Data sheet

NAEOTOM Alpha/ NAEOTOM Alpha.Peak with Quantum Technology

syngo CT VB20

↗ **siemens-healthineers.us/naeotom-alpha-peak**

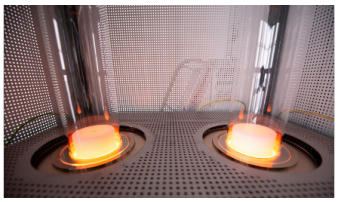
SIEMENS Healthineers

Contents

- System configuration
- System hardware
- New workplace design
- Standard system software and applications
- Standard and optional system software and applications
- MyExam Companion
- Standard GO technologies
- Standard FAST applications
- Optional FAST applications
- Standard CARE applications
- Optional CARE applications
- Optional system software and packages
- Optional system software and hardware for CT-guided interventions
- Optional Radiation Therapy system software and hardware
- Installation
- Image quality

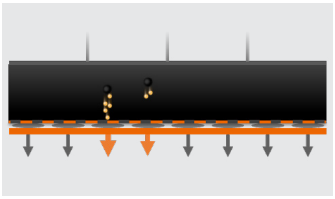
NAEOTOM Alpha & Alpha.Peak

The pioneer for comprehensive clinical performance



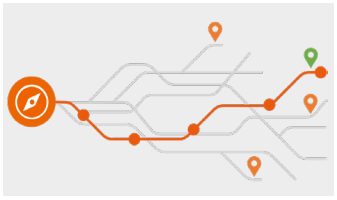
QuantaMax Detector

The purest cadmium telluride crystal in the world lays the basis for next technology leap in CT.



Quantum HD

Ultra-high-resolution with slice thickness of 0.2 mm and spatial resolution of up 44 lp/cm at full dose efficiency.



myExam Companion

Intelligence that works with you to navigate exam parameters and clinical decisions.

CARE 2D Camera and CARE Breathe

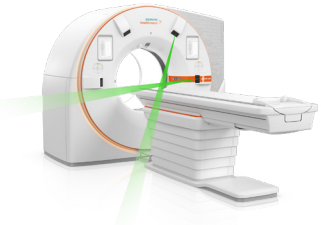
Monitor patient well-being even inside the gantry and ease compliance with breath-hold commands.

FAST 3D Camera[1]

Achieve standardized, automated patient positioning with infrared measurement and AI algorithms.

82 cm Gantry Bore

Ease interventional procedures and facilitate the positioning of patients with reduced mobility, enhancing patient comfort and helping them relax.



myNeedle Companion

Work quickly and precisely with integrated laser guidance.

[1] *Optional*

Unprecedented. Unrivaled. Unstoppable. Photon-counting is NAEOTOM

For leading institutions aiming to push the limits of CT, redefine clinical pathways, and pioneer CT research

Highest photon-counting CT performance both in single- and dual-source scans

No need to compromise between high spatial resolution or low dose, high speed acquisition or spectral information

Clinical highlights

- Cardiovascular imaging
- Neuro & trauma imaging
- Spectral imaging
- Oncology
- Intervention
- Ultra high resolution

Slices	2 x 144 slices (acquired slices) 2 x 288 slices (reconstructed slices)
Max. mA	Up to 1300 mA
Rotation time	0.25, 0.5, 1.0 s
kV	70, 90, 120, 140 kV Sn100, Sn140, Sn150 kV

z-Coverage	Up to 144 x 0.4 mm Up to 120 x 0.2 mm (Quantum HD)
Tube	2.7 MHU
Power	240 kW
Table load	340 kg / 750 lbs
Bore size	82 cm

System configuration

Standard HW configuration

- 2 x Vectron® X-ray tube
- 82 cm bore size
- 2 x QuantaMax Detector
- 2 x Adaptive Dose Shield
- 0.25, 0.5, 1.0 s rotation time
- Up to 4 tablets for mobile workflow

Generator
- 240 kW (2 x 120 kW)
- High Power (2 x 1300 mA) @ 70 kV

Vectron X-ray tube
- 70, 90, 120, 140 kV
- Tin Filter: 100, 140, 150 kV

Acquisition Workplace
- 23" / 58 cm flat-screen monitor
- External USB 3.0 disk support

Multi-Purpose Table
340 kg / 750 lbs table load; 200 cm scannable range

ICS (Image Control System)
Performance ICS

IRS (Image Reconstruction System)
Performance IRS

Cooling
Water cooling

Additional optional HW

FAST Integrated Workflow
FAST 3D Camera

Mobile Workflow Support
- Rear panel with control panels and charging docks for 10" / 25.5 cm tablets
- Integrated injector arm (optional)
- Extra tablets (up to 4 supported in total)
- Wall/table docking stations as additional charging spots for the tablets[1]
- Remote control

Patient Experience Options
- Ring Moodlight
- Funnel Moodlight
- CARE 2D Camera
- CARE Breathe

Acquisition Workplace with Dual Monitor
Dual 23" / 58 cm flat-screen monitor with dual display functionality

Additional Table Options
- Patient table foot switch
- X-ray foot switch

myExam Satellite
- Additional workplace sharing database and applications with the main Acquisition Workplace

Standard SW and application packages

- *syngo* Examination
- *syngo* Archiving & Network
- SureView
- Dynamic Serio Scan
- Video Capture and Editing Tool
- Exam Designer
- WorkStream4D
- Adaptive Signal Boost
- HD FoV

myExam Companion
- myExam Compass
- myExam Cockpit

[1] *Maintaining continuous operability of the mobile workflow tablet(s) by software updates and upgrades, requires regular online connection.*

System configuration

Standard SW and application packages

iMAR
iterative Metal Artifact Reduction

GO Technologies
- Scan&GO tablet application
- Check&GO:
  - Coverage
  - Contrast media
  - Metal detection
- Recon&GO – Inline Results, including:
  - Anatomical ranges (Parallel/Radial)
  - Table removal
  - Bone removal
  - Vessel Ranges (aorta, run-offs, carotid arteries)
  - Spine Ranges
  - Rib Ranges
  - Multi Recon
- CT View&GO, including:
  - 2D and 3D (MPR, MIP, VRT)
  - Evaluation tools
  - Filming
  - Vessel Extension
  - Endoscopic View
  - Lung Lesions Segmentation
  - Diameter/WHO area
  - ROI HU Threshold
  - Spine Ranges
  - Average

FAST Technologies
- FAST Planning
- FAST Adjust
- FAST ROI

CARE Technologies
- CARE keV
- CARE Child
- CARE Dose4D
- CARE Topo
- CARE Profile
- CARE Filter
- CARE Bolus CT
- CARE 2D Camera
- CARE Moodlight
- CARE Breathe
- X-CARE
- Quantum Iterative Reconstruction
  (Iterative Reconstruction for photon-counting)
- Flex Dose Profile
- Protocol Password Protection
- DICOM SR Dose Reports
- Dose Notification
- Dose Alert

IT Security
syngo System Security

Fleet Management
teamplay BASIC

Quantum Imaging

Recon&GO Inline Results
- Recon&GO Inline Results – Quantum Monoenergetic Plus
- Recon&GO Inline Results – Quantum Virtual Unenhanced (incl. Quantum Iodine Map, Liver VNC)

Recon&GO Spectral Recon
- Recon&GO Spectral Recon – Quantum Monoenergetic Plus
- Recon&GO Spectral Recon – Quantum Virtual Unenhanced (incl. Quantum Iodine Map, Liver VNC)

Advanced Task @ AWP:
- Quantum Monoenergetic Plus
- Quantum Virtual Unenhanced (incl. Quantum Iodine Map, Liver VNC)

CT View&GO:
Interactive Spectral Imaging (switch between Quantum Monoenergetic Plus, Quantum Virtual Unenhanced, and Quantum Iodine Map & change keV of Quantum Monoenergetic Plus)

Creation of SPP and Vascular SPP data format

System configuration

Optional SW and application packages

CARE Application
CARE Contrast III

Quantum Cardiac Imaging
- Physiological Measurement Module
- ECG cable
- Cardiac Spiral scan mode
- Cardio Spiral Bi-Segment
- Adaptive Cardiac Sequence scan mode
- Cardiac ECG-triggered Flash scan mode
- Cardio BestPhase
- ZeeFree
- Recon&GO – Inline Results, including:
  - CaScoring
  - Cardiac Ranges
  - Vessel Ranges (LAD, RCA, CX)
  - Heart Isolation
  - Coronary Tree
- CT View&GO, including:
  - Heart Isolation
  - Coronary Tree
- *syngo*.CT CaScoring application for AWP

Trauma Imaging
Trauma layouts and inline results for Skull Unfolding and Brain Hemorrhage.

CT LungCAD
- Recon&GO – Inline Results, including:
  - LungCAD
- CT View&GO, including:
  - LungCAD

Quantum Neuro Imaging
- Recon&GO – Inline Results, including:
  - Neuro Perfusion
- Flex 4D Spiral – Neuro
- CT View&GO, including:
  - Neuro DSA
  - Stroke Layout
- *syngo*.CT Neuro Perfusion application for AWP

Fleet Management
- *syngo* Expert-i
- *syngo* Virtual Cockpit
- teamplay CORE
- teamplay FLEET

Quantum Spectral Imaging
- Quantum Liver VNC
- Quantum Calculi Characterization
- Quantum Lung Analysis[1]
- Quantum Gout
- Quantum Bone Marrow
- Quantum Brain Hemorrhage

Quantum PURE Lumen*
Virtual calcium free image reconstruction based on spectral information and high spatial resolution.

Quantum HD
Ultra-high resolution images with slice thickness of 0.2 mm and spatial resolution of up 44 lp/cm (@2% MTF) at full dose efficiency.

Quantum HD Cardiac[2]
Ultra-high resolution images with slice thickness of 0.2mm in Dual Source acquisition modes to support cardiac imaging. Supports Quantum Spectral Imaging evaluations.

Quantum PURE Calcium
- Virtual iodine free image reconstruction based on spectral information and high spatial resolution.

Quantum 4D Imaging[1]
Flex 4D Spiral – Body
Flex 4D Spiral – Dynamic Angio

CT Dental
syngo.CT Dental application for AWP

Precision Matrix
1024 x 1024 and 768 x 768 reconstructions

myNeedle Companion for CT-guided interventions
- myNeedle Guide 3D incl. myNeedle Guide 2D with i-Spiral and FAST i-Sequence scan modes
- myNeedle Laser
- myNeedle Detection
- i-Fluoro
- HandCARE
- i-Joystick
- X-Ray Footswitch
- 32" in-room monitor mounted at the ceiling
- Tablet dock for patient table
- Table side rails long

[1] *Recommended applications for evaluation in syngo.via: syngo.CT Body Perfusion and syngo.CT Dynamic Angio.*
[2] *Requires Quantum Cardiac Imaging and Quantum HD*
* *PURE Lumen (Vascular Calcium Removal (VCR)) can be used to measure vessel (e.g., coronary) stenoses by removing the contributions of calcium from images, based on a phantom evaluation (Allmendinger T. et al., 2022, Investigative Radiology).*

System hardware

Gantry

Aperture
82 cm / 32"

Depth
< 126 cm / 49.6"

Distance scan plane to gantry front cover
- 350 mm / 14"
- The short distance from the gantry front to the scan plane allows for easy operator access.

Distance focal spot to isocenter
61 cm / 24"

Distance focal spot to detector
111.3 cm / 43.82"

Scan field
50 cm/19.7"
81.5 cm/32.09" with HD FoV[1]

Rotation time
0.25, 0.5, 1.0 s

Temporal resolution
- Down to 66 ms native temporal resolution
- Down to 33 ms bi-segmented temporal resolution

Gantry front control panels
2 sets of control panels at the front and 2 at the back[2] for convenient and fast patient positioning

Three laser light markers
Coronal, sagittal, axial laser light showing the isocenter position of the scan plane.

Mobile workflow support
- 2 tablet cradles at the front and 2 at the back[2] for magnetic docking and charging of 4 tablets simultaneously
- Up to 5 tablets[3]
- Remote control for more flexible operation
- Wall-mounted / desk docking stations as additional charging spots for the tablets[2] and remote control

Patient experience options

CARE 2D Camera
The integrated camera in the gantry provides a Bore View to monitor patients throughout the examination, potentially eliminating the need for additional cameras. This feature also supports technologist confidence and patient trust by facilitating patient-centric care without extra investment.

CARE Breathe
Easy-to-follow visual instructions and an intuitive graphical breathhold count-down displayed on the front and rear part of the tunnel to help patients comply with breathhold times.

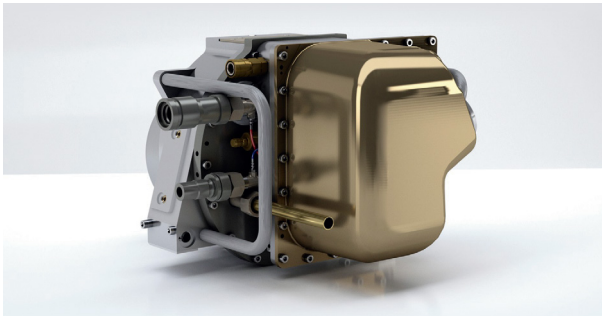
CARE Moodlight
Adapt the color environment for the patient with the lighting at the gantry ring. Light up the scanner funnel with different colors to enhance well-being by creating the impression of a bigger space.

[1] The image quality for the area outside the 50 cm scan field of view does not meet the image quality of the area inside the 50 cm scan field of view. Image artifacts may appear, depending on the patient setup and anatomy scanned. HD FOV cannot be used to scan FOV smaller than 50 cm.
[2] Optional
[3] First tablet standard, additional tablets optional.

System hardware

Tube assembly

Tube
Vectron X-ray tube



Tube current range
10–1,300 mA

Tube voltage
- 70, 90, 120, 140 kV
- Automatically selected through CARE keV based on patient size and clinical task
- With Tin Filtration: 100, 140, 150 kV

Voltage with maximal available tube current
70 kV at 1,300 mA
90 kV at 1,300 mA
100 kV at 1,200 mA
120 kV at 1,000 mA
140 kV at 857 mA
150 kV at 800 mA

Tube anode heat storage capacity
Higher than 30 MHU[1] (equivalent value compared to the performance of a conventional tube)

Focal spot size according to IEC 60336
- 0.4 x 0.5 / 8°
- 0.6 x 0.7 / 8°
- 0.8 x 1.1 / 8°

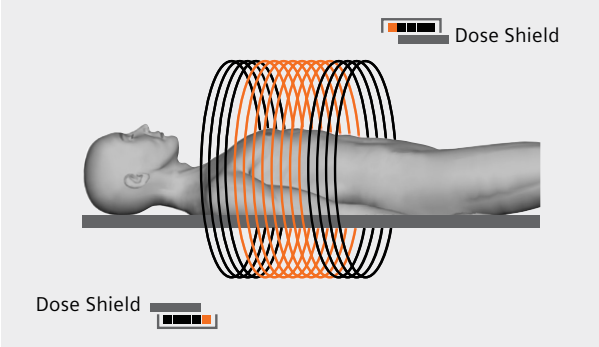
Temperature monitoring
Computer-controlled monitoring of anode Temperature

Tube cooling rate
2.7 MHU / min

Generator

Max. Power
2 x 120 kW = 240 kW

Adaptive Dose Shield



- Dynamic tube collimation that protects the patient from clinically irrelevant radiation in all standard spiral CT scan modes.
- Avoid unnecessary radiation most effectively in short scan ranges, especially in cardiac and pediatric scans.

Tin Filter

Inherited from high-end dual-source scanners, Tin Filter technology cuts out lower energies to reduce dose and optimizes contrast between soft tissue and air.

This has direct benefits for imaging areas such as the lungs, colon, and sinuses. In addition, clinical experience shows that Tin Filter technology reduces beam-hardening artifacts and improves image quality in bony structures, making it useful in orthopedic examinations. As a result, you get CT imaging at exceptionally low-dose levels, comparable to conventional X-ray.

[1] *The Vectron X-ray tube exceeds the performance of a conventional 30 MHU tube.*

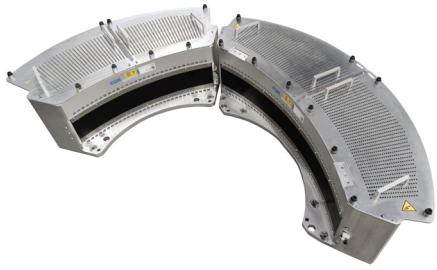
System hardware

Tin Filter technology protects you and your patients with ultra-low doses during intervention. Tin Filter technology is integrated into factory protocols for low-dose lung cancer screening, colon examinations, sinus evaluations, and calcium scoring. Only Siemens Healthineers CT scanners enable lung imaging powered by Tin Filter technology.

The usage of Tin Filter is possible at tube voltages of 100, 140, and 150 kV.

Data acquisition system

QuantaMax Detector



The QuantaMax detector is the first full-body CT system to use a photon-counting cadmium telluride detector, enabling direct conversion of incoming photons for the first time.

NAEOTOM Alpha.Peak is a Dual Source CT scanner and uses photon-counting QuantaMax detectors for both the A and the B system.

Max. number of slices / rotation
- Up to 2 x 144 (acquired slices)
- Up to 2 x 288 (reconstructed slices)

Number of detector rows
2 x 288

Number of detector elements
1,363,968
(792,576 detector A; 571,392 detector B)

Number of detector channels per row (in-plane)
Detector A: 2,752
Detector B: 1,984

Number of projections 1 s / 360°
Up to 5,376 (in UHR mode)

Gantry data chain bandwidth
35 GBit/s

Multi-purpose table

Max. table load
340 kg/750 lbs[1]

Max. table feed speed
737 mm/s

Vertical table travel range
43.2–101.8 cm / 17"–40" (transfer height)

Vertical travel speed
50 mm/s

Scannable range
200 cm / 78.7" with patient table extension

Table options

Patient table foot switch
- Foot switch located on the bottom edge of the patient table allowing table positioning.
- Speeds up patient preparation and keeps operator hands sterile.

X-ray foot switch
Foot switch for triggering scans from the examination room

Spatial resolution – standard

0.32 mm x 0.24 mm x 0.24 mm

Spatial resolution – Quantum HD

Using the full resolution capability of the QuantaMax detector, NAEOTOM Alpha.Peak provides high spatial resolution without decreased dose efficiency.

Spatial resolution: 0.16 mm x 0.11 mm x 0.11 mm

Full support of Quantum Spectral Imaging from simultaneous acquisition. Reconstruction of spectral results at 0.4 mm slice thickness (or higher).

[1] *Only for systems delivered with version VB10 or later. For systems delivered with prior versions: 307kg / 676 lbs.*

New workplace design

The gantry-integrated ICS (Image Control System) gives you complete flexibility over where you position the workstation. Depending on your needs and infrastructure, you can set it up in the same room, outside the scan room, or in a separate control room. The optional workplace myExam Satellite brings additional workflow flexibility without interrupting the scanning program.

Acquisition workplace (AWP)

Computer integrated into the gantry
Hardware integrated into the gantry to:
- Enable flexible room design (see section on installation)
- Minimize the elements of the new workplace design to a monitor, keyboard, mouse and the control box

Additional storage
External USB 3.0 disks for quick and easy raw data storage are supported

Performance ICS

High-performance computer CPU
Intel Xeon W-1290E

RAM
128 GB DDR4 RAM

Hard disk
3,840 GB

Image storage
5,734,400 images at 512 matrix (2,800 GB)

Image reconstruction

Real-time display
- Real-time image display (512 x 512) during spiral acquisition on the workplace
- Wireless transfer of images for preview on the tablet. Transfer starts immediately after the end of scanning

Slice thickness
0.2–10 mm

Standard recon field of view
5–50 cm / 1.9"–19.7"
5–81.5 cm / 1.9–32.09" with HD FOV[1]

Spectral recon field of view[2]
5–50 cm / 1.9"–19.7"

Recon matrix
512 x 512
768 x 768 (optional)
1024 x 1024 (optional)

HU scale
– 8,192 to + 57,343

Advanced algorithms
- Iterative Beam Hardening Correction (iBHC) for reduction of beam-hardening artifacts, e.g., in head images
- Large selection of reconstruction kernels to adapt to specific clinical needs
- Any kV CaScoring is a specific reconstruction kernel to perform Agatston equivalent scores, even at lower kV settings where dose saving potential can be significant

Wide range of freely selectable slice thicknesses for prospective and/or retrospective reconstruction

Standard monitor
- 24" / 58 cm flat screen
- 1,920 x 1,080 resolution

Additional monitor[3]

Dual monitor[3]

Performance IRS

CPU
2 x Intel Xeon Gold 6242R

Memory
512 GB

Storage
10 TB

Reconstruction performance
Up to 55 ips using Quantum Iterative Reconstruction

myExam satellite[3]

Additional workplace sharing database and applications with the main Acquisition Workplace for a more flexible workflow
- While the AWP is being used for protocol preparation or scanning, myExam Satellite can be simultaneously used for filming, results creation or image interpretation
- Results and post-processing are simultaneously available at the AWP and myExam Satellite, including Recon&GO – inline Skull Unfolding[3] and Brain Hemorrhage[3]
- Same applications as available at the AWP for different clinical areas, including Dual Energy[3], Neuro Perfusion[3] and trauma layouts[3]
- Remote Recon, enabling the possibility to perform RAW data reconstruction directly at the myExam Satellite[3]

[1] *The image quality for the area outside the 50 cm scan field of view does not meet the image quality of the area inside the 50 cm scan field of view. Image artifacts may appear, depending on the patient setup and anatomy scanned. HD FOV cannot be used to scan FOV smaller than 50 cm.*
[2] *5–42.5 cm FOV with up to 2.4 pitch; 5–37 cm FOV with up to 3.2 pitch; above 42.5 cm FOV with up to 1.55 pitch.*
[3] *Optional*

Standard system software and applications

syngo Examination

Exam designer

Easy and intuitive way to change and manage scan protocols

Topogram

Length
128–2,080 mm / 5–78.7" with table extension[1]

Scan speed
20 cm/s

Scan times
1.36–10.76 s

Views
a.p., p.a., lateral

Real-time topogram

Manual interruption possible once desired anatomy has been imaged

Topogram scan using Tin Filter for further dose reductions

Patient communication

Automatic Patient Instruction (API)
- Freely recordable
- 7 API types per language
- 50 languages
- New gentle voice for better patient comfort and increased audibility

Integrated patient intercom

Sequence acquisition

Reconstructed slice widths
0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm

Partial scan times (250°)
0.17 s

Scan times (full scan)
0.25, 0.5, 1.0 s

Temporal Resolution
66 ms

Acquisition with or without table feed

Dynamic Serio Scan

Automatic clustering of scans

Multislice spiral acquisition

Reconstructed slice widths
0.2, 0.4, 0.6, 0.8, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm

Temporal resolution
- 66 ms
- 33 ms (bisegment)

Rotation time
0.25, 0.5, 1.0 s

Reconstruction increment
Min. 0.1 mm

Pitch factor
0.15–3.2

Spiral scan time
Max. 200 s

WorkStream4D

With Workstream4D, thin slice data reconstruction is not required prior to the production of reformatted images.

This enhancement saves time when compared to alternative MPR techniques. 4D workflow with direct generation of axial, sagittal, coronal, or double-oblique images from standard scanning protocols.

Elimination of manual reconstruction steps and reduction of data volume, since virtually all diagnostic information is captured in 3D slices.

[1] *Optional*

Standard system software and applications

syngo Examination

Patient registration

Direct input of patient information on the workplace immediately prior to scan

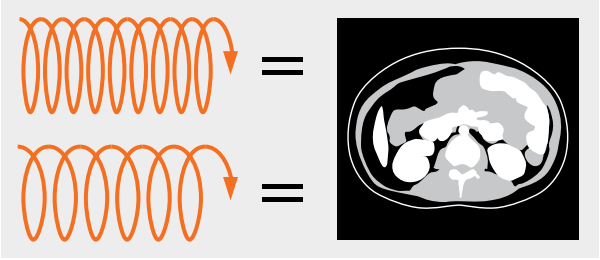
Pre-registration of patients at any time prior to scan

Special emergency patient registration (allows examination without entering patient data before scanning)

Transfer of patient information from HIS / RIS via DICOM Modality Worklist

Transfer of examination information from scanner into HIS / RIS via MPPS (Modality Performed Procedure Step)

SureView: Siemens Healthineers' patented solution for multislice CT reconstruction



Pitch-independent image quality

SureView ensures that image quality is kept constant for all scan speeds, independent of the selected volume pitch.

There is higher pitch accuracy with settings available in steps of 0.1, simplifying processes by handling complex parameter settings.

HD FOV[1]

Designed to enable visualization of the human body parts and skin line located outside of the 50 cm scan field of view up to the bore size, based on an algorithmic complement of missing detector data outside of the 50 cm scan FOV. The image quality for the area outside the 50 cm scan field of view does not meet the image quality of the area inside the 50 cm scan field of view. Image artifacts may appear, depending on the patient setup and anatomy scanned. HD FOV cannot be used for scan FOV smaller than 50 cm.

[1] *The image quality for the area outside the 50 cm standard scan field of view does not meet the image quality of the area inside the 50 cm standard scan field of view. Image artefacts may appear, depending on the patient setup and anatomy scanned.*

Auto field of view adaption

When positioning the scan range, the width of the range is automatically adapted to cover the whole body of the patient.

CINE display

Display of image sequences

Automatic or interactive with mouse control

Max. image rate: 30 frames/s

Screen recorder

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 are supported, e.g., AVI, Flash (SWF), GIF, QuickTime (MOV), streaming video.

Image transfer / networking

- Interface for transfer of medical images and information using the DICOM standard. Facilitates communication with devices from different manufacturers.
- DICOM Storage (Send / Receive)
- DICOM Query / Retrieve
- DICOM Basic Print
- DICOM Get Worklist (HIS / RIS)
- DICOM SR viewer
- DICOM Storage Commitment
- DICOM Viewer on CD / DVD
- DICOM MPPS

iMAR[2]

iMAR is a metal artifact reduction algorithm based on Adaptive Sinogram Mixing. Adaptive Sinogram Mixing combines a strong metal artifact removal method in areas with severe artifacts and soft correction in areas with less severe artifacts. The result is outstanding image quality with metal artifacts removed while valuable information remains even in challenging cases like spine implants, pacemakers, dental fillings, and neuro coils. Compatible with HD FOV, Guide&GO, extended CT scale, and dose reduction features.

[2] *iMAR is designed to yield images with a reduced level of metal artifacts compared to conventional reconstruction if the underlying CT data is distorted by metal being present in the scanned object. The exact amount of metal artifact reduction and the corresponding improvement in image quality achievable depends on a number of factors, including composition and size of the metal part within the object, the patient size, anatomical location and clinical practice. iMAR reconstructions have to be performed and evaluated in combination with standard reconstructions.*

Standard and optional system software and applications

IT Security

syngo system security

Modern way of guarding against malware, viruses and malicious attacks, comprising a bundle of solutions:

- provides functionality for user management and flexible access control for patient data
- improves IT security
- avoids system breakdowns due to malware installations which results in higher system uptimes and reliability
- reduces risk of unwanted software installations
- supports local IT personnel
- improves system performance and robustness
- improves security for the use of external storage devices

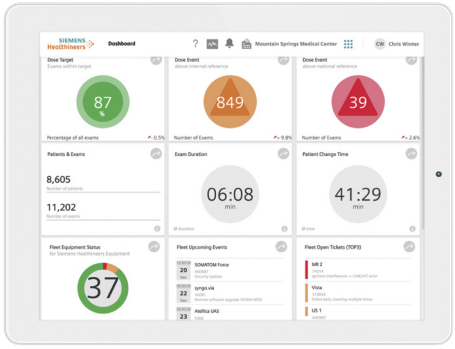
Standard and optional system software and applications

Fleet Management applications

Shui® – the Siemens Healthineers Design System

Shui® is the new framework for all digital user interfaces in the Siemens Healthineers product and service portfolio, creating a coherent brand perception and user experience while making it easy to learn how to use, operate, and switch between multiple modalities.

teamplay Performance Management Applications



teamplay applications for performance management in healthcare help you make quick and well-informed decisions by offering a clear overview of your clinical and operational performance data. You get instant, centralized access to operational, technical and clinical data to help you optimize operations and deliver higher quality of care. Smart connections between the applications amplify the data insights and provide a seamless user experience.

teamplay Dose
teamplay Dose is an enterprise-wide radiation dose management solution providing you with easy access to dose data, supporting the quality assurance process for monitoring imaging radiation dosage. teamplay Dose displays data for continuous dose performance evaluation, no matter which modality or vendor[1] is used. Perform efficient dose data analysis and get an overview of the scan protocols used by type and target region. Monitor the applied radiation over time by displaying the accumulated dose for each individual patient. And compare your outcomes among peers using global benchmarking[2] with teamplay Dose.

teamplay Usage
teamplay Usage provides you with a transparent view of your radiology department as well as in-depth insights into workflow and clinical processes. Our vendor neutral[1] solution displays key performance indicators (KPIs) for imaging device utilization. Smart filter settings support you in locating the data of interest. Patient change time, exam duration, and table occupancy are performance indicators that help you to understand your workflow and increase efficiency. Figures such as "exams per patient" or "total patients" can give you an insight into the financial side of your department.

teamplay Protocols
Identify best-practice scan protocols for imaging devices and use them for the optimization of your radiology workflow with teamplay Protocols[3]. Keep track of recent protocol changes and improvements—simply explore the version history of your protocols and add annotations for later reference. View all deviations from all your CT scan protocols at a glance—even across scanners or institutions. Save time and resources in your fleet network by distributing protocols remotely to compatible scanners.[4]

teamplay Insights[1]
With teamplay Insights, you get broad access to your radiology department data to discover insights you could not have found before. Build highly flexible, personalized, and interactive data visualization boards for both a monitoring view of your radiology department as well as for a deep dive analysis in specific use cases. Create trackers to check and report whether you will reach your set goals. Analyze and better understand numbers of no-shows and requirement patterns for priority cases. Take deep dives into your dose data to help better understand reasons behind dose outliers, and then decide on measure to be taken to remedy said outliers. Or, find out what the busiest times are to schedule enough staff. With this knowledge at hand you can make well-informed decisions to improve resource utilization. Maximize your insights, optimize your value.

[1] *Optional feature*
[2] *Availability of benchmarking option depends on a minimum number of considered subscribers to guarantee customer anonymity and data protection.*
[3] *teamplay Protocols supports selected Siemens scanners. Please contact your Siemens Healthineers representative for more details.*
[4] *Optional feature. Selected Siemens Healthineers scanners support distribution and receiving of protocols. Availability depends on scanner software version. Please contact your Siemens Healthineers representative for more details.*

myExam Companion

NAEOTOM Alpha.Peak joins the era of intelligent imaging powered by myExam Companion. myExam Companion enhances consistency of CT procedures, independent of operator skills. It helps reduce the number of protocols and complexity of advanced examinations, by suggesting which settings are more appropriate for every patient.

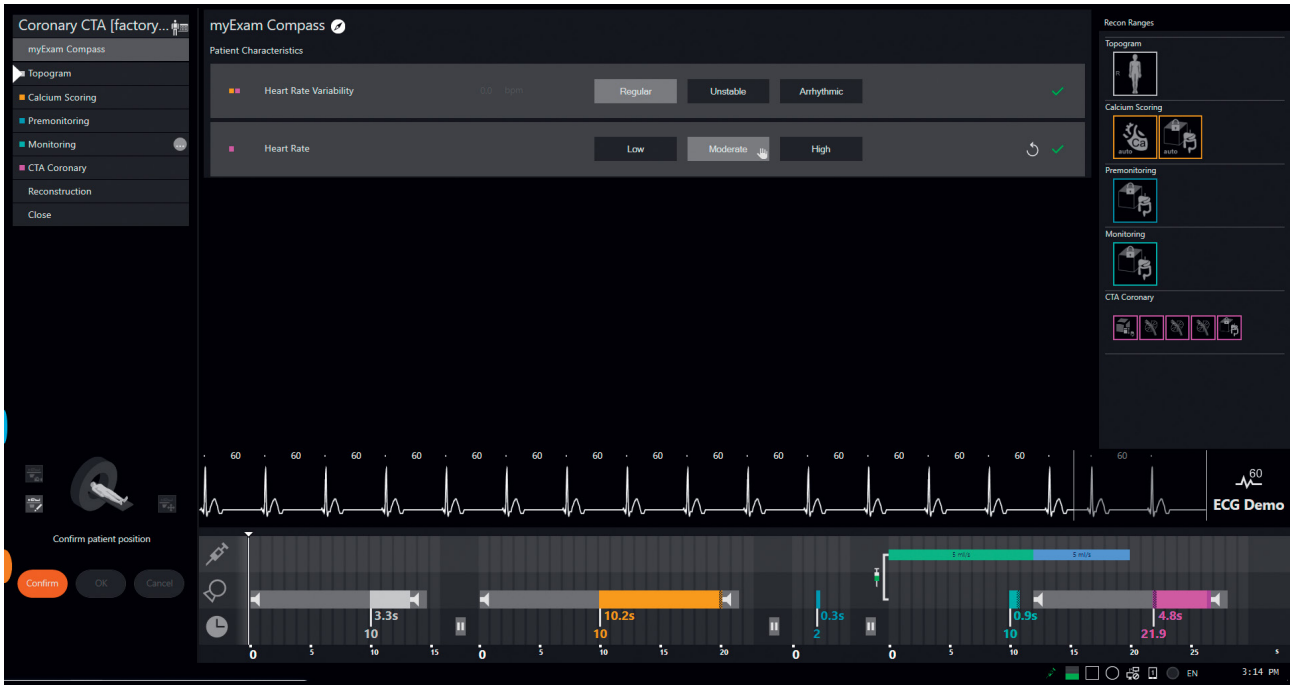
Based on the procedure and patient characteristics it guides users to find the optimal combination of acquisition and reconstruction parameters, standardized results, and always the right dose. myExam Companion learns from your experience: establish your protocol preferences once and let it help you avoid repetitive tasks.

myExam Compass

myExam Compass offers knowledge-based guidance at the hands of the technologist supporting individual patient characterization, based on patient input (size, age, sex, ECG) and interactive questions, adaptable by users, in their own clinical language (e.g., “does the patient have a metal implant?”, “can the patient hold the breath longer than 5 sec?”)

myExam Compass is based on expert use and condensed knowledge from thousands of exams in our installed base.

Enhance consistency and standardization of your CT procedures by sharing myExam Compass protocols across your institution or other peers through teamplay.



myExam Companion

myExam Compass helps you harmonize settings for all patients and operators, especially in clinical trials where protocol consistency is key.

Cardiac CT made easy independent of operator skills
Especially useful for users less experienced in CT cardiac procedures, myExam Compass suggests which settings are more appropriate for every patient based on the procedure and patient characteristics, finding the optimal combination of acquisition and reconstruction parameters for optimum image quality, standardized results, and always the right dose.

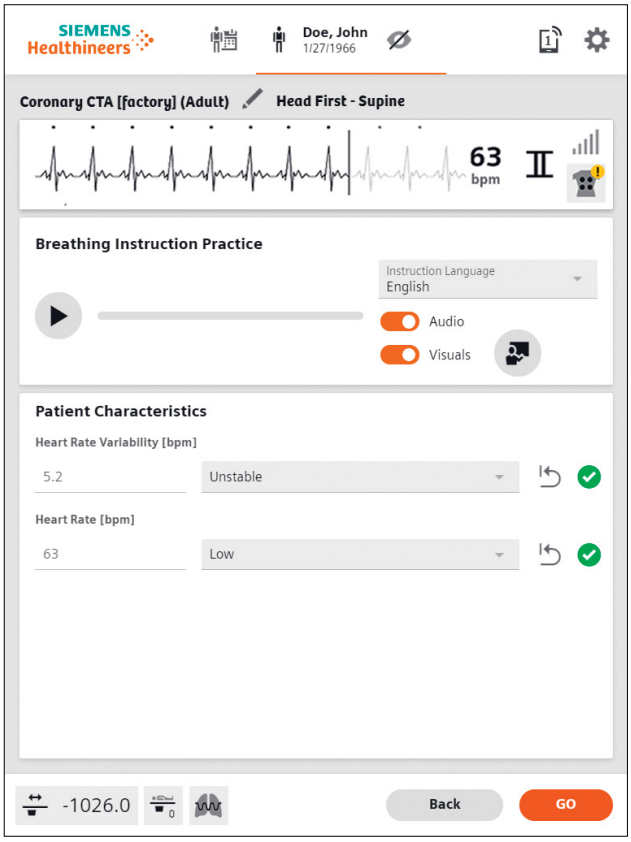
Leveraging intrinsic spectral sensitivity
Especially useful for users less experienced with spectral imaging, this holistic approach, powered by myExam Compass, suggests which spectral imaging settings are appropriate for which patient based on the procedure and patient characteristics to find the optimal combination of acquisition and reconstruction parameters for standardized results, and always the right examination.

Depending on factors such as patient size, how well they can comply with breathing instructions, or what the indication is, myExam Compass will adapt the protocol settings.

Anticipate potential breathing artifacts
Anticipate potential breathing artifacts by proactively characterizing the patient's ability to comply with an acceptable breathhold. This breathhold characterization is utilized by myExam Compass to adapt scan parameters and optimize scan speed.

myExam Cockpit

The central engine of myExam Compass is driven by this cockpit: the central user interface for fast and intuitive protocol configuration. In this expert mode, users benefit from high flexibility in modifying predefined protocols and the option to integrate their knowledge into standardized protocols, and through myExam Compass, make them available for every user across your institution.



Standard GO technologies

Scan&GO

The operator can reduce walking time and potentially accelerate patient preparation and positioning with the Scan&GO tablet application. At the same time, they can stay close to the patient for most of the examination time.

Post scan, the operator can preview images thanks to wireless image transfer to tablet. They can also finalize the exam and trigger pre-configured reconstruction tasks.

With the Scan&GO workflow, the operator can stay mobile and prepare the entire protocol next to the patient in time critical situations. They have the choice to leave the room only when triggering the radiation and spend the rest of the time with their patient.

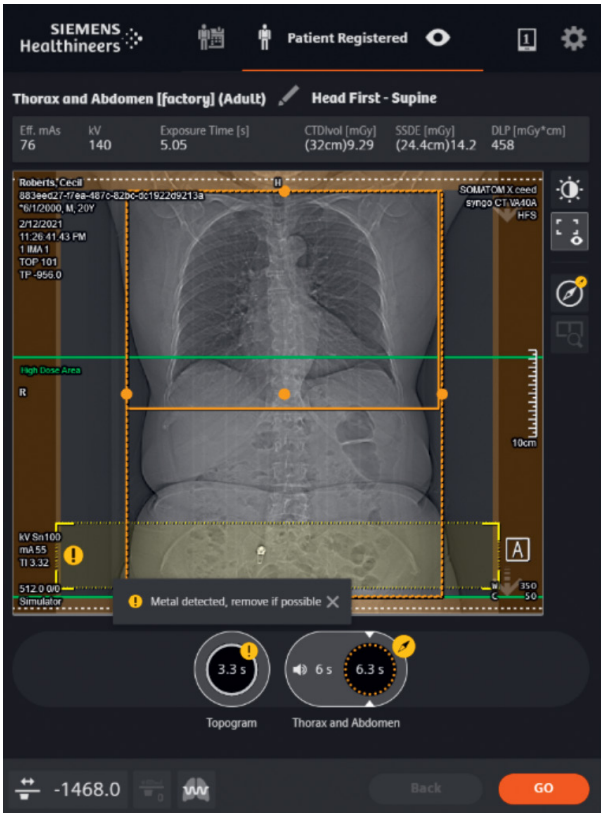
Check&GO

Check&GO is an intelligent algorithm, based on big data, that monitors and flags problems with scan coverage, contrast distribution or the presence of wearable metal objects as they occur, for immediate action or correction. This allows you to correct issues on the go, avoid subsequent errors and avoid archiving sub-optimal images.

Quality-control images are sent wirelessly to the tablet, so you can review them directly.

Check&GO Metal Detection helps prevent mistakes and rescans by alerting the user when metallic objects such as keys, belts, chains, earrings are not removed and are present in the scan area after the topogram is done.

Check&GO is available both on the AWP and on the Scan&GO tablet application.



Standard GO technologies

Recon&GO

Recon&GO enables the creation of Inline results, a set of fully automated advanced postprocessing applications as an alternative to the regular *syngo*.via algorithms.

This reduces post-processing to zero-clicks with Recon&GO and its automatically corrected orientations.

Benefit from Recon&GO's standardized and consistent orientations, in typically challenging situations where patients can be mispositioned or uncooperative.

Recon&GO – Inline Results including:

Multi-recon
Automatic generation of multiple series in different orientations (coronal / sagittal / axial) or image impressions (e.g., soft tissue / air / bone)

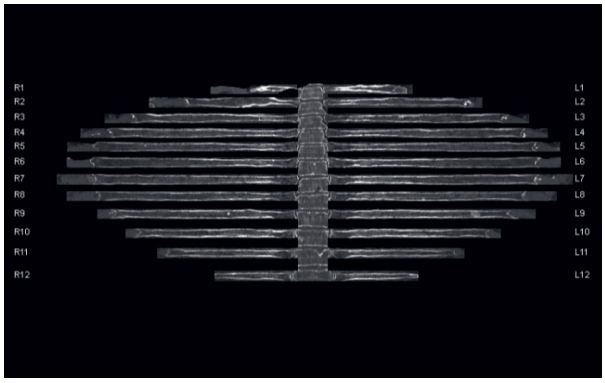
Anatomical Ranges (Parallel/Radial)
Automatic generation of radial and parallel ranges in any anatomical orientation and thickness. This automation saves time by avoiding manual workflow steps. Just configure your required results once and Recon&GO will always create them like a conventional reconstruction.

Table and Bone Removal Radial Ranges
Zero-click bone-free VRT reconstruction that facilitates a precise vascular assessment by visualizing blood vessels without interfering anatomical structures.

Vascular Ranges
Zero-click, vessel centerline extraction and anatomical labeling of the main vessels with display of Curved Planar Reconstruction to simplify reporting of findings and stenosis assessment.

Spine Ranges
Zero-click reconstruction of anatomically aligned spine reconstructions. The software detects and labels vertebrae within a predetermined scan area, and calculates their position for anatomically correct image reconstructions.

Radial and Parallel Rib Ranges
- Zero-click reconstruction of specific radial and parallel rib visualizations that adapts the rib cage anatomy displaying all ribs spread out in one plane
- Automated rib labeling and numbering



Courtesy of University Hospital Erlangen, Germany

Standard GO technologies

CT View&GO

This viewing application available at the AWP provides you with intuitive and customizable cross-specialty tools for 3D visualization, filming & printing, as well as several post-processing applications.

Customizable user interface, through a Favorite Toolbox

Automatic distribution and filming of images and results

Freely selectable window width and center

Single window

Multiple window settings for multi-image display

Organ-specific window settings, e.g., for soft tissue and bones

Image zoom and pan

Evaluation Tools

Parallel evaluation of more than 10 Regions of Interest
- Circle
- Irregular
- Polygonal

Statistical evaluation
- Area / volume
- Standard deviation
- Mean value
- Min. / max. values

Profile cuts
- Horizontal
- Vertical
- Oblique

Distance measurement

Angle measurement

Online measurement of a 5 x 5 pixel size ROI

Freely selectable positioning of coordinate system

Crosshair

Image annotation and labeling

Standard GO technologies

Filming and Printing

Filming
- Digital film documentation, connection to a suitable digital camera
- Connection via DICOM Basic print
- Automatic filming
- Interactive virtual film sheet
- Customizable film formats with up to 64 images
- Filming parallel to other activities
- Independent scanning and documentation
- Freely selectable positioning of images onto film sheet
- Configurable image text

Printing
Documentation on postscript printer supported

3D Visualization

Real-time MPR
- Real-time multiplanar reformatting of secondary views
- Variable slice thickness (MPR thick, MPR thin) and distance with configurable default values
- Viewing perspectives
  - Sagittal
  - Coronal
  - Oblique
  - Double oblique
  - Freehand (curvilinear)

MIP and MinIP
- MIP: Maximum Intensity Projection
- MinIP: Minimum Intensity Projection
- Thin MIP function for projection within a small slab to focus on particular vascular structure

***syngo* VRT (Volume Rendering Technique)**
Advanced 3D application package for the optimal display and differentiation of different organs through independent control of color, opacity, and shading

Postprocessing Applications

Table and Bone Removal
Fast accurate presentation of subtracted CT Angiographic data sets

Vessel Extension
- Set of tools and layouts for guided creation of CPR (Curved Planar Reconstructions) for enhanced vascular assessment
- Comprehensive length and diameter measurements

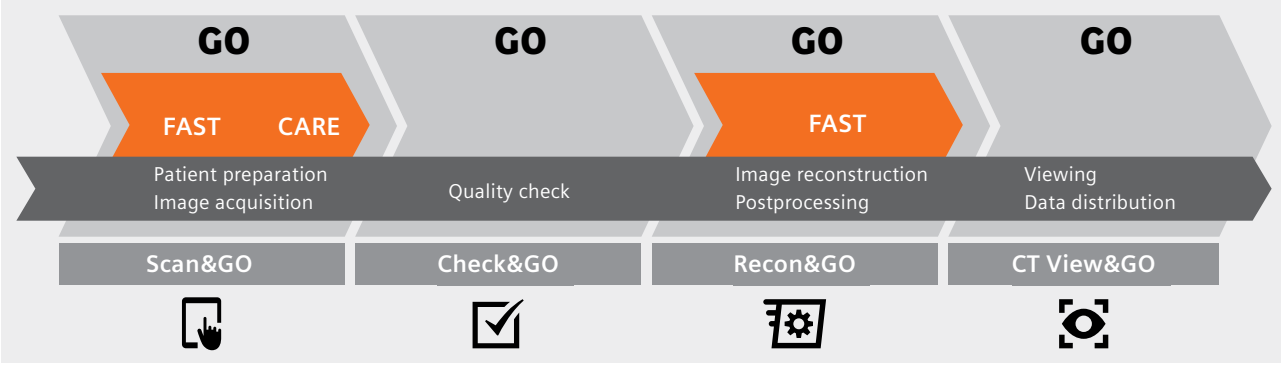
Endoscopic View
Virtual Endoscopy software enabling visualization of airways and intestines

Diameter / WHO area
Longitudinal lesion measurements and WHO for enhanced clinical decisions in oncology

ROI HU Threshold
Evaluation and display tissue densities within a certain HU range

Lung Lesion Segmentation
The Lung Lesion Segmentation tool in CT View&GO performs an automated segmentation of solid and subsolid lesions in lungs, providing the volume and diameter according to the Lung-RADS guidelines.

Spine Ranges
- Guided reconstruction of anatomically aligned spine
- Curved Planar Reconstructions (CPR)
- Automatic detection and labeling of vertebrae



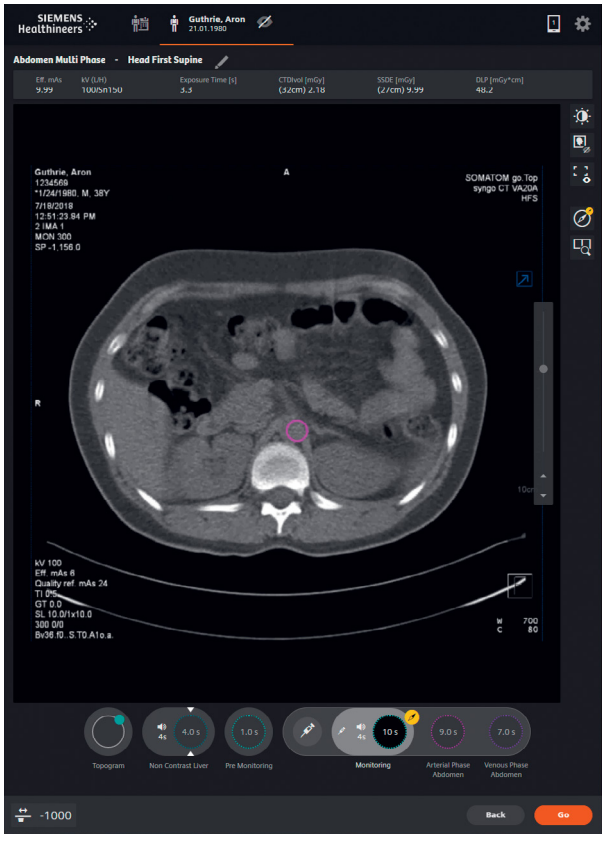
Standard FAST applications

FAST Planning

This set of algorithms powered by AI machine learning allows fast, organ-based setting of scan and reconstruction ranges. This enables consistent and reproducible acquisitions. By automating the workflow, users increase efficiency due to reduced manual steps and effort in scan preparation.

This machine learning algorithm is trained with several hundreds of patient datasets in order to overcome even the most challenging anatomies (e.g., bypass). Landmark detection technology recognizes known "human anatomy anchors" on the topogram and the scan range automatically snaps to the correct region.

It prevents the range from being set too short or too long, so no parts of the organ are cut off or over-radiated.



FAST ROI

Automatic ROI identification for the aorta and the pulmonary trunk for optimal enhancement timing.

FAST Adjust

FAST Adjust assists the user to handle system settings in a fast and easy way by automatically solving of conflicts by one single click.

FAST Contact[1]

FAST Contact is the easiest way to contact our service experts directly from the scanner console for technical and clinical application support. teamplay Fleet—our fleet management tool—also tracks and archives service tickets generated with FAST Contact.

[1] *teamplay Fleet and FAST Contact are subject to country-specific availability.*

Optional FAST applications

FAST Integrated Workflow

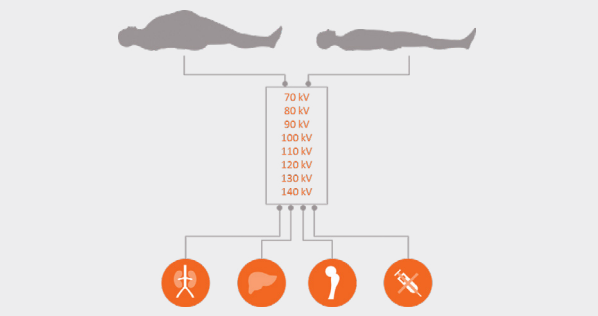
The AI-powered FAST 3D Camera enables an automated workflow to safeguard precision and consistency in patient positioning—enabling high efficiency, increased image quality, and an optimized isocenter for an optimal dose, regardless of individual skills.

The algorithms of the FAST 3D Camera support accurate and reproducible positioning based on 3D image and infrared measurements, and recognize the body even when people are wearing thicker clothes. The following specialized applications are included:

- FAST Isocentering, at the push of a button, provides the correct isocenter position, enabling the right dose modulation and consistent images.
- FAST Range supports scanning the correct body region with no cut-off – by aligning the automatically identified anatomical position with the protocol.
- FAST Direction helps safeguard the right scan direction, which is crucial when moving the table with infused patients.
- FAST Topo enables faster scan speeds in topograms, which prevents breathhold artifacts. It also has the potential to decrease the topogram dose.
- The smart communication between the tablet and the FAST 3D Camera helps reduce mistakes even with non-cooperative patients between planning and scanning the topogram, thanks to reactive algorithms that will adapt the topogram planning even if patients move.
- Collision indication: Before moving the table into the gantry, the system indicates a potential collision.
- Grid overlay: Visual feedback on tablets that show whether patient has been positioned straight or rotated by overlaying a grid on the camera image.

Standard CARE applications

CARE keV



CARE keV is an adaptation of CARE kV specifically developed for photon-counting technology. In combination with CARE Dose4D, dose relevant parameters, tube current, and tube voltage are tailored to the individual patient, the system capabilities, and the clinical task. CARE keV takes the dose efficiency of Monoenergetic reconstructions into account, by automatically adjusting the appropriate kV and effective mAs settings to optimize the applied dose while the image quality, i.e. the CNR at designated keV levels, is maintained. CARE keV ensures consistent CNR levels across scan modes, hereby offering a holistic solution for photon-counting scanners.

CARE Child

CARE Child offers scan parameters to be adapted to even the smallest patient size. Dedicated pediatric protocols automatically set a low tube voltage while CARE Dose4D optimizes dose distribution and offers special modulation curves.

CARE Filter

Specially designed X-ray exposure filters installed at the tube and the collimator for protocol-specific optimization of patient dose and image quality

Permanent filtration of X-ray tube assembly
Equivalent to 6.8 mm Al @ 140 kV

Tube collimator
- Equivalent to 0.5 mm Al in the isocenter
- 1 mm Al with cardio wedge

CARE Bolus CT

Scan mode for contrast bolus-triggered data acquisition

The procedure is based on repetitive low-dose monitoring scans at one slice level and analysis of the time density curve in an ROI (Region of Interest).

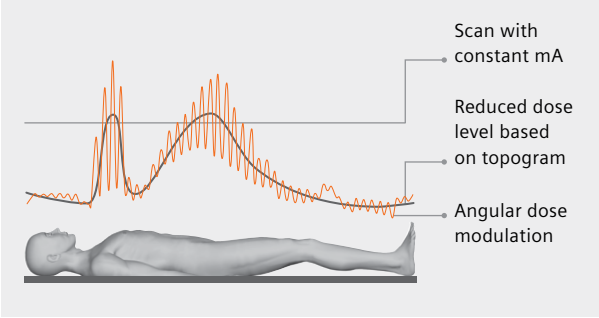
CARE Bolus CT allows the planning and the execution of contrast workflows within the Scan&GO user interface.

CARE Topo

Real-time topogram

Manual interruption possible once desired anatomy has been imaged

CARE Dose4D



Fully automated dose modulation solution.
The algorithm automatically modulates tube current for optimum image quality.

This results in reduced dose levels, depending on patient size and anatomy, i.e. there is automatic patient & organ specific tube current adaption.

Standard CARE applications

X-CARE

Provides organ dose reduction for radiation-sensitive peripheral organs e.g., eye lenses, while maintaining image quality.

Keeps the average $CTDI_{vol}$ constant, i.e. with and without X-CARE.

myExam Companion individualizes the utilization of X-CARE by considering the gender and breath-hold capability of the patient.

Flex dose profile

For long scan ranges, Flex Dose Profile works in combination with CARE Dose4D and FAST Planning to allow a more optimal modulation of the dose.

In longer scans, some organs require more dose than the rest of the scan, i.e. there are different target dose levels needed for different anatomical regions, e.g., in regular thoracoabdominal examinations or in chest pain or TAVI procedures. FAST Planning automatically detects individual patient landmarks and anatomies, while Flex Dose Profile adjusts the tube currents for more personalized and accurate dose handling.

Flex Dose Profile is displayed on the AWP and the Scan&GO tablet with the same visual logic as any other procedure, so users of any level of experience can utilize it right away.

Protocol password protection

Prevent unauthorized access to scan protocols and avoid unauthorized modifications.

DICOM SR dose reports

DICOM structured file allows for the extraction of dose values ($CTDI_{vol}$, DLP) to create transparency and document dose values.

Dose notification

The software checks the dose values per chronicle entry. May help to protect from over-radiation and warn the operator if set dose thresholds are exceeded.

Dose alert

The software checks the accumulated dose per z-position. May help to protect from over-radiation and warn the operator if set dose thresholds are exceeded.

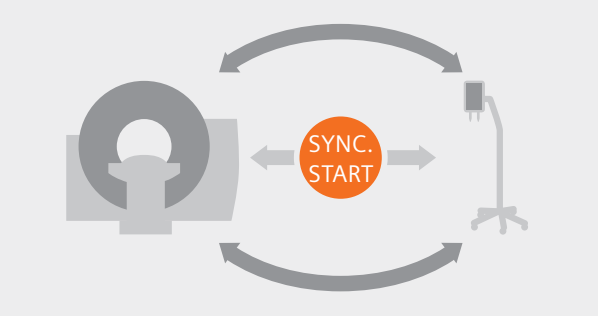
Quantum Iterative Reconstruction

Quantum Iterative Reconstruction (QIR) is our approach to apply model based iterative reconstruction to spectral data produced by a photon-counting detector. Building on the performance of our proven ADMIRE reconstruction algorithm, QIR splits the raw data coming out of the detector into two data streams, separated by energy level. Both raw data streams enter into the iterative reconstruction loops separately. However, to ensure perfect geometric alignment between the different energy levels, synchronization points are implemented in both the projection data loop as well as the image data loop.

The fully synchronous data streams then undergo spectral processing out of which the spectral maps and monoenergetic images are created.

Optional CARE applications

CARE Contrast III



CARE Contrast III increases process efficiency and standardizes quality of care with technology that lets you synchronize and manage CT scan and contrast media injection, with the interchange of contrast injection protocols (including parameters like phase, flow, duration, volume).

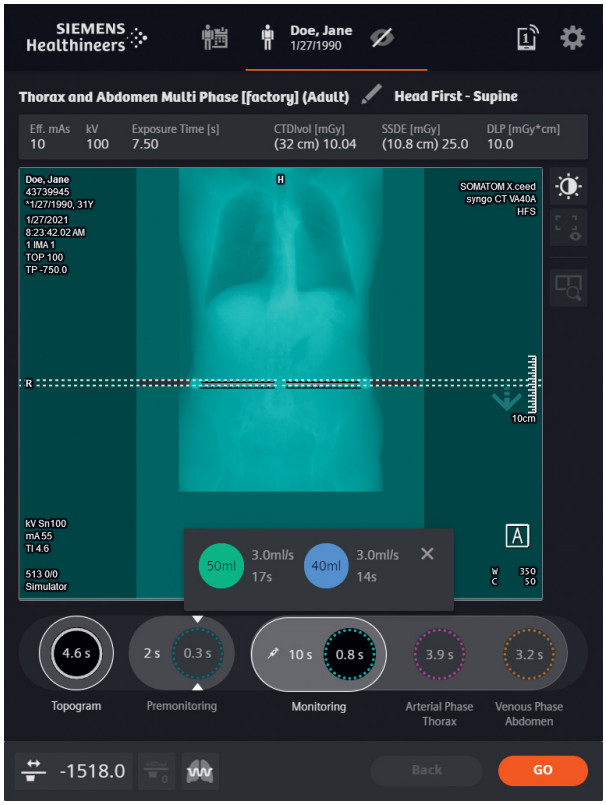
Define and manage contrast media protocols on the scanner console.

Combined scan and contrast media protocols.

Transfer contrast media protocols from the scanner console to the injector.

Transfer contrast media protocol to patient protocol.

Selected pre-defined factory protocols[1] including quantified parameterization of flow and concentration for the contrast media, calculated for the average patient.



[1] *The FDA does not endorse the default factory contrast protocols over the range of drug administration options provided in the drug label.*

Optional system software and packages

Quantum Cardiac Imaging

The Advanced Cardio Package allows for comprehensive cardiac assessment and clinical consistency in cardiac CT with ease. Optimized, fully tablet-operated scan preparation, fast scanning, and standardized results in every cardiac case enabled by the integrated GO technologies allow you to devote more time to your patient.

Especially useful for users less experienced in cardiac CT procedures, the exclusive myExam Companion suggests which settings are more appropriate for every patient based on the procedure and patient characteristics and finds the optimal combination of acquisition and reconstruction parameters. By measuring heart rate and rhythm, the system automatically chooses the most appropriate phase of the heart cycle to scan and later reconstruct.

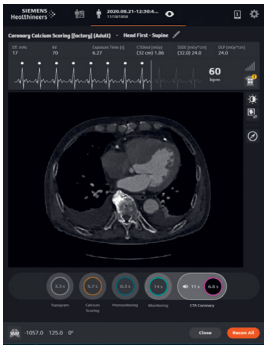
Physiological Measurement Module
Three-channel ECG cable connection. The ECG signal is automatically checked for impedance and monitored on the tablet.

ECG-triggered scan modes
Adaptive prospective (Cardio Flex Sequence) and retrospective (Cardiac Spiral) ECG-triggered scanning to obtain CT images of the heart in defined phases of the cardiac cycle at a minimum rotation time of 0.25 s. A native temporal resolution of up to 66 ms can be achieved.

Down to 33 ms temporal resolution combining retrospective ECG-triggered acquisition with robust 2-segment reconstruction

Adaptive ECG-synchronized dose modulation (pulsing) allowing additional dose savings in retrospective spiral scanning.

Prospective ECG-triggered high pitch (Cardiac Flash Spiral) scanning to obtain a single set of sliding phase images.



Recon&GO

- Inline Results – Cardiac Ranges
- Inline Results – Vessel Ranges (LAD, RCA, CX)
- Inline Results – CaScoring
- Inline Results – Heart Isolation
- Inline Results – Coronary Tree

After the scan, Recon&GO produces ready-to-read results for instant evaluation. Zero-click CPR of the main coronaries and radial VRT ranges of the coronary tree (as recommended in the SCCT guidelines 10) help you quickly rule out coronary artery disease.

Inline CaScoring
makes the Calcium Score available as zero-click reconstruction. With the known functionality of Recon&GO, Inline CaScoring calculates automatically the total Agatston Score as well as the Coronary Age (based on trial data) and archives them directly in the PACS. Results can be opened in *syngo*.CT CaScoring directly at the AWP and further processed if needed.

CT View&GO

CT View&GO provides a set of tools for basic coronary CTA evaluation on the AWP including automatic heart and coronary tree isolation and dedicated layouts for guided creation of CPR (Curved Planar Reconstructions) for enhanced vascular assessment and stenosis measurement.

syngo.CT CaScoring application for AWP

syngo.CT CaScoring allows visualization and quantification of calcified coronary lesions volume (in mm^3), calcium mass (mg calcium hydroxyapatite), vesselspecific and total Agatston equivalent score and the number of lesions. Scoring can be performed separately for the main coronary branches (RCA, LM, LAD, CX). In addition, it calculates the virtual coronary age by comparison against a reference group. Combined with Rapid Results Technology it enables zero-click post-processing of both Agatston Scoring as well as coronary age analysis.

ZeeFree

A novel cardiac CT reconstruction feature that enables the reduction of alignment stacks in ECG-gated images caused typically by patient breathing during the scan acquisition. The feature achieves this independent from the physical detector width of the acquired data, making detector width irrelevant.

Optional system software and packages

Quantum PURE Calcium

Virtual iodine free image reconstruction based on spectral information and high spatial resolution.

Quantum PURE Lumen

Virtual calcium free image reconstruction based on spectral information and high spatial resolution.

Quantum Spectral Imaging

Detect individual photons and measure their individual energy at full FoV. The resulting scans always provide multi-energy data enabling e.g., robust quantification of iodine even at reduced dose levels.

Retrospectively view and select images of different energy-levels in routine scan modes[1].

Ability to create Quantum Monoenergetic Plus images, Quantum Virtual Unenhanced images and Quantum Iodine Maps from routine scan modes[1].

Combine high spatial resolution images with spectral information in a single scan[2]

Recon&GO

Experience zero-click spectral imaging workflow with Recon&GO automation

Inline Results – SPP (Spectral Post-processing)
Improve your workflow by fusing multi energy data into the DICOM conformant spectral imaging data format, SPP (Spectral Post-Processing). In your PACS, the SPP dataset shows a single DICOM dataset as Monoenergetic Plus images while maintaining intact the multi energy information.

Recon&GO Spectral Recon
Recon&GO Spectral Recon allows to maintain full freedom for multiplanar reconstructions (of Monoenergetic Plus, VNC, Iodine maps) and also enables quantification of multi-energy related parameters.

Multi energy reconstructions are directly calculated on the IRS based on the spectral information available in the raw data.

Spectral Recon includes:

- Quantum Monoenergetic Plus
- Quantum Virtual Unenhanced (incl. Quantum Iodine Map and Liver VNC)
- None[3]
- T3D[4]
- Quantum PURE Lumen

Inline Results – Spectral Ranges
Recon&GO offers fully automated advanced post-processing applications by triggering dedicated spectral imaging algorithms. Recon&GO automatically generates the most appropriate spectral result in any required orientation and thickness.

Inline Results includes the following Spectral Ranges:

- Quantum Monoenergetic Plus
- Quantum Virtual Unenhanced (incl. Quantum Iodine Map)

CT View&GO

As an all-in-one, cross-specialty viewing solution, CT View&GO provides tools for routine spectral evaluation in different clinical fields

CT View&GO – Interactive Spectral Imaging
Interactive Spectral Imaging enables loading and view of e.g., VNC, Iodine Map and Monoenergetic Plus data directly within CT View&GO.
For Monoenergetic Plus it enables interactive switching between 40–190 keV.

Advanced Spectral Task for AWP

Advanced applications for spectral evaluation and postprocessing on the AWP

Preparing and viewing of multi energy data

Quantum Virtual Unenhanced
- Iodine uptake quantification
- Calculation of virtual unenhanced image

Quantum Monoenergetic Plus
- Algorithm for enhanced image quality and iodine contrast
- Evaluation of multiple ROIs
- Display monoenergetic images in the range of 40–190 keV

[1] *Routine scan modes include Cardio and Flash spiral at any pitch, but exclude UHR, research and bolus tracking.*
[2] *Requires Quantum HD*
[3] *Selects MEP, if available, with keV adjusted to the scan mode or T3D. Enables advanced post-processing functions.*
[4] *Conventional CT image reconstructed from the lowest threshold.*

Optional system software and packages

LungCAD

Simplify the integration of Lung Cancer Screening into your institution with Recon&GO and CT View&GO thanks to AI-powered algorithms.

Recon&GO

Inline Results – LungCAD
PACS-ready zero-click LungCAD (Computer Aided Detection) series.

Algorithm designed as PACS-Ready second reader tool to assist radiologists in the detection of pulmonary nodules during review of CT examinations of the chest.

Detection of solitary nodules as well as those adjacent to vessels and pleural surfaces

CT View&GO

LungCAD
As an all-in-one, cross-specialty viewing solution, CT View&GO provides a LungCAD tool, as computer assisted second reader solution for evaluation on the AWP.

LungCAD potentially makes results more objective and consistent, and shortens the radiologists' learning curve to accommodate varying skill levels of physicians in interpreting diagnostic images.

Lung Lesion Segmentation
The Lung Lesion Segmentation tool in CT View&GO performs an automated segmentation of solid and subsolid lesions in lungs, providing the volume and diameter according to the Lung-RADS guidelines.

Quantum 4D Imaging[1]

Flex 4D Spiral – Body

Continuously repeated bidirectional table movement during spiral acquisition enables an extended range for 4D information.

Facilitates volume perfusion studies in body applications for a perfusion range of up to 32 cm.[2]

Facilitates dynamic studies up to a scan range of 81 cm.[2]

These dynamic procedures are handled on the AWP with the same visual logic as any other procedure, so users of any level of experience can perform them right away.

Precision Matrix

Reconstructions of images with matrix sizes of up to 1024 x 1024 and 768 x 768, useful to keep spatial resolution high even at full scan FOV

Powered by myExam Companion, the right image matrix size for axial and 3D reconstructions is automatically selected depending on FOV offering a balance between storage demand, reconstruction time and spatial resolution.

CT Dental

***syngo*.CT Dental application for AWP**
syngo.CT Dental supports pre-surgical planning for dental operations by reformatting of curved panoramic and paraxial views along the jaw-bone, as well as, definition of the mandibular canal.

Filming in true anatomical size allows direct measurement based on the x-ray films.

[1] *Recommended applications for evaluation in syngo.via: syngo.CT Body Perfusion and syngo.CT Dynamic Angio*
[2] *Requires multi-purpose patient table*

Optional system software and packages

Trauma Reading

This package includes dedicated CT View&GO and Recon&GO applications to speed up the workflow in emergency procedures. If myExam Satellite is available, the same applications are accessible there for direct evaluation of images without interrupting the scanning program.

Recon&Go

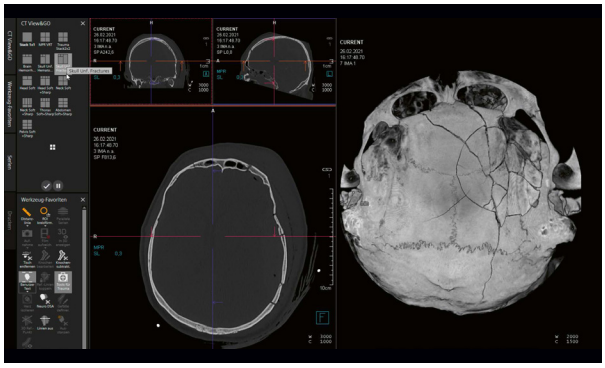
Inline Brain Hemorrhage
Automatic detection and PACS notification of suspected intracranial hemorrhage

Inline Skull Unfolding
Automatic curved MIP images of skull and brain surface to support detection of skull fractures and thin surface hematoma

Results can be automatically sent to PACS

CT View&GO

Trauma Layouts
Predefined layouts are automatically loaded and filled with corresponding data for head, neck, thorax and abdomen and pelvis. Data from Skull Unfolding and Brain Hemorrhage is automatically displayed within the layouts.



Quantum HD

Quantum HD allows you to utilize the full spatial resolution of the QuantaMax detector and provide clinical images.

Allows reconstruction of T3D series with a slice thickness of 0.2 mm and a spatial resolution of up to 44 lp/cm (@2% MTF) at full dose efficiency.

Quantum HD acquisitions also allow the reconstruction of Quantum Spectral Imaging results at 0.4 mm slice thickness.

Available in single source acquisition modes using a collimation of 120 x 0.2mm.

Includes Precision Matrix

Quantum HD Cardiac

Quantum HD Cardiac enables the acquisition of 0.2 mm slice thickness images in dual source modes at full temporal resolution of 66 ms.

Depict small calcified plaques and coronary stents at high detail.

Requires Quantum HD, Quantum Cardiac Imaging

Available in single source acquisition modes using a collimation of 120 x 0.2mm or 96 x 0.2mm (with spectral)

Optional system software and packages

Quantum Stroke Reading

The Quantum Stroke Reading package provides you with a tiltable head holder and various tools for assessment of stroke and other neurological diseases: native neuro scanning with neuro DSA (Digital Subtraction Angiography) and neuro perfusion with detector coverage only (no table movement).

Tiltable Head Holder
Tiltable carbon fibre Head Holder for the fixation of the Patient's Head. Tilt range between +30 till –15 degree.

Flex 4D Spiral – Neuro

Flex 4D Spiral Neuro adds functional information to morphology, with perfusion range larger than the detector width up to 12 cm, thus easily covering the entire supratentorial brain.

Facilitates dynamic studies up to a scan range of 48 cm

These dynamic procedures are handled on the AWP with the same visual logic as any other procedures, so users of any level of experience can perform them right away.

CARE Technologies are also available for dynamic studies in order to help follow the ALARA principle, for instance with flexible adaptation of the scan range to the region/organ of interest, low kV modes (70, 90 kV), CARE keV and CARE Dose 4D.

Recon&GO

Inline Results – Neuro Perfusion
Neuro Perfusion supports the assessment of brain tissue perfusion through a contrast CT head scans with a full automatically and reproducible quantitative grading system for tissue differentiation, i.e., whether Penumbra or core infarct. Recon&GO provides inline neuro perfusion calculation and automatic transfer to PACS.

CT View&GO

Neuro DSA
The Neuro DSA tool within CT View&GO provides a bone-free view of the cerebral vasculature based on the subtraction of an additional non enhanced CT (NECT) scan that is three-dimensionally registered to the CTA data set.

Stroke Layout
The Stroke Layout plugin will automatically load Stroke results in a dedicated layout to facilitate the readability of the results. This Layout will show the relevant patient results, based on the type of stroke (e.g. in case of Ischemic Stroke).

syngo.CT Neuro Perfusion application for AWP

syngo.CT Neuro Perfusion offers a fully automated or guided workflow to evaluate areas of brain perfusion. The guided workflow is a five step process to view the perfusion parameters including core infarct and penumbra.

syngo.CT Neuro Perfusion provides the following quantitative 3D images based on the deconvolution model and the maximum slope model:

- Cerebral Blood Flow (CBF) image
- Cerebral Blood Volume (CBV) image
- Mean Transit Time (MTT)
- Time to Peak image (TTP, image of bolus peak time)
- Time to Start image (TTS, image of bolus arrival time)
- Time to Drain (TTD)
- TMax (Transit time to the center of the Impulse Response Function)
- Flow Extraction Product (Permeability)

Trauma Imaging
Trauma layouts and inline results for Skull Unfolding and Brain Hemorrhage.

Optional system software and hardware for CT-guided interventions

myNeedle Companion for CT-guided interventions[1]

On the NAEOTOM Alpha.Peak we are integrating the first solution that harmonizes planning and guidance for percutaneous needle procedures across modalities. myNeedle Companion supports the interventionalist by utilizing the standard system tablet to interact with the system software and the images with touch-gestures from inside the examination room to stay close by the patient during the procedure. In addition the intervention user interface myNeedle Guide is displayed on a 32" in-room monitor either mounted at the ceiling or on a cart.

myNeedle Guide 2D[2]

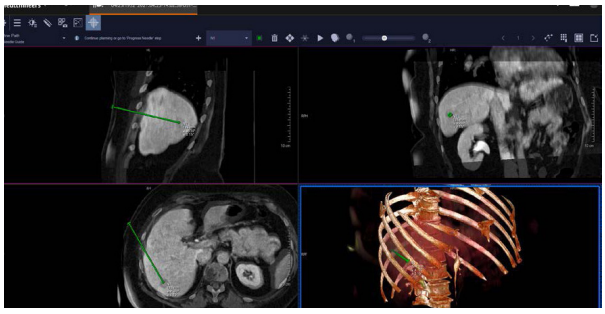
Assists you in planning and guiding the needle during in-plane percutaneous CT-guided interventions. Dedicated tools support the planning of a needle path by providing distance and angle measurement from the target to the needle entry point in one or several axial CT slices. It includes i-Sequence scan mode referred to as FAST i-Sequence as it allows for quick scan repetitions, e.g., for dynamic monitoring of the needle.

myNeedle Guide 3D[2]

Supports all simple in-plane interventions, to complex, double-angulated procedures. myNeedle Guide 3D supports planning of multiple needle paths by measuring distances and angles from the target to the needle entry point on one or several axial CT slices and as well on Multi Planar Reconstructions. To leverage the optimized image for planning the needle path 3D images from other modalities or prior CT scans can be fused with the actual CT scan.

It includes:

- myNeedle Detection: an AI based algorithm to detect the needle. The software scrolls automatically to the axial image with the needle tip and aligns the MPR views to the needle. In addition the distance to the planned target point and the angular deviation is calculated.
- i-Sequence scan mode referred to as FAST i-Sequence as it allows for quick scan repetitions, e.g., for dynamic monitoring of the needle, either with a volume coverage of 3 × 3 mm or 3 × 5 mm for inplane procedures or covering the full detetcor width which allows for 3D planning and guidance.
- i-Spiral mode for flexible volume coverage to adjust it to clinical scenarios and for a dose conscious approach standard dose reduction algorithm such as CARE Dose4D and CARE kV can be applied as well.
- Dedicated i-Sequence mode covering full or half of the detector width which allows 3D planning and guidance.



[1] *System displayed not NAEOTOM Alpha.Peak*
[2] *Requires a second control room monitor*

Optional system software and hardware for CT-guided interventions

myNeedle Laser[1]

Projects the needle entry point and insertion angle on to the patient with a maximum deviation of 5 mm. myNeedle Laser is embedded in the CT gantry and fully integrated in the myNeedle Guide 3D software to increase efficiency compared to external laser guidance systems.

i-Fluoro[2,3]

Allows for near real-time CT fluoroscopic image guidance. The scan mode i-Fluoro CT is completely integrated in the interventional workflow of myNeedle Guide. i-Fluoro lets you scan continuously, and view images in real time at up to 10 frames/s on an additional in-room monitor and as well on the second control room monitor. The acquired images have an image matrix of 512 x 512.

HandCARE
For i-Fluoro scans HandCARE can be applied enabling real-time dose modulation to avoid direct X-ray exposure to the physician's hands. HandCARE switches off the x-ray exposure for a 100° angle between three user selectable positions (10:00, 12:00 and 2:00).

X-Ray Footswitch

For triggering scans from the examination room

i-Joystick

The i-Joystick supports the table movement in z-direction (in and out of the gantry) directly from the table side. The i-Joystick can be flexibly mounted along both sides of the table designed for an ergonomic set-up during CT-guided minimal invasive procedures. It is connected via cable and can be mounted on both sides of the CT-table.

Tablet dock for patient table

The tablet dock for the patient table is fully adjustable for an ergonomic independent in-room operation during minimal invasive procedures. Optionally the table dock can be plugged in for an uninterrupted power supply for long interventions.

Tablet side rails long

Designed to flexibly mount the tablet dock and the i-Joystick along the patient table during percutaneous minimally invasive procedures.

[1] *Only available in combination with myNeedle Guide 3D*
[2] *Only available together with myNeedle Guide 2D or myNeedle Guide 3D*
[3] *X-Ray Footswitch required*

Optional Radiation Therapy system software and hardware

DirectORGANS

DirectORGANS (Optimized Recon based Generative Adversarial NetworkS) is the world's first auto-contouring feature directly on the scanner. It leverages the power of dedicated reconstruction and deep learning to streamline organs-at-risk contouring.

DirectORGANS Advanced[1]

DirectORGANS Advanced is an extended organ package that supports the following organs for auto-contouring.

- Lung
  - Individual Ribs
  - Sternum
  - Aorta
  - Lung Lobe LL
  - Lung Lobe UL
  - Lung Lobe LR
  - Lung Lobe MR
  - Lung Lobe UR
- Heart (iodine contrast is required)
  - Cardiac Left Ventricle
  - Cardiac Right Ventricle
  - Cardiac Right Atrium
  - Cardiac Left Atrium
- Lymphnodes
  - LN Common Iliac (L/R)
  - LN Internal Iliac (L/R)
  - LN External Iliac (L/R)
  - LN Obturator (L/R)
  - LN Presacral
- Endocardium

RadOnc Excellence

RadOnc Excellence is a dedicated RT optional package designed for the radiation oncologist and physicist.

- RT Dose Display volumes overlaid on any supported image type and side by side
- Display-related dose volume histograms
- Use deformable registration between current and prior dose volumes and images for dose accumulation
- Multimodality data handling with 3D CT, PET, PET/CT, MRI and Linac CBCT
- 4D CT, PET/CT, MRI
- Time-resolved CT and MR images
- Calculate SUV for PET images

[1] *DirectORGANS is a prerequisite*

Optional Radiation Therapy system software and hardware

RT table

Multi-purpose Table RT
with 340 kg Multi-index RTP Overlay
- Max. table load 340 kg / 750 lbs
- Multi-indexing with Varian and Elekta indexing
- Light-weight overlay
- TG-66 compliant

Respiratory Motion Management[1]

Various acquisition modes and protocols accommodate a wide range of respiratory patterns and workflows.

Extended scan time capabilities up to 300 seconds

Supports retrospective modes including phase and amplitude reconstructions

Supports the automatic creation of temporal MinIP (tMinIP), temporal MaxIP (tMaxIP) and the easy generation via reconstruction of an Average CT, to evaluate respiratory motion

Ability to automatically detect synchronization points

User-selectable number and placement of reconstruction bins up to 1% recon

Quantitative 4D assessment of 3D tumor trajectory and amplitude and semi-automatic calculation of the midventilation phase for RT available under CT View&GO platform

FAST 4D[2]

FAST 4D streamlines your 4D CT workflow by automatically setting the optimal scan parameters based on the patient's breathing rate.

The direct online connection between the CT and a gating device over the Varian RGSC online interface or the ANZAI interface allows display and analysis of the breathing rate in real time.[2]

Gating interfaces

Varian RGSC interface
The online mode allows for retrospective gating

ANZAI Interface
The online mode allows for retrospective gating

Open Interface
For retrospective gating with a number of supported gating systems

Direct i4D[2]

Direct i4D is the world's first 4D CT sequence scan mode that adapts to the patients breathing in real time. Moreover, it intelligently adapts the reconstruction based on the breathing amplitude analysis. As a result, a reduction of 85% of image artifacts can be achieved, which would occur when not a complete inhalation and exhalation cycle was acquired[3].

The direct online connection between the CT and a gating device over the Varian RGSC online interface or the ANZAI interface allows display and analysis of the breathing rate in real time.[2]

DirectSetupNotes[4]

DirectSetup Notes is a mobile software application for patient and accessory setup documentation to ease imaging and RT treatment workflows.

Since the CT images are used for planning the radiation dose delivery, the CT scans need to be performed with the patient positioned in the same way they will be for the treatment. To ensure that the patient is comfortable and does not move during the treatment, several accessories are used to help position reproducibility.

DirectSetup Notes documents the patient position and accessories used during CT simulation to make sure that the patient lies in the same position during each radiation therapy treatment session.

[1] Requires an interface to connect to one of the many compatible 3rd-party gating devices, like VARIAN RGSC or ANZAI
[2] Requires Varian RGSC Interface or ANZAI Interface and Respiratory Motion Management option
[3] Based on simulation results – Data on file
[4] The operation and the configuration of the feature must be conducted by trained healthcare professionals.

Installation

Components

Dimensions	Height (mm / inch)	Width (mm / inch)	Length (mm / inch)	Weight (kg / lbs)
Gantry	1,990 / 78.5	2,400 / 94.5	1,265 / 49.8	2,900 / 6,393
Multi-Purpose Table	≤ 950 / 37.4	≤ 800 / 27.6	≤ 2,600 / 100.8	≤ 500 / 849

Power supply

Nominal voltage ± 10%
380–480 V

Nominal line frequency ± 3Hz
50, 60 Hz

Power consumption

Max. power consumption
≤ 350 kVA

Standby
≤ 8 kVA

Power consumption according to COCIR and GPP

Use scenario 24-hour power consumption[1]

Off[2]
54.8 kWh

Low power[3]
100.7 kWh

Idle (stand-by)
112.4 kWh

Protection against input power instability

Controllers
20 ms

***syngo* Acquisition Workplace**
15 min, with UPS

Frequency stability
± 5% at 50 and 60 Hz

Sound design

Standby
< 60 dB(A)

Peak
< 70 dB(A)

Electromagnetic compatibility

This product is in compliance with IEC 60601-1-2 and fulfills CISPR 11 Class A.

Room environment

Temperature range
23°C ± 2°C / 73°F ± 3.5°

Relative air humidity without condensation
30-50% ± 3% rel. to system check

Heat dissipation (gantry, table and integrated computers)
< 21 kW to water
< 1 kW to air

Heat dissipation (image reconstruction and acquisition system)
< 1.8 kW

Surface area for installation[4]

System footprint
< 17 m² / 183 ft²
(14.6 m² / 157 ft² with restricted scan range)

[1] *Values may vary approx. ± 3% due to specific system conditions, for example of UPS, etc.*
[2] *With wall-switch*
[3] *System off*
[4] *Subject to local regulations. Safety distances must be checked according to country-specific requirements.*

Image quality

Low-contrast resolution

Low-contrast resolution is the ability to see ...
- a small object
- with a certain contrast difference
- on a particular phantom
- with a particular dose ($CTDI_{vol}$)

Phantom	CATPHAN (20 cm)	
Object size	5 mm	3 mm
Nominal Contrast difference	3 HU	3 HU
$CTDI_{vol}$ (32 cm)	6.0 mGy	10.0 mGy
Technique	Spiral acquisition, 10 mm slice, 120 kV, QIR 4, Spectral Recon: Monoenergetic Plus, 65 keV	

Homogeneity

Cross-field uniformity in a 20 cm water phantom
- max. ± 4 HU[1]
- typ. ± 2 HU

Phantom positioned near center of rotation

Dose, $CTDI_{100}$ Values mGy/100 mAs

Phantom Ø		kV	kV	kV	kV	kV
		90	**120**	**140**	**Sn100**	**Sn140**
16 cm	**A**	7.80	16.45	23.41	1.68	6.59
16 cm	**B**	8.31	17.13	24.18	1.68	6.70
32 cm	**A**	2.04	4.89	7.32	0.58	2.47
32 cm	**B**	4.33	9.41	13.59	0.99	4.11

A: at center **B: 1 cm below surface**

Technique
- PMMA-Phantom – 144 x 0.4 mm
- Absorbed dose for reference material air
- Expected deviation:
  ± 10% without spectral filter
  ± 20% with spectral filter
- Max. deviation:
  ± 20% without spectral filter
  ± 30% with spectral filter

High-contrast standard resolution

x-y plane	
50% MTF	16.5 lp/cm
10% MTF	20.4 lp/cm
2% MTF	20.7 lp/cm
Technique	144 x 0.4, 120 kV, 0.4 mm slices, Br76
z plane	
50% MTF	11.0 lp/cm
10% MTF	15.1 lp/cm
2% MTF	17.9 lp/cm
Technique	144 x 0.4, 120 kV, 0.4 mm slices

High-contrast Ultra High Resolution (UHR)

x-y plane	
50% MTF	39.0 lp/cm
10% MTF	42.9 lp/cm
2% MTF	44.3 lp/cm
Technique	120 x 0.2, 120 kV, 0.2 mm slices, Br98
z plane	
50% MTF	13.7 lp/cm
10% MTF	25.0 lp/cm
2% MTF	31.4 lp/cm
Technique	120 x 0.2, 120 kV, 0.2 mm slices

[1] *Max. HU value also valid for 30 cm phantom*

Siemens Healthineers pioneers breakthroughs in healthcare. For everyone. Everywhere. Sustainably. The company is a global provider of healthcare equipment, solutions and services, with activities in more than 180 countries and direct representation in more than 70. The group comprises Siemens Healthineers AG, listed as SHL in Frankfurt, Germany, and its subsidiaries. As a leading medical technology company, Siemens Healthineers is committed to improving access to healthcare for underserved communities worldwide and is striving to overcome the most threatening diseases. The company is principally active in the areas of imaging, diagnostics, cancer care and minimally invasive therapies, augmented by digital technology and artificial intelligence. In fiscal 2024, which ended on September 30, 2024, Siemens Healthineers had approximately 72,000 employees worldwide and generated revenue of around €22.4 billion.

Further information is available at www.siemens-healthineers.com.

The outcomes and statements provided by customers of Siemens Healthineers are unique to each customer's setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, and level of service/technology adoption), there can be no guarantee that others will achieve the same results.

On account of certain regional limitations of sales rights and service availability, we cannot guarantee that all products included in this brochure are available through the Siemens Healthineers sales organization worldwide. Availability and packaging may vary by country and is subject to change without prior notice. Some/All of the features and products described herein may not be available in the United States.

The information in this document contains general technical descriptions of specifications and options as well as standard and optional features, which do not always have to be present in individual cases.

Siemens Healthineers reserves the right to modify the design, packaging, specifications, and options described herein without prior notice. For the most current information, please contact your local sales representative from Siemens Healthineers.

Note: Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

Siemens Healthineers Headquarters
Siemens Healthineers AG
Siemensstr. 3
91301 Forchheim, Germany
siemens-healthineers.com

USA
Siemens Medical Solutions USA, Inc.
Healthcare
40 Liberty Boulevard
Malvern, PA 19355-9998, USA
siemens-healthineers.us

Published by Siemens Healthineers AG · CT-24-NAM-6659 · QR700019839 · 03.2025 ·