

SHIP TO: WAREHOUSE  
V.A. Medical Center  
921 NE 13TH STREET  
OKLAHOMA CIT, OK 73104

REQUISITION: 635-B86078

Qty	Item Description
1	<b>SOMATOM Definition Edge</b> The SOMATOM Definition Edge is based on the revolutionary Stellar Detector, the first fully-integrated detector. Designed to minimize electronic noise using Siemens innovative TrueSignal Technology, it significantly improves the signal-to-noise-ratio (SNR). This enables the unique Edge Technology. It allows the generation of ultra-thin slices of 0.5 mm facilitating a spatial resolution of 0.30 mm. This new level of spatial resolution in clinical routine that can visualize previously unseen details without an increase in dose, for example to allow more accurate stenosis and stent analysis. Additionally, the Stellar Detector with TrueSignal Technology is the perfect match for Siemens comprehensive ultra-low-dose imaging portfolio. With its improved SNR, the Stellar Detector can handle low signals much more efficiently, thus delivering more diagnostic quality with less patient radiation. With the Stellar Detector, the SOMATOM Definition Edge Dual Energy finally becomes truly suitable for Single Source CT. The novel design of the Stellar Detector with TrueSignal Technology provides HiDynamics, an extended dynamic range that improves the image detail level especially at low kV datasets. With this and the first dose-optimized Single Source Dual Energy scan mode, the SOMATOM Definition Edge allows adding tissue characterization to morphology. With these unrivaled features, the SOMATOM Definition Edge enters new frontiers in medical imaging, making it the Reference in Single Source CT.
1	<b>ELEVATE R 40-/64-slice&gt;Edge Config.</b> Elevate from 40-/64-slice configuration system to SOMATOM Definition Edge.
1	<b>TwinBeam Dual Energy</b> TwinBeam Dual Energy enables the simultaneous acquisition of high and low kV datasets during a single CT scan. TwinBeam DE broadens the system's range of Dual Energy capabilities e.g.with respect to contrast enhanced studies.
1	<b>High-speed 0.28 s rotation</b> Fast rotation time of 0.28 seconds for unprecedented image quality and highest scan speed. Fast gantry rotation times are the prerequisite for highest temporal resolution and are therefore essential for brilliant, motion free cardiovascular imaging.
1	<b>100 kW Power</b> The 100 kW power allows the X-ray generator the use of maximum power of 100kW in fine adjustable steps.
1	<b>FAST IRS</b> Reconstruction computer for the preprocessing and reconstruction of the CT raw data. The

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1	<p>reconstruction computer contains of a cluster of high-performance GPU boards performing the preprocessing and reconstruction of the CT data. The peak reconstruction performance is up to 80 frames/sec.</p> <p><b>z-UHR incl. UHR</b></p> <p>z-UHR/UHR functionality provides maximum system spatial resolution.</p>
1	<p><b>Rear cover incl. gantry panels</b></p> <p>Rear Cover including gantry control panels with control functionality from the backside.</p>
1	<p><b>Patient Table Def. Edge 2000mm</b></p> <p>Patient table to support up to 200cm scan range. Motor-driven table height adjustment from min. 49 cm to max. 92 cm, longitudinal movement of the tabletop 200 cm in increments of 0.5 mm, positioning accuracy +/- 0.25 mm from any direction. Horizontal scan range 200 cm. Table height can be controlled alternatively by means of foot switch (2 each on both sides of the patient table). In the case of emergency stop or power failure, the tabletop can also be moved manually in horizontal direction. Max. table load: 227 kg/500 lbs, Table feed speed: 1-200 mm/s, Distance between gantry front and table base 40 cm.</p> <p>Positioning aids: Mattress protector, head-arm support (inclusive cushion), and non-tiltable head holders with positioning cushion set, patient restraining system for head fixation, restraining-strap set with body fixation strap that can be directly connected to the patient table top, headrest, table extension, knee-leg support.</p>
1	<p><b>Mattress w. improved table protect.</b></p> <p>This mattress is ideal for trauma and acute care settings. The mattress has wide flaps and offers additional protection by preventing liquids spilling into the table by covering the gaps between table top and the table base.</p>
1	<p><b>Physiological Measurement Module</b></p> <p>The Physiological Measurement Module allows connection of a 3 Channel ECG cable for ECG controlled cardiac acquisition.</p> <p>Item includes ECG cable</p>
1	<p><b>Cooling System Water</b></p> <p>Water heat exchanger for the dissipation of heat loss generated in the gantry to an environmentally friendly cooling water circulation system.</p> <p>This optimizes system availability independently of the cooling water flow rate and temperature.</p>
1	<p><b>Cooling System Water/Air #split</b></p> <p>Water-to-air heat exchanger for the dissipation (to the air outside) of heat, generated in the gantry.</p>
1	<p><b>Trafo for cooling system water/air</b></p> <p>For adequate power consumption the chiller system may need an additional transformer: If the electrical connection to be used can not provide either 400V at 50Hz or 460V at 60Hz this transformer is needed.</p>
1	<p><b>Service Switch</b></p> <p>Service switch to shut off the outdoor cooling unit for maintenance or in case of emergency</p>
1	<p><b>DoseMAP</b></p> <p>DoseMAP - Siemens CT Dose Management Program - creates transparency in dose values and makes it possible to assess the dose situation. It improves security by setting dose alerts. DoseMAP has three components for complete and comprehensive dose management: Report, Analyze, and Protect.</p>

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1	<p><b>CARE kV</b></p> <p>CARE kV automatically proposes the best tube voltage based on the patient's size, the system capabilities, and the type of examination. Once the kV setting has been chosen, CARE kV also automatically adjusts other scan parameters, including the tube current. This reduces dose, maintains a constant image quality, and simplifies processes for technicians.</p>
1	<p><b>CARE Child</b></p> <p>Dedicated pediatric CT imaging, including 70 kV scan modes and specific CARE Dose4D curves and protocols.</p>
1	<p><b>CARE Dashboard</b></p> <p>Visualization of activated dose reduction features and technologies for each scan range of an examination to analyze and manage the dose to be applied in the scan.</p>
1	<p><b>CARE Profile</b></p> <p>CARE Profile: Visualization of the dose distribution of the scan range along the topogram prior to the scan.</p>
1	<p><b>CARE Contrast III</b></p> <p>CARE Contrast III supports the consistent application of contrast media protocols on the scanner. Saving and linking contrast protocols to scan protocols is available in the Examination card or as part of the scan protocol manager.</p>
1	<p><b>FAST Planning #AWP</b></p> <p>Direct, organ-based setting of scan and recon ranges for a faster and more standardized workflow.</p>
1	<p><b>FAST Adjust</b></p> <p>FAST Adjust: assists the user to handle system settings in a fast and easy way by automatically solving of conflicts within user defined limits by one single click on the FAST Adjust button. The limits for scan time and tube current per scan are defined via the Scan Protocol Assistant. FAST Adjust offers an undo functionality to return to previously set values.</p>
1	<p><b>HeartView CT</b></p> <p>Scanning technique and program for ECG controlled data acquisition and image reconstruction with SOMATOM Definition Edge.</p> <p>The package comprises:</p> <p>HeartView CT option on the syngo Acquisition Workplace console for the ECG-controlled acquisition and reconstruction of artifactfree images of the heart.</p> <p>The ECG signal is supplied by an ECG device integrated in the gantry.</p> <p>The use of the software of this option is restricted to a single system unit.</p>
1	<p><b>Adaptive 4D Spiral</b></p> <p>The unique Adaptive 4D Spiral moves beyond fixed detector limitations to provide full coverage of any organ in 4D. It introduces up to 48 cm range for dynamic CTA imaging and 4D Noise Reduction to significantly improve image quality with no increase in dose or, alternately, reduce dose without compromising image quality (4D Noise Reduction requires Volume Perfusion CT Neuro or Body).</p>
1	<p><b>SAFIRE #AWP</b></p> <p>The Sinogram Affirmed Iterative Reconstruction (SAFIRE) enhances spatial resolution, reduces image noise and increases sharpness by introducing multiple iteration steps in the reconstruction process. The resulting high image quality enables to reduce dose by up to 60%.</p>
1	<p><b>iMAR #AWP</b></p> <p>The iMAR metal artifact reduction algorithm combines three successful approaches (beam hardening correction, normalized sinogram inpainting and frequency split). This allows to reduce metal artifacts caused by metal implants such as coils, metal screws and plates, dental fillings or implants.</p>

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	iMAR is compatible with extended FoV, the extended CT scale as well as the newest dose reduction feature.
	Along with the new algorithm comes the simple user interface of iMAR enabling easy reconstruction of clinical images with reduced metal artifacts.
1	<b>Extended Field of View</b> Software program with special reconstruction algorithms that allow for visualization of objects using a FoV up to 78 cm (non-diagnostic image quality). License to use software on a single unit.
1	<b>WorkStream 4D #AWP</b> WorkStream 4D further enhances the already superb workflow of the SOMATOM Definition AS CT system by offering direct generation of sagittal, coronal, oblique or double-oblique reconstructed images directly from CT raw data as part of the CT protocol.
1	<b>FAST Spine #AWP</b> Accurate and anatomically aligned preparation of spine recons with just a single click.
1	<b>FAST 3D Align #AWP</b> FAST 3D Align enables automated alignment of FOV, adjustments and reconstructions of standard views.
1	<b>Cardio BestPhase Plus #AWP</b> Cardio BestPhase, a software dedicated to automatically detect the optimal phase for motion-less coronary visualization. The phase is defined in either end-systole, end-diastole or both timepoints and automatically reconstructed. Includes DirectViewingTM, a tool for real time navigation through full volumes of up to 24 heart phases by using an integrated fast 3D volume viewer, available both on the Examination and Recon subtask card. Furthermore it provides easy VRT visualization of the coronaries with removal of all parts of the chest in up to 20 phases within 15 seconds. DirectViewingTM completes the workflow of Cardio BestPhaseTM by giving you the flexibility to individually visualize phases for all coronary arteries.
1	<b>DICOM SR Viewer #AWP</b> The DICOM SR (structured report) Viewer allows to read reports created with specific applications (e.g. Circulation, Lung Care, Calcium Scoring and Onco) without the application itself being on the respective computer.
1	<b>syngo Calcium Scoring CT #AWP</b> Dedicated application for the quantification of calcifications in CT images. For best results, CT images acquired with HeartView by ECG-synchronized imaging should be used. The Calcium Scoring software calculates various scores (Agatston score, volume score and calcium mass) to assess the risk of a cardiac infarct within user-defined regions for up to four coronary arteries.
1	<b>syngo 3D BoneRemoval #AWP</b> Simple, automated bone removal functionality for the syngo 3D application. Preconfigured algorithms for angiography and hip/pelvis fracture scenarios are included to facilitate fast removal of bone structure for three dimensional presentation and analysis of CT data.
1	<b>Tiltable Head Holder</b> Tiltable Head Holder for the fixation of the patient's head. Tilt range between +30 till - 15 degree.
1	<b>Head-Arm Rest</b> This head-arm rest allows placing the head and the arm of trauma patients and even unconscious patients reliably for CT scanning. It is very useful in emergency rooms, e.g. for whole body scans, as it extends the scan range by about 30 cm. It can be placed in the standard Multipurpose Table accessory holder.

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1	<p><b>Computer Cabinet</b></p> <p>New cabinet to accommodate the computer system and UPS. Matched to the design of the control console table.</p> <p>Width: 800 mm, Depth: 800 mm, Height: 720 mm</p>
1	<p><b>Computer Desk</b></p> <p>New CT desk to accommodate the control components and color monitor.</p> <p>Width: 1200 mm, Depth: 800 mm, Height: 720 mm.</p>
1	<p><b>Additional User Manual</b></p> <p>Additional user manual for the above selected CT system.</p>
1	<p><b>syngo.via Multi Modality Bundle</b></p> <p>Systems from multiple modalities bundled with syngo.via</p>
1	<p><b>syngo.via L-Software</b></p> <p>The syngo.via L-Software offers 2D, 3D, 4D multi-modality routine reading capabilities and a variety of advanced applications tailored to the L-Server HW grade. The combination of syngo.via L-Software and L- Server Hardware is ideal for 2 - 7 users. The availability of all applications and workflows included in syngo.via L-SW is virtually unlimited, i.e. the number of opened cases is only constrained by server HW resources.</p> <p>The syngo.via client runs on standard Windows computers in the network and integrates into radiologist's reading workplace (RIS; PACS) for efficient image reading based on a wide range of clinical applications (advanced visualization applications) for different clinical cases. Those applications are available as additional options for syngo.via.</p> <p>The optional advanced visualization applications/Engines follow the flexible concurrent user model (users working at the same time).The service support for syngo.via requires the provision of an administrator with dedicated tasks and a minimum broadband Internet connection bandwidth.</p>
1	<p><b>syngo.CT Acute Care Engine #1</b></p> <p>The CT Acute Care Engine provides disease-oriented workflows which allow for lifesaving diagnostics when every second counts. The workflows consist of dedicated software modules. These cover the wide variety of challenging acute situations, from efficient acute chest pain management to abdominal imaging, fast trauma assessment as well as neurovascular and stroke imaging.</p> <p>Software Modules:</p> <ul style="list-style-type: none"> <li>- syngo.CT CaScoring for quick risk assessment and coronary age calculation</li> <li>- syngo.CT Coronary Analysis for quantification of coronary stenosis / arteries</li> <li>- syngo.CT Cardiac Function for left ventricular functional assessment</li> <li>- syngo.CT Vascular Analysis for assessment / quantification of general vascular pathologies, such as stenosis and AAA.</li> <li>- syngo.CT Neuro DSA for bone-free visualization of cerebral vessels</li> <li>- syngo.CT Neuro Perfusion for dynamic 4D quantification of stroke</li> </ul> <p>Additional integrated Dual Energy (DE) functionality: (For scanners with DE capabilities only. To enable the DE functionality at least one user license of the respective DE application has to be purchased)</p> <ul style="list-style-type: none"> <li>- syngo.CT Vascular Analysis - DE Direct Angio (with Bone Removal &amp; Hard Plaque Removal)</li> <li>- DE integration of syngo.CT DE Heart PBV</li> </ul>

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1	<p data-bbox="399 394 849 426"><b>syngo.CT Acute Care Engine Pro #1</b></p> <p data-bbox="399 426 1292 548">The CT Acute Care Engine Pro provides Right Ventricular Assessment for cardiac impairment affecting the right ventricle. . Advanced evaluation tools for myocardial perfusion add an incremental value for a safer evaluation of the hemodynamic relevance of coronary stenosis. The automated segmentation, anatomical labeling and display of the main vessels speed up the reading process for faster diagnosis.</p> <p data-bbox="399 583 675 604">Additional Software Modules:</p> <ul data-bbox="399 611 1292 827" style="list-style-type: none"> <li>- syngo.CT Cardiac Function - Enhancement for analysis of ischemia from early or late enhanced images, and from dynamic myocardial perfusion data</li> <li>- syngo.CT Cardiac Function - Right Ventricle for right ventricular functional assessment</li> <li>- syngo.CT Vascular Analysis - Autotracer for automatic identification and anatomical labeling of main vessels</li> <li>- syngo.CT Dynamic Angio for the assessment of time-resolved CT images</li> <li>- syngo.CT Rapid Stent Planning for automatic completion of manufacturer-specific graft order forms</li> </ul>
1	<p data-bbox="399 850 781 882"><b>syngo.CT Oncology Engine #1</b></p> <p data-bbox="399 882 1292 955">The CT Oncology Engine is an oncology solution for diagnosis, staging, and follow-up assessment and monitoring. It provides a high level of automation and quantification with unique processing functionality for CT Oncology and CT Colonography.</p> <p data-bbox="399 991 1118 1012">The CT Oncology Engine permits access for the following software modules:</p> <ul data-bbox="399 1018 1292 1178" style="list-style-type: none"> <li>- syngo.CT Segmentation for automated segmentation and evaluation of lesions in lung, liver, lymph nodes and other organs</li> <li>- syngo.PET&amp;CT Cross-Timepoint Evaluation for automatic calculation of tumor growth rates, tumor burden, and tumor volume doubling time. Dual time point comparison in report, synchronized visualization and navigation of up to 4 time points</li> <li>- syngo.CT Colonography for non-invasive, diagnostic evaluation of lesions in the colon</li> </ul> <p data-bbox="399 1213 1292 1260">Additional integrated Dual Energy (DE) functionality - only available for SOMATOM Force, Definition Flash, Edge, and AS Dual Energy image datasets:</p> <ul data-bbox="399 1266 1292 1339" style="list-style-type: none"> <li>- DE support of syngo.CT DE Virtual Unenhanced which offers the generation of an unenhanced liver or kidney image without additional scans by utilizing an enhanced Dual Energy image and subtracting the contrast agent from it.</li> </ul> <p data-bbox="399 1346 1292 1392">(To enable the DE functionality at least one license of syngo.CT DE Virtual Unenhanced has to be purchased)</p>
1	<p data-bbox="399 1415 833 1446"><b>syngo.CT Oncology Engine Pro #1</b></p> <p data-bbox="399 1446 1292 1591">The CT Oncology Engine Pro includes syngo.CT Lung CAD (Computer Aided Detection) for detection of solitary pulmonary nodules and syngo.CT Colonography PEV (Polyp Enhanced Viewing) for automated detection of colon polyps.. These tools significantly improve the user's confidence in detecting potential lesions and therefore make the CT Oncology Engine Pro a second reader tool. Lung CAD results are presented in syngo.via or - powered by Rapid Results Technology - directly in the PACS.</p> <p data-bbox="399 1598 1292 1671">syngo.CT Colonography - Advanced, consisting of the Polyp Lens, Stool Removal functionality, and Virtual Dissection, adds an additional diagnostic dimension in tumor detection and assessment.</p> <p data-bbox="399 1677 1292 1724">syngo.PET&amp;CT Onco Multi-Timepoint enables simultaneous visualization of up to 8 time points with specific layouts enabling synchronous scrolling and navigation through all datasets.</p>
1	<p data-bbox="399 1747 849 1778"><b>syngo.CT DE Advanced Package #1</b></p> <p data-bbox="399 1778 1292 1824">The syngo.CT Dual Energy Advanced Package includes all Dual Energy Applications that are available for syngo.via.</p>
1	<p data-bbox="399 1848 748 1879"><b>syngo.via General Engine L</b></p> <p data-bbox="399 1879 1292 1925">The syngo.via General Engine provides functionalities for highly efficient reading and reporting of routine to advanced cases.</p>

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	<p>The syngo.via General Engine comprises the following software modules:</p> <p>ALPHA technology speeds up the workflow by automating and standardizing reconstructions and improves consistency in image presentation.</p> <p>syngo.via Advanced Reporting enables efficient and structured management and communication of syngo.via results plus easy creation and administration of report templates.</p>
1	<p><b>syngo.via Project Identifier</b></p> <p>System identifier for syngo.via project</p>
1	<p><b>Server HW Config L</b></p> <p>syngo.via server hardware configuration L.</p> <p>Hewlett Packard rack mount server.</p>
1	<p><b>HP Care Pack. 5y 24x7 HW Support</b></p> <p>Prime HW Support for 5 years (for HW config L, XL or XL_10 ? ML350 Gen9)</p>
1	<p><b>EIZO MX241W Display</b></p> <p>The EIZO MX 242W is a color widescreen LCD monitor for diagnostic use and clinical review with a resolution of 1920 x 1200 pixels.</p>
1	<p><b>PACS-Driven Implementation Pkg.</b></p> <p>This PACS-Driven Implementation Package includes installation and integration services for syngo.via in a radiologic workflow mainly supported by the PACS functionality.</p> <p>This package includes professional services, such as:</p> <ul style="list-style-type: none"> <li>- Installation of the syngo.via server software on the server hardware</li> <li>- Installation of the syngo.via client software on one clinical workplace for one user</li> <li>- Connection to up to 5 DICOM nodes</li> <li>- Image call-up of syngo.via from the PACS' user interface</li> <li>- Assistance in setting up image call-up of syngo.via from the PACS' user interface. This may require the purchase of software and services from the PACS vendor.</li> <li>- Configuration of basic syngo.via workflows and rules</li> <li>- Integration of one syngo.via client workplace with one syngo MultiModality Workplace.</li> </ul> <p>- Installation of WebViewer integrated license (syngo.via SW version VA30 or higher, country restrictions might apply).</p> <p>- Installation of the syngo.via WebViewer client application on one Mobile Device or Web Client system if requested by the customer. Ensure that the customer's Web Clients / Mobile Devices fulfill the minimum requirements according to the syngo.via WebViewer Data Sheet. Verification of the syngo.via WebViewer basic functionality</p> <p>- If applicable: Integration into the Local Area Network of the customer and to Siemens Remote Service over the internet connection plus basic installation service for the syngo.via HW system at the customer's site.</p>
1	<p><b>syngo.via local Impl. (Identifier)</b></p> <p>Identifier for professional services completely provided by locally organized resources.</p>
1	<p><b>Server HW Installation Standard</b></p> <p>Basic installation of the syngo.via server hardware with the operating system at the customer's site by the hardware supplier. Integration into the Local Area Network of the customer and to Siemens Remote Service over internet connection. Please check that the following information is included in the customer quote: correct and complete delivery location, customer's contact person for implementation planning. See also the questions in the Sales Checklist, which supports you in evaluation of the customer's requirements.</p>

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1	<p><b>Initial onsite training 24 hrs syngo.via</b></p> <p>Up to (24) hours of on-site clinical applications training on syngo.via basic navigation and modality specific clinical workflows, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4)users. Training will focus on the use of syngo.via in clinical routine and customization of systems based on workflow needs. This educational offering must be completed (12) months from turnover 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>Follow up training 16 hrs, syngo.via</b></p> <p>Up to (16) hours of follow-up on-site clinical applications training on syngo.via navigation and modality specific clinical workflows, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4)users. Training will focus on the optimization of syngo.via in clinical routine and customization of systems based on clinical workflow needs. Advanced clinical applications will be covered for users previously attending initial applications training. This educational offering must be completed (12) months from turnover 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>Classroom ClinicAdmin Training 5 day</b></p> <p>The objective of this course is to give the participants the necessary theoretical knowledge and practical experience to routinely operate the syngo.via system, and to become acquainted with the settings and configuration of the system.</p> <p>Lectures and interactive practical exercises will familiarize the participants with the functionality of syngo.via and the clinical case specific applications.</p> <p>This class includes lunch, economy airfare, and lodging for (1) imaging professional. All arrangements must be arranged through Siemens designated travel agency 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.</p>
1	<p><b>CT Project Management</b></p> <p>A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.</p>
1	<p><b>CT Standard Rigging and Installation</b></p> <p>This quotation includes standard rigging and installation of your CT new system.</p> <p>Standard rigging into a room with reasonable access, as determined by Siemens Project Management, during standard working hours (Mon. - Fri./ 8 a.m. to 5 p.m.)</p> <p>It remains the responsibility of the Customer to prepare the room in accordance with the SIEMENS planning documents.</p> <p>Any special rigging requirements (Crane, stairs, etc.) and/or special site requirements (e.g. removal of existing systems, etc.) is an incremental cost and the responsibility of the Customer.</p> <p>All other "out of scope" charges (not covered by the standard rigging and installation) will be identified during the site assessment and remain the responsibility of the Customer.</p>
1	<p><b>Initial onsite training 32 hrs</b></p> <p>Up to (32) 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>



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1	<b>Initial onsite training 32 hrs GovOffset</b>
1	<b>Additional onsite training 32 hours</b> Up to (32) 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 install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	<b>Additional onsite training 16 hours</b> Up to (16) 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 install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.
1	<b>Additional onsite training 24 hours</b> 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 if applicable. 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.
1	<b>teamplay Welcome &amp; Registration Package</b> teamwork 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. To register: <a href="http://teamplay.siemens.com/#/institutionRegistration/1">http://teamplay.siemens.com/#/institutionRegistration/1</a>
2	<b>CT Advanced Scanning Class 2 no/Travel</b> The CT Advanced Scanning Class 2 is for the following CT scanners: SOMATOM Scope, SOMATOM Emotion, and SOMATOM Perspective scanners. This includes tuition for (1) imaging professional to attend Siemens Classroom Course at Siemens Training Center. This class provides the experienced Siemens' CT user with in-depth training on advanced system capabilities and examination procedures. Topics include the review of scan acquisition and reconstruction parameters, protocol management, dose reduction features, anatomy, contrast administration, and a variety of post-processing strategies. Workflow for advanced examination procedures including CT Angiography, Neuro Perfusion, Intervention, Single Source Dual Energy, Calcium Scoring and Cardiac CTA will be reviewed and discussed. Prior participation in a Siemens' CT Basic syngo class and/or a minimum of 6 months clinical experience is not mandatory but highly recommended. Travel and lodging not included. 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.
1	<b>Stellant D Dual Ceiling w/Certegra WS</b> Stellant D Dual Ceiling mounted with Certegra Workstation NO Informatics. Short ceiling post - 580 mm.  Other ceiling post lengths are available (different part numbers): 850 mm and 1000 mm.  Includes Stellant D, Dual Head, ceiling mounted injector; Certegra workstation; installation and warranty through Medrad.
1	<b>Medrad ISI900 interface, POS</b>
1	<b>Surge Protective Device (SPD)</b>

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1	<b>Riedel Chiller Start-up by SBT</b>
1	<b>CT Slicker</b> Thermoseal seams and flaps deflect fluids, reducing contaminant penetration into the cushion and table. Contaminants are retained on the tabletop or shunted to the floor. Cleanup is faster, more thorough, and contaminant build-up is reduced. Built using heavy, clear, micro matte vinyl, and top grade hook and loop fastening strips (Velcro) to better fit the specified table. Custom vinyl resists tears and minimizes radiologic interference. Latex free. Set includes CT Skirts. Shipped with main cover, a catheter bag holder, and 3 restraining belts unless otherwise noted. Includes warranty from RADSCAN Medical.
1	<b>Low Contrast CT Phantom &amp; Holder</b>
1	<b>NEMA_XR-29 Standard</b> This system is in compliance with NEMA XR-29 Standard Attributes on CT Equipment Related to Dose Optimization and Management, also known as Smart Dose.
1	<b>Dose Alert</b> Dose Alert: Dose Alert automatically adds CT DIvol and DLP values depending on z-position (scan axis). The Dose Alert window appears, if either of these cumulative values exceeds a user-defined threshold.
1	<b>Dose Notification</b> Dose Notification: Dose Notification provides the ability to set dose reference values (CT DIvol, DLP) for each scan range. If these reference values are exceeded the Dose Notification window informs the user.
1	<b>Access Protection</b> Scan Protocols are password protected allowing only authorized staff members to access and permanently change protocols
1	<b>Adaptive Dose Shield</b> Adaptive Dose Shield for spiral acquisition to eliminate pre- and post-spiral over-radiation.
1	<b>CARE Dose4D</b> CARE Dose4D delivers the highest possible image quality at the lowest possible dose for patients - maximum detail, minimum dose. Adaptive dose modulation for up to 60% dose reduction
1	<b>CARE Dose Configurator</b> CARE Dose Configurator: Enhancement of Siemens' renowned real-time dose modulation CARE Dose4D, introducing new reference curves for each body region and for each body habitus allowing to adjust the configuration even more precisely to the patient's anatomy.
1	<b>DoseLogs</b> Whenever a dose limit exceeds the established reference dose levels (Dose Notification and Dose Alert) a report is automatically created on the system, enhancing your ability to track radiation dose.
1	<b>Lung Imaging</b> For well over a decade, CT has been recognized and used as the standard of care for lung nodule detection and sizing. This is due to CT's spatial resolution, geometric accuracy, and ability to create various reconstructions and 3D views. The high contrast environment in the chest between the lungs and the nodules makes for a relatively easy detection task for clinicians using CT images. Recent advances in CT technology have allowed these scans to be effectively performed at lower doses, higher resolutions, and faster scan times.

The SOMATOM Definition Edge CT is indicated for use in low dose lung cancer screening for

Qty	Item Description
	high risk populations*. The Edge is delivered with two specific scan protocols to provide low dose lung cancer screening exams at approximately 1.3 mGy CTDI for a standard size adult. These default protocols utilize Siemens proprietary dose reducing features such as CARE Dose4D(tm), automatic exposure control technology that modulates and adapts dose for every patient, for high image quality at low dose.
	*As defined by professional medical societies.
1	<b>FAST Scan Assistant</b> FAST Scan Assistant: An intuitive user interface for solving conflicts by changing the scan time, resp. the pitch and/or the maximum tube current manually.
1	<b>SureView</b> Provides exceptional image quality at any pitch setting, enabling you to scan faster because you can scan at any pitch without degrading image quality
1	<b>CARE Bolus</b> Operating mode for CM-enhancement-triggered data acquisition.
1	<b>UFC Detector</b> Ultra Fast Ceramics (UFC) technology is a unique type of scintillation technology material that quickly and efficiently transforms radiation from the X-ray tube into light signals. Its superb overall quantum efficiency and unique short afterglow enable time-critical X-ray detection at low doses and extremely fast data collection.
1	<b>Neuro BestContrast</b> The Neuro BestContrast algorithm can provide enhanced tissue contrast, resulting in improved contrast between gray and white matter without increasing image noise. This post processing step is rapid and can be easily incorporated into clinical workflow where it can be used with other dose reduction approaches such as iterative reconstruction.
1	<b>Gantry tilt incl. tilted spiral</b> Allows for sequential scanning with a tilted gantry between +/- 30°, depending on the vertical position of the table. Using the gantry tilt sensitive organs (like eye lenses) can be moved out of the scan range or it eases access during interventional procedures. The tilted spiral allows to utilize the gantry tilt for spiral scan modes.
1	<b>syngo VRT</b> Advanced 3D functionality as an extension to the basic 3D viewer, containing volume rendering technique (VRT) and advanced editing functions.
1	<b>Standard UPS for Definition Edge</b> The standard partial system uninterruptible power system (UPS) is built directly into the power distribution cabinet (PDC) and supports the critical circuits for table and gantry electronics, console computer, image reconstruction system, and the internal Ethernet switch (to ensure connectivity). This enables safe removal of patient if outage occurs during scanning.  The UPS allows for a safe shutdown of the CT scanner in the event of power interruption. The UPS provides 5-7 minutes of power, during which the user is prompted and guided through the process to perform a safe shutdown of the system. This safe shutdown ensures that no data is lost.
1	<b>VIA Govt Trng in PACS Imp (</b> Per agreement, credit for initial training in Basic Implementation 14412663
1	<b>VIA Govt Server HW Install</b> Per agreement, credit for syngo.via hardware installation by 3rd party integrator 14412656
1	<b>Virtual Initial Consultation, syngo.via</b> This virtual initial consultation session, up to 4 hrs in duration, is designed to define the clinical

**Qty****Item Description**

customization of syngo.via specific to radiology workflow. Through direct communication with a clinical education specialist, this session will identify and configure site-specific workflow and imaging storage and retrieval parameters. This educational offering must be conducted no more than 4 weeks before the scheduled system turnover event. This consultation session will be scheduled during standard business hours, Monday through Friday. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.

1

**Definition System Complimentary Biomed Training**

This educational offering includes system training tuition for 1 clinical engineering professional on the SOMATOM Definition AS, AS+, Flash, or Edge 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.

Additional Rigging CT

Siemens Definition AS 64, Project No. 2018-2460, Expires/Deinstall October 30, 2020 (

Offset SY\_VIRINTL\_4 Virtual Initial Consultation, syngo.via (

Offset Initial onsite training 24 hrs syngo.via (

Offset Definition System Complimentary Biomed Training

Offset Part 14428168 Additional User Manual

Offset Part CT\_ADD\_32 One Additional Onsite Training 32 hours

## Detailed Technical Specifications

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### Description

The SOMATOM Definition Edge is founded on Siemens' revolutionary Stellar Detector and the unique STRATON X-ray tube with Siemens' z-Sharp Technology. In combination with FAST (Siemens' Fully Assisting Scanner Technologies and Combined Applications to Reduce Exposure) and CARE (Combined Applications to Reduce Exposure) solutions as well as Siemens exclusive CT Clinical Engines options, the SOMATOM Definition Edge offers unprecedented image quality and detail at significantly reduced patient exposure, as well as substantially increased diagnostic speed and confidence.

The STRATON source provides direct oil cooling of the anode, eliminating the need for heat storage capacity (equivalent of 50 MHU). The resulting small and compact design enables an unprecedented cooling rate of 7.3 MHU/min as well as reliable performance even when operating at a very high rotation time of up to 0.28 sec (optional). In combination with the HeartView CT option temporal resolution of 142 ms (optional) of the SOMATOM Definition Edge allows to reliably scan even high heart rates, e.g. in acute chest pain evaluation, in coronary visualization, and in functional analysis of the heart.

The 0.5 mm slices from the innovative Edge Technology of the SOMATOM Definition Edge together with the unique z-Sharp Technology deliver a spatial resolution of up to 0.30 mm without an increase in dose allowing the visualization of previously unseen details in clinical routine, whether the to allow highly accurate analysis of stenosis and stents or crucial small fractures in acute care. In addition, the z-UHR functionality enables industry's highest isotropic and scan field position independent spatial resolution of up to 0.24 mm voxel size, visualizing the smallest anatomical structures with exceptional quality, for example complex inner-ear bones. Neuro head image quality is significantly improved with Neuro BestContrast, by optimizing grey/white matter differentiation without increase in radiation dose.

The Ultra Fast Ceramics (UFC) of the Stellar Detector in the SOMATOM Definition Edge acquire 128 slices of measured image data per rotation. Using the Edge Technology, the SOMATOM Definition Edge can facilitate 256 slices with 0.5 mm thickness per rotation for high-resolution imaging or generate up to 384 slices, per rotation depending on the chosen examination mode.

In combination with its 78 cm large bore, up to 200 cm scan range, and the 80 kW ( 100 kW optional) generator power, it adapts to virtually any patient independent of size or condition, helping to save precious time from scan to diagnosis to treatment. When doing interventional CT for example, the easy patient access enables fast positioning of interventional instruments and thus provides a larger and more comfortable sterile environment. Or for emergency room examinations, the large bore of the SOMATOM Definition Edge virtually eliminates the necessity to reposition and adjust life support equipment. Additionally, positioning and scanning of bariatric patients is significantly simplified while improving patients comfort.

With all this, the SOMATOM Definition Edge offers the unique combination of industry's highest image detail and industry's highest sub-millimeter volume coverage of up to 23 cm/sec enabling whole body examinations within a few seconds - adapting to challenging patients such as poly-trauma and unconscious or uncooperative patients, leading to an improvement in image quality and patient comfort.

Siemens has developed many significant products and protocols that follow the "As Low as Reasonably Achievable" (ALARA) principle to reduce radiation dose to the lowest possible level. This desire for as little radiation exposure as possible lies at the heart of our CARE – Combined Applications to Reduce Exposure - research and development philosophy. The SOMATOM Definition Edge consequently offers a unique portfolio of dose saving features; many of them being industry's first like the Adaptive Dose Shield, CARE kV or 70kV scan modes. Using Siemens' CARE solutions radiation dose can be significantly reduced compared to conventional CT systems.

With the introduction of Siemens' unique FAST CARE Technology, the SOMATOM Definition Edge raises patient-centric productivity. Utilizing FAST – Fully Assisting Scanner Technologies -, typically time-consuming and complex procedures during the scan process are extremely simplified and automated, not only improving workflow efficiency, but optimizing the overall clinical outcome by creating reproducible results, making diagnosis more

## Description

reliable and reducing patient burden through streamlined examinations.

With its unique Adaptive 4D Spiral scan mode (optional) the SOMATOM Edge overcomes the coverage limitations in dynamic CT imaging when using a static detector and allows for up to 48 cm coverage in dynamic CT imaging.

In addition the SOMATOM Definition Edge optionally offers the 3D minimal invasive suite, enabling 3D guided interventions with full control of the radiologist due to wireless in-room control. Already included with the standard configuration of the scanner is 2D Basic Intervention, which enables sequential scans (i-Sequence) e.g. for CT-guided biopsy. Also included is HandCARE™, which reduces on-line radiation exposure to the user and the patient by switching the radiation off in the upper segment of the 360° tube-rotation. It switches off the x-ray exposure for a 100° angle between three user selectable positions (10:00, 12:00 and 2:00 o'clock).

Furthermore, the system also enables the user to acquire Dual Energy data and benefit from Dual Energy post processing. Also the SOMATOM Definition Edge offers the widest range of clinical applications options, which allow performing everything from fast and confident diagnoses to comprehensive reporting in only a matter of minutes, reviewing results before the patient is off the table.

### 1. Gantry:

Aperture: 78 cm; power supplied via low-voltage slip ring. Scanning system: Stellar Detector with Siemens' proprietary Ultra Fast Ceramics (UFC) with 47,104 elements, 128 detector electronic channels (DAS) utilized for up to 128 slices/rotation acquisition, and 1,472 measuring channels per slice (The measuring system can contain replacement components).

In cases of very low signal at the detector (e.g. when scanning bariatric patients), the TrueSignal Technology minimizes electronic noise of detector thus increasing the signal-to-noise-ratio (SNR) and allowing to make much more efficient use of low signals.

Three laser light markers: Horizontal, sagittal, and vertical laser light that shows the isocenter position of the scan plane.

### 2. Tube Assembly:

Source: STRATON high performance X-ray source. Tube current range: Single source 20- up to 800 mA; Tube anode heat storage capacity equivalent of 50 MHU. Cooling rate 7.3 MHU/min (5,400 kJ/min). Focal spot size according to IEC 60336: 0.7 x 0.7 mm/7°, 0.9 x 1.1 mm/7°. Computer controlled monitoring of anode temperature, Multifan principle with flying focal spot.

### 3. High Power X-ray Generator:

Microprocessor-controlled, low-noise high-frequency generator with integrated, automatic self-testing system for continuous monitoring of operation. Settings: High-voltage range 70, 80, 100, 120 and 140 kV; power max. 80 kW ( 100 kW optional), adjustable in fine steps.

### 4. z-Sharp Technology:

The unique STRATON X-ray source utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary UFC (Ultra Fast Ceramic) of the Stellar Detector and the corresponding 128-slice detector electronics enable a virtually simultaneous readout of two projections for each detector element – resulting in a full 128-slice acquisition. z-Sharp Technology, utilizing the STRATON X-ray sources together with the Edge Technology of the Stellar Detector provide scan speed independent visualization of up to 0.30 mm spatial resolution and a corresponding elimination of spiral artifacts in the daily clinical routine at any position within the scan field.

### 5. Control and Evaluation Unit:

Control box: CT control with patient intercom, user-recordable patient instruction system, 30 automatic patient instruction (API) text pairs are available in nine languages.

*syngo* Acquisition Workplace: The *syngo* Acquisition Workplace provides an intelligent and reliable workflow for data acquisition, image reconstruction and routine post-processing at the CT scanner. Built on the unique *syngo* platform, the *syngo* Acquisition Workplace is intuitive and user friendly. Computer system: High-performance computer with one Xeon Quad Core HT, 2.53GHz, NVIDIA Quadro 2000 DVI graphics card for fast 3D post-processing. High resolution, flicker free, 19-inch (48 cm) color flat panel display for medical diagnostic applications combining the demanding requirements of medical imaging with the advantages of liquid crystal displays. This display provides a resolution of 1,280 x 1024 and has a wide viewing angle, features high contrast even under high

## Description

ambient light conditions. Display light output stability is enabled by controlled backlight throughout the whole lifetime. Keyboard and mouse, 8 GB RAM, 2 x 136 GB image storage for 520,000 uncompressed images, CD-R 700 MB for 1,100 images. DVD DICOM with 4.7 GB media for 8,400 images. External USB 2.0 devices for data storage are supported (recommended: Iomega 160 GB External Hard Drive Hi-Speed USB 2.0; Maxtor One Touch 160 GB External Hard Drive).

### 6. Cooling System:

SOMATOM Definition Edge can be equipped with either air or water cooling adapting to your room requirements. This optimizes system availability independently of the ambient conditions and reduces expensive reconstruction costs. System operating temperature: 18-28°C, 18 - 75 % rel. humidity (not condensing).

### 7. syngo User Software:

*syngo* features an intuitive and thus easy-to-learn user interface developed from prototypes in close cooperation with users. *syngo* visualizes the examination in individual process steps on so-called task cards, such as patient registration or examination card. A large number of functions and input parameters as well as the language used can be selected according to individual requirements. Frequently repeated processes can be automated and saved.

#### Patient registration:

The system can accept patient data in different ways. These include entering the data via keyboard or transfer of a worklist via network. DICOM Worklist: Software module for accepting lists of patient data and exam requirements from a Radiology Information Systems (RIS) via DICOM Get Worklist functionality. The program enables very efficient working and enables consistent patient data. In emergency cases, fast registration is possible. Here the system automatically assigns an emergency number which can later be replaced by the actual patient number. The input profile can be designed individually.

#### Examination card:

The SOMATOM Definition Edge is delivered with a large number of predefined examination protocols (e.g. for pediatric applications), making examination planning a very fast and efficient procedure. Example: A three-phase examination of the liver available as independent protocol only needs to be adapted to the patient's individual situation. Each examination is represented pictorially as a so-called "chronicle", which views the individual phases of the examination separately. This has the advantage that the individual phases of the examination can be accessed quickly and selectively and changes to the protocol can be made easily in graphical mode via drag-and-drop using the mouse. With a so-called routine window, it is possible to adapt individual examination parameters, representing a submenu of the essential parameters and giving information at a glance about the parameterization of the examination.

#### Viewing card:

On the viewing card it is possible to move interactively with the mouse through the image volume of the ongoing examination. The images of different examinations can be displayed simultaneously for comparison. A large number of functions are available for evaluation, documentation and archiving.

#### Filming card:

A virtual film sheet shows a 1:1 display of the film sheets to be printed out, thus enabling an effective preview of filming jobs and rewindowing of the images, as well as providing a large number of evaluation functions. Layout changes are possible interactively with up to 64 images. The printout parameters for the autofilming process running in parallel to acquisition or reconstruction are also defined with the filming card. Freely selectable positioning of images onto film sheet, configurable image text.

#### 3D card:

Secondary reconstruction calculation: Real-time MPR for real-time reformatting of secondary reconstructions. Slice orientation: coronal, sagittal, oblique and double-oblique. Secondary reconstructions can be determined from the topogram, other MPR views or from a 3D surface reconstruction. Reconstruction with selectable slice thickness.

CT Angio: Software for the reconstruction of angular projections from the images of a spiral data record for the display and diagnosis e.g. of aneurysms, plaques, stenoses, vascular anomalies or vascular origins. MIP: Maximum Intensity Projection, MinIP: Minimum Intensity Projection and Thin MIP available. Interfering or irrelevant parts of the image can be eliminated with the integrated volume editor. The angular projections are reconstructed around a definable axis, whereby the maximum CT values in this direction are selected for each angular projection. The resulting images can be viewed with the CINE function as a series of images with a 3D image effect.

3D Display: Software for the three-dimensional display of surfaces of a body region from a series of continuous slices, for display and analysis of complex anatomies, e.g. the visceral cranium, pelvis, hips, for the purpose of planning surgical interventions. The 3D objects can be tilted and rotated interactively on the monitor and can also

## Description

be displayed in relation to multiplanar reconstruction (MPR).

Volume card: Volume scans of tissues and organs, based on a "region-growing" algorithm and interactive ROI definition.

DynEva card: Software for dynamic evaluation of the contrast enhancement in organs and types of tissues, enabling the reconstruction of

- Time-density curves (up to 5 ROIs)
- Peak-enhancement images
- Time-to-peak images.

Video Capture and Editing Tool: Software contains integrated solution for imaging and visualization of 4D information, allowing the generation and editing of video files for improved diagnoses, recording and teaching. A wide range of multimedia formats is supported, e.g. AVI, Flash (SWF), GIF, QuickTime (MOV), streaming video.

Additional task cards available as an option.

### 8. Examination and Evaluation Functions:

Topogram: Scanning perspectives: a.p., p.a., lat.; length of scan field: 128 – up to 1,970mm (depending on table configuration), width of scan field: 512 mm, 1.5 – 16 s (optional 20 s). The topogram can be switched off manually when the desired examination length is reached.

Tomogram: Scan field size: 50 cm. Standard scan times: 0.28 (optional), 0.33, 0.5 and 1 seconds. Slice thickness in sequence: 0.6, 0.75, 1, 1.2, 1.5, 2.0, 2.4, 3, 3.6, 4.0, 4.8, 5, 6, 7, 7.2, 8, 9, 10, 12, 14.4, 15, 20 mm

Slice thickness in spiral: 0.4\*\*, 0.5, 0.6, 0.75, 1.0, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm Real-time image display.

Immediate image reconstruction and display without time delay simultaneously to data acquisition in 512 x 512 matrix size.

Spiral: Scanning technique for continuous volume scans with continuous table feed in multirotation mode. Max. scan time of up to 100 seconds with full low-contrast resolution. Depending on table configuration volume length 1.970 mm with full low-contrast resolution (max. 200 cm scan range possible using multiple automatic ranges). Selection of the pitch factor between 0.3 and 1.7 depending on scan mode. Selection of up to 33 separately parameterizable examination ranges in a patient protocol. In addition individual anatomic sections can be successively combined and then scanned automatically. Storage of up to 10,000 examination protocols. Rotation times/cycle: 0.28 sec (optional), 0.33 sec, 0.5 sec and 1 sec.

Iterative reconstruction: SAFIRE\* (standard) enables dose savings potential up to 60%.

\*In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software.

Noise, CT numbers, homogeneity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.

Adaptive 4D Spiral (optional): Continuous multirotational data acquisition with continuous smooth bi-directional table movement. Quantitative evaluation and graphical display of time-density curves over entire organs.

Dual Energy: Dual Spiral Dual Energy Scan mode (standard) enables to acquire Dual Energy data and benefit from Dual Energy post processing with several applications.

The intelligent algorithm Neuro BestContrast improves native head image quality especially grey/white matter differentiation. Images are decomposed into high and medium/low spatial frequencies. While relevant tissue information is contained in medium and low frequencies noise is dominated by high frequencies. Separate processing of medium and low frequency information improves the tissue contrast without amplifying image noise resulting in a better signal to noise ratio.

Dynamic: Program for functional dynamic examinations. Serial scanning technique in one slice position with variable scans cycle times.



## Description

Multiscan spiral examination without table feed: Continuous multirotational data acquisition in one slice position. Quantitative evaluation and graphical display of time-density curves.

WorkStream4D (optional) with Asynchronous Recon: 4D workflow with direct generation of axial, sagittal, coronal, or double-oblique images from standard scanning protocols. Elimination of manual reconstruction steps. Asynchronous Recon allows for multiple image reconstructions and reformats, parallel to scanning. With this feature, up to eight reconstructions job requests can be loaded into a scan protocol. Immediately upon completion of the scan acquisition, these reconstruction jobs are automatically executed in the background without delaying the start of next patient examination.

Image reconstruction and storage: Image reconstruction in full resolution (512 x 512 matrix) takes place during the examination with up to 60 fps (depending on image reconstruction system), with full cone beam reconstruction, z-Sharp Technology and full image quality. Reconstruction fields of 5 cm to 50 cm through raw data zoom with the possibility of freely selecting the image center either prospectively before each scan or retrospectively. Reconstructions of different slice thicknesses from a single raw data record, e.g. lung soft tissue and lung high-contrast with CombiScan, with simultaneous suppression of partial volume artifacts. Up to 8 reconstructions per scan range can be predefined with the examination protocol. Patient-related storage of the image and raw data.

Image display: 1024 x 1024 display matrix; screen splitting configurable up to 64 image segments; CT value scale from -1024 to +3071 HU. For very dense objects, the CT value scale can be extended from -10240 to +30710 HU (extended CT scale) e.g. for suppressing metal artifacts.

Image evaluation: Complete software-controlled image evaluation program for all diagnostic requirements.

CINE Display: Dynamic display technique for the visualization of time or volume series. A series of up to 1024 images can be displayed at a frame rate of at least 30 f/s. Automatic or interactive mouse-operated control.

Multitasking functions: Simultaneous processing during operation of the scanner.

Real-time Display: Image reconstruction in pace with the examination in full image quality (512 x 512 matrix) with up to 60 fps (with full cone beam reconstruction and z-Sharp Technology).

Metro Display: Simultaneous display, processing and evaluation of images from other patients while the current patient is being scanned.

Metro Documentation: Simultaneous documentation of images from any previously examined patient while the current patient is being scanned.

Metro Copy: Automatic transfer of image data to the *syngo* CT Workplace (optional) or a DICOM network node.

### 9. Network Module:

For the connection to a local Ethernet (10, 100 Mbit or 1-Gigabit) in order to communicate with networked printers, diagnostic and therapy workstations, RIS or HIS systems and teleradiology routers.

Scope of functions:

- Configurable network stations.
- Unlimited selection of stations.
- DICOM Standard (Digital Imaging and Communications in Medicine) for the transfer of information between DICOM-compatible units from different manufacturers. The scope of functions is described in detail in the DICOM Conformance Statement, and the standard version comprises the functions Send/Receive, Query/Retrieve and BasicPrint, Worklist, Storage Commitment, MPPS (Modality Performed Procedure Step).

### 10. Integrated CARE Solutions:

Stellar Detector: Due to TrueSignal Technology electronic noise can be minimized resulting in dose reduction in low signal imaging (e.g. bariatrics.).

UFC Detector: Dose reduction compared to conventional CT detectors. High efficiency for low mAs requirements enable best possible image quality with low patient dose.

Adaptive Dose Shield: world's first dynamic tube collimation that protects the patient from clinically irrelevant radiation in every spiral scan.

## Description

CARE Filter: Specially designed X-ray exposure filter installed at the tube collimator. Dose reduction with increased image quality.

Pediatric Protocols: Special examination protocols with 70 and 80 kV and a large range of adjustable mAs values for optimum adaptation of the radiation exposure to the age and weight of the child to be examined.

CARE Topo: Real-time topogram, Manual interruption possible once desired anatomy has been imaged.

CARE Bolus: Operating mode for CM-enhancement triggered data acquisition. The objective is optimum utilization of the contrast medium bolus in its "plateau" phase in the target organ. This option has been especially adapted to the increased speed and timing requirements resulting from the multirow capability and faster rotation. The CM enhancement is observed via monitoring scans in a user-defined ROI with a trigger threshold. As soon as the enhancement reaches its predefined threshold, the spiral scan is triggered as quickly as possible. License for software use on one modality.

### 11. Siemens Remote Service:

Siemens Remote Service (SRS) offers a wide range of medical equipment-related remote services resulting in increased system availability and efficiency. SRS employs sophisticated authentication and authorization procedures, state-of-the-art encryption technologies and logging routines together with strictly enforced organizational measures that provide optimal patient data security and access protection. The following SRS services are included for all service agreement customers and during warranty period:

Remote Diagnosis & Repair: In case of an unforeseen system malfunction, Siemens competent experts may directly connect with the CT system in order to identify the problem quickly. Moreover the remote repair function enables Siemens to often correct software errors immediately. Should an engineer on site be required, Remote Diagnosis & Repair allows Siemens to identify defective parts efficiently and accelerate their delivery, thereby keeping repair times to a minimum.

Event Monitoring: Event Monitoring screens the performance of the system. If a parameter deviates from a predefined value, a status message is automatically sent to the Siemens UPTIME Service Center. Service Engineers may evaluate the status message at periodic intervals and may initiate appropriate action within the scope of the service agreement.

SOMATOM LifeNet: An information and service portal directly at the CT Scanner consoles, featuring up to date information on CT products, application guides, accessories and training schedules as well as download of the latest scan protocols and 90 day free trial licenses on available software applications.

Notes on software use: Use of the entire integrated software, including optional software programs, is restricted exclusively to the application with this system.

Note: This product is in compliance with IEC60601-1-2 and fulfills CISPR 11 Class A. Note: In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

### Welcome Package

The Welcome Package contains a welcome letter, three current versions of the customer magazine SOMATOM Sessions, three Siemens Mouse Pads plus an e-Learning CD.

In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogeneity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.

## Description

TwinBeam Dual Energy is routinely applicable without compromising on image quality or radiation dose. To create two X-ray spectra (high and low) simultaneously from one tube, the Straton® tube assembly generates a prefiltered X-ray beam before it reaches the patient. Due to additional filtration, this technique requires high tube power reserves that are available on Siemens CT scanners with the Straton tube.

TwinBeam Dual Energy is an innovative, high-end approach that allows simultaneous acquisition of high and low kV datasets in a single spiral scan mode. Image acquisition is possible for all rotation times. High and low energy image series are reconstructed separately. Composed reconstruction delivers a single energy image dataset using the full information by directly combining the low and high energy data from the detector. With the full number of projections available for both spectra, there is no compromise on image quality.

Routine-ready workflow

TwinBeam Dual Energy in combination with FAST DE Results paves the way for Dual Energy in clinical routine. As part of an advanced workflow, FAST DE Results generates Dual Energy datasets at the acquisition workplace with results sent directly to the reading environment for a straightforward workflow that delivers advanced diagnostic information.

Available applications for FAST DE Results are:

- DE Monoenergetic (40 keV, 50 keV, 70 keV, 100 keV, 120 keV, 140 keV, 190 keV)
- DE Mixed images
- DE Iodine overlay image
- DE VNC image
- DE Iodine + VNC

FAST DE Results is as easy as selecting a recon job and will enhance your daily workflow significantly.

Siemens proprietary z-UHR (z-Ultra High Resolution) option enables an isotropic resolution of 30 lp/cm (0.17mm) at 0% MTF (+/- 10%). In addition, z-UHR Catphan® measurements demonstrate the industry's highest visible high-contrast resolution of 0.24 mm x 0.24 mm x 0.24 mm. The combination of z-Sharp Technology and z-UHR offers, in daily clinical routine, an isotropic detail in the range of research CsI-aSi flat-panel and Micro CT technology. z-UHR is intended for ultra-high resolution bone-imaging, in particular for small structures such as inner ear, joints or fractures of the bone. The option includes the z-UHR software as well as a dedicated tantalum detector comb.

DoseMAP is exists of the three parts.

These three parts in combination with each other deliver a complete and comprehensive dose management.

**Report Dose:** Create transparency and document dose values.

- DICOM SR Dose Reports: DICOM structured file allows for the extraction of dose values (CDTIvol, DLP)

- DoseLogs: Whenever a limit exceeds of the set up reference dose levels (Dose Notification and Dose Alert) automatically a report is created on the system.

The report can for example be used for audit purposes.

**Analyze Dose:** Assess the dose situation.

- CARE Analytics: makes it possible to set a query and retrieve DICOM SR Dose Reports. With CARE Analytics it is possible assess DICOM SR Dose Reports from different DICOM nodes and document dose data to get an insight in radiation dose per case or examination type, cumulative dose per patient or to start in-house dose reporting.

Exported and structured dose information makes it possible to monitor the dose over time and gives an insight in the radiation values per examination type. Based on that outcome, measures can eventually be defined to reduce dose.

- CARE Dashboard: Pre-examination dose check-up by showing an overview of all the used dose reduction features per scan.

- CARE Profile: Pre-examination dose check-up by displaying the dose distribution prior to the scan at every z-position.

**Protect Dose:** Manage access to protocols and potentially protect patients from over-radiation

## Description

- Access protection: by setting a password it is only possible to change and access the scan protocols in the Scan Protocol Assistant by authorized staff members only.

- Dose Notification and Dose Alert: Both functionalities may help to protect from over-radiation and warn the operator in case set dose thresholds are exceeded.

Dose Notification checks the dose values per chronicle entry.

Dose Alerts checks the accumulated dose per z-position.

With Siemens' unique STRATON tubes, the tube voltage can now be reduced to 70kV which helps to reduce radiation exposure to patients. With prior tube technology, the minimum tube voltage setting was 80 kV. The new tube voltage setting of 70 kV helps to further reduce the radiation dose to small pediatric or neonate patients.

CARE Child consists of:

- dedicated 70 kV scan modes
- new CARE Dose4D curves for children
- respective Children Protocol utilizing these features

CARE Contrast III supports a smart coupling of the CT system and the contrast medium injector to provide an easier, faster and safer contrast workflow in CT scanning. It facilitates contrast enhanced clinical workflow by synchronizing CT scan and contrast media injection using a single button control from either the scanner or the injector. It speeds up clinical workflow and allows efficient and confident monitoring of patients for extravasation during contrast media injection and scan delay countdown, even if only one Technologist/Radiographer is present.

Scanner and power injector have CE approval according to Medical Device Directive, Art. 12 for combined medical devices. The CE approval is valid for specific combinations of scanner and injector models and their respective software versions.

CARE Contrast III is based on the international standard for the communication between CT and injector (CANopen Application profile for medical diagnostic add-on modules, Part 2: Injector). Due to its open interface technology it is ready for future applications.

In addition, the injection parameters are automatically transferred to the patient protocol, the e-logbook and to MPPS (if configured) thus completing the data for the examination therein. With this, no separate documentation is needed resulting in significant workflow improvements: e.g. the injector information is available from the PACS when reading the images or it is accessible from the HIS/RIS. The injection parameters are also displayed on the contrast card.

CARE Contrast III also fulfills CANopen 425, class 4. This includes contrast protocol definition on the CT scanner (via Scan Protocol Assistant) and linking of contrast protocols with scan protocols. Next to the synchronized start of scan and injection from either the scanner's user interface or the injector's user interface, CARE Contrast III automatically transfers the injection parameters from the CT scanner to the injector.

FAST Planning assists the scan and reconstruction planning, based on a topogram, to provide an easier, faster and standardized workflow in CT scanning. FAST Planning features the selection of the anatomical region of interest from a list prospectively defined scan and reconstruction ranges, automatic detection of the scan region(s) of interest and proposal of corresponding scan range(s) in the topogram (in a narrow or wide lateral FoV), optimized FoV and automatic iso-center adaptation for Head scans.

The option supports adaptive prospective ECG-triggered sequence scanning and adaptive retrospective ECG-gated spiral scanning to obtain CT images of the heart in defined phased of the cardiac cycle at a minimum rotation time of 0.28 s (optional). With prospective ECG-triggered sequence scanning, quick scans are triggered by ECG signals. A temporal resolution of up to 142 ms can be achieved. Retrospective gating is based on a continuous spiral scan with simultaneous ECG recording. The cardio spiral reconstruction allows volume imaging in selectable phases of the cardiac cycle.

With retrospective ECG-gated spiral scans the ECG signal can be edited for improved image quality in the case of severe arrhythmia. A dedicated "Preview" tool enables the planning of the volume reconstruction during an optimal cardiac phase on the basis of axial single slices. With ECG-pulsed control of the tube current a dose reduction of approx. 50% can be achieved with retrospective ECG-gated spiral scans. The special scan protocols "Cardio-

## Description

Care" and "Cardio-Sharp" offer a special filter technique for cardiac examinations for improved sharpness and a lower dose.

ECG-controlled imaging techniques are the basis for both the quantification of calcified plaques in the coronary arteries (calcium scoring) and 3D reconstructions of the heart and coronary arteries in contrast media studies (CT angiography of the heart). Retrospective ECG gating also allows functional imaging of the heart. Moreover, these techniques suppress pulsation or motion artifacts in the lung and in vessels close to the heart (e.g. ascending aorta). The ECG signal is supplied by an ECG device integrated in the gantry.

Adaptive 4D Spiral applies a continuously repeated bi-directional table movement, moving the patient smoothly in and out of the gantry over the desired scan range. In stroke assessment, it provides the information not just for a limited section of the disease, but for the whole brain. It assures a reliable assessment of the type and extent of cerebral perfusion disturbances. In addition, it allows to perform perfusion studies over the entire organ in both head and body. Enabling to assess the entire extent of the disease and visualize the function of potential metastasis. Finally it enables the visualization and evaluation of complex intracranial vascular structures in separate phases. Arterial and venous phase are captured in a single scan, but can then also be evaluated separately. So you're able to not only delineate aneurysms and other vascular diseases, but also to exclude occlusions of the aortic vessels and assess venous thrombosis.

Dose reduction with CT has been limited by the currently used filtered back projection (FBP) reconstruction algorithm. When using this conventional reconstruction of acquired raw data into image data, a trade-off between spatial resolution and image noise has to be considered. Higher spatial resolution increases the ability to see the smallest detail; however, it is directly correlated with increased image noise in standard filtered back projection reconstructions as they are used in CT scanners today.

Iterative reconstruction approaches allow decoupling of spatial resolution and image noise. With the Sinogram Affirmed Iterative Reconstruction (SAFIRE), correction loops are introduced into the image generation process. These iteration loops utilize raw-data information to significantly improve image quality. Additionally, image noise is removed in the iterative corrections without degrading image sharpness. The noise texture of the images is comparable to standard well-established convolution kernels. The new technique results in a higher image quality with reduced noise and increased image sharpness that can be translated to dose savings of up to 60 %\* for a wide range of clinical applications.

\* In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. The following test method was used to determine a 54 to 60% dose reduction when using the SAFIRE reconstruction software. Noise, CT numbers, homogeneity, low-contrast resolution and high contrast resolution were assessed in a Gammex 438 phantom. Low dose data reconstructed with SAFIRE showed the same image quality compared to full dose data based on this test. Data on file.

The iMAR metal artifact reduction algorithm combines three successful approaches to reduce metal artifacts: beam hardening correction (in sinogram regions of less severe metal attenuation), normalized sinogram inpainting (in sinogram regions of high metal attenuation), and frequency split (to mix back noise texture and sharp details that are potentially lost during inpainting).

The correction process is then iteratively refined by repeating the normalized sinogram inpainting and the mixing steps thanks to the Adaptive Sinogram Mixing.

Along with the new algorithm comes the simple user interface of iMAR. Besides the typical reconstruction parameters it only requires to select the desired protocol from a drop down menu which contains the following type of implants: dental fillings, neuro coil, thoracic coil, hip implants, extremity implants, pacemakers, spine implants and shoulder implants.

In today's clinical environment, there are cases for which it is important to visualize areas outside of the normal 50 cm CT scan field. For this reason, special reconstruction algorithms have been created to allow for visualization of objects using a FoV up to 78 cm. This extra versatility was primarily created to assist with radiation treatment planning applications. The image quality for the area outside the standard 50 cm scan field does not meet the image quality specifications shown in the technical data sheet (non-diagnostic image quality). Image artifacts may be common in the area outside the normal 50 cm scan field, depending on the anatomy scanned.

## Description

Unlike other automated MPR offerings, WorkStream 4D does not require thin slice data to be reconstructed prior to the production of reformatted images. This enhancement saves time when compared to alternative MPR techniques.

In Addition, WorkStream 4D allows the user to produce oblique and double oblique reformats as either MPR or MIP images which substantially improves workflow both for routine and CTA examination when compared with alternative techniques.

Further advantages are the elimination of manual reconstruction steps and the reduction of data volume up to a factor of 10, since virtually all diagnostic information is captured in 3D slices.

FAST Spine provides various modes that automatically create anatomically orientated spine reconstructions based on a 3D volume. It provides an easier, faster and standardized workflow in CT scanning. FAST Spine features automatic segmentation of the spinal canal, automatic labeling of the vertebrae, anatomically oriented slices – (orthogonal to the spinal canal), coronal and sagittal reconstructions which refer to the curvature of the spinal column and more. All modes offer the possibility to adapt the results manually.

FAST Spine requires Workstream 4D.

FAST 3D Align automatically corrects misalignment of anatomic structures, organs of the patient. It aligns those to fit it to the selected reconstruction plane for a highly automated reconstruction workflow. Additionally it minimizes the black area in the image through automatically adjusts recon field of view selection.  
FAST 3D Align requires Workstream 4D.

*syngo* Calcium Scoring supports easy volumetric processing of the data and treats individual calcified lesions as 3D objects. For effective visualization *syngo* Calcium Scoring allows axial images to be displayed together with fast, interactive MIPs. On each image the user can mark calcified regions in up to four coronary arteries. The tabular display showing the score of the four arteries is updated automatically.  
The software supports all the usual quantification algorithms: Agatston scoring, volumetric scoring and calcium mass quantification. The effect of overlapping slices is compensated. The volume and mass can be determined on the basis of basic volumetric scoring or volumetric scoring with continuous interpolation. The calcium mass is determined in equivalent CaHA units and is calibrated automatically for SOMATOM systems via the scan mode. The threshold for identifying coronary calcifications is configurable.

- User input of calibration factors (allows evaluation of calcium mass for non - Siemens images, if the factors are known)
- Automated selection of coronary calcifications by "3D picking" functionality, which allows automatic volumetric region growing of connected lesions in successive slices.
- Interactive selection/deselection of regions which contribute to calcium scoring.
- User-defined assignment of lesions to one of the four arteries (LM, LAD, CX, RCA) or to other lesions or structures.
- 3D editing of lesions.
- Image annotation
- Built in Framingham Risk calculator
- Built in Procam Risk calculator
- Patient size adjusted calculation of calcium mass, based on the recommendations of the "International Consortium for Multi-Detector CT Evaluation of Coronary Calcium"

Report Generation via List & Label including free text and clinical images

- Saving on floppy disk/hard disk and/or printing
- Interface to user-defined reference table can be used for risk
- Stratification. The corresponding risk percentile information can be
- included in the report
- Easy and fast Report Configuration for customized hospital/office
- information on the final report

## Description

- Printing of results on laser film and paper printer.
- Export of results to RTF, PDF, JPEG, etc.
- Export of results as DICOM SR

### Prerequisites:

Correct operation of the software option is guaranteed only for image data collected using SOMATOM scanners with HeartView option.

### Brief description

*syngo.via* provides one graphical user interface to prepare and read images from various modalities.

Supported images types are:

- Computed Tomography Images
- Magnetic Resonance Images
- PET Images
- Computed Radiography Images
- Digital X-Ray Images
- X-Ray Angiographic Images
- X-Ray Radio-Fluoroscopic Images
- Ultrasound 2D Images
- Secondary Capture Images
- Encapsulated PDFs

### General reading functions, such as:

- Browser functionality for patient and data access
- Loading and displaying images
- Scrolling through images (e.g. movie mode, fast mouse scrolling, synchronized scrolling)
- Mirror, rotate, invert, windowing, pan/zoom, annotations, distance and angle measurement, pixel lens, ROI / VOI evaluation
- Findings navigator - create, collect and navigate findings
- Correlated cursor
- Series synchronization for pan/zoom, windowing, LUT, scrolling
- Locked navigation of different modality types (e.g. MR / CT)
- User-defined context menu
- Multiple layouts for 2D, 3D, 4D diagnosis
- Snapshot images as secondary capture

### Integrated 3D tools, such as:

- All reformats immediately available: VRT, MIP thin/thick, MPR thin / thick, interactive slice thickness change
- VRT Punch
- VRT Gallery
- Clip plane and clip box
- Bone removal for fast segmentation and removal of bony structures
- Fusion and registration
- Parallel, curved & radial ranges
- 2D & 3D reference lines, 3D reference point
- Region growing and quantification for interactive segmentation of anatomical structures

### Anatomic intelligence:

- Automatic spine labeling
- Automatic rib labeling for CT thorax scans
- Automatic landmark registration for accurate anatomical alignment of multiple timepoint cases

## Description

### Applications for dedicated clinical areas

Beside general 2D/3D/4D capabilities, the following advanced functionalities for dedicated clinical areas are part of *syngo.via*.

These applications are medical products in their own right and necessary country-specific approvals might not yet be available (e.g. 510k, CE Mark).

#### CT Cardiac

Review Marker, Heart Isolation, Movie (Beating Heart), Manual Coronary Tracking, Cardiac Planes, Curved & Cross-Section MPR, Integrated Reporting

#### CT Vascular

Bone Removal, Table Removal, Review Marker, MPR, Thin MIP Ranges, Curved & Cross Sectional MPR, Integrated Reporting

#### PET&CT Oncology

10 CT image series per time point, RECIST/WHO measurement, Basic PET evaluation, Image fusion, Registration, Time point comparison (two time points) 3D overview image, Local registration, Export CSV

#### *syngo*.CT Dual Energy

*syngo*.CT Dual Energy offers a viewer that displays a fused image for initial diagnosis. It includes Optimum Contrast to calculate automatically contrast-optimized images, the possibility to calculate monoenergetic images for a range of 40 - 190 keV as well as *syngo*.CT DE Rho/Z to display electron density and effective atomic number maps. The additional, optional Dual Energy applications utilize *syngo* Dual Energy's two data sets even further: the material-specific difference in attenuation enables an easy classification of the elementary chemical composition of the scanned tissue.

The Rapid Results Technology offers the ability to select the required Dual Energy results in the scan-protocol. After auto-transfer of the image data to the connected *syngo.via* system, all predefined results are calculated automatically. On top of that, an immediate distribution of the results to the connected reading environment can be triggered.

*syngo*.CT Dual Energy works with Dual Energy images from SOMATOM Definition, Definition Flash, SOMATOM Drive & SOMATOM Force and with single source Dual Energy images from SOMATOM Definition Edge, SOMATOM Definition AS family, SOMATOM Perspective and SOMATOM Scope (Power configuration).

#### MR Reading

- Automatic data loading:  
All data of the current study is automatically loaded in a 2\*2 stack layout - including 3D and 4D data.
- Follow-up support:  
Follow-up layout for comparison between two timepoints.
- Rescan handling:  
Repeated scans are collected in one stack that provides an overview layout to select the best rescan for reading.
- Workflow customization and creation:  
MR Reading allows the user to generate new, customized workflows.  
MR Reading report template included.

#### Workflow Automation

- Triggered by PACS or modality:  
Disease-specific workflow mapping can also be done based on image information (modality and/or study description)
- Triggered by RIS:  
*syngo.via* requests the DICOM Modality Worklist (DMWL) from the connected RIS to enable automatic disease-specific workflow mapping and prefetching of examinations from PACS for follow-up reading.

#### Disease-specific reporting:

- Disease-specific reports can be derived from different clinical applications (structured reporting).
- Findings collected in the Findings Navigator can be transferred to disease-specific reporting application and can then be stored as DICOM Structured Reports.
- The reports created with *syngo.via* are stored as encapsulated PDF DICOM objects. Additionally the report can be saved in the file system as a PDF file. The stored PDF report can be viewed and printed by the clinical



## Description

user.

### Further functionality, such as:

- *syngo* Expert-i support for *syngo* MMWP integration
- *syngo.plaza* Integration
- Query/retrieve from DICOM nodes
- Export images and creating patient media
- Filming (DICOM print) or postscript printing functionality

### Prerequisites for all service related issues:

- Availability of a customer administrator that performs dedicated administration and support tasks (e.g. 1st line support, data security, backup,...).
- Minimum permanent broadband internet connection bandwidth for uncompromised service support are 2000 kBit/s downstream and 512 kBit/s upstream.  
Otherwise, certain support services may not be provided and the agreed remote response time cannot be guaranteed.

### Specification of minimum broadband internet connection in detail:

- Downstream: 2000 kBit/s for Software update, IT- and Application support (Siemens Remote Service – SRS)
- Upstream: 512 kBit/s for Application support (SRS)
- Upstream: 256 kBit/s for Software update and IT support (SRS)

### Scope of delivery:

- DVDs with *syngo.via* software – VB20  
(software license for *syngo.via* L-Software)

The **CT Acute Care Engine** permits access for one user for the following software modules:

### Software Modules

- ***syngo*.CT CaScoring** is a workflow step that quantifies coronary calcifications (mass, volume, Agatston equivalent) and calculates the patient's coronary age. During the evaluation, the patient's score is compared to the scores of a healthy reference group. Implemented large reference databases are:

- MESA, McClelland, Circulation, 2006 (USA, 6,110 patients)  
Data support for different ethnic groups: Caucasian, Asian, Hispanic, etc.
- Hoff, Am J Cardiol, 2001 (USA, 35,246 patients)
- Rumberger, Mayo Clinic, Proc, 1999 (USA, 1,898 patients)
- HNR, Schmermund, Atheroscl., 2006 (Germany, 4,275 patients)
- Raggi, Circulation, 2000 (USA 9,730,

- ***syngo*.CT Coronary Analysis** provides a cardiac-specific set of automatic pre-processing steps and display functions for quick and reliable evaluation and quantification of angiography images of the coronary arteries. With these features, the case is ready for review when first opened, thus saving many manual workflow steps and bringing more efficiency into daily practice. The rule-out of coronary artery disease is possible.

- Automatic segmentation and labeling of the main coronary arteries (RCA, LAD, CX), major coronary branches and **saphenous vein grafts** (SVG)
- The **Single-Click Stenosis** function provides all relevant information for stenosis quantification and coronary stent planning: Stenosis diameter and area, curved length, minimum lumen identification, effective diameter etc.
- The **VesselSURF** tool enables ultra-fast, 3D vessel assessment in axial slices even without the existence of centerlines or in occluded vessels. As the vessel is being surfed the cross section and best longitudinal view are displayed in real time
- The **Image Sharpening** tool allows for a more thorough evaluation of calcified lesions or stents without the need for an additional reconstruction at the scanner

## Description

- **Robust segmentation** of the coronary vessels despite high-grade stenoses
- Comprehensive 3D visualization of the **coronary tree**, including layered display of cardiac and coronary anatomy with individual VRT-presets and Cinematic VRT\*.
- Anatomy Visualizer for 3D layered visualization of multiple anatomical structures
- Automated centerline definition with less editing for **challenging evaluations** on long and/or partially occluded vessels
- Extend centerlines in CPR view
- **Straightened MPR** view for complete vessel overview, easy stenosis identification, and quick measurements

- **syngo.CT Vascular Analysis** allows to automatically evaluate and quantify angiography images of the general vessels. It provides a vascular-specific set of auto-preprocessing steps and display functions. These functions make it possible that the case is immediately ready for review when opened, thus saving many manual workflow steps to bring more efficiency into daily practice.

- The **VesselSURF** tool enables ultra-fast 3D vessel assessment in axial slices even without center lines or in totally occluded vessels, while displaying longitudinal/perpendicular cross sections of the vessel in addition to the 2D images in real time
- Auto pre-processing steps, like auto bone and table removal, provide an **immediate vascular-only view**
- The 2-click center line creation allows for a **quick and robust vessel segmentation** and CPR display
- **Vessel analysis tools** provide all relevant information, e.g. stenosis diameter and area, curved length, profile curve, minimum lumen identification, etc.
- Measurement and reporting tools for therapy support, such as stent planning in case of AAA
- Bone & Vessel Isolation mode for selective highlighting of high-contrast structures, for example to bring out the bone in trauma cases involving fractures of the femur or hip, or for **single-click plaster cast removal**
- Anatomy Visualizer for 3D layered visualization of multiple anatomical structures with individual VRT-presets and Cinematic VRT\*.
- Automated centerline definition with less editing for **challenging evaluations** on long and/or partially occluded vessels
- Extend centerlines in CPR view
- **Straightened MPR** view for complete vessel overview, easy stenosis identification, and quick measurements

- **syngo.CT Cardiac Function** is a workflow step that allows reading and diagnosing CT angiography images of the heart for the evaluation of left ventricular function. Automatic pre-processing of the data includes left ventricular volumetry and myocardial wall segmentation of the left ventricle in all cardiac phases without any interaction. Full Cardiac assessment is now possible.

- The local cardiac function is automatically displayed in AHA-conform 17 segment **2D polar maps**
- Automatic Aortic Valve and Mitral Valve plane display
- Straightforward drawing of contours, e.g. in the case of congenital heart disease or severe cardiomyopathy
- Polar map visualizations include flexible scaling
- Comprehensive **movie functionality**
- Quick creation of short-axis movies at multiple locations for PACS viewing
- **Cardiac movie playback** including adjustment of movie speed to heart rate

The latter three applications feature the new **Rapid Results Technology**: You can automatically generate reproducible and standardized visualizations of the coronary and general vessels in various types and orientations. Be creative and design your own personal Protocols that suit your daily work best. Define your workflow once and let Rapid Results Technology produce the decision basis for coronary evaluations, stent planning, as well as examinations of unclear ischemia. *syngo.via*'s client-server technology lets you share your Protocols with other colleagues. Save time for reading other cases by automatically creating just the right amount of information - standardized and reproducible.

- **Customize** your every-day procedures by defining and saving individual Protocols in the Protocol Configurator
- Re-use your **own configured protocols** for an automated generation of snapshots, radial and parallel ranges for MPR, MIP, and VRT images (incl. VRT presets) in every case
- Save time by **standardizing image creation**, including PACS series and filming
- Pause the Protocol execution at any time and adjust settings interactively
- Configure result names and properties including snapshot and range series
- Send your findings to report and printing
- Provide hints, tips, and recommendations both to bring standardization to clinical routine and in order to **educate fellow colleagues**
- Integration of **measurement tools** into a protocol, such as length and diameter measurements

\* Only available, if the applicable license has been purchased:

## Description

The **syngo.via Cinematic VRT** provides photorealistic 3D views of CT datasets through highly sophisticated photon simulations. Multiple advanced image processing features like automatic volume rendering technique (VRT) range generation, mask handling, clip plane functionality and others are provided. Together with various view options this enables the user to highlight anatomical details of clinically relevant structures in superior image quality, which holds the potential to be beneficial for patient communication, education, preoperative planning, preparation and diagnosis support.

- Enabling a direct communication between scanner and PACS, utilizing your *syngo.via* workstation
- **syngo.CT Neuro DSA** and its guided workflow support the evaluation of complex intracranial vascular structures and delineation of aneurysms and other vascular diseases. CT DSA data are immediately pre-processed and ready for evaluation whenever and wherever needed. It automatically removes bones of the head and neck, subtracting low-dose non-contrast native head-CT scan and a contrast-enhanced CTA.

- **syngo.CT Neuro Perfusion** allows for quantitative evaluation of dynamic CT data and enables a quick and reliable assessment of the type and extent of cerebral perfusion disturbances. It provides quantitative images of Cerebral Blood Flow (CBF), Cerebral Blood Volume (CBV), Time to Peak (TTP), Time to Start (TTS), Time to Drain (TTD), Mean Transit Time (MTT), Transit time to the center of the Impulse Response Function (TMax) and Flow Extraction Product (Permeability).

- One clinical application is to visualize blood flow, blood volume, **syngo.CT Neuro Perfusion, available both as guided or automated (Auto Stroke) workflow, visualizes blood perfusion in the brain** and parameter mismatch in acute ischemic stroke. **In combination with Rapid Results technology, it allows automated results creation and archiving.**

This can help to estimate the size of the core infarct as well as the extent of tissue at risk to infarct (penumbra) that is potentially salvageable with further therapy. These insights can support the clinician to better decide on optimal treatment.

- Another application is the visualization of blood brain barrier disturbances using permeability imaging. Modeling extra-vascular leakage of blood into the interstitial space (Flow Extraction Product) may improve the differential diagnosis of brain tumors and be helpful in therapy monitoring.

### Additional integrated Dual Energy (DE) functionality:

(For scanners with DE capabilities only. To enable the DE functionality at least one user license of the respective DE application has to be purchased, i.e. *syngo.CT DE Direct Angio* and/or *syngo.CT DE Heart PBV*)

- **syngo.CT Vascular Analysis - DE Direct Angio** allows for easy and precise bone-free, whole-body visualization while preserving critically small vessels such as an accessory right upper-pole renal artery. It also removes hard plaque from major vessels (e.g. for aorta, iliac, and femoral arteries) for true lumen assessment.
  - The automated pre-processing allows for a fast and efficient use of Dual Energy data.
  - Seamless integration of Dual Energy processing into *syngo.CT Vascular Analysis*
  - The result (bone mask) can be switched on or off at any time.
  - Furthermore, the data can also be viewed over the "Series Navigator" that allows a floating window mode for better comparison.
- **DE integration of syngo.CT DE Heart Perfused Blood Volume (PBV)** automatically visualizes the contrast agent concentration or perfused blood volume of Dual Energy CT data of the myocardium for the assessment of myocardial viability or the visualization of infarct location and size within your *syngo.via* reading workflow.

The **CT Acute Care Engine Pro** permits access for one user for the following additional software modules:

### Additional Software Modules

- **syngo.CT Cardiac Function - Enhancement** is an extension of the CT Cardiac Function workflow step that allows visualizing hypodense and/or hyperdense myocardial areas within CT datasets acquired with Single or Dual Energy\* CT.

## Description

- Dedicated button for **First Pass Enhancement**: Single-click identification of hypodense areas within the myocardium by color-coding
- Dedicated button for **Late Enhancement**: Color-overlay helps to visualize hyperdense areas with a single click
- Color overlay can be turned on/off at any time
- Dedicated workflow step for the analysis of dynamic quantitative perfusion
- Offering the **full spectrum of myocardial perfusion analysis**: First pass enhancement (Single and Dual Energy\*), dynamic quantitative perfusion\*\*, late enhancement (Single and Dual Energy\*)
- Overlay of myocardial perfusion information on MPRs
- AHA-conform **17 segment polar maps** for all types of perfusion data
- Straightforward localization of myocardial enhancement defects
- Visualization of all types of perfusion data with the **Hybrid View** facilitating the analysis of the correlation of a defect with the coronary arteries
- \* Requires at least one user license of *syngo*.CT DE Heart PBV
- \*\* Requires *syngo*.CT Myocardial perfusion

- ***syngo*.CT Cardiac Function - Right Ventricle** is an option for the CT Cardiac Function workflow step that allows reading and diagnosing CT angiography images of the heart for the evaluation of right ventricular function, allowing full cardiac assessment.

- ***syngo*.CT Vascular Analysis - Autotracer** is an option for the CT Vascular Analysis workflow step that allows automatic vessel centerline extraction and anatomical labeling of the main vessels, even before the case is opened for review. When the case is opened, all major vessels are already segmented and anatomically labeled. The first vessel is prepared in CPR view and the cross-sectional cuts are displayed for immediate evaluation. It is prerequisite for fast and efficient rule-out of atherosclerosis or severe stenosis while making possible a full vascular assessment.

- ***syngo*.CT Rapid Stent Planning** introduces the automatic completion of manufacturer-specific stent order forms. As of delivery, *syngo*.CT Rapid Stent Planning provides the three order forms Gore Excluder, Zenith Flex, and Medtronic Endurant in pdf-Format. On top of that, new site-specific order form templates may be generated to match the requirements of other vendors (requires Adobe Acrobat Professional).

- ***syngo*.CT Dynamic Angio** helps to evaluate time-resolved CT images reconstructed from dynamic CT data. It facilitates the visualization of the vessel enhancement over time and allows to create CT volumes of, e.g. arterial or venous phase.

- Automatic calculation of **Temporal Maximum Intensity Projection (tMIP)** and **Temporal Average volume (tAVG)** for enhanced vessel and soft tissue visualization
- **4D noise reduction** and a body region dependent **motion correction** for robust image evaluation
- For a phase specific evaluation, e.g. of the arterial phase, the **Twin Slider** allows to restrict the calculation of new CT volumes to any user-defined time range within the dynamic scan. The tMIP or tAVG phase volume is automatically refreshed if the position of the Twin Slider is changed.
- For an evaluation of local vessel or tissue enhancement, *syngo*.CT Dynamic Angio displays ROI-specific time attenuation curves, as well as curve and statistical parameters, e.g. **time to peak and peak enhancement**.

The **CT Oncology Engine** permits access for one user for the following software modules:

***syngo*.CT Segmentation** provides advanced features for easy and fast CT oncology reading. It supports the automated segmentation and evaluation of lesions in lung, liver, lymph nodes and other organs. Additional quantifications like Choi criteria and Advanced HU Statistics provide enhanced clinical insights in assessment of potential cancerous lesions.

In detail the application provides:

- Follow up of multiple time-points
- Simultaneous two time point visualization and comparison
- 3D evaluation of lesions measurements
- Automated single click segmentation of lung and liver lesions, lymph nodes, and general lesions
- Easy adaptation of segmentations

## Description

- Auto-measurements and display of RECIST 1.0 or 1.1, WHO and volume data
- Calculation and display of Choi criteria (Mean HU and Std. Dev. HU combined with unidimensional measurements)
- Advanced HU Statistics and display of hypodense areas of lesions as potential indicator of therapy response
- PET visualization and basic evaluation CT, PET, and MR data. In case additional image data from MRI or PET are available images can be evaluated in the oncology reading environment. Images will be automatically registered and synchronized with the CT data sets.

**syngo.PET&CT Cross-Timepoint Evaluation** enables physicians to quantify changes in tumor activity and size between time points, typically during evaluation of therapeutic response (e.g. pre- and post-therapy) to assess disease status and treatment efficacy, by comparing quantitative analysis of volume, RECIST, WHO, minimum, average and maximum functional uptake.

In detail the application provides:

- Calculation of tumor growth rate, tumor burden, and tumor volume doubling time between different time points
- Trending VRT – color-coded visualization of RECIST size changes (baseline to current) at a glance
- Trending graph - visually trend lesion measurements (e.g. RECIST / volume) over time
- Follow up of multiple time points
- Simultaneous four time point visualization, comparison and synchronous navigation including anatomical, functional and fused data

**syngo.CT Colonography** combines the advantages of 2D and 3D reading strategies. Flexible screen layouts and dual monitor support permit instant switching between the 3D endoscopic view and the corresponding 2D images. Even more, the reading physician can choose to perform a synchronized flight in both prone and supine positions. The registered navigation offers both endoscopic views in a side-by-side display on up to two monitors for an easier differentiation of potential lesions. The Findings Navigator automatically collects and stores all the potential lesions when marked.

In detail the application provides:

- Non-invasive, virtual colonography based on low-dose, high-resolution CT scans
- Synchronized real-time display and analysis of two scans (prone and supine) on up to two monitors
- Support of dual monitor setup
- Synchronized update of endoscopic, axial and global views
- Real-time virtual endoscopic viewing in premium image quality, using high performance rendering techniques
- Fully automated flight path finding
- Automated tagging of the small bowel for removal from examination
- Solid or barium enema-type display of entire colon for easy overview of path
- Overview segment containing flight path and marked pathologic findings
- Semi-automated polyp measurement in 3D endoscopic view
- Visualization of stool tagging
- A panoramic endoscopic view of the colon allows the user to visualize the colon in both directions, enabling visualization of the area behind folds while flying in one direction.
- The Findings Navigator collects, stores, and exports findings of potential lesions.
- Findings can be reviewed from the Findings Navigator and reported easily according to C-RADS standard.

All results are stored in *syngo.via*'s findings navigator.

**Additional integrated Dual Energy (DE) functionality** - only available for SOMATOM Force, Definition Flash, Edge, and AS Dual Energy image datasets:

- **DE support of syngo.CT DE Virtual Unenhanced**

## Description

Dual Energy opens the door to a new world of characterization, visualizing the chemical composition of material. Utilizing the *syngo* Dual Energy option, the CT Scan provides diverse information. *syngo*.CT DE Virtual Unenhanced uses this information to subtract the contrast medium out of enhanced CT images, thus avoiding the non-enhanced examination. The resulting image helps to characterize liver and kidney lesions, enabling a faster and more reliable diagnosis.

(To enable the DE functionality at least one license of *syngo*.CT DE Virtual Unenhanced has to be purchased)

The **CT Oncology Engine Pro** provides the following software modules:

***syngo*.CT Lung CAD** is a computer-aided detection tool designed to assist radiologists in the detection of solitary pulmonary nodules during review of CT examinations of the chest. Results are automatically processed immediately after the dataset is sent to *syngo*.via and are ready for reading as soon as the patient case is loaded. The software is an adjunctive tool to alert the radiologist to regions of interest (ROI) that may have been initially overlooked. *syngo*.CT Lung CAD is intended to be used as a second reader tool after the initial read has been completed. All *syngo*.CT Lung CAD findings are presented directly in the Mini-Toolbar, located in the image segment, which facilitates reviewing and reporting of CAD-marked potentially suspicious lesions.

Alternatively to reviewing Lung CAD results in *syngo*.via, Rapid Results Technology sends preprocessed Lung CAD results to the PACS, thus eliminating manual steps and providing advanced visualization results – ready for reading directly in the PACS.

***syngo*.CT Colonography - PEV** is a fully automated computer assisted second reading tool for automated detection of colon polyps. The software is an adjunctive tool to alert the radiologist to regions of interest (ROI) that may have been initially overlooked. Results are automatically processed immediately after the dataset is sent to *syngo*.via and are ready for reading as soon as the patient case is loaded. All PEV results are presented in the Findings Navigator, where relevant findings can be reviewed and reported easily according to C-RADS standard.

***syngo*.CT Colonography - Advanced** is an option to *syngo*.CT Colonography consisting of the Polyp Lens, the Stool Removal functionality, and Virtual Dissection.

The Polyp Lens provides advanced visualization by color coding the CT values behind the surface of tagged fecal residue in the virtual endoscopic display. This allows the user to distinguish potential polyps from residual stool, lipoma and other structures.

The Stool Removal functionality enables the user to remove residual stool from the visualization in the 2D MPRs and the 3D endoluminal view. The user can quickly toggle between Stool Removal and regular display to assess potential polyps which might be hidden in residual stool cavities.

Virtual Dissection provides an advanced visualization which unfolds the colon so that the mucosal surface is displayed in one plane. For visualization of the colon in its entire length the user can scroll the organ from one end to the other.

*syngo*.PET&CT Onco Multi-Timepoint enables simultaneous visualization of up to 8 time points with specific layouts enabling synchronous scrolling and navigation through all datasets. Especially in cases with many prior examinations combined with multi-modality acquisitions, e.g. PET/CT, this functionality assists in visually keeping track of the complete patient history.

Based on a Dual Energy scan the *syngo*.CT Dual Energy Advanced Package offers the following applications:

- *syngo*.CT DE Gout facilitates a reliable diagnosis of gout by visualizing deposited uric acid crystals in peripheral extremities and automatically color-coding these crystals.
- *syngo*.CT DE Direct Angio offers a highly automated and reproducible vessel segmentation and bone removal even in complicated anatomical regions based on a single scan.
- *syngo*.CT DE Virtual Unenhanced helps to characterize lesions by offering an enhanced and an virtual unenhanced image based on a single scan.
- *syngo*.CT DE Calculi Characterization visualizes and characterizes kidney stones.
- *syngo*.CT DE Heart PBV visualizes the iodine concentration in the myocardium to reveal perfusional defects.
- *syngo*.CT DE Brain Hemorrhage allows to differentiate hemorrhages which are visible in the virtual non-contrast image from iodine uptaking lesions
- *syngo*.CT DE Lung Analysis allows for the color-coding of vessels that are affected by, e.g. pulmonary emboli and therefore show a significantly lower perfusion than non-affected vessels. It also enables a fast evaluation of perfusional defects in the lung parenchyma without an additional non-contrast scan.
- *syngo*.CT DE Bone Marrow allows for the segmentation and visualization (color-coding) of the bone marrow

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based on a material decomposition into bone marrow and calcium.

- *syngo*.CT DE Monoenergetic Plus allows users to display monoenergetic images for a range of 40-190 keV. For enhanced iodine contrast and metal artifact reduction.
- *syngo*.CT DE Harplaque Display distinguishes calcified plaques from iodine contrast media with color-coding.

The *syngo*.via General Engine provides functionalities for highly efficient reading and reporting of routine to advanced cases and comprises the software modules ALPHA technology and *syngo*.via Advanced Reporting.

**The ALPHA technology** speeds up the workflow by automating and standardizing reconstructions and improves consistency in image presentation. Anatomical Range Presets powered by ALPHA technology automatically initialize ranges and projections with respect to the underlying anatomy. Practically eliminating the need for manual interaction, this feature supports consistent results, efficient procedures, and diagnostic confidence.

**The *syngo*.via Advanced Reporting** is a set of features for merging 3D reading with flexible reporting. It enables efficient and structured management and communication of *syngo*.via results. Findings from different workflows can be combined in a single document. Print layouts can be flexibly selected. Formatted content and images can be easily copied from the *syngo*.via Report as RTF into a diagnostic report or can be sent easily as a pdf-document\* with an HL7 message to an information system (e.g. RIS/HIS). And the *syngo*.via Report can be distributed to PACS as DICOM SC image. In addition, *syngo*.via Advanced Reporting provides tools for easy creation and administration of report templates. So you can easily edit and create sections and picklists and quickly create your own report templates or customize default templates for your institution.

Irrespective of modality or clinical field, *syngo*.via General Engine offers many benefits:

- Faster case preparation as manual interaction usually not needed
- Consistent result quality across users and patients
- Flexible combination of diagnostic results to provide the full picture in one document
- Easily report incidental findings in a structured way
- Having the full diagnostic picture is basis for appropriated treatment selection and patient satisfaction

\* Prerequisite for embedded pdf in HL7 message:

- Licenses for HL7 Patient Information Reconciliation (PIR) AND Report Export for *syngo*.via
- Implementation respectively: PACS/RIS-Driven Implementation Package, PIR Configuration and Report Export Configuration

### Brief description

Type: Hewlett Packard rack mount server  
Processor: 2 CPU  
RAM: 64GB  
System and Data Disk: RAID Level 5  
1x Hot Spare for RAID 5  
Gross Image Storage: approximately 2600GB  
Optical drive: DVD-RW  
Graphical Processing Unit: NVIDIA GPU

Mouse: USB Optical Scroll Mouse  
Keyboard: USB standard international  
Rack mount kit for 19" HP rack included

The server is configured with a redundant fan and redundant power supply  
Operating System: Windows Server 2012 R2

### Recommended Environment Requirements

Server for operation only in server rooms  
A 100 Mbit/s (minimum) / 1 Gbit/s (recommended) network environment is needed for optimal performance.  
For remote access a 10 Mbit/s (minimum) / 16 Mbit/s (recommended) broad-band connection is required.

### Service Package

Basic care pack for this server configuration is not included and has to be ordered separately!

## Description

Technical details are subject to change without notice!

### Brief description

Prime HW Support with a service window depending on your IT Care Plan and on the SIEMENS Customer Care Center (CCC) office hours.

The delivery of the on-site Break&Fix support is performed by HP.

- Content of the Prime HW Support: **Remote problem diagnosis and support** – Siemens Service remotely uses HP support tools to isolate your problem and facilitate resolution in close cooperation with the next HP service hub in your area.
- **Break & fix service with on-site support.** – For issues that cannot be resolved remotely, an authorized HP Services representative will be sent on-site and returns your system to operational condition, repairing or replacing components or entire units. If required, HP services restore at the same time system and network functionality to allow Siemens Service to seamlessly continue with any further required remote service activity.
- **Defective Media Retention Service** – This option lets you protect sensitive data by keeping your defective disk, without the need to return defective media.
- **Integrated service management:** - Seamless cooperation and processes between SIEMENS and HP to ensure optimized end-to-end issue handling.
- **Enhanced HW support** – Provision of necessary BIOS-, Firmware and Driver update packages to keep the HW system up to date. Required patches and updates are provided remotely to be installed conveniently during the next application maintenance or service window by the responsible IT system administrator.

### Brief description

Size: 24.1"

Brightness: 350 cd/m<sup>2</sup>

Contrast ratio: 1000:1

DICOM calibration: with bundled RadiCS LE quality control

After-sales service: 3 years swap service

Due to country-specific regulations, the monitor will be shipped without a power cable. The power cable will need to be sourced locally.

The PACS-Driven Implementation Package includes the following tasks:

- Basic hardware installation and network integration
- Activation of Siemens Remote Services connections
- Import of all *syngo.via* server license files
- Basic clinical configuration and integration of up to 5 DICOM nodes in *syngo.via*, such as one modality, one PACS, not more than two *syngo* MultiModality Workplaces, one printer, or one RIS/ DMWL-source including the request of a DICOM Modality Worklist sent to *syngo.via* for a networked Siemens scanner. All nodes need to be validated for connection with *syngo.via*.
- Installation of a software upgrade and a *syngo.via* client on one formerly installed *syngo* MMWP, already configured in *syngo.via* as a DICOM node;
- Configuration DICOM access to *syngo.via* in *syngo* MMWP;  
Integration of the basic *syngo* MMWP access into one *syngo.via* client workplace by installation and



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configuration of the software Expert-i on the *syngo.via* client.

- Assistance in setting up frontend integration of *syngo.via* with one PACS workplace (for image call-up directly out of the PACS application user interface). This may require the purchase of software and services from the PACS vendor.
- Integration of *syngo.via* into the IT infrastructure using an existing Active Directory, consultation of the customer's IT administrator for routing/ports.
- Configuration of basic workflow rules: autodelete, archiving, autorouting in *syngo.via*
- Installation of the WebViewer integrated license (applicable only for *syngo.via* SW version VA30 or higher and only in countries where released)
- Acceptance Test in cooperation with the customer

Context of the implementation tasks:

- The DICOM conformance of the DICOM nodes is prerequisite for connection to *syngo.via*.
- The DICOM nodes to be connected to *syngo.via* must be configured and tested by the customer, for e.g. configuration of the remote DICOM node *syngo.via*, routing rules, procedures. If necessary, the customer orders these services from the DICOM node's vendor.
- The DMWL-source must be able to provide the DMWL to *syngo.via* identical to the DMWL provided to the modalities.
- The configuration of the customer's Local Area Network is performed by the customer.
- Provision of a minimum broadband Internet connection bandwidth with 2000 kBit/s downstream and 256 kBit/s upstream for Siemens Remote Services (SRS) by the customer. If the customer does not provide SRS connectivity, then additional professional services for implementation without SRS support are offered. For service support after implementation the following minimum specification has to be provided: Downstream 2000 kBit/s (for Software update, IT- and Application support); Upstream 512 kBit/s (for Application support); Upstream 256 kBit/s (for Software update and IT support).
- The customer provides information, such as: IP addresses of the server for its network integration and the DICOM nodes identifiers.
- The customer provides the required power supply and the installation location for the server hardware.
- Presence and support of the customer's administrators (clinical and IT administrator) is required during implementation. In preparation for implementation support the customer's administrators have completed the *syngo.via* web-based trainings, which are part of the scope of delivery.
- A list of applications and systems with validated connectivity to *syngo.via* can be requested from your Siemens Sales Representative.
- If a DICOM node or another system has not been validated yet for connection to *syngo.via* by Siemens, then the customer will give his acceptance though there could be a narrowed functionality of the connection.
- Installation of *syngo.via* client software on additional workplaces, or configuration of additional DICOM nodes, or the distribution of the frontend integration to additional PACS workplaces are performed by the customer's administrator or can be ordered from Siemens separately as an option.
- The image call-up implementation and configuration will be upgraded by the customer with future software versions of the calling application (RIS, PACS).

Project coordination is performed by Siemens. Please see the *syngo.via* Data Sheet for system requirements and detailed description of implementation tasks.

If applicable, the hardware installation service includes the following tasks:

- Unwrapping. Consolidation of all packaging material and notification to the customer that the materials are ready for removal.
- Mechanical and electrical connections at site of operation
- Mechanical installation in a common rack (e.g. HP, Fujitsu, IBM, Rittal) not older than three years and connection to a console.
- Connection to the power supply, to Uninterruptable Power Supply (if applicable)
- Startup of operating system; check status of patches, drivers, service packs and hot fixes, etc.
- Connection and network configuration of the server and the remote service board to the LAN
- Configuration of remote service board (network settings, users configuration) if supported by server
- Test monitor setup and Handover of the readily installed system to the customer.

## Description

For the installation the customer provides, as described in the product Data Sheet:

- Access to the location and space for server operation
- Electrical power
- LAN access and LAN configuration
- Configuration of the broadband internet access for Siemens Remote Services
- IT Administrator's coordination and support for the mechanical and IT installation.
- Server and monitor(s) are at the site of operation. The customer's monitors are accompanied by appropriate cables.
- The connection of one or two monitors to the Workstation HW (including the Workstation HW Extended) does not include monitor calibration.
- For Workstation HW (including the Workstation HW Extended), depending on the local regulations, the monitor installation described here may allow viewing only.

If applicable, the import of a predefined container is to be done by the customer administrator for the setup of a virtualized system.

### Note:

Certain constraints apply regarding the supported OS versions for the syngo.via clients and the supported versions of MMWPs. For details please check the datasheet of the respective syngo.via version.

This hardware installation service includes the following tasks:

- Unwrapping of server and monitors (if applicable). Consolidation of all packaging material and notification to the Customer that the materials are ready for removal
- Mechanical and electrical connections at site of operation
- Mechanical connections to console and to diagnostic monitors (if applicable)
- Connection to the power supply, to Uninterruptable Power Supply (if applicable)
- Startup of operating system, check status of patches, drivers, service packs and hot fixes etc.
- Connection of the server and the remote service board (e.g. the HP dash board) to LAN; network configuration of the server and the remote service board
- Configuration of the operating system for two monitors (if delivered by Siemens)
- Test monitors setup (if applicable)
- Handover of the readily installed system to the customer.

Context of the implementation tasks:

The customer provides, as described in the *syngo.via* Data Sheet:

- Access to the location and space for server operation as well as for the monitors (if applicable)
- Server and monitor(s) are on-site of operation. The customer's monitors are accompanied by appropriate cables.
- Electrical power
- LAN access and LAN configuration
- Configuration of the broadband internet access for Siemens Remote Services
- IT Administrator's coordination and support for the mechanical and IT installation.
- The connection of one or two monitors to a workstation-based server does not include monitor calibration.
- Depending on local legal regulations, the monitor installation described here may allow viewing only.

## Brief description

### Target Group

This course is mainly designed for clinical administrators, technologists and physicians who act as departmental key user for the *syngo.via* system.

### Prerequisites

It is assumed that attendees have an understanding of the clinical workflow.

## Description

### Content:

System introduction  
Data handling  
Reading 2D /3D  
Configuration and settings  
Clinical applications  
Workflow consulting and adaptation  
Overview on modality applications and workflows

Eaton Surge Protective Device (SPD) Panel, 250kA per phase rating, 277/480VAC Wye, Three Phase (4W+G), Surge Counter, Dimensions 12.05"H x 7.47"W x 6.69" D, Weight: 13.5 lbs, 10 Year Limited Warranty

### Lung Imaging

This SOMATOM Definition scanner offers two specific scan protocols to provide Lung Imaging at 1.3 mGy CTDI or greater and for use with post-processing applications

**LungLowDose** Uses CARE Dose 4D in conjunction with CARE kV and adaptive dose shield to provide imaging of the lung with a default scanner protocol set at 1.3 mGy CTDI. This protocol provides images from .6 mm and are acquired using .6 mm collimation and a z-sharp mm of 128X0.6 mm off. Default settings of a reference kVp of 120 and quality Reference mAs of 20 with rotation speed of .50 are used to achieve this dose. This protocol is set using a Kernel of B70f, B31F and B70F for axial viewing.

**LungCARE** Uses CARE Dose 4D in conjunction with CARE kV and adaptive dose shield to provide imaging of the lung with a default scanner protocol set at 1.3 mGy CTDI. This protocol provides images from .6 mm and are acquired using .6 mm collimation and a z-sharp mm of 128X0.6 mm off. Default settings of a reference kVp of 120 and quality Reference mAs of 20 with rotation speed of .50 are used to achieve this dose. This protocol is set using a Kernel of B80f, B31F and B60f to be automatically transferred and post-processed on a Siemens workstation.