SIEMENS

Datasheet

ACUSON X300™ Ultrasound System

Release 2.5

www.siemens.com/ultrasound

TABLE OF CONTENTS

TABLE OF CONTENTS

ACUSON X300 Ultrasound System

The ultra-portable ACUSON X300™ ultrasound system migrates Siemens' core technologies to the world of compact, mobile, color Doppler ultrasound systems, to bring an entirely new level of diagnostic performance and workflow efficiency to this product segment. The X300 system combines best-in-class image quality and a robust set of features to meet daily clinical needs. It enhances diagnostic confidence with high quality color and power Doppler, 2D-mode imaging, steerable continuous wave and pulse-wave Doppler capabilities. It also provides a pathway to seamlessly integrate future technology advancements.

GENERAL INFORMATION

System Architecture

All-digital signal processing and multibeam formation technology provides best-in-class image quality in 2D-mode and Doppler modes for greater diagnostic confidence.

The DIMAQ-IP integrated workstation provides digital acquisition, storage, review and transfer of ultrasound studies. Studies can be reviewed and quantified on-board, stored on the system hard drive and transferred to the built-in DVD multi-drive (DVD-R/RW & CD-R/RW) or USB Flash drive for cost-effective archival.

The all-digital system architecture enables seamless integration of optional features to:

- Enhance productivity including filter and phase inversion THI (Tissue Harmonic Imaging), TGO™ tissue grayscale optimization technology,Clarify™ vascular enhancement technology and SieClear™ multi-view spatial compounding
- Streamline connectivity with solutions such as DICOM Print/Store, DICOM Worklist, DICOM MPPS and DICOM structured reporting for OB/GYN, Vascular and Cardiac exams
- Increase functionality with 3-Scape™ real-time 3D imaging, SieScape™ panoramic imaging, integrated stress echo, AXIUS™ edge assisted ejection fraction and the syngo® Arterial Health Package

User Interface

- Intuitive Windows-based operating principles
- User-centric control panel with HomeBase layout
- On/Off task light and back-lit illumination of control panel
- Variable brightness indicates active state of function keys
- On-Screen Menu (OSM) provides easy and immediate access to secondary imaging controls
- Easily accessible, full size QWERTY keyboard for text entry, function keys and system programming
- Thumbnail Menu provides on-screen thumb-nails of images and dynamic clips during exams
- Wrist support to help reduce operator repetitivestress injuries
- Height adjustment of control panel — 100 mm up/down with lock lever

** At the time of publication, the U.S Food and Drug Administration has cleared ultrasound contrast agents only for use in LVO. Check current regulations for the country in which you are using this system for contrast agent clearance.*

- Multi-directional articulating monitor arm to help improve ergonomics
  - Arm rotation: -90 to +90 degrees
  - FPD rotation: -80 to +80 degrees
  - Tilt: -10 to +65 degrees
  - Up: 125 mm
  - Pull: 250 mm
- Wheel-lock mechanism
  - Front castor (2 ea): Bi-brake system (direction lock & total lock)
  - Rear castor (2 ea): total lock
- Up to 32 QuickSet™ user-programmable system parameters allows users to program system parameters for individual transducer/application settings. QuickSet parameters combine all preferred imaging mode parameters, annotation text and measurements into one user preset

Language Support

- On-screen text, control panel overlay and operating instructions are all available in English, French, German, Spanish, Italian, Russian, and Chinese
  - Additional Instructions for Use are available in the following languages — Czech, Danish, Dutch, Estonian*, Finnish, Greek, Hungarian, Japanese, Korean, Latvian*, Lithuanian*, Norwegian, Polish, Portuguese, Slovak, Slovenian*, Swedish and Romanian

Monitor

- Flat Panel Display (FPD), 15-inch color, high resolution, and progressive scan (non-interlaced) with In Plane Switching (IPS) technology
- Resolution: 1024 x 768 pixels
- Total screen area: 1024 x 768 pixels
- Recordable image area clips 800 x 600 pixels (Total screen capture is possible)
- Monitor tilt of 10 degrees up, 65 degrees down and swivel of -80 to +80 degrees
- Digital on-screen display of brightness and contrast controls
- Energy Saving Display Power Management
- 4 levels of illumination intensity: Off, 1, 2, 3

Audio Speakers

- High performance audio speakers are integrated in the monitor

Physiological Interface

- Standard 3-lead ECG interface
- Continuous display in all real-time modes
- R-Wave single and dual trigger function
- Heart rate display
- Adjustable gain and trace position on screen
- Selection for external ECG input

Hard Drive

- Internal 160 GB hard drive
- Allows storage of patient studies that include images, reports and measurements
- Image storage capacity up to 150,000 images with compression (B/W and color)

DVD Multi-Drive (DVD-R/RW & CD-R/RW)

- Removable 650 MB, 700 MB and 790 MB CD-R and 650 MB or 700 MB CD-RW
- Removable 4.7 GB single layer DVD and 8.5 GB single side, double layer DVD
- Allows storage and archiving of complete patient studies including images, dynamic clips, reports and measurements
- Storage capacity dependent upon patient study size
- Export of images in TIFF and clips in AVI file or DICOM format

**The Instructions for Use in these languages are available upon request only. Allow 8 weeks minimum for production.*

- Export of reports in readable format
- DICOM viewer for export of DICOM format to CD/ DVD only

Transducer Ports

- Up to three active universal transducer ports that support phased array, curved array and
- linear array transducers (third array port optional)
- The two transducer port configuration has two active ports and one transducer parking port
- Electronic transducer selection (instantaneous switching between transducers)
- Industrial design provides easy access to the transducer ports

Transducer Storage

- Six configurable transducer holders support all transducer designs and provide gel bottle storage
- SuppleFlex™ transducer cables and integrated cable management for protection during exams and transport
- Special transducer holder provides securestorage and easy access to endocavity transducer
- Transducer holders can be removed for cleaning

Acoustic Output Management

- On-screen acoustic power indicator (AIUM/NEMA output display standard)

OPERATING/DISPLAY MODES

- 2D-mode imaging in fundamental and harmonic modes (both phase inversion and filtered)
- DTI™ Doppler tissue imaging capability
- Color M-mode
- M-mode
- Color Doppler velocity mode
- Power Doppler mode
- Directional power Doppler
- Pulsed Wave spectral Doppler mode (PW)
- Continuous Wave spectral Doppler mode (CW)
  - Auxiliary pencil transducer
  - Steerable CW on selected phased array transducers
- ECG trace in all modes
- Duplex mode
- Triplex mode
- Flexible combination of imaging modes in side-by-side Dual and Dual Select in real-time, and digital cine replay
- Selectable split screen display formats in 2D or 2D/color with M-mode and/or spectral Doppler mode: top-bottom or side-by-side in real-time and digital cine replay
- 4B mode
- Virtual Format

MultiHertz Multiple Frequency Imaging

Siemens' unique MultiHertz™ multiple frequency imaging is designed to combine the resolution and penetration of several transducers in one.

At the push of a button, the user can independently change frequencies for 2D, THI (optional), color and spectral Doppler to select the optimal combination for image resolution, penetration and sensitivity.

- Depending on the transducer, up to seven user-selectable transmit frequencies are available
  - Up to three 2D and M-mode frequencies
  - Up to two THI frequencies
  - Up to two PW Doppler frequencies in color,
  - power or pulsed wave modes
  - One frequency in SCW Doppler mode

Beamforming in 2D-Mode

- New generation all-digital beam former
- technology enables parallel processing of the
- RF signal data in the time and amplitude
- domains

- Patented ASIC technology preserves signal
- integrity through precision up-sampling for
- better beam definition
- 2D-mode line density up to 256 lines
- Up to 11360 processing channels
- Total system dynamic range > 199 dB

Focusing

- Up to 4 transmit focal zones
- Digital dynamic receive focusing with dynamic apodization

SynAps Synthetic Aperture Technology

- SynAps technology is available on the CH5-2, C8-5, VF8-3 and VF10-5 transducers for higher image resolution at depth
- User can turn SynAps On and Off

2D-Mode Image Processing

- All-digital parallel signal processing with frame rates up to 498 fps – transducer dependent
- MultiHertz multiple frequency imaging with up to five user selectable transmit frequencies, when optional THI is included
- Six levels Res/Speed selection: 0 – 5
- Five persistence levels: 0 – 4
- Four edge enhancement levels: 0 – 3
- Display dynamic range: 30 to 70 dB in five-decibel increments
- Adjustable gain from 0 to 60 dB in one-decibel increments
- Eight DGC controls for Depth Gain Compensation
- Nine user-selectable gray maps
- 16 user-selectable 2D colorization maps
- Maximum Depth: 30 cm with CH5-2 & P4-2
- Minimum Depth: 2 cm with VF13-5SP

2D Image Display

- Full screen, Split, Quad and Dual Select screen formats
- L/R flip and U/D flip for all formats in real-time

and digital cine replay

- Image depth: 2 – 30 cm in 1.0 cm increments (transducer dependent)
- Virtual Format Imaging (transducer dependent)
  - Left/right steer
  - Trapezoid Imaging
- Digital read/write Zoom with image pan
  - Available on live and cine replay images
  - At least 2.5x and up to 10x zoom (transducer dependent)
- 4B-mode

2D Calipers – Generic Measurements and Calculations

- Multiple cursor sets on frozen, live, dual screen and cine playback images
- Up to 8 distance measurements per screen
- Distance measurement
- Depth measurement from skin line
- Angle measurement
- Area and circumference: ellipse, trace
- Compound Measurements
  - Volume: user-selectable preset by 1 distance, 2 distance, 3 distance; 1 ellipse and 1 distance, thyroid, disk
  - Flow volume: 1 velocity and 1 distance, or 1 velocity and 1 ellipse

- Stenosis: user-selectable preset calculated by 2 ellipse, or 2 distance measurements

Pulsed Wave Spectral Doppler

- Available on all imaging array transducers
- Up to two user-selectable transmit frequencies per transducer
- Five sweep speed selections: 1, 2, 3, 4, 5
- Eight selectable post processing gray maps
- 12 user-selectable Doppler colorization maps: 0 – 11
- Adjustable gain from 0 to 90 dB in one-decibel increments
- PRF range: 100 to 19,500 Hz
- Velocity scale range is ± 1.5 ~ ± 350cm/sec with 0 degree angle correction
- Angle correction 0 - 89 degree in one degree increments
- Gate size: from 1.0 mm up to 20 mm
- Eight wall filter selections – transducer dependent
- 17 levels of baseline shift
- Spectral invert
- Autotrace function

Steerable Continuous Wave (SCW) Doppler

- Available on all phased array transducers when
- basic cardiac package is purchased
- One transmit frequency
- Five sweep speed selections: 1, 2, 3, 4, 5
- Eight selectable post processing gray maps
- 12 user-selectable Doppler colorization
- maps: 0 – 11
- Adjustable gain from 0 dB to 90 dB in one-
- decibel increments
- PRF range: 1.56kHz to 34.7kHz
- Velocity scale range is ±30 ~ ±650 cm/sec with
- 0 degree angle correction
- Eight wall filter selections – transducer dependent
- 17 levels of baseline shift
- Spectral invert
- Autotrace function

SCW and Spectral Doppler Display

- Full screen Doppler trace, 2D/Doppler mode, triplex or update 2D/C/Doppler
- Imaging display: 4 formats
  - Top-bottom: 1/3-2/3, 1/2-1/2, 2/3-1/3
  - Side-by-side: 40-60

Spectral Doppler Calipers – Generic Measurements and Calculations

- Multiple cursor sets on frozen and cine playback images
- Velocity/Frequency/Pressure Gradient
- Heart rate/Heart cycle/Time
- Autotrace measurements in real-time and freeze including calculations for PS, ED, TAMx, TAMn, PI, RI and S/D
- Resistive Index (RI)
- Pulsatility Index (PI), including Peak-to-Peak method
- Time Average Velocity max (TAV)
- Systolic/diastolic ratio (S/D)
- Velocity Time Integral (VTI)
- Acceleration/Deceleration
- Flow volume using combined velocity and distance, or velocity and ellipse measurements
- Doppler angle correction after measurement

Color Doppler Velocity Imaging

- Available on all imaging array transducers
- MultiBeam Formation technology provides parallel signal processing for color Doppler frame rates up to 85 fps– transducer dependent
- Left/right steer on all linear transducers
- Advanced processing in color mode resulting in excellent spatial resolution and superior Flash

suppression

- Up to two user-selectable transmit frequencies per transducer
- Up to nine user-selectable color velocity maps (seven velocity & two velocity/variance)
- Velocity scale range: ±0.6~±244.4 cm/sec
- PRF scale range: 100 Hz to 19,500 Hz — transducer dependent
- Adjustable gain from -20 dB to 20 dB in one-decibel increments
- Six color line density selections
- Four wall filter selections
- Four levels of color smoothing
- Five tissue/color priority selections
- Five color persistence levels
- Color invert
- Velocity tag
- Peak hold: Off, 1 sec, 2 sec, and 3 sec
- AutoC

FREEZE, CINE AND CINE POST-PROCESSING FUNCTIONS

Cine Review

Cine feature is standard and offers post-acquisition optimization of all real-time post-processing funtions.

- Frame-by-frame cine loop review and continuous cine motion review, including control of playback rate
- Independent cine review in mixed modes (2D/M, 2D/Doppler, 2D/C/Doppler)
- Independent cine review in 2D Dual Select mode with image align playback feature
- Maximum Standard Cine Memory is up to 2729 frames
- Cine Store: Multiple frame storage with clipboard review allowing post-processing,

measurement and annotation functions

- Retrospective clip capture during real-time imaging with a selectable duration of 1, 2, 3, or 4 seconds or a selectable duration 1, 2, 3 or 4 beat capture; ECG triggerable
- Prospective clip capture during real-time imaging with a selectable duration of 1 to 120 seconds a selectable duration 1 to 120 beat capture; ECG triggerable

Post-Processing Features in Freeze Frame or Cine

- 2D-mode
  - Zoom/pan
  - Gray map
  - Colorization map
  - Measurements/reports/annotations/pictograms
- Color Doppler
  - Zoom/pan
  - Color map
  - Color invert
  - Measurements/reports/annotations/pictograms
- Spectral Doppler
  - Gray map
  - Doppler colorization map
  - Angle correct
  - Measurements/reports/annotations/pictograms
- M-mode
  - Gray map

- M-mode colorization map
- Measurements/reports/annotations/pictograms

TRANSDUCER TECHNOLOGY

Ultra-sensitive, wideband transducers, matched with user-selectable MultiHertz multiple frequency imaging, improve resolution and penetration. Depending on the transducer, the user can select up to seven 2D and THI frequencies and up to two color and spectral Doppler frequencies, expanding the clinical versatility of a single transducer, and thereby maximizing transducer investment.

- Wideband MultiHertz imaging allows user selection of independent 2D and color frequencies for optimal resolution and penetration
- Universal, stainless steel and disposable biopsy guides for specified linear and curved array transducers
- Innovative ultra low-loss lens materials and microelectronic technologies for efficient performance and increased signal bandwidth
- Frequency range: 1.2MHz to 13 MHz
- Hanafy Lens acoustic technology
- microCase™ transducer miniaturization technology and SuppleFlex cables

Note: See dedicated transducer flyer for more information.

APPLICATIONS

The X300 system is designed to support most multi-specialty imaging applications. Factory

supplied exam and transducer dependent imaging presets have been carefully optimized for each application to provide consistency, reliability, and increased productivity. Selected applications include body markers, text and annotation labels, worksheets and reports.

- Abdominal
- Renal
- Obstetrics
- Gynecology
- Early Obstetrics
- Adult Cardiac (Transthoracic)
- Pediatric Cardiac (Transthoracic)
- Vascular (C-Vas, P-Vas, Venous)
- Small Parts (Breast, Testicle, Thyroid)
- Orthopedics
- Musculoskeletal
- Urology (Prostate)
- Cranial (TCI)
- Emergency Medicine (EM)
- Penile

EXAM-SPECIFIC MEASUREMENTS AND CALCULATIONS

The measurement function is arranged by exam type and is available for use with all exam types. The X300 system has measurement and report packages for the following exam types:

Abdomen

- All general measurements and calculations

Obstetrics

- All general measurements and calculations
- Early Obstetrics Menstrual Age (MA) measurements are MSD, CRL, and Yolk Sac
- Menstrual Age parameter labels are MSD, CRL, BPD, OFD, HC, AC, ATD, ASD, FL, HL, UL, TL, FT,
- Five user-defined labels are available in 2D-mode
- Calculations include: EFW from the selected reference, HC/AC, TCD/AC, LVW/HW, CorBPD, FL/AC, FL/BPD, CI, AFI, AXT, and Fetal Heart

Rate

- Growth Analysis Graphs with exam file linking
- Detailed Fetal Heart report page
- Calculations for both Gestational Age (GA), ultrasound menstrual age, and Estimated Date of Confinement (EDC)
- Early Obstetric patient report and Standard Obstetric patient report include a worksheet for viewing the progress of the report during the exam process and to edit the report
- Multiple fetus reporting capabilities
- Growth Analysis Graphs with exam file linking
- OB patient report and worksheet including Fetal Heart report page

Gynecology

- All general measurements and calculations
- Micturated and residual volume calculation
- Uterus and right and left follicle ovary measurements
- Gynecology patient report

Cardiac

- Adult and pediatric standard measurements
- Volume formulas for Left Ventricular function assessment in 2D-mode and M-mode
- 2D-mode, M-mode, and Doppler calculations
- M-mode Slope, Heart Rate, Time, and Distance measurements
- Doppler Acceleration, Trace, Heart Rate, Time and Velocity measurements
- Cardiac patient report and worksheet for 2D-mode, M-mode, and Doppler

Cerebrovascular

- All general measurements and calculations
- ICA prox, ICA mid, ICA dist, ECA and VA measurements
- Area Percent Stenosis and Diameter Percent Stenosis measurements
- Cerebrovascular patient report

Peripheral Vascular

- All general measurements and calculations
- CIA, EIA, CFA, PFA, SFA prox, SFA mid, SFA dist, POP A, TRUNK ATA, PTA, PER A and DPA measurements
- Right and left extremity measurements
- Peripheral vascular patient report

Venous

- All general measurements and calculations
- Right and left extremity measurements
- Venous patient report

Thyroid

- All general measurements and calculations
- Thyroid volume

Urology

- All general measurements and calculations
- Residual volume calculations
- Prostate and urology patient report

Testicle

- All general measurements and calculations

Orthopedic

- All general measurements and calculations
- Right and left hip angle measurement
- Classification and Graf Sonometer
- Hip angle patient report

TCI

- All general measurements and calculations
- MCA, ICA-Siphon, ACA-A1, ACA-A2, ACoA, PCA-P1, PCA-P2, PCoA, PCA, Basilar A and Vert A measurement
- TCI patient report

Penile

- All general measurements and calculations
- Corp Cav, Corp Spong, Cav A, Pre-Inj Cav A, Post-Inj Cav A and Urethra B mode measurement
- Iliac A, Dorsal A, Urethral A, Bulbar A, Brach A, Cav A, Pre-Inj Cav A, Post-Inj Cav A, Sup Dorsal V and Dp Penile V D mode measurement
- Penile patient report

DIGITAL PATIENT STUDY STORAGE AND ARCHIVING

The DIMAQ-IP integrated workstation allows for digital acquisition, storage and review of complete ultrasound studies, including static images, dynamic clips, measurements, calculations and reports.

Patient Study Management

Playback of digitally stored images in a selectable 1-up, 4-up, 9-up, 16-up or 25-up screen format. The patient study screen allows search, selection and deleting of studies or export to DVD multi-drive (DVD-R/RW and CD-R/RW).

- 100 GB of 160 GB internal hard drive reserved for patient data management
- Compatible with removable 650 MB, 700 MB and 790 MB CD-R and 650 MB or 700 MB CD-RW
- Compatible with removable 4.7 GB single layer DVD and 8.5 GB single side double layer DVD
- Hard drive capacity:
  - Approximately 150,000 B/W and color images
- Storage and retrieval of frozen static images
- Storage and retrieval of reports
- Instant dial-in and replay of static images in 1-up screen format
- Supports measurements and calculations on archive study and on saved and retrieved images
- Export of patient studies from hard drive to DVD-R/RW & CD-R/RW drive. Studies can be individually selected
- The system supports the following data export file formats TIFF, AVI and DICOM. Connectivity to PACS, other off-line storage (such as USB flash drive) or EMR device is achieved via LAN or WLAN connection.
- M-mode Still Frame Scroll and Store
- PW Spectral Doppler Still Frame Scroll and Store
- Patient database sorting by Name, ID, and Study Date
- USB Flash Drive

Supports compatibility with Telexy Q-path* Ultrasound Workflow Manager for point-of-care reporting, quality assurance, billing, research, teaching and credentialing.

OPTIONS

Phase Inversion Tissue Harmonic Imaging (THI) and Filtering THI (Option)

Phase Inversion THI with selectable frequencies increases success with difficult-to-image patients, improving diagnostic confidence, and dramatically improving contrast and spatial resolution by reducing noise and clutter in the image.

- MultiHertz imaging capability in THI
- Available on the CH5-2, C8-5, P8-4, P4-2, EC9-4, EV9-4, VF8-3, VF10-5, VF13-5SP and VF13-5 transducers

Filtering THI with selectable frequencies increases success with difficult-to-image cardiac patients, improving diagnostic confidence, and dramatically improving contrast and spatial resolution by reducing noise and clutter in the image.

- MultiHertz imaging capability in THI

*Sold separately by Telexy Healthcare and requires a wireless or LAN connection.

- Available on the CH5-2, P4-2 and P8-4 transducers

DICOM 3.0 Connectivity (Option)

Enables digital data transfer via a DICOM network for both printing and storage. The X300 system acts as a DICOM Storage Class User and DICOM Print Class User.

Functionality supported:

- Connectivity to PACS system for storage of all digital images and dynamic clips with patient demographic data
- In-Progress Store during the exam
- Image printing to DICOM color and grayscale printers
- DICOM Storage Commitment
- DICOM Exchange Media export to DVD-R/RW & CD-R/RW
- DICOM Region Calibration
- DICOM interchange media viewer software SHOWCASE®
- Interchange media database that identifies the CD to which the patient study has been burned

DICOM Modality Worklist (Option)

Enables query and direct download of the patient worklist schedule from the Hospital/Radiology Information System (HIS/RIS) to the X300 system, automatically populating the "New Patient" screen with patient demographic information. (Requires DICOM 3.0 Connectivity option.)

DICOM MPPS–Modality Performed Procedure Step (Option)

Enables automatic exchange of Modality Performed Procedure Step information with the Hospital/ Radiology Information System (HIS/RIS) (Requires DICOM 3.0 Connectivity option and DICOM Modality Worklist option.)

DICOM OB/GYN Structured Reporting (Option)

DICOM Structured Reporting (SR) provides a standardized report architecture to allow for easy transfer of OB and GYN measurements to offline PCs, workstations and archiving systems. DICOM OB/GYN Structured Reporting will automatically populate OB/ GYN measurements to their respective fields in an external software package. (To send the OB/GYN SR data over the network the DICOM 3.0 connectivity option is required.**)**

DICOM Vascular Structured Reporting (Option)

DICOM Structured Reporting (SR) provides a standardized report architecture to allow for easy transfer of Vascular measurements to offline PCs, workstations and archiving systems. DICOM Vascular Structured Reporting will automatically populate Vascular measurements to their respective fields in an external software package. (To send the Vascular SR data over the network the DICOM 3.0 connectivity option is required.)

DICOM Cardiac Structured Reporting (Option)

DICOM Structured reporting (SR) provides a standardized report architecture to allow for easy transfer of Cardiac measurements to offline PCs, workstations and archiving systems. DICOM Cardiac Structured Reporting will automatically populate Cardiac measurements to their respective fields in an external software package. (To send the Cardiac SR data over the network the DICOM 3.0 connectivity option is required.)

Tissue Grayscale Optimization (TGO) (Option)

TGO tissue grayscale optimization technology provides one-button image optimization. It automatically adjusts image brightness to the tissue type being imaged and equalizes the overall image gain. The user definable threshold accommodates different user preferences for gain settings and various room lighting conditions. TGO technology improves the consistency and quality of ultrasound

imaging to enhance productivity by removing time-consuming and operator dependent manual adjustments. TGO technology can be used with every transducer, for every exam type and at every imaging frequency, including THI.

3-Scape real-time 3D (Option)

3-Scape real-time 3D imaging provides real-time reconstruction of 3D images during freehand acquisition.

- Functionality for Opacity and Surface Shading modes
- Acquisition in rocked and linear modes
- Provides real-time feedback during freehand
- 3D volume acquisition
- Available for CH5-2 and EV9-4 transducers

Third Array Port (Option)

The additional array port option adds a third array port to the X300 ultrasound system and allows the user to connect up to three linear, curved and phased array transducers simultaneously. All linear, curved and phased array transducers offered on the X300 system are compatible with the additional array port.

- The third array port is required to connect the VF8-3 and C8-5 transducers

Cardio-Vascular Package (Option)

Contains the prerequisites to perform cardiac and certain vascular exams:

- Physiological interface
  - Standard 3-lead ECG interface
  - R-Wave single and dual trigger function
  - Heart rate display
  - Adjustable gain and trace position on screen
  - Selection for external ECG input
- Steerable Continuous Wave Doppler module
- Auxiliary Continuous Wave Doppler module

Stress Echo Imaging (Option)

The stress echo package provides tools for ECG-triggered acquisition, display, selection comparison, evaluation and archiving of multiple cardiac loops during various stages of a stress echo examination.

- Standard acquisition protocols for treadmill, ergometric, and pharmacological stress including:
  - Multiple factory defaults stress echo protocols
  - Customizable stress echo protocols
  - Prospective and retrospective capture available
  - Flexible combination of imaging modes while in stress echo package
  - Ability for customized studies through Protocol Editor, with up to 12 stages, six views per stage, 20 loops per view or 120 second prospective clip capture
- Full screen or ROI (region of interest) acquisition
- Complete R-R capture with clip editing
- Easy workflow throughout the exam protocol
- Stage Timer
- Prospective Continuous Capture (up to 120 seconds) or Retrospective labeled capture
- Reference image display during acquisition
- Immediate review of acquired loops
- Flexibility to skip views or stages
- Flexibility to re-acquire and overwrite already acquired images
- Indication of current view, acquired views and skipped views in the workflow diagram
- Wall Motion Scoring, 17-segment model with graphical display and report printing

- LV Volume Measurements with report printing
- Factory default or user defined diagnostic text selection for stress echo and LV volume report generation

Spectral and Color Doppler Tissue Imaging (DTI) (Option)

- Provides color DTI and spectral DTI exams with quantification package
- Spectral DTI with quantification package Enables assessment of LV diastolic function on the X300 system
  - Requires the P4-2 or P8-4 transducer
  - Spectral Doppler DTI capability utilizes real-time Doppler shift information from moving tissue to better visualize and quantify myocardial diastolic function
  - The Spectral Doppler DTI calculation package provides guided velocity and acceleration measurements and includes a measurement report package
  - Color DTI can be used for qualitative evaluation of wall motion and displays the relative change of velocities

SieClear Compounding (Option)

- Multi-view spatial compounding
- Speckle reduction increases contrast resolution and improves tissue differentiation of low contrast lesions
- Tissue boundaries and interfaces appear sharper and more continuous
- Accessible in THI and all mixed modes
- Compatible with other advanced imaging options including SieScape, 3-Scape, TGO and Clarify VE technology

Clarify VE Technology (Option)

- Clarify technology uniquely utilizes energy Doppler flow information to enhance 2D-mode imaging
- Enhances visualization of vascularity by reducing slice thickness and reverberation artifacts
- Clarifies vascularity by reducing slice thickness and reverberation artifacts
- Provides pixel-by-pixel, real-time, adaptive enhancement
- Selectively enhances macro and micro-vascularity
- Available on all curved and linear transducers.

SieScape Imaging (Option)

B/W panoramic imaging allows acquisition and display of images up to 60 cm in length to a maximum curvature of 360 degrees.

- Available on all curved and linear transducers
- Can be displayed in full length or zoomed for detail viewing

syngo® Arterial Health Package (Option)

Semi-automatic Intima-Media Thickness (IMT) measurement that color codes IMT relative to a database of over 15,000 participants highlighting at-risk areas.

- Provides a calculation of vascular age and Framingham Risk Assessment taking into account the patients atherosclerotic burden in determining the ten year risk assessment
- Noninvasive method to evaluate cardiovascular risk since increased carotid IMT has been directly associated with an increased risk for cardiovascular events (e.g., myocardial infarction and stroke)

Axius EF (Option)

Axius ejection fraction calculates left ventricle volumes and ejection fractions quickly and reliably.

- Enhances workflow by allowing the user to indicate three boundary points for measurement instead of a manual trace of the ventricle

- Utilizes the Simpson method for LV volume calculations based on LV endocardial border trace

Wireless Data Transfer (Option)

Utilizes USB dongle to enable wireless connectivity between the ultrasound system and the facility's LAN to provide functionality equivalent to a wired network.

The Wireless Option supports connectivity with:

- DICOM services - Modality worklist, print, storage commitment and store
- Siemens Remote Service – Remote update handling for storage distribution and NetViewer for remote application support and remote trouble-shooting
- Telexy Q-view*

Technical Specification

- Standards : IEEE 802.11n, 802.11g, 802.11b, 802.11a
- Security features: WEP, WPA, WPA2 personal, WPA and WPA2 Enterprise

Ultrasound System Security – Virus Protection (Option)

Embedded virus protection solution that protects the system against advanced persistent threats, viruses, malware and other executing software by detecting and preventing any unwanted change to improve IT compliance and security.

DOCUMENTATION DEVICES

Optional On-Board Video Devices

- Up to two (B/W printer & color printer/DVD Recorder) documentation devices can be integrated into the system cart and controlled from the system control panell
- Supported devices:
  - Mitsubishi P93W B/W Printer
  - Mitsubishi CP900UM Color Printer (NTSC)
  - Mitsubishi CP900E Color Printer (PAL)
  - USB Inkjet Printer
  - JVC DVD BD-X201MS Recorder (NTSC/PAL switchable, 115V/230V)

SYSTEM INPUT/OUTPUT

Video Standard

- PAL/CCIR: 625 lines, 50 Hz
- NTSC/EIA: 525 lines, 60 Hz

Video/Audio Input

- (1) Composite color Video in, BNC-type
- (1) Y/C Video in, S-terminal (SVHS)
- (1) 2-Channel Audio in (Right/Left), RCA jack type

Video/Audio Output

- (1) Composite B/W Video out, BNC-type
- (1) Composite color Video out, BNC-type
- (1) RGB and Composite Sync out, mini D-SUB (15 pin)
- (1) Y/C Video out, S-terminal (SVHS)
- (1) 2-Channel Audio (Right/Left), RCA jack type
- (1) VGA out, mini D-SUB (15 pin)

Other Input/Output

- (1) Foot switch connector, phone jack-type
- (1) Remote control connector, mini-jack (stereo)

System Interface Connections

- Network
  - (1) Ethernet connector, type RJ45 (10/100 BaseT)

*Sold separately by Telexy Healthcare and requires a wireless or LAN connection.

- Peripherals
  - (2) Serial port RS-232C connector, D-SUB (9-pin)
  - (2) USB 2.0 ports
  - (2) AC Main Outlet

Acoustic Output Management

- On-screen acoustic power indicator (AIUM/NEMA output display standard)

SYSTEM DIMENSIONS

- Height: 137.9 cm (54.3 inches)
- Width: 51.8 cm (20.4 inches)
- Depth: 87.9 cm (34.6 inches)
- Weight: 102 kg (225 lbs.)/98 kg without OEM's

ELECTRICAL/ENVIRONMENTAL SPECIFICATIONS

The X300 ultrasound system is available in one mainframe configuration, suitable for use in 100/115V and 230V environments.

- Power connections:
- -100-120/200-240 VAC, 50/60Hz
- Built-in AC isolation transformer
- Power consumption: maximum 600VA with OEM's
- Atmospheric pressure range: 700 hPa to 1060
- hPa (525 to 795 mm Hg) or up to 3050 m (10,000 ft)
- Ambient temperature range (without OEM's): +10°C to +40°C (50° to 104°F)
- Humidity: 30 – 80%, non-condensing, during operation
- Maximum heat output: 2150 BTU/hr

STANDARDS COMPLIANCE

The ACUSON X300 system meets the requirements of the Medical Device Directive and carries the CE Mark.

Quality Standards

- ISO 9001:2000
- ISO 13485:2003
- EN46001:1996

Design Standards

- UL 60601-1
- CSA C22.2 No. 601-1
- EN 60601-1 and IEC 60601-1
- EN 60601-1-1 and IEC 60601-1-1
- EN 60601-1-2 and IEC 60601-1-2
- EN 60601-2-37 and IEC60601-2-37

Acoustic Output Standards

- IEC 61157 (Declaration of Acoustic Power)
- AIUM/NEMA UD-2, 1998 Acoustic Output Measurement Standard for Diagnostic Ultrasound
- AIUM/NEMA UD-3, 1998 Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment

CE Declaration

The 230V/115 V version of the ACUSON X300 system is provided with a CE marking in accordance with the regulations stated in Council Directive 93/42/EEC of June 14, 1993 concerning Medical Devices. Siemens Medical Solutions USA, Inc., is certified by notified body 0123 to Annex 11.3 - Full Quality System.

CE 0123

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Siemens reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens Healthcare Sales Representative for the most current information.

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