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ACUSON P300 Ultrasound System

INTRODUCTION
The ACUSON P300™ ultrasound system is a high-performance, compact, diagnostic ultrasound system that provides many advanced technologies standard in the mainframe, and a broad transducer suite to support individual and diverse practices; from traditional applications to specialty markets. The system is ergonomically designed for comfort and is backed by the Siemens service team for peace of mind.

Complete patient care solution
• Standard package includes advanced image optimization functionalities to support traditional and specialty applications needs
• Optimized for applications in musculoskeletal (MSK), breast, small parts, cardiology, vascular, general imaging and OB/GYN
• Advanced cardiovascular capabilities including Tissue Velocity Mapping, Compass M-mode, Stress Echo, Quality Intima Media Thickness
• Wide selection of Linear, Convex, Phased, Laparoscopic, Intraoperative and Endocavity transducers

Portability with ease
• Sleek design, easy to move and maneuver with convenient cable management system
• Integrated power supply
• Two transducer ports

Support you can count on
• Backed by Siemens service and support
• Access to the Siemens global network of technical and application expertise to ensure optimal system performance
• A standard 2-year factory warranty* and flexible service options to meet your unique needs

EXTENDING TECHNOLOGIES

High frequency imaging
• Up to 18.0 MHz bandwidth on linear transducers to provide detailed and precise imaging, especially in superficial investigations such as MSK application
• Multiple transmission frequencies to scan deeper structures without changing transducers

TEI
• Harmonic imaging: Dedicated hardware and software processing of the harmonic signals improve B-mode image quality, especially in technically difficult patients
• Available on all imaging transducers
• Three selectable frequencies; General, Resolution, Penetration
• Available in combination with Color Doppler (C), M-mode, Power Doppler

XView
• Speckle reduction: Elaborates pattern of single frame at the pixel level, eliminating speckle and noise artifacts for contrast resolution, dynamically enhancing tissue margins, improving tissue conspicuity
• Customizable presets (X Smooth, X Detail, X Enhancement) enable real-time optimization of the image process algorithm

* Including system parts and system specific transducers, excluding specialty transducers and accessories.
MView
- Spatial compounding: combined contributions of standard and steered ultrasound beams to optimize image quality and improve detection of anatomical structures
- Up to 15 angles of view within the same image

TPView
- Trapezoid imaging: enlarged field of view on all linear transducers, allowing scanning of extended structures without losing resolution
- Specially suited for breast, vascular, musculoskeletal, and thyroid applications

VPan
- Panoramic view: dedicated software merging multiple B-mode images into one panned image displayed on the screen in real-time; auto-fit of composite, image zoom, merging level, frame marker, colorize, and distance measurement
- Extended field of view supports visualization of the entire organ. Areas of interest such as musculoskeletal and lesions associated with abdominal, breast and small parts can be more easily studied

APPLICATION USAGE
The ACUSON P300 ultrasound system is specifically designed for the following applications:
- Abdominal (Adult, Pediatric, Neonatal)
- Adult Transcranial
- Breast
- Cardiac (Adult, Pediatric, Neonatal)
- Emergency
- General Imaging
- Gynecology
- Intraoperative/Interventional
- Musculoskeletal
- OB/GYN
- Small Parts
- Vascular

SYSTEM OVERVIEW

Control Panel
- Ergonomically designed and illuminated for ease of use
- Full alphanumeric QWERTY keyboard
- Logically grouped controls
- Customizable keys
- Dedicated technology buttons; 2D, M-mode, C, PW, CW
- Dedicated function keys; Start/End exam, Menu, Probe/User preset selection, Archive review, Exam review, Mark, Report, Measurement, Line/Update (split modes), Dual imaging, Image store, Clip store, Options key (Annotations, ECG, VTR, Power and Edit ID), Auto/Gain, Action, Rec/Print, Depth/Zoom, 8 TGC
- Siemens Select key (S) managing operation-dependent software keys and special functions on screen
- Integrated speakers
- Dedicated footswitch connector

Cart Design
- Ergonomic and compact for easy maneuverability
- Four transducer holders plus one Pencil transducer holder
- One gel holder
- ECG cable holders
- Transducer and ECG cable management system
- Multi-directional wheels with braking mechanism and locking levers
- Height-adjustable for maximum ergonomics
- On-board peripheral storage
- Foot rest for added comfort
- Rubber bumpers to prevent wall contact

Monitor
- 15” XVGA LCD monitor (1024x768 aspect ratio)
- Backlight type: CCFL
- Contrast ratio: 800 (typical)
- Viewing angle: R/L 140° (typical), U/D 140° (typical)
• Contrast digital adjustment
• Information displayed on monitor:
  – Application
  – Selected preset
  – On-line help for measurements
  – Date & time
  – Type of transducer
  – Transducer orientation
  – Operating frequency range
  – Acoustic power output
  – Gray map
  – Dynamic range
  – Compression
  – Persistence
  – Enhancement
  – XView
  – MView
  – Depth
  – Focus
  – Doppler angle
  – Color & Spectral Doppler filter
  – Sample volume size
  – PRF
  – Gain
  – 2D
  – C
  – PW/CW frame rate
  – Biopsy line
  – Patient data
  – Hospital data and annotations
  – Body markers
  – Remote digital printing and storage status
  – Remote DICOM printing and storage status
  – Heartbeat
  – Timer
  – Sweep time indication on trace
  – Icons on top right for XView
  – AutoAdjust
  – Icons on top right for MView

Operating Modes
• 2D (B-mode)
• B-mode steering
• B-mode AutoAdjust
• Colorize 2D, M-mode and PW/CW
• PW/CW Doppler
• Non-imaging CW
• PW/CW Doppler AutoAdjust
• C (Color Doppler)
• TEI (Harmonic Imaging)
• TPView (Trapezoid Imaging)
• VPan (Panoramic Imaging)
• Bidirectional Power Doppler

Image Display Modes
• 256 gray levels or B-color levels
• 32 bits Color levels
• Orientation: Left/Right, Up/Down
• Real-time Triplex mode
• 2D+2D (with or without C or PWR D)
• 2D+M-mode (update or Real-time Duplex)
• 2D+C+M-mode (update)
• 2D+Doppler (update or Real-time Triplex)
• 2D+Color+Doppler
• 2D+PWR D
• 2D+PWR D+Doppler (update or Real-time Triplex)
• Colorize on all combinations

Image Formats
• Imaging: Full, Split, Multiple, Left/Right, Up/Down
• Tracing: Split, Dual (scroll by line)

Modularity
• Software options
• Application license

Transducer Formats
• Multi-frequency electronic: Convex array, Phased array, Linear array, and Pencil CW
**Operating Console**
- Digital modular platform
- Dynamic range: up to 210 dB
- User presets (unlimited customizable) for every transducer and application
- Processing channels: up to 4,160 channels
- Dual processor

**Front End**

**Transmit**
- Ultrasound beam generation pulses with:
  - Delay: up to 13µs (step ≤ 12.5 ns)
  - Focal points: up to 8 for every transducer
  - Bipolar wave
  - Frequencies: from 1.0 MHz up to 18.0 MHz
  - Programmable number of cycles
  - CW generation capability
  - Programmable aperture

**Receive**
- Digital beam former
- Dynamic receive focusing

**RF Signal processing**
- Interpolated data RF lines generation capability
- Up to 2 digital chain beam for each channel
- Imaging filters up to 128 taps digital dynamic filter
- Second Harmonic Imaging (TEI)

**Back End**

**2D**
- Field of view: 30° – 90° on Phased array
  - Transducer dependent formats: Phased array, Linear array (with steering), Convex array
- Depth: 20 – 360 mm depending on transducer
- Digital scan converter with bilinear interpolation process (640x480x8)
- Acoustic lines: up to 512
- Data dynamic: 8 bit

**Doppler PW**
- Frequencies: 2.0 – 8.0 MHz (2.0, 2.5, 2.9, 3.3, 5.0, 6.6, 8.0 MHz)
- PRF: 1.3 – 22.2 KHz (transducer dependent)
- Multigate HPRF
- Wall filters: 50 – 1800 Hz (8 step)
- Stereophonic audio
• Sweep Time: 2 – 16 sec (step 1s)
• Spectrum: FFT with 128 frequencies, interpolated up to 512 points (analysis time: ≤1 ms)
• Sample Size: 1 – 24 mm
• Velocity range: up to ± 4.81 m/s
• Angle correction: ±75°
• Steering (linear transducers): 3 steps (6°/12°/18°)
• Doppler gain and scale auto-adjustment
• Real-time Automatic Doppler Measurements (in non-cardiac applications)

Doppler CW
• Frequencies: 2.0 – 5.0 MHz (2.0, 2.5, 3.3, 5.0 MHz)
• Wall filters: 50 – 1800 Hz (8 steps)
• Data dynamic: 8 bit
• Stereophonic audio
• Sweep Time: 2 – 16 sec (step 1s)
• Spectrum: FFT with 128 frequencies, interpolated up to 512 points (analysis time: ≤1 ms)
• Velocity range: up to ±6.42 m/s (@ 2.0 MHz)
• Angle correction: ± 75°

Echo Process Controls
• Power: up to 30 dB
• Imaging compression: 30 – 60 dB
• Doppler compression: 20 – 40 dB
• Imaging gain: 60 dB (TGC + general)
• C gain: 30 dB
• Doppler PW gain: 25 dB
• Doppler CW gain: 25 dB
• Pre-processing: 16 dynamic shapes in imaging modality
• Post-processing: 5 steps imaging and Doppler
• Persistence: 8 steps, depending on frame rate

ECG
• Type CF applied part
• Input impedance: > 10 MOhm (DC)
• CMMR: > 90 dB (50 Hz)
• DC max: 300 mV
• Leakage current: < 10 µA
• Time constant: 3.3 s ± 10%
• H.R. detection range: 40 – 240 bpm

Compass M-mode (CMM)
• Anatomical M-mode: Allows angle-free M-mode measurements in real-time
• Displays up to two independent lines and two separate M-mode scans in real-time
• Available on all probes

Tissue Velocity Mapping (TVM)
• Doppler tissue imaging: quantitative evaluation of heart wall motion to measure velocity distribution of moving myocardial tissue
• TVM can operate in:
  – 2D imaging - TVM
  – M-mode - MTVM
  – PW/Doppler - TV
• Factory and user programmable presets for TVM
• TVM calculation package provides guided velocity and acceleration measurements and includes a measurement reporting package
• Requires the Cardiology package
• Available on the PA230E

Stress Echo Package
Stress echo provides tools for ECG-triggered acquisition, including programmable protocols and multi-format reviewing capabilities during various stages of a stress echo examination for accurate monitoring of cardiovascular pathologies.
• Ability to customize studies with up to 8 stages, 5 views per stage
• Full screen or resize and move ROI (region of interest) for acquisition
• Prospective continuous capture (defined in protocol) or Retrospective labeled capture
• Customized standard and pharmacological stress protocols
• Immediate review of acquired loops
• Able to pause and resume during acquisition
• Wall Motion Scoring: up to 17 segments, with graphical display
• Full reporting capability
• Optional feature on the system

Quality Intima Media Thickness (QIMT)
Radio frequency-based technology for semi-automated measurement of intima media thickness in real-time for highly accurate and repeatable results.
• Real-time measurements and feedback
• Visual feedback for measuring quality, reproducibility, and ECG sampling from artery wall movements
• Measurement based on 6 heartbeats
• ECG tracing not required
• Accurate up to 21 micrometers
• Manheim IMT Consensus compliant
• Complete reporting with normal values (Howard) and immediate visualization of the measurements acquired in previous examination (vascular trend)
• Optional feature on the system

Archiving Capabilities
• Still image (full resolution)
• Clip (full resolution)
• Graphic overlays
• Reports
• Offline capability
• Compressed images and clips
• Cine Memory: 256 MB (store capacity is 400 frames) continuous loop with different modes (single, dual, split), including Time/ECG triggered loop and frame-by-frame feature
• PC: ≥ 512 MB local drive
• Hard disk: ≥ 250 GB
• DVD reader/writer
  – DVD: write up to 8x; read up to 8x
  – CD: write up to 24x; read up to 24x
• Internal patient database
• User-selectable filter for database searches
• Still image and loop storage in DICOM formats
• Real-time still frames and video clips
• Stored data thumbnails always displayed on the side of the screen
• Measurement and Annotation on stored images
• IHE Compliant

Connectivity
• I/Os connectors
  – Serial RS-232
  – LAN RJ45
  – 3 USB (for image transfer)
• Dedicated connectors
  – Audio input/output (stereo)
  – ECG input
  – Double foot switch
  – External trigger input

Image File Formats
• Standard output: BMP, JPG, PNG, AVI
• Native and DICOM
• Clips characteristics
  • AVI Codec: Microsoft® MPEG4-V2 (highly compressed), MS-WMV9 (improved compatibility) and MS-Video1 (low level compression)
• Still frames: lossy compressed (about 70% of quality) and not compressed : BMP, JPEG, PNG
• Graphic overlays
• Reports

Video I/O
• XVGA output (auxiliary monitor)
• S-Video (S-VHS) input/output
• C-Video (VHS) input
• RGB (TV standard)
• Video standard: PAL / NTSC (software controlled)
Printing

- Ink jet color or Laser B/W & Color USB Printer (1,2,4 and 6 images printed out on A4 format-8.5x11 inch)
- Thermal B/W and Color Video Printers
- Thermal Digital B/W and Color Printers

Video Requirements

RGB Printer
- Input: RGB SYNC
- RGB (analog): 0,7 Vp-p, 75 ohm
- SINC: 5 Vp-p
- Connectors: Standard BNC
- Safety standard: IEC 60950 or EN60601-1

B/W Printer
- Input: Video Composite (1 Vp-p, 75 ohm)
- Connectors: Standard BNC
- Safety standard: IEC 60950 or EN60601-1

Video Tape Recorder

I/O video: YC
- Y: 1 Vp-p, 75 ohm
- C: 0,3 Vp-p Color burst, 75 ohm
- Tape format: VHS, S-VHS
- Audio traces: 2
- Video Conn: 4 pin connector
- Audio Conn: Jack
- SINC: 5 Vp-p
- Safety standard: IEC 60950 or EN60601-1

DICOM Classes

- DICOM Media Storage
- DICOM Store SCU
- DICOM Print
- DICOM Modality Worklist (MWL)
- DICOM Modality Performed Procedure Step (MPPS)
- DICOM Storage Commitment (SC)

Software

- Operating system: WIN XP Embedded
- Multi-language operation menus (English, Italian, French, German, Spanish)
- Reports, calculations and measurements (application dependent)
- Biometry (On/Off-line report)
- DVD upgrading capability

Safety Requirements

- EN 60601-1
- EN 60601-1-1
- EN 60601-1-2
- EN 60601-1-4
- EN 60601-2-37
- ENISO 10993-1
- EN 61157
- AIUM / NEMA UD-2 / UD-3 – FDA 510(k) Track 3

Dimensions and Weights

System

Dimensions
- Closed: 35 cm (L) x 18 cm (H) x 49 cm (D)
- In working position: 35 cm (L) x 43 cm (H) x 49 cm (D)

Weight
- 9 kg (w/o battery pack)

Cart
- Dimensions: 51 cm (W) x 84-106.6 cm (H) x 65.4 (D) cm
- Weight: 24 kg

Power Supply (mains)
- Voltage operative range: 100 – 240 V
- Working frequency range: 50 – 60 Hz
- Power consumption: ≤ 250 VA
Battery
- Two removable Li-ion batteries
- Operating time: 1 hour and 20 min
- Recharging time: 100% = 3 hours and 30 min
- After 300 cycles remains 80% of maximum charge
- Nominal operating voltage is 14.4V
- Capacity: 6.6A
- Power: 95W

Power Cables

CEE
- Socket: 510 IEC 320/C13 type: 10A-250V
- Plug: VII (7) VII type; 10A-250V
- Conductors: 3
- Section: 1 mm²
- Length: 2.5 m

CEI
- Socket: 510 IEC 320/C13 type: 10A-250V
- Plug: I/3 CEI 23-16 type: 10A-250V
- Conductors: 3
- Section: 1 mm²
- Length: 2.5 m

NEMA
- Socket type and amperage: 510 IEC 320/C13 type: 13A-125V
- Plug type: NEMA 5-15; 13A-125V
- Conductors: 3
- Section: AWG 16
- Length: 3 m

Operating Environment
- Temperature: 15°C – 35°C
- Humidity: 15 – 95% (not condensing)
- Pressure: 700 – 1060 hPa
- Heat output: 853 BTU/hr

Storage Environment
- Temperature: -20°C – +60°C
- Humidity: 5 – 95% (not condensing)
- Pressure: 700 – 1060 hPa

MEASUREMENTS AND REPORTING

System Packages – Standard
- Abdomen
- Breast
- Pediatric
- Small Parts
- Thyroid
- Transcranial
- MSK
- Vascular
- Standard biometry reports and user-customizable reports
- All reports are automatically stored on the system in the patient file

System Packages – Optional
- Cardiac
- OB/GYN
- All reports are automatically stored on the system in the patient file
- Archiving of structured reports requires the purchase of the DICOM module
- Refer to the operations manual for advanced measurement and report detail
**Generic Measurements**

**General Imaging**

The General Imaging license comes standard with the system and enables the abdominal, breast, thyroid, small parts, musculoskeletal, and pediatric applications.

### B-mode

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Calculation</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>Distance</td>
<td>Distance</td>
</tr>
<tr>
<td>D-Ratio</td>
<td>Distance ratio</td>
<td>Two distances</td>
</tr>
<tr>
<td>% Diam</td>
<td>Diameter reduction</td>
<td>Two distances</td>
</tr>
<tr>
<td>Vx-Length</td>
<td>Length (rectilinear approximation)</td>
<td>More distances</td>
</tr>
<tr>
<td>Tr-Length</td>
<td>Length (Profile)</td>
<td>Distance</td>
</tr>
<tr>
<td>A-Ellipse</td>
<td>Area (Ellipse)</td>
<td>Distance, Area</td>
</tr>
<tr>
<td>Vx-Area</td>
<td>Area (rectilinear approximation)</td>
<td>More distances</td>
</tr>
<tr>
<td>Tr-Area</td>
<td>Area (Profile)</td>
<td>Profile</td>
</tr>
<tr>
<td>A-Ratio</td>
<td>Areas ratio</td>
<td>Two areas (on a profile)</td>
</tr>
<tr>
<td>% Area</td>
<td>Reduction area</td>
<td>Two areas (on a profile)</td>
</tr>
<tr>
<td>EI-Volume</td>
<td>Volume (Ellipse)</td>
<td>Distance, Area</td>
</tr>
<tr>
<td>Tri-Volume</td>
<td>Volume (Profile)</td>
<td>Profile, Distance</td>
</tr>
<tr>
<td>Bi-Volume</td>
<td>Volume (Axes)</td>
<td>Three distances</td>
</tr>
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</table>

### M-mode

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<td>Time</td>
<td>Time</td>
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</tr>
<tr>
<td>% Time</td>
<td>Time ratio</td>
<td>Two Times</td>
</tr>
<tr>
<td>HR</td>
<td>Heart rate</td>
<td>Distances</td>
</tr>
<tr>
<td>Velocity</td>
<td>Velocity</td>
<td>Velocity</td>
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<tr>
<td>% Velocity</td>
<td>Velocity ratio</td>
<td>Two velocities</td>
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### Doppler

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<td>HR</td>
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<td>Time</td>
</tr>
<tr>
<td>FVI</td>
<td>Vascular FVI</td>
<td>Spectral envelope</td>
</tr>
<tr>
<td>PI</td>
<td>Pulsatility index</td>
<td>Spectral envelope</td>
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<tr>
<td>RI</td>
<td>Resistive index</td>
<td>Two velocities</td>
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<td>Tr-Flow</td>
<td>Flow (Profile)</td>
<td>Velocity, Profile</td>
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<td>Velocity, Profile</td>
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<tr>
<td>D-flow</td>
<td>Flow (Diameter)</td>
<td>Velocity, Distance</td>
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Vascular

The Vascular imaging license comes standard with the system.

### B-mode

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<td>Time</td>
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<td>Time ratio</td>
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<td>Time</td>
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<tr>
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<td>Spectral envelope</td>
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<td>RI</td>
<td>Resistive index</td>
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</tr>
<tr>
<td>Tr-Flow</td>
<td>Flow (Profile)</td>
<td>Velocity, Profile</td>
</tr>
<tr>
<td>El-Flow</td>
<td>Flow (Ellipse)</td>
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</tr>
<tr>
<td>D-Flow</td>
<td>Flow (Diameter)</td>
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**Cardiology**

The Cardiology imaging license is an option purchase. Advanced measurements and reporting can be found in the operations manual.

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<td>Tr-Volume</td>
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**B-mode**

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<tr>
<td>D-Ratio</td>
<td>Distance ratio</td>
<td>Two distances</td>
</tr>
<tr>
<td>Vx-Length</td>
<td>Length (approximately straight)</td>
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</tr>
<tr>
<td>Tr-Length</td>
<td>Length (Profile)</td>
<td>Distance</td>
</tr>
<tr>
<td>A-Ellipse</td>
<td>Area (Ellipse)</td>
<td>Distance, Area</td>
</tr>
<tr>
<td>Vx-Area</td>
<td>Area (approximately straight)</td>
<td>More distances</td>
</tr>
<tr>
<td>Tr-Area</td>
<td>Area (Profile)</td>
<td>Profile</td>
</tr>
<tr>
<td>A-Ratio</td>
<td>Areas ratio</td>
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</tr>
<tr>
<td>EI-Volume</td>
<td>Volume (Ellipse)</td>
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<tr>
<td>Tr-Volume</td>
<td>Volume (Profile)</td>
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<tr>
<td>Bi-Volume</td>
<td>Volume (Axes)</td>
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<tr>
<td>HR</td>
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<td>C-FVI</td>
<td>FVI</td>
<td>Spectral envelope</td>
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<tr>
<td>E’/A’</td>
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**Doppler**

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<td>HR</td>
<td>Heart rate</td>
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<tr>
<td>E’/A’</td>
<td>Peak velocity E’ wave/Peak velocity A’ wave</td>
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**OB/GYN**

The OB imaging license is an optional purchase. Advanced measurements and reporting can be found in the operations manual.

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<tr>
<td>D-Ratio</td>
<td>Distance ratio</td>
<td>Two distances</td>
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<tr>
<td>Vx-Length</td>
<td>Length (approximately straight)</td>
<td>More distances</td>
</tr>
<tr>
<td>Tr-Length</td>
<td>Length (Profile)</td>
<td>Distance</td>
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<tr>
<td>A-Ellipse</td>
<td>Area (Ellipse)</td>
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<tr>
<td>Vx-Area</td>
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<tr>
<td>Tr-Area</td>
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<tr>
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<tr>
<td>Tr-Volume</td>
<td>Volume (Profile)</td>
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<tr>
<td>Bi-Volume</td>
<td>Volume (Axes)</td>
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<td>E-Ratio</td>
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**M-mode**

<table>
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## Doppler

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## TRANSDUCERS

The ACUSON P300 system supports the following transducers and applicable intended clinical uses:

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<th>Transducer Type</th>
<th>ABD</th>
<th>AC</th>
<th>BRE</th>
<th>CAR</th>
<th>CP</th>
<th>GYN</th>
<th>MSK</th>
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</table>

**ABD**: Abdominal; **AC**: Adult Cephalic; **BRE**: Breast; **CAR**: Cardiac; **CP**: Cardiac Pediatric; **GYN**: Gynecologic; **MSK**: Musculoskeletal conventional and superficial; **NC**: Neonatal; **OB**: Obstetric; **PED**: Pediatric; **SP**: Small Parts; **THY**: Thyroid; **VAS**: Vascular.
Transducers Technical Specifications

Convex Array Transducers

CA123
- Technology: Wideband Electronic Convex Array
- Number of elements: 128
- Depth: 0 – 140 mm
- Footprint: 14 mm radius
- Field of view: 90°
- Frequency Bandwidth: 3.0 – 9.0 MHz
- B-mode, M-mode Selectable Frequencies: 5.0, 6.6, 8.0 MHz
- TEI Frequencies: Resolution and Penetration
- C Doppler, PW Doppler Selectable Frequencies: 5.0, 6.6 MHz
- Biopsy: Disposable kit

CA431
- Technology: Wideband Electronic Convex Array
- Number of elements: 192
- Depth: 0 – 360 mm
- Footprint: 40 mm radius
- Field of view: 30° – 85°
- Frequency Bandwidth: 1.0 – 8.0 MHz
- B-mode, M-mode Selectable Frequencies: 2.5, 3.5, 5.0, 6.6 MHz
- TEI Frequencies: General, Penetration, and Resolution
- C Doppler, PW Doppler Selectable Frequencies: 2.5, 2.9 MHz
- Biopsy: Disposable kit

Linear Array Transducers

LA522E
- Technology: Wideband Electronic Linear Array
- Number of elements: 192
- Depth: 0 – 120 mm
- Footprint: 50 mm x 8 mm
- Frequency Bandwidth: 3.0 – 12.0 MHz
- B-mode, M-mode Selectable Frequencies: 5.0, 7.5, 10.0, 12.0 MHz
- TEI Frequencies: Penetration and Resolution
- C Doppler, PW Doppler Selectable Frequencies: 3.3, 5.0 MHz
- Steered angle: 7 steps
- Biopsy: Multi-angle reusable autoclave sterilized adaptor

LA435
- Technology: Wideband Electronic Linear Array
- Number of elements: 192
- Depth: 0 – 90 mm
- Footprint: 40 mm x 5 mm
- Frequency Bandwidth: 6.0 – 18.0 MHz
- B-mode, M-mode Selectable Frequencies: 10.0, 12.0, 15.0, 18.0 MHz
- TEI Frequencies: Penetration and Resolution
- C Doppler, PW Doppler Selectable Frequencies: 6.6, 8.0 MHz
- Steered angle: 7 steps
- Biopsy: Multi-angle reusable autoclave sterilized adaptor

LA523
- Technology: Wideband Electronic Linear Array
- Number of elements: 192
- Depth: 0 – 120 mm
- Footprint: 50 mm x 8 mm
- Frequency Bandwidth: 5.0 – 12.0 MHz
- B-mode, M-mode Selectable Frequencies: 7.5, 10.0, 12.0 MHz
- TEI Frequencies: Penetration and Resolution
- C Doppler, PW Doppler Selectable Frequencies: 5.0, 6.6 MHz
- Steered angle: 7 steps
- Biopsy: Multi-angle reusable autoclave sterilized adaptor, disposable kit
Phased Array Transducers

PA230E
- Technology: Wideband Electronic Phased Array
- Number of elements: 128
- Depth: 0 – 360 mm
- Footprint: 14 mm x 23 mm
- Field of view: 15° – 90°
- Frequency Bandwidth: 1 – 4 MHz
- B-mode, M-mode Selectable Frequencies: 2.0, 2.5, 3.5 MHz
- TEI Frequencies: General, Penetration, Resolution
- Color Doppler, PW Doppler Selectable Frequencies: 2.0, 2.5 MHz
- Biopsy: Not available

PA122E
- Technology: Wideband Electronic Phased Array
- Number of elements: 128
- Depth: 0 – 270 mm
- Footprint: 10 mm x 16 mm
- Field of view: 15° – 90°
- Frequency Bandwidth: 3.0 – 8.0 MHz
- B-mode, M-mode Selectable Frequencies: 4.0, 5.0, 7.5 MHz
- TEI Frequency: N/A
- C Doppler, PW Doppler Selectable Frequencies: 3.3 – 5.0 MHz
- Biopsy: Not available

PA023E
- Technology: Wideband Electronic Phased Array
- Number of elements: 128
- Depth: 0 – 270 mm
- Footprint: 6 mm x 13 mm
- Field of view: 15° – 90°
- Frequency Bandwidth: 4.0 – 11.0 MHz
- B-mode, M-mode Selectable Frequencies: 7.5, 10.0 MHz
- TEI Frequencies: N/A
- Color Doppler, PW Doppler Selectable Frequencies: 5.0 MHz
- Biopsy: Not available

Specialty Transducers

EC1123
- Technology: Wideband Electronic end fire microConvex
- Number of elements: 192
- Depth: 0 – 170 mm
- Footprint: 13 – 10 mm radius
- Field of view: 30° – 195°
- Frequency Bandwidth: 3.0 – 9.0 MHz
- B-mode, M-mode Selectable Frequencies: 4.0, 5.0, 6.6, 8.0 MHz
- TEI Frequencies: Resolution
- C Doppler, PW Doppler Selectable Frequencies: 5.0, 6.6 MHz
- Biopsy: Single and disposable use adaptor

IOE323
- Application: Intraoperative
- Technology: Wideband Electronic Linear Array
- Depth: 0 – 90 mm
- Footprint: 30 mm
- Frequency Bandwidth: 5.0 – 12.0 MHz
- B-mode, M-mode Selectable Frequencies: 5.0, 7.5, 12.0 MHz
- TEI Frequency: N/A
- C Doppler, PW Doppler Selectable Frequencies: 5.0, 6.6 MHz
- Biopsy: Multi-angle reusable autoclave sterilized adaptor
LP323

- Application: Laparoscopic
- Technology: Wideband Electronic Linear Array
- Depth: 0 – 90 mm
- Frequency Bandwidth: 5.0 – 12.0 MHz
- B-mode, M-mode Selectable Frequencies: 5.0, 7.5, 12.0 MHz
- TEI Frequency: N/A
- C Doppler, PW Doppler Selectable Frequencies: 5.0, 6.6 MHz
- Articulation ± 90° up/down
- Articulation ± 90° right/left
- Biopsy: Not available

Non-imaging Pencil Transducers

2 MHz CW Doppler

- Number of elements: 2
- C Doppler, PW Doppler Frequencies: 2.0 MHz

5 MHz CW Doppler

- Number of elements: 2
- C Doppler, PW Doppler Frequencies: 5.0 MHz

Biopsy Kits

The following kits are available:

<table>
<thead>
<tr>
<th>Biopsy adaptor</th>
<th>Probe</th>
<th>Kit contents</th>
</tr>
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<tbody>
<tr>
<td>ABS421</td>
<td>CA431</td>
<td>1 20° coupling, 1 30° coupling + 5 needle guides</td>
</tr>
<tr>
<td>ABS523</td>
<td>LA523</td>
<td>1 coupling (45° angle) + 5 needle guides</td>
</tr>
<tr>
<td>ABS424</td>
<td>LA435</td>
<td>1 coupling (45° angle) + 5 needle guides</td>
</tr>
<tr>
<td>ABS15</td>
<td>IOE323</td>
<td>1 coupling (45° angle) + 5 needle guides</td>
</tr>
</tbody>
</table>

Disposable Needle Guides by Protek

All kits are provided with 12–23 gauge needle guides. Each kit contains sterile transducer covers, sterile needle guides, sterile gel and sterile elastic bands plus a non-sterile mounting bracket and a non-sterile verification kit. The sterile needle guides are of different colors to match the needle to be used. The needle guides are sterile, but they cannot be re-sterilized.

<table>
<thead>
<tr>
<th>Probe</th>
<th>Fixed Angle</th>
<th>Manufacturer’s Kit P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA123</td>
<td>15°</td>
<td>7356</td>
</tr>
<tr>
<td>CA431</td>
<td>20°</td>
<td>7352</td>
</tr>
<tr>
<td></td>
<td>30°</td>
<td>7352</td>
</tr>
<tr>
<td>LA435</td>
<td>45°</td>
<td>7350</td>
</tr>
<tr>
<td>LA522E</td>
<td>45°</td>
<td>7351</td>
</tr>
<tr>
<td>LA523</td>
<td>60°</td>
<td>7351</td>
</tr>
<tr>
<td></td>
<td>75°</td>
<td>7351</td>
</tr>
<tr>
<td>EC1123</td>
<td>0°</td>
<td>6360</td>
</tr>
</tbody>
</table>
Disposable Needle Guides by CIVCO®

Fixed Angle and Multi-Angle Kits
All kits are provided with 12–23 gauge needle guides. Each kit contains sterile transducer covers, sterile needle guides, sterile gel and sterile elastic bands plus a non-sterile mounting bracket and a non-sterile verification kit. The needle guides are sterile, but they cannot be re-sterilized.

<table>
<thead>
<tr>
<th>Probe</th>
<th>Fixed Angle</th>
<th>Multi-Angle</th>
<th>Manufacturer’s Kit P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA123</td>
<td></td>
<td>20°</td>
<td>639-028</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35°</td>
<td></td>
</tr>
<tr>
<td>CA431</td>
<td>20°</td>
<td></td>
<td>639-018</td>
</tr>
<tr>
<td></td>
<td>30°</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LA435</td>
<td></td>
<td>50°</td>
<td>639-023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60°</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>70°</td>
<td></td>
</tr>
<tr>
<td>LA523</td>
<td></td>
<td>40°</td>
<td>639-022</td>
</tr>
<tr>
<td>LA522E</td>
<td></td>
<td>55°</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>70°</td>
<td></td>
</tr>
<tr>
<td>EC1123</td>
<td>3°, 8°</td>
<td></td>
<td>610-693</td>
</tr>
<tr>
<td>EC1123</td>
<td>0°</td>
<td></td>
<td>639-012</td>
</tr>
</tbody>
</table>

Free Insertion Angle Kits
The Infinity needle guide kits listed in the table below allow the user to have a free insertion angle: this can be any angle within the range edged by the guide back wall, on one side, and by the transducer itself, on the other side. The kit allows the user to keep the needle on the same scanning plane of the transducer.
All kits are provided with 14 and 18 gauge needle guides. Each kit contains sterile transducer covers, sterile needle guides, sterile gel and sterile elastic bands plus a non-sterile mounting bracket and a non-sterile verification kit. The needle guides are sterile but cannot be re-sterilized.

<table>
<thead>
<tr>
<th>Probe</th>
<th>Insertion Angle Range</th>
<th>Manufacturer’s P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA431</td>
<td>42° – 64°</td>
<td>639-014</td>
</tr>
<tr>
<td>LA435</td>
<td>42° – 80°</td>
<td>639-021</td>
</tr>
<tr>
<td>LA522E</td>
<td>42° – 80°</td>
<td>639-016</td>
</tr>
<tr>
<td>LA523</td>
<td>42° – 80°</td>
<td>639-021</td>
</tr>
</tbody>
</table>

INTEGRATING THE HEALTHCARE ENTERPRISE (IHE)
Having all relevant information at one’s fingertips is a prerequisite for optimal and efficient patient care. Seamless integration of the hospital’s IT and Imaging Systems and their capabilities to exchange information without restriction are key success factors for facilitating daily work. This is why Siemens has been instrumental in launching and advancing the IHE (Integrating the Healthcare Enterprise) Initiative. Our commitment and dedication enable us to provide clinicians with the ACUSON P300 system one of many innovative products embedded with the building blocks necessary in supporting clinicians’ need for seamless health information exchange.

For more information on the ACUSON P300 system and the Siemens commitment to the IHE initiative, please visit www.siemens.com/IHE.