- Flicker-free and distortion-free image display</li> <li>- Anti-glare screen</li> </ul> <p>The controlled background lighting provides stable lighting throughout the entire product life cycle.</p>
	<p>Technical details:</p> <ul style="list-style-type: none"> <li>- Grid ratio 13:1, 92 lines/cm</li> <li>- Grid focusing for source-image distance (SID) of 140 cm (55");</li> <li>- Working range (SID) 115 cm to 180 cm (45" to 71")</li> <li>- Siemens lead/fibre technology</li> </ul>
	<p><b>DICOM MWL (Modality Worklist):</b> Import of patient/examination data from an external RIS/HIS patient management system.</p> <p><b>DICOM MPPS (Modality Performed Procedure Step):</b> Sending of dose data, patient data, and examination data to an external RIS/HIS patient management system.</p> <p><b>Note concerning DICOM interface(s)</b> The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).</p> <p>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.</p> <p>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.</p> <p>With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply.</p>
	<p>The holder rolls smoothly on large quick locking castors and facilitates examinations in accident and emergency departments, in operating rooms and radiographic rooms. The heavy duty base gives a low centre of gravity, which provides a precise and stable imaging platform.</p> <p>Properties:</p> <ul style="list-style-type: none"> <li>- The holder is adjustable for height from floor level to 120 cm (measured from its lower edge)</li> <li>- The holder is counterbalanced for easy raising or lowering and can overhang the x-ray or operating table by 62 cm</li> <li>- The holder can be turned &amp; tilted and orientated to suit any examination position</li> <li>- Effective locks keep the holder firmly in place</li> </ul>