

REQUESTING SERVICE: RADIOLOGY SECTION(114)  
DEL. TO: 133CA/2D180  
SHIP TO:  
WAREHOUSE (90D) B83090  
V.A. Medical Center  
BUILDING 138  
3001 GREEN BAY ROAD  
NORTH CHICAGO, IL 60064-3096  
P.O.# 556-B83090

**Qty**

**Item Description**

1

**Ysio Max**

Ysio Max is a complete family of digital radiography solutions that recognize the individuality of your clinical imaging routine and can be perfectly tailored to match your imaging requirements. Different optional levels of system automation and remote control enable a perfect balance of patient focus and economic success.

This universal digital radiographic workplace for skeletal radiography of the recumbent, standing or seated patient utilizes up to four permanently installed or wireless flat detectors.

The syngo FLC digital one-stop workflow from patient registration to image documentation offers fast and easy operation for consistent exam settings and a consistent image impression\*.

Following items are included in the standard delivery:

- Optitop tube
- 65 kW generator
- Keyboard/Mouse
- Grid holder
- Storage capacity: 10.000 RAD images
- CD / DVD recorder

\* The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).

1

**Bucky Wall Unit with MAX static**

Floor-mounted Bucky wall stand with height-adjustable and tiltable detector tray with a MAX static flat detector for digital acquisitions. With IONTOMAT three-field chamber and Bucky frame. Detector Bucky operated from the right side. Vertical height adjustment and detector tilt possible from both sides.

1

**Ysio Table for MAX wi-D**

Bucky table in compact design, for X-ray exposures of the entire body with detector tray for MAX wi-D.

1

**MAX wi-D**

Light-weight mobile, wireless 35 cm x 43 cm (14" x 17") detector with handgrip for comfortable and safe handling.

Qty	Item Description
	The detector can be used with all other MAX systems based on the MAXswap feature.
1	<b>MAX wi-D Clip-on Grid 5/85 F115</b> Grid (5/85), f 115 cm Highly selective anti-scatter grid for scattered radiation reduction: - Pb 5/85 (grid ratio 5:1, 85 lines/cm) - Grid focusing for SID 115 cm (45")
1	<b>Charger f. MAX wi-D and MAX mini</b> This charger can be used to charge the replacement batteries for the MAX mini and MAX wi-D detectors.  Please note: The MAX mini battery can only be charged with this charger.
1	<b>Transparent grid 13/92, Universal</b> Highly selective anti-scatter grid for scattered radiation reduction.
1	<b>80 kW Upgrade</b> An upgrade of the high-frequency X-ray generator from 65 kW to 80 kW power, to improve performance and expand the spectrum of possible applications.
1	<b>Manual Control Bucky Wall Unit</b> Wired remote control for system functions.
1	<b>Manual Control Ysio Table</b> Wired remote control for system functions.
1	<b>Upgr foot kick switch front &amp; rear</b> Foot switch at the Ysio table base for hands free table height adjustment and tabletop float release.
1	<b>19"Color Flatscreen Display</b> LCD color flat screen display with high luminance and extended field of view.
1	<b>DICOM WORKLIST &amp; MPPS</b> Import of patient/examination data from an external RIS (Radiology Information System) /HIS (Hospital Information System) patient management system with DICOM MWL (Modality Worklist) as well as feedback on the examination status with DICOM MPPS (Modality Performed Procedure Step).
1	<b>Caremax plus HS Integrated</b> CAREMAX plus DAP meter for measuring the dose-area product (DAP) and/or standardized patient entry dose. Resolution 0.01 µGym².
1	<b>Battery MAX mini and MAX wi-D</b>
1	<b>Patient positioning mattress</b> Radiolucent table pad with a heavy-duty, soft, light-colored plastic cover that is easy to clean. The soft cushion allows comfortable patient positioning and repositioning. To prevent the pad from sliding during head-up positions, the straps of the patient table pad can be attached to the grip protection rail at the head end. The soft cushion allows comfortable patient positioning and repositioning.
1	<b>VA Kit</b> Second set of documentation for Veterans' Affairs Administration Hospitals in the U.S.
1	<b>Kit for Small Rooms</b> The Kit includes additional mechanical endstops. They can be mounted individually into the rails to reduce the movement range.

Qty	Item Description
1	<p><b>Initial onsite training 24 hrs</b></p> <p>Up to (24) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.</p>
1	<p><b>Additonal onsite training 12 hours</b></p> <p>Up to (12) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist if applicable. This educational offering must be completed (12) months from purchase date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.</p>
1	<p><b>Standard Rigging DigRad</b></p>
1	<p><b>Portable DR Panel Protector(14x17)</b></p> <p>The unique design of the DR Panel Protector provides an easy way to take weight-bearing x-rays of feet (AP view). The unit is simply placed over the DR panel which is first positioned on the floor. Patients step onto the DR Panel Protector with as much weight as needed to get the desired image. The face plate is made of polycarbonate designed to support patients weighing up to 500 pounds. The face plate is x-ray lucent, allowing the x-rays to pass through the DR Panel Protector with no significant absorption or scattering. The non-slip rubber floor grips keep the DR Panel Protector from slipping on a hard floor. The Panel Protector frame is notched to accommodate the cable connection from the digital DR panel to the host system. One year warranty through Clear Image Devices</p>
1	<p><b>teamplay Welcome &amp; Registration Package</b></p> <p>teamplay is a cloud-based network that brings together your imaging modality users, the systems' dose and utilization data, and the users' expertise to help you improve the delivery of care to your patients. Basic features are provided free of charge. Premium features (benchmarking, non-Siemens devices) are provided on a trial basis for three months at no charge, and may be used thereafter on a subscription fee basis.</p> <p>To register: <a href="http://teamplay.siemens.com/#/institutionRegistration/1">http://teamplay.siemens.com/#/institutionRegistration/1</a></p>
1	<p><b>Polydoros 65 kW</b></p> <p>High-frequency 65 kW X-ray generator for diagnostic procedures at workplaces with automatic exposure control.</p>
1	<p><b>YSIO/YSIO MAX Complimentary Biomed Training</b></p> <p>This educational offering includes system training tuition for 1 clinical engineering professional on the YSIO or YSIO MAX system, and the syngo multimodality workstation as applicable. The training curriculum depends on and is limited to the system purchased and may include multiple courses including classroom training in USA or an international site, and/or virtual and web-based training. Additional modality basics training may be required as a prerequisite to these courses and must be purchased separately. This system training includes a 15% discount. Travel and lodging are not included. This educational offering must be completed by the later of (12) months from purchase or install end date; if training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund. This forfeiture does not apply to Federal government agencies.</p>
1	<p><b>Ceiling rails 5m</b></p> <p>2 tracks for extending the travel distance of the ceiling-mounted support up to a maximum of 5 meters in a longitudinal direction.</p>
1	<p><b>Ysio Max Ceiling Carriage 4 m</b></p> <p>Universal digital radiographic workplace for skeletal radiography of the recumbent, standing or seated patient. High-resolution, permanently installed or wireless detectors as a basis for a fully digital imaging chain with a digital imaging system, an image and control station with</p>

Qty	Item Description
	application and evaluation programs, and DICOM network connection. Tube assembly support fully motorized in all projection-relevant axes with up to 355 cm transverse travel. OPTITOP 150/40/80 X-ray tube assembly and multileaf collimator with full field and laser line light localizer.
1	<b>WLAN US</b> WLAN access point for operating the MAX wi-D or MAX mini detectors  Important: USA only
1	<b>Keyboard, US English</b> PS2 standard keyboard
1	<b>Int. charg. Unit MAX wi-D (cradle)</b> Charger unit for charging the MAX wi-D rechargeable battery when the detector is in the charging cradle (table or BWS).

#### **Incidental Services for Ysio Max on Quote Nr. 1-LXPJUU Rev. 2**

Trade-in of an Essentia DR 251821, Project 2018-2464, De-install 8/2019,

Offset Ysio Max Complimentary Biomed Training (

Offset Initial Training 24 hrs                    )

Offset onsite Training 12 hrs (

## OPTIONS

Qty	Item Description
1	<p><b>SmartOrtho License</b></p> <p>SmartOrtho is an automated tilting technique for long leg and full spine imaging. Up to 4 single images can be acquired to cover the selected region with the patient in standing or lying position. The images are automatically composed into a single image on the imaging system.</p>
1	<p><b>Multipurpose stand</b></p> <p>The multipurpose stand stabilizes the patient during upright examination, such as long leg and long spine imaging to prevent motion artifacts. It allows the safe movement of the bucky tray during the image acquisition procedure. The stand is light weight, easy to maneuver even through doors and provides height adjustable handgrips for the patient.</p> <p>The package includes:</p> <ul style="list-style-type: none"> <li>- Patient hand grips, left and right</li> <li>- Additional platform for smaller patients (e.g. children) and to make sure that the whole patient body can be mapped</li> </ul>
1	<p><b>Advanced security package</b></p> <p>Software extension for workplaces adding advanced security features. It includes advanced user management (active directory integration, Individual password management, user authorization), audit trail management (detailed tracking of user and system actions, centralized automated logging) and DICOM encryption.</p>
1	<p><b>X-ray Analytics</b></p> <p>Analytic software tool for quality management in radiography: reject analysis, EXI value tracking.</p>
1	<p><b>Mobile detector holder for Max wi-D</b></p> <p>The versatile holder accommodates computed radiography (CR) cassettes and light portable DR Panels (including the max wi-D detector) with a total weight (including clip-on grid if required) of less than 4.3kg (9.5 lbs).</p> <p>The holder rolls on large locking castors and facilitates examinations in accident and emergency departments, in operating rooms and radiographic rooms. The heavy duty base gives a low center of gravity.</p> <p>Properties:</p> <ul style="list-style-type: none"> <li>• The holder is adjustable for height from floor level to 50 in (measured from its lower edge)</li> <li>• The holder is counterbalanced for easy rising or lowering and can overhang the x-ray or operating table by 24 in.</li> <li>• Supports detectors with a width of 9.6 to 21 in</li> <li>• Maximum detector thickness 1.2 in (including clip-on grid if required)</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>
1	<p><b>ClearRead Bone Suppression-Modality</b></p> <p>ClearRead Bone Suppress (formerly SoftView) is an image enhancement technology designed to increase the clarity of chest X-rays by suppressing bone on digital images. This solution uses existing digital X-ray equipment, providing a soft tissue image for digital chest X-rays.</p>

**Qty****Item Description**

License is for individual modality.

Service and support is provided through Riverain.

Installation and training are included when purchased with a new Siemens system, otherwise it is sold separately.

Hardware is not included and is sold separately.

1

**ClearRead server**

Physical server with ClearRead software pre-installed.

Service and support is provided through Riverain.

Software, installation and training are sold separately.

# Detailed Technical Specifications

## Description

Ysio Max is a universal digital workplace with various flat detectors (MAX wi-D, MAX static) for image acquisition.

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 techniques.

### Basic system components:

- A ceiling-mounted tube support with X-ray tube and a motorized collimator
- An imaging and control station with software for workflow handling, image acquisition, postprocessing and archiving as well as DICOM system interfaces
- CD/DVD drive for digital image storage on CD-R/DVD for offline data exchange in DICOM format
- One compact cabinet for generator and system power supply

Ceiling mounted tube support with X-ray tube assembly and motorized collimator.

- All projection-relevant tube positions can be manually adjusted with handles symmetrically mounted to the tube head
- The ceiling-mounted tube support has 3 axes for longitudinal, transverse, and height adjustment (x, y, and z axes)
- Horizontal travel range in longitudinal direction 346 cm
- Horizontal travel range in transverse direction 220 cm or 355 cm (depending on room planning). Vertical lift 180 cm. In combination with a bucky wall stand the tube support offers tracking in height direction with up to 0.3 m/s
- The tube head can be manually adjusted in 2 additional axes ( $\alpha$ - and  $\beta$ -axis) for oblique exposures of recumbent patients, horizontal, oblique, or lateral exposures on the portable detector, or freely positioned bedside exposures
- Rotation around the vertical axis of the ceiling-mounted tube support from +154° to -182°. Detents every 90°
- Rotation of  $\pm 140^\circ$  around the horizontal axis of the tube head. Detents at 0° and  $\pm 90^\circ$ . Maximum speed 40°/s

### X-ray tube OPTITOP 150/40/80 HC-100:

- Single-track, dual-focus rotating anode tube with compound anode (rhenium-tungsten, molybdenum, graphite)
- High heat storage capacity and high thermal load capacity for small focal spots. Integrated overpressure safety device in the tube protective housing.
- 150 kV nominal voltage acc. to IEC 60613.
- Nominal radiographic anode input power acc. to IEC 60613 (focal spot nominal values acc. to IEC 60336): 47 kW: small focus 0.6 / 85 kW: large focus 1.0
- Anode speed  $\geq 9000$  rpm
- Anode angle 12°
- Heat storage capacity of the anode 580 kJ (820 kHU) acc. to IEC 60613.
- Total filtration (IEC 60601-1-3)  $\geq 2.5$  mm Al equiv.

### Collimator:

- With full-field light localizer with very efficient 4 W high power LED technology; high energy efficiency enabling low-noise design without external cooling system, lifetime approx. 100.000 h
- Laser line light localizer for precise alignment to the X-ray centerbeam even in challenging positioning situations.

## Description

- Rectangular collimation, manual and motorized, can be preset via organ programs.
- Via a memory button the collimation of the acquisition format set last can be retrieved.
- Collimator can be rotated by  $\pm 45^\circ$  around the center beam axis, e.g., to minimize the collimation field for objects which are not aligned to the longitudinal or transverse axis of the tube.
- A tape measure is integrated to check the focus-to-object distance.
- For the dose saving through the reduction of low energy (soft) radiation copper filters (0.1 mm Cu; 0.2 mm Cu and 0.3 mm Cu) are inserted into the primary beam projection, depending on the organ program selected. They can also be selected manually.
- Inherent filtration of 1mm Al at 70 kV

A dose area product (DAP) measuring chamber can be integrated as an option into the collimator.

### X-ray generator

- Microprocessor controlled 100 kHz high frequency generator with 65 kW nominal power (IEC 60601-2-7)
- Highly accurate radiographic parameters, precise reproducibility and fast regulation of high voltage and tube current
- 40 kV to 150 kV tube voltage range
- 1 mA to 1000 mA
- 0,5 mAs to 800 mAs
- Min exposure time: 1ms
- Supports 1- , 2- and 3 point autoexposure techniques
- Supports falling load operation for minimum exposure time
- Optional line matching transformer for 3-Ph-440 V / 480 V
- Drives 3-phase high speed tube stators

### Controls and displays

- The control elements on the tube head and the collimator are ergonomically arranged for single-handed operation.
- MAXtouch is a multifunctional control display on the tube head with color touchscreen for setting all key exposure parameters conveniently in the examination room. The display follows the tube orientation.

The following data is displayed:

- Patient name and identifier
- The examination order
- The collimation size of the acquisition field (in cm x cm).
- The set source-image distance (SID).
- The selected copper filters.
- Rotation from the 0-position.
- Tube assembly and detector centering.
- Operating states such as "ACSS/Manual", "Ready", "Selected", etc.
- Current detector angle (MaxAlign function) - estimate of the tube unit angle no longer necessary, provides patient protection by reducing repeat exposures. Available with MAX wi-D and MAX mini.

The following operations are possible on MAXtouch

- Selection of the workplace: Bucky wall stand, table or free exposure with MAX wi-D with corresponding changes in the organ program parameters
- Modification of the sequence of registered organ programs
- Modification of kV, mAs and ms
- Film density correction and focal spot selection
- Modification of the detector sensitivity/dose
- Selection of IONTOMAT chambers for automatic exposure control
- SID (source-image distance) measurement with automatic calculation of image magnification factor



## Description

WiFi system components for operating the MAX wi-D und MAX mini wireless detectors

Imaging system (syngo FLC)

- The entire control and communication of the radiography system including digital image processing takes place from a central operating site - the imaging system. The imaging system is specially designed for diagnostic radiology and delivers excellent image quality with a fast and seamless workflow

It includes:

- 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.
- Keyboard and mouse.
- One 19" (diagonal measurement) color flat-screen display as the control or diagnostic display.
- Dual stage handswitch for exposure release.

### Functions of the imaging system

Patient and study administration:

- Retrieval of patient list and examination data from the hospital/radiology information system (HIS/RIS)
- Manual (emergency) patient registration
- Patient, study, and image data management
- Configuration functions
- Password input for controlled access

Acquisition and postprocessing:

- Organ program selection and configuration
- Selection of generator and AEC parameters
- Parameterization of image preprocessing: Enhancement, harmonization, edge enhancement, and look-up tables (LUT)
- Display of current exposure between 1.5 and 3.5 seconds (preview); complete image in 3.5 to max. 6 seconds depending on detector type
- Marking, annotation, image comments, R/L markers
- Quantification with angle/distance measurement
- DiamondView Plus is a specially multispatial filtering procedure that optimizes the image display specifically for different organ regions allowing precise detail visualization even with large differences in absorption, such as in bone and soft tissue

Image processing functions:

- Fit to window view of full image
- Image rotation
- Image mirroring horizontal / vertical
- Image zoom
- Panning
- Windowing
- Black/white image inversion
- Filters for edge enhancement and noise reduction

Image documentation and archiving:

- Image transfer to 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) to CD/DVD or export and import to USB device in DICOM or TIFF format. USB hard disk available as optional accessory

## Description

### Workflow

- Routine workflows are extensively automated.
- Prior to exposure the patient data is transferred via the patient management system (HIS/RIS: optional) or entered via the control console. The exposure parameters are preselected through the organ programs.
- The patient as well as the acquisition system is positioned and exposure is released. If the Aim or AimFAST option is selected the acquisition system position is also part of the organ program.
- Within a few seconds the image data is read out by the detector. The image is displayed at the control display for orientation and made available in DICOM format at the imaging system.
- Apply postprocessing steps if necessary
- Archive or print out image (paper printing to a Level 2 PostScript printer, Up to 3 network nodes at the same time and one laser camera configurable)
- Clinical Assurance Program (CAP): Provides statistics of rejected images.
- Exposure index (EXI) monitoring: Provides minimum and maximum EXI value for export
- Password protection: Access to system protected by password

### Option:

- Security Package: SW option with enhanced security features such as User Management 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 exposures performed at the same time.
- DICOM Storage Commitment (StC): Feedback from the image archive.
- The DICOM StC function provides automatic notification on whether the generated image data were successfully transferred. This way the user can be sure that the exposures 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 on 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 for the virtual filmsheet, which the user can display and edit on the monitor at any time. This means that the layout can be optimized on the monitor prior to printing. This saves time and money.

### Options:

- DICOM Modality Worklist/MPPS (if offered, see tender further down).
- DICOM Query/Retrieve (if offered, see tender further down).

### Note concerning DICOM interface(s)

- For diagnostic purposes only hardcopy cameras/laser printer expressly approved for this system may be used.
- The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).
- 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.
- Any changes that may be required to the interface are not part of this quotation. This also applies, for example, in those rare cases when available configuration capabilities are insufficient. With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply.

### syngo Remote Assist

- syngo Remote Assist is a standalone service option.
- With syngo Remote Assist, Siemens uses a secure broadband VPN connection (VPN = virtual private

## Description

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.

### Smart Remote Service

- Prepared for optional Smart Remote Service SRS (during warranty period, subsequently with service contract)
- Hardware and software remote diagnosis.
- System remote configuration, e.g. adding of a DICOM node.
- Early warning system to secure system operation.
- Functions according to the selected maintenance package.

### Detector Bucky

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.

- Front plate - detector distance  $\leq 45$  mm
- Radiation absorption of the front plate  $\leq 0.5$  mm Al
- 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)

### Integrated MAX static 43 x 43 flat detector

Integrated, fixed flat detector for digital image acquisition, CsI-scintillator, amorphous silicon (a-Si).

- Detector acquisition matrix: 2869 x 2874
- Pixel size: 148  $\mu$ m
- Acquisition depth (gray scales): 16 bit
- Acquisition formats: up to 42.5 cm x 42.5 cm

### Accessories

Scope of delivery:

- Lateral patient handles for optimum patient positioning, e.g. during PA thorax exposures
- Patient overhead handle, swiveling around the horizontal axis, for optimal patient positioning for lateral acquisitions

Height-adjustable patient positioning table with floating tabletop and detector Bucky for a wireless MAX wi-D detector.

### Ysio Max Patient Table:

- Free access to the table and patient from all sides
- Patient tabletop 80 cm x 240 cm
- Longitudinal and transverse movement:  $\pm 48$  cm and  $\pm 14$  cm ( $\pm 0.4$  cm)  
(maximum longitudinal coverage without patient repositioning: 190 cm)
- Tabletop height adjustment range of 44 cm: from 51.5 to 95.5 cm ( $\pm 0.5$  cm)
- Radiation absorption  $\leq 0.65$  mm Al
- Tabletop - detector distance  $\leq 52$  mm for the smallest possible magnification
- Max. patient weight 300 kg
- Longitudinal movement of detector tray (from edge to edge)  $\geq 100$  cm

Detector tray with highly selective transparent grid to reduce scattered radiation: Pb 13/92 (grid ratio 13:1, 92 lines/cm). Grid focusing for SID 115 cm.

- For pediatric acquisitions, the grid can be removed from the beam projection.
  - Automatic tracking for longitudinal movement and rotation of the X-ray tube: The detector follows the X-ray tube movement or rotation; centering is maintained
- Button on the detector tray to center the X-ray tube on the detector.\*

## Description

\* Full function only available in combination with the Aim / Aim FAST option

### Accessories

Included in the scope of supply:

- Lateral patient handles: Simplify patient positioning and give the patient holding on to the handles a feeling of security.

Adapter for positioning film/screen cassettes and/or image plate systems in conjunction with a flat detector tray.

### Technical details:

- Cesium iodide (CsI) scintillator with Amorphous silicon (a-Si) material
- Detector acquisition matrix approx. (Global system): 2350 x 2866 /  
(China system only): 2356 x 2872
- Pixel size: 148 µm
- Acquisition depth (gray scales): 16 bits
- Acquisition formats up to: (Global system) 34.8 cm x 42.4 cm (13.7" x 16.7") /  
(China system only): 34.9 cm x 42.5 cm (13.7" x 16.7")
- Thickness: 19 mm
- Detector weight: 3.3 kg (with battery)
- Max. load 150 kg (patient lying down) and 100 kg (patient standing).
- MAX wi-D - 1 battery
- Data transfer via WLAN

### Operation time:

- At least 950 images
- Min. 5.5 hours under normal load
- Min. 6 hours in standby mode

### Technical details:

- Grid ratio 5:1, 85 lines/cm
- Grid focusing for source-image-distance (SID) of 115 cm (45")
- 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")
- Weight: 1.1 kg (2.4 lbs)

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:

- 1x battery charger
- 1x power supply
- 1x battery

### Technical details:

- Grid ratio 13:1, 92 lines/cm
- Grid focusing for source-image distance (SID) of 140 cm (55")
- Working range (SID) 115 cm to 180 cm (45" to 71")

### Performance data:

- 80 kW at 100 kV according to IEC 60601  
max. 1000 mA

## Description

Provides:

- On/off tube tracking
- On/off light localizer
- Tube parking
- Tube centering
- Autopositioning of tube

Full function only available in combination with the Aim/ Aim FAST option

Note: Standard for Aim FAST / Option for Aim

Provides:

- Autopositioning
- Raise/lower table
- Release longitudinal/transverse travel of tabletop
- Tube parking

Full function only available in combination with the Aim/ Aim FAST option

Note: Standard for Aim FAST / Option for Aim

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 and the rear of the patient positioning table and can be programmed individually at the time of installation. This prevents accidental operation by patients or accompanying persons.

The monitor has very high contrast, even with very bright ambient light. The gamma curve has been adapted precisely according to CIE/DICOM recommendations, and is therefore particularly suited to gray scale display.

Technical specifications:

- Screen size 19" (48 cm)
- Resolution: 1280 x 1024 pixels
- Maximum brightness (typical): 280 cd/m<sup>2</sup>
- Flicker-free and distortion-free image display
- Anti-glare screen

The controlled backlighting offers stable lighting for the entire service life of the product.

### **DICOM MWL (Modality Worklist):**

Import of patient/examination data from an external RIS/HIS patient management system.

### **DICOM MPPS (Modality Performed Procedure Step):**

Sending of dose data, patient data, and examination data to an external RIS/HIS patient management system.

### **Note concerning DICOM interface(s)**

The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).

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.

With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply.

## Description

The CAREMAX plus dose-area product meter (DAP meter) is connected to the collimator via the CAREMAX adapter cable. The dose-area product (DAP) is displayed on the TUI of the system operating console and is recorded in the examination report.

Technical details:

- Dimensions: 24,7 cm x 7,4 cm x 0,7 cm
- Weight: 100 g
- Battery capacity: 3,35 Ah
- Max. voltage: 7,4V

Technical specifications:

- Length: 198 cm
- Width: 66 cm (of which 53.5 cm is padded)
- Thickness: 2.5 cm
- Weight: 2.7 kg

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.

- Multi-processor system for organ programs.
- Free selection of radiographic parameters.
- Electronic generator monitoring during exposure.
- Tube load computer with acoustic alarm and interval display.
- Integrated automatic exposure control.

Generator control fully integrated in the system console.

Rating:

- 65 kW at 100 kV acc. to IEC 601 (max. 650 mA at 100 kV)
- Tube voltage: between 40 kV and 150 kV

Workplaces:

- Max. 3 selectable workplaces (Bucky table, Bucky wall stand, and free acquisition).
- One (1) dual focus X-ray tube assembly can be connected.

Power connection:

3 phase current: 380 V, 400 V ( $\pm 10\%$ ); 50/60 Hz.

## System Configuration

Ysio Max is a universal digital radiographic workplace with various flat detectors (MAX wi-D, MAX static) for image acquisition.

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.

Basic system components:

- A ceiling-mounted tube assembly support with X-ray tube assembly and motorized multileaf collimator.
- An imaging and control station with application and evaluation programs, as well as DICOM system interfaces.
- CD/DVD drive for digital image storage on CD-R/DVD for offline data exchange in DICOM format.

### Tube assembly support

with X-ray tube assembly and motorized collimator.

## Description

All projection-relevant tube assembly positions can be manually adjusted with handles symmetrically mounted to the tube assembly collimator unit.

The ceiling-mounted tube assembly support can be adjusted in 3 axes for longitudinal, transverse, and height adjustment (x, y, and z-axes).

- Horizontal travel range in longitudinal direction 346 cm.
- Horizontal travel range in transverse direction 355 cm.
- Vertical lift 180 cm.

In 2 further axes ( $\alpha$ - and  $\beta$ -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.

- Rotation around the vertical axis of the ceiling-mounted support from  $+154^\circ$  to  $-182^\circ$ . Lock-in positions every  $90^\circ$ .
- Rotation around the horizontal axis of the tube assembly support arm  $\pm 140^\circ$ . Lock-in positions at  $0^\circ$  and  $\pm 90^\circ$ .

X-ray tube assembly OPTITOP 150/40/80 HC-100:

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.

- 150 kV nominal voltage acc. to IEC 613.
- Nominal power (focal spot nominal values acc. to IEC 336):  
40 kW: small focus 0.6  
80 kW: large focus 1.0
- Anode speed  $\geq 8,500$  r/min, anode angle  $12^\circ$ .
- Heat storage capacity of the anode 580 kJ (783 kHU) acc. to IEC 613.
- Total filtration (IEC 601-1-3)  $\geq 2.5$  mm Al equiv.

Multileaf collimator:

With full field and laser line light localizer. Rectangular collimation, manual and motorized, via organ programs.

- Multileaf collimator rotatable by  $\pm 45^\circ$  around the center beam axis, e.g. for correct positioning of objects.
- A tape measure is integrated to check the focus-to-object distance.
- To improve radiation quality through dose reduction of the soft radiation parts, Cu filters (0.1Cu; 0.2 Cu and 0.3 Cu) are inserted into the primary beam projection, depending on the organ program selected. They can also be selected manually.

Option:

A measuring chamber for the dose area product can be integrated into the multileaf collimator.

## Controls and displays

The control elements at the tube assembly and the multileaf collimator are ergonomically arranged for single-handed operation.

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.

Displays include:

- The collimation size of the acquisition field (in cm x cm).
- The selected SID.
- The selected Cu additional filters.
- Rotation from the 0-position.
- Tube assembly and detector centering.
- Operating states such as "ACSS/Manual", "Ready", "Selected", etc.
- 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

## Description

The display follows the tube assembly orientation.

The following functions can be set manually at the multileaf collimator:

- Full field light localizer with timer for optical display of the collimated acquisition format and an optionally coverable laser line light localizer.
- The collimation of the acquisition format set last can be retrieved via a memory button.
- The rectangular collimation of the radiation field is pre-defined through the organ program and can be set manually by means of two dials.
- The motorized insertion of the Cu additional filters is controlled via the organ program, but can also be selected freely.

### Imaging and control station (*syngo* FLC)

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.

It includes:

- A high-end PC imaging system, based on Windows 7 with *syngo* interface.  
Storage of original data 14 bit.  
Storage of image data 12 bit.  
Storage capacity approx. 10,000 images.
- One keyboard and one mouse
- One 19" color flat-screen as control display or diagnostic display.
- One manual button for exposure release.

### Functions of the imaging and control station

Patient and study administration:

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

Acquisition and postprocessing:

- Organ program selection and configuration
- Selection of generator and diaphragm parameters.  
Parameterization of image preprocessing: enhancement, harmonization, edge enhancement, and look-up tables (LUT)
- Display of current acquisition in 1.5 to 3.5 seconds (preview); complete image in 3.5 to 6 seconds max. depending on detector type
- Display of image markers (L/R, a.p./p.a.)
- DiamondView Plus: multi-scaling procedure for image post-processing with 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 enhances the signal exploitation of the dynamic range and improves the organ-specific detail contrast (soft tissue and bone).
- DiamondView can be selected via the "Pre-processing card".
- By entering "0", the image can be displayed without DiamondView.

Image processing functions:

- Image rotation.
- Horizontal/vertical image mirroring.
- Image zoom.
- Pan.
- Windowing.



## Description

- 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 system interfaces DICOM).
- Automatic filming with virtual film sheet (DICOM Print, see also system interfaces DICOM).
- Image data export (12 bit) on CD/DVD.

### Workflow

Routine workflows are largely automated:

- 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.
- Then the patient or the acquisition system is positioned and exposure is released.
- 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.
- Clinical Assurance Program (CAP): Collection of deleted images, studies and patient data, including evaluation capabilities.

Password protection:

System access protected by password.

Option:

Security Package: SW option with enhanced security features such as User Management 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 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.

Options:

- DICOM Modality Worklist/MPPS (if offered, see tender further down)
- DICOM Query/Retrieve (if offered, see tender further down)
- DICOM Dose Report: Enables transfer of dose report to archiving or viewing station.

### Note concerning DICOM interface(s)

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

The description in the "DICOM Conformance Statement" downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).

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. With regard to expenses for interface configurations that might be required, the

## Description

agreements on maintenance/service of the product apply.

### **syngo Remote Assist**

*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.

### **Siemens Remote Service**

Prepared for optional Siemens Remote Service SRS (during warranty period, subsequently with service contract):

- Hardware and software remote diagnosis.
- System remote configuration, e.g. adding of a DICOM node.
- Early warning system to secure system operation.
- Functions according to the selected maintenance package.

### **Customer Care. Life - the customer care solution by Siemens Healthcare**

From the moment you purchase your Siemens system you will benefit from many services that are offered by "Customer Care. Life" offers, e.g.:

- initial application training
- interactive e-learning courses for various applications
- free customer magazines
- arrangements for clinical training via a global network
- free trial licenses

You will find detailed information on our e-learning program and further details on general "Customer Care. Life" services on the internet.

\* "Customer Care. Life" offerings are not necessarily available to the full extent for all systems.

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.

### **SW license for Ortho function**

For systems with bucky wall stand:

Ability to acquire up to 4 images of the legs or spine in sequence on the Bucky wall stand using a MAX wi-D, MAX static detector

Only for Ysio:

Ability to acquire up to 3 images at the patient table.

Only for Multitom Rax:

Ability to acquire up to 4 images of the legs or spine with RAX detector (patient in standing position or lying on the table)

### **Spine Composing**

Spine Composing takes individually acquired digital radiographic images of the spine and composes them into an overall image.

The main functions are:

- automatic composing of digital radiographs into an overall image
- standard image post-processing functions are available

### **Ortho-Leg Composing**

Ortho-Leg Composing takes individually acquired digital radiographic images of the legs and composes them into an overall image.

The main functions are:

<b>Description</b>
<ul style="list-style-type: none"><li>- automatic composing of digital radiographs into an overall image</li><li>- standard image post-processing functions are available</li></ul>
Self installation by customer on Windows based PC; maintenance support is limited to infrastructure at initial set-up.