

CTScanner

3064



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

▶▶ Standard configuration:

CT scanner 3064 is powered by advanced clinical diagnosis function and optimized workflow which designed and manufactured by Analytical Technologies.

▶▶ Key Features:

- 76cm large bore: Fast workflow and comfortable scan environment
- 64 slice high definition image
- 8.0MHu X-Ray tube heat capacity
- 80kW Generator power rate
- 50cm Scan FOV
- 1950mm Patient table movement range
- 250kg Patient table load capacity
- Reconstruction Matrix: 512×512, 768×768, 1024×1024

▶▶ Environment requirements

- Temperature: scan room: 20°C~26°C; operation room 18°C~28°C;
- Humidity: scan room : 30 %~70 %, (Non-condensing);
operation room: 20%~80%, (Non-condensing)
- Atmospheric pressure: 70kPa~106kPa

▶▶ Power requirements

- a) Power capacity: 100kVA_o
- b) Voltage: 3-phase 380VAC, 3-phase imbalance: less than 10%
- c) Frequency: 50Hz/60Hz ± 1Hz

▶▶ Site planning

For technician and patient operation convenience:

- Recommended Area of Scanning room: 30m² (6.0m×5.0m)
- Min. Area of Scanning room: 22.4m² (5.6m×4.0m)

1	Gantry
1-1	<p>Gantry Control Panels</p> <p>Gantry Control Panels for gantry tilt, patient couch elevation and stroke are located at the operator's console as well as on front and back and left and right sides of the gantry. Additional functions at the operator's console include emergency stop, intercom and scan enable/pause buttons.</p>

<p>1-2</p>	<p>Scan Control Box</p> <p>Once the scanning process has been initialized via the on-screen scan toolbox, you can control the remainder of the process using the Scan control box, which consists of a variety of buttons and LEDs for controlling and displaying gantry tilt angle and patient table movements.</p>
<p>1-3</p>	<p>Integrated Digital LCD Display</p> <p>Integrated Digital LCD Display can show basic patient information on monitor on Gantry, and user can confirm patient information in scan room improving workflow and reduces the opportunity for error. Integrated Digital LCD Display provides workflow improvement by preset positioning (Default patient positioning) on new gantry display.</p>
<p>1-4</p>	<p>Breathing Lights</p> <p>Provide a visual breath signal for hearing impairment. Normal patients can also make Use, especially in patients who do not understand language or poor understanding of the ability to do the heart, lungs, in the Abdominal plain or enhanced especially when do breathing exercises, find effective holding time through training, In order to select the scan parameters.</p>
<p>1-5</p>	<p>Multi-lingual AutoVoice</p> <p>The intercom system provides two-way communication between the scan room and the operator console. Additionally, a standard set of commands for patient communication before, during and after scanning is available in several pre-selected languages.</p>
<p>1-6</p>	<p>Auto table position</p> <p>Auto Patient Positioning provides easy and simple positioning. After the patient is positioned on the table, The table is transferred then to the target point.</p>

2	X-RAY SYSTEM
	<ul style="list-style-type: none"> <li data-bbox="400 427 1401 678"> <p>• X-ray Tube Patent Analytical metal ceramic tube is obviously superior to the traditional ball bearing design, can thoroughly eradicate the focus shift, ensure excellent image quality. Meanwhile, according to the scanning plan, dynamic real-time focus technology can dynamically alter the focus, not only can get the best image quality, but also can extend the life of the tube.</p> <li data-bbox="400 723 967 974"> <p>• Anode storage capacity: 8.0 MHU</p> <p>Maximum cooling rate: 931 Khu/min</p> <p>Focal spot (IEC): 0.6mm x 1.2 mm (small) 1.0 mm x 1.2 mm (large)</p> <li data-bbox="400 1008 1401 1176"> <p>• Dynamic Focal Spot Dynamic Focal Spot (DFS) doubles the data sampling density from the detectors effectively doubling the number of detectors and providing ultra-high spatial resolution in axial and spiral scanning.</p> <li data-bbox="400 1220 1362 1507"> <p>• Generator Use low-voltage slip ring technology to provide a constant high voltage to the CT x-ray tube assembly.</p> <ul style="list-style-type: none"> - Output capacity: 80 kW - kV selections: 80, 100, 120, 140 kVp - mA selections: 10 to 667 mA, 1mA increments
3	Detector
1-1	<p>Solid state - High Performance Multi-slice Ceramic detector technology can make detector minimize unit intervals, to maximize the efficiency, direct digital acquisition technology, improve image quality at the same time, reduces the radiation dose.</p> <p>At the same time, width symmetrical arrangement, a full range of three-dimensional pixel layer is collected, in order to meet the requirement of isotropic and reach the widest sub-millimeter coverage, realize the fast acquisition balance between speed and the best image quality.</p>

	<p>Material: Solid State – GOS</p> <p>Slip Ring: Optical – 4.25 Gbps transfer rate</p> <p>Slice Collimation: 0.625mm x64 0.625mm x32, 1.25mm x16 , 2.5mm x 8, 5mm x 4, 10mm x 2</p> <p>Physically elements: 20736 elements , Up to 41472 effective data acquisition channel.</p>
4	Patient Table
	<ul style="list-style-type: none"> • Longitudinal motion: <p>Stroke: 1950 mm</p> <p>Scannable range: 1850 mm</p> <p>Speed: 0.5 to 150 mm/sec</p> <p>Position accuracy: ± 0.01 mm</p> <p>Vertical motion Range: 425 to 990 mm above floor; 1.0mm inc</p> <p>Table load capacity: 250 kg with full accuracy</p> • Table Accessories (Scan Tools) <p>Prevent fatigue and discomfort and give both patients and technologists a sense of security: patient restraint kit, table pad, standard head holder, arm rests, cushions, and pads.etc.</p>
5	SCAN PARAMETER
	<ul style="list-style-type: none"> • Scan Time : 0.5s,0.6s,0.7s,0.8s,1.0s,2.0s for full 360° scans -: Scanning Modes :-

(1) Spiral Scanning

- Multiple contiguous slices acquired simultaneously with continuous table movement during scans.
- Multiple, bi-directional acquisitions
- Spiral exposure: Up to 100 sec. of uninterrupted spiral scanning
- Spiral pitch : 0.3~1.5

(2) Axial Scanning

Multiple-slice scan with incremental table movement between scans

(3) Surview Plan

Planning via interactive mouse control of multiple, independent acquisition series of any type on Surview image

Scan length: up to 1850 mm

Scan width: 500 mm

- **Reconstruction and Display**
- **Reconstruction Rate: Up to 10 images per second (512X512)**
- **The True three-dimensional cone beam reconstruction technique**

Patented The True three-dimensional cone beam reconstruction technique is based on the true three-dimensional cone beam reconstruction, makes the image building model more close to the real, and the image is more clear and realistic.

- **Adaptive Filtering**

Adaptive filters reduce pattern noise (streaks) in non-homogenous bodies, improving overall image quality.

6	Image Quality
	<p>High Contrast Resolution:</p> <p>20.0 lp/cm @ 0 %MTF 17.0 lp/cm @ 10%MTF 11.0 lp/cm @ 50 %MTF</p> <p>Low Contrast Resolution: 3.0 mm @ 0.3% as measured on the 20 cm CATPHAN phantom</p> <p>Noise: 0.35%</p> <p>Absorption Range: -1024 to +64511 Hounsfield units</p>
7	Dose Management
	<ul style="list-style-type: none"> • Auto mA Optimizes the dose for each patient based on the planned scan by suggesting the lowest possible mAs settings to maintain constant image quality at low dose throughout the exam. • Z-DOM (Longitudinal Dose Modulation) Automatically distributes or controls the tube current, adjusting the signal along the length of the scan, increasing the signal over larger areas of higher attenuation (shoulders, hips), and decreasing signal over small areas of less attenuation (neck, legs). • A-DOM (Angular Dose Modulation) Automatically controls the tube current rotationally, increasing the signal over areas of higher attenuation (lateral) and decreasing signal over areas of less attenuation (AP). • DoseCheck DoseCheck enables the ability to set dose thresholds and provides alerts and notifications to the scan operator when radiation dose levels will be exceeded. There are two threshold level values: Notification Values, Alert Values. Notification values apply to a single image series, and Alert values apply to an overall exam. Both CTDIvol and Dose Length Product (DLP) values can be set. For Alert values that will be exceeded, the system requires the user provide name

	<p>and password information before proceeding to scan. Also, an additional indication will appear in the Dose Info Page Series when the Notification or Alert values have been exceeded during a scan.</p> <ul style="list-style-type: none"> • Dose summary table <p>Captures per-patient dose information for each individual series acquired and reports the total dose for the entire study. The dose summary table can be sent to PACS or a workstation along with the study for easy review by the radiologist.</p> <ul style="list-style-type: none"> • DICOM structured report for Dose (DICOM SR) DICOM <p>Dose SR complies with the IEC, DICOM PS and IHE standards for dose reporting. The report includes CTDIvol and DLP dose values.</p> <ul style="list-style-type: none"> • Dose Displays <ul style="list-style-type: none"> - Volume Computed Tomography Dose Index (CTDIvol) - Dose Length Product (DLP) - Dose Efficiency <ul style="list-style-type: none"> • Dedicated Pediatric Protocols <p>Developed in collaboration with top children's hospitals, Age and weight-based infant and pediatric protocols ensure the best clinical results with minimal dose.</p>
8	Console Computer
	<p>Computer Architecture: Windows7 CPU Type : 4 Core 3.5 GHz Main Memory: 32GB RAM Hard Disk Capacity : 5TB Display Monitor : 24 inch LCD Color Monitor. 1 unit</p> <ul style="list-style-type: none"> • Image Management and Archiving <p>Image archiving is organized according to the DICOM 3.0 hierarchical model, in a DICOM 3.0 compliant image format. Loss less image compression/decompression algorithm is used during image storage/retrieval to/from all local archives. Images can be auto-archived to selected archive media.</p>

	<p>5TB Hard Disk: Image Storage Capacity:512 X 512 Image Matrix = 300, 000 typical number of uncompressed images</p> <ul style="list-style-type: none"> • DVD-RAM DVD-RAM is an archive solution for storing CT and other modality datasets. It provides an inexpensive, reliable method for high-speed random access recording. • Networking/Connectivity • Network Requirements Network connections should be located within 10 feet of the console. Supports 10/100/1000mbps (10/100/1000BaseT) network speeds. For optimal performance, SinoVision recommends a minimum of 100Mbps network speed (1Gbps preferred) and for the CT network to be segmented from the rest of the hospital network. • DICOM Connectivity DICOM Full implementation of the DICOM 3.0 communications protocol allows connectivity to DICOM 3.0 compliant scanners, workstations, and printers; supports IHE requirements for DICOM Connectivity. Further details on connectivity and interoperability are provided within the DICOM Conformance statement.
9	Scan Tools
	<ul style="list-style-type: none"> • Patient scheduled and Protocol setup Patient registration Manually input patient information Access to existing patients Load patient information from HIS/RIS system in “Schedule”Interface • Protocol Planning Before the start of the scan, the scan protocol is first defined. The operator can choose the position and the corresponding scanning protocol through the user interface. The system has been set up according to the anatomical location of a variety of scanning protocols. Including location scan, scan. The system allows the user to select or change the parameters in the scan protocol.

- **Patient Position**

The patient was placed in the examination bed according to the selected position. After using the vertical moving button on the control panel of the machine frame, the bed is moved to the appropriate height, and then the check bed is used to move the key to adjust the bed to make the examination area located at the center of the scanning field.

- **Manual Scan**

Places slice-by-slice scans under operator control with on-line or off-line reconstruction, background image archiving to local or remote storage devices. At any time, the operator is able to switch from automatic to manual scan and back.

- **Automatic Scan**

Enables automatic execution of pre-planned studies, with concurrent, on-line or off-line reconstruction, background image archiving to local or remote storage devices, without operator intervention.

- **Productivity Tools**

QuickStart

CT scanners have an efficient start-up sequence that allows scanning to begin within five minutes after turning the system on.

QuickSetup

System utilities such as quality assurance tools and service functions are readily available with a single mouse click.

- **DICOM Modality Worklist**

Provides HIS/RIS interface through DICOM modality worklist service class; enhances clinical workflow by importing patient demographics and study information from an information management system.

- **Auto Window Display**

- Eight user-defined preset windows provide fast and convenient window setting. Mouse-driven fine adjustments of the window center and width enable optimal image viewing
- Highlight Window: paints user-defined range of CT densities in color.
- Double Window: Simultaneous displays two independent CT density ranges on the same image, i.e. thorax slice with lung and mediastinum windows
- Invert Window: Ability to toggle between negative and positive image.

- **Image Graphics**

To help interpret clinical images, a variety of text and graphic aids can be individually positioned and manipulated with the mouse:

- Text annotation
- Cursors for pixel value measurements.
- Regions of Interest (ROI) - elliptical, rectangular, curved or freehand, with instantaneous calculation and display of area, average pixel value and standard deviation. Values of several ROIs may be added or subtracted.
- Lines, grid and scales for distance measurements, curved and freehand lines for measuring any shape.
- Arrows for pointing to features.
- Angle measurements.
- Histogram of pixel values in a user-defined region of interest.
- Profile of the pixel values along any line.
- Grid with adjustable spacing for distance assessment

- **RelateSlice**

RelateSlice is a tool provided in Volume Rendering, 3-D SSD, MIP, and MPR, that correlates the axial image to a user-selected location on multiplanar views and renderings. RelateSlice makes it easy for a user to compare the axial image to its post-processed presentation, improving the user's productivity and diagnostic confidence.

- **Filming**

Send desired image to Film and print.

<p>11-1</p>	<p>Planar</p> <p>Real-time reformation of CT images into any user-defined plane - coronal, sagittal or general oblique or curve plane. Interactive and friendly user interface is provided. The user defines the number of planes, their position, orientation, thickness and spacing, and the reformatted image is displayed in real-time. Zoom, pan, leaf and window are available.</p>
<p>11-2</p>	<p>Maximum or Minimum Intensity Projection (MIP)</p> <ul style="list-style-type: none"> - CT Angiography (MIP) Maximum Intensity Projection (MIP) images, from a volumetric set of images, can be quickly reconstructed to demonstrate enhanced vascular structures. The projection images can be interactively generated in any arbitrary viewing angle, and can be windowed, zoomed and panned - In addition to standard MIP, Minimum Intensity Projection for visualization of airways available
<p>11-3</p>	<p>3-D SSD Reconstruction</p> <ul style="list-style-type: none"> - Provides fast reconstruction of three-dimensional images of up to 15 different tissues or organs provides easy to understand presentation of complex anatomy. - Real-time manipulation of 3-D images includes zoom, pan, rotation around any axis. - Cutting of the organs with a user-defined viewing aperture to expose underlying tissues. -Making a tissue transparent enables viewing of underlying organs.
<p>11-4</p>	<p>Volume Rendering</p> <p>Advanced volume rendering 3-D visualization software provides unique simultaneous visualization of vasculature, soft tissue and bone. Unlike conventional 3-D or MIP, volume-rendering visualization offers real time interactive control over opacity and transparency values. This permits viewing through and beyond surrounding structures, such as metallic stents and arterial calcifications, and virtually eliminates the need for organ segmentation.</p>
<p>11-5</p>	<p>Endo-3D</p> <p>Renders spiral CT data to provide fly-through images within and around hollow organs. Clinical applications include virtual colonoscopy, bronchoscopy, and angioscopy.</p>

11-6	<p>Bolus Tracking</p> <p>This automated injection planning technique permits the user to monitor actual contrast enhancement and initiate scanning at a pre-determined enhancement level for full automation and efficacy.</p>
11-7	<p>Ultra High Resolution Matrix</p> <p>768 x 768 and 1024 x 1024 image reconstruction matrixs display all of the high-resolution data acquired in applications, such as inner ear, spine and high-resolution lung imaging. As resolution increases, larger matrices are required to display the full resolution for the reconstructed field of view.</p>
12	<p>System accessory</p>
1	<p>System Phantom, Phantom holder</p>
2	<p>Heard holder, Patients binding belt kits.</p>

Regulatory compliances



Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



Analytical
Foundation

1. Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @



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