GE Healthcare Systems
Latin America

Voluson E8 Expert BT'10

Innovation in Volume Ultrasound

Product Description

The leadership imaging platform Voluson E8 Expert BT'10 is our 'Top of the Line' product combining premium image quality with our unique Volume Ultrasound Technology.
The Voluson E8 Expert BT'10 is an advanced digital technology platform representing a new performance segment by its incorporated next generation in Image Quality combined with groundbreaking diagnostic tools and its unique leading volume ultrasound technology.

Highlights

- High Resolution Flat Panel Display 19''
- Advanced 4D
- Advanced VCI
- Anatomical M-Mode
- SonoAVC™ *Follicle* – Sono Automated Volume Count
- SonoVCAD™ *Heart*
- SonoVCAD™ *Labor*
- Advanced STIC
- Advanced Fetal Echo
- Wide Sector
- Improved Contrast Imaging
- Scan Assistant
- SonoNT
- Elastography
- B-Flow
- SonoRenderStart
- XTD-View
- Matrix Array Volume Technology
- High Performance Transvaginal probe
- Electrical Height Adjustment
- Floating User Interface
- On Board Archive including Preview and Pre-selection

Figure 1. Voluson E8 with Volume Ultrasound Technology

General Specifications

Dimensions and Weight
- Height: 1393 mm (54.8 in)
  Adjustable: +190 mm (7.48 in)
- Width: 580 mm (22.8 in)
- Depth: 930 mm (36.6 in)
- Weight (no Peripherals):
  131 kg (289 lb)

Electrical Power
- Voltage: 100, 115-130, 220-240 VAC
- Frequency: 50/60 Hz (+/-2%)
- Power: Max. 1000 VA with on-board Peripherals
- Thermal Output: 3446 BTU/h

Console Design
- 3 Active Probe Ports
  (plus 1 non-imaging port)
- Integrated HDD (320 GB)
- Integrated DVD+/- R(W) / CD-R(W) drive
- On-board storage for Peripherals
- Wheels
  - Wheel diameter 150 mm
- Integrated locking mechanism that provides rolling lock
- Integrated cable management
- Front and rear handles

User Interface

Operator Keyboard
- Floating Keyboard:
  Rotation: adjustable +/- 40° from center
  Height adjustable + 200mm
- Full-sized, backlit alphanumeric keyboard
- Ergonomic hard key layout
- Interactive back-lighting
- Integrated recording keys for remote control of up to 4 Peripherals or DICOM devices, one dedicated DVD recording key

Touch Screen
- 10.4 in High Resolution Color LCD Screen
- Interactive dynamic software menu
- Brightness adjustable

Monitor
- 19" High Res LCD monitor with DVI interface
- Resolution SXGA 1280 x 1024 pixel
- High brightness with 350 cd/m²
- View angle > 170 degrees
- Image size: 28.8 X 22.9 mm
- Tilt/Rotate Adjustable Monitor
  Tilt Angle: + 10°/- 90°
- Hor. rotate Angle: +/- 115°
- Digital brightness & contrast adjustment. OSD, remote controlled by the system. Three default settings: Dark Room, Semi Dark Room, Bright Room

System Overview

Applications
- Abdominal
- Obstetrical
- Gynecological
- Small Parts
- Vascular
- Pediatric
- Ortho
- Urology
- Cardiology
- Neurology
- Musculoskeletal

Operating Modes
- B-Mode (2D)
- M-Mode (Conventional M-Mode)
- AMM (Anatomical M-Mode)
- PW-Doppler with high PRF (PW)
- CW-Doppler Imaging (CW)
- High PRF Doppler Mode
- Color Flow Doppler Mode (CFM)
- Power Doppler Mode (PD)
- HD-Flow Doppler Mode (HD-Flow)
- Tissue Doppler Mode (TD)
- B-Flow (BF)
- Elastography (Not available in all countries)
- Contrast Agent Mode (Not available in all Countries)
- M-Mode Flow Modes (M/CF, M/HD-Flow, M/TD)
- Volume Mode (3D/4D):
  - 3D Static
  - 4D Real-Time
  - VCI-A
  - VCI-OmniView
  - STIC/Color, Angio, HD-Flow, Contrast & B-Flow
  - 4D Biopsy
  - Extended View (XTD-View)

Scanning Methods
- Electronic Sector
- Electronic Convex
- Electronic Linear
- Mechanic Volume Sweep

Transducer Types
- Sector Phased Array
- Convex Array
- Micro-convex Array
- Linear Array
- Active Matrix Convex Array (1.25, 1.5D)
- Active Matrix Linear Array (1.25, 1.5D)
- Volume probes `4D`:
  - Convex Array
  - Micro-convex Array
  - Active Matrix Convex Array (1.25, 1.5D)
  - Active Matrix Linear Array (1.25, 1.5D)
  - Linear Array
- Pencil Probes (CW)

System Standard Features
- State-of-the-art user interface with high resolution 10.4 inch LCD touch panel
- Advanced 4D
- Advanced VCI (Volume Contrast Imaging)
- 4D – Advanced STIC:
  - STIC
  - STIC + Power Doppler Mode
  - STIC + CFM Doppler Mode
  - STIC + HD-Flow Mode
  - STIC + CRI
  - STIC + CRI + CFM
  - STIC + CRI + PD
  - STIC + CRI + HD-Flow
  - STIC + B-Flow
  - STIC M-Mode

- STIC *Flow*
- Automatic Tissue Optimization (AO)
- Coded Harmonic Imaging with Pulse Inversion Technology
- Coded Excitation (CE)
- HD-Flow
- B-Flow
- Tissue Doppler
- XTD- View
- SRI II (Speckle Reduction Imaging)
- CrossXBeam^{CRI} (Compound Resolution Imaging)
- SonoNT
- SonoRenderStart
- ScanAssistant
- Static 3D Mode:
  - B Mode only
  - B + Power Doppler Mode
  - B + CFM Doppler Mode
  - B + HD-Flow Mode
  - B + CRI
  - B + CRI + CFM
  - B + CRI + PD
  - B + CRI + HD-Flow
  - B + Contrast
  - B + B-Flow
- Focus& Frequency Composite (FFC)
- High Resolution Zoom
- Pan Zoom
- Steering
- Virtual Convex
- Wide Sector
- Beta-View (ß-View)
- Patient information database
- Image Archive on hard drive
- 3D/4D data compression (lossy/lossless)
- Inversion
- Real-Time automatic Doppler calcs.
- Measurement & Calculations including Worksheets/Report for:
  - OB
  - GYN
  - Vascular
  - Cardio
  - Abdominal
  - Small-Parts
  - Urology
  - Pediatrics
  - MSK
  - Neurology
- Multi-gestational Calculations

System Options

- VOCAL II
- SonoVCAD™ *Heart*
- SonoVCAD™ *Labor*
- SonoAVC™
- DICOM
- Elastography
- Coded Contrast Imaging
- Foot Switch, with programmable functionality

Peripheral Options

- Integrated printers:
  - B&W thermal printer
  - Color thermal printer
- DVD Recorder
- External Color PC desktop printer & connection kits

Display Modes

- Simultaneous Capability in combination with SRI and/or CRI
  - B+PW
  - B+CFM, B+PD, B+TD, B+HD-Flow
  - B+M, B+AMM
  - B+3D, B+4D
  - B+CRI
  - B+SRI
  - B+CRI+SRI
  - Contrast+SRI
  - B+CRI/3D+CRI
  - B+SRI/3D+SRI
  - B+CRI+SRI/3D+CRI+SRI
  - B+CRI/4D+CRI
  - B+SRI/4D+SRI
  - B+CRI+SRI/4D+CRI+SRI
  - B+CRI/STIC+CRI
  - B+SRI/STIC+SRI
  - B+CRI+SRI/STIC+CRI+SRI
  - B/B+CRI
  - B/B+SRI
  - B/B+SRI+CRI
  - B/CFM+CRI
  - B/CFM+SRI
  - B/CFM+CRI+SRI
  - B/PD+CRI
  - B/PD+SRI
  - B/PD+CRI+SRI
  - B/HD-Flow + CRI
  - B/HD-Flow +SRI
  - B/HD-Flow +CRI+SRI
- Real-Time Triplex Mode
  - B/CFM/PW
  - B/PD/PW
  - B/HD-Flow/PW
- Selectable alternating Modes
  - B+PW or CW
  - B/CFM+PW or CW
  - B/PD+PW or CW
  - B/HD-Flow+PW or CW
  - B+CFM or PD or HD-Flow or CW
- Multi-image (split, quad)
  - Live and/or frozen
  - split: B+B, B/CFM + B/CFM, or B/PD + B/PD or B/TD + B/TD or B/HD-Flow + B/HD-Flow or BF+BF, Contrast + Contrast
  - split simult.: B+B/CFM or B+B/PD or B+B/HD-Flow
  - split: B+PW or M or CW
  - split: Frame Review / XTD-View
  - quad: B+B+B+B or BF or Contrast, B/CFM+B/CFM+B/CFM +B/CFM or B/PD or B/TD or B/HD-Flow
  - Independent Cine playback
  - Quad: A+B+C+3D or 4D
  - Quad: A+B+C+3D or 4D
  - TUI: 1x1, 1x2, 2x2, 3x2,3x3, 3x4, 4x4
  - Segmentation: quad (A/B/C/Segm. Object), single (Segm. Object)
  - Split: T.U.I Overview + 1 slice
- Zoom Read/Write (with or without overview image)
  - Colorized Image
  - Colorized B
  - Colorized M
  - Colorized PW
  - Colorized 3D
- Time line display
  - Independent Dual B/PW Display
  - Display Formats
    Top/ Bottom selectable format (Size: 1/2:1/2; 1/3:2/3; 2/3:1/3)

Display Annotation

- Patient Name:
  - Last: max 32 characters
  - First: max 15 characters
  - Middle: max 15 characters
- ID: max 32 characters
- Secondary patient (Citizen Service Number)
- Accession #: max 16 characters
- Hospital Name: max 30 Characters
- Sonographer (up to 5 characters are displayed depending on font size)
- Gestational age (OB) or LMP (GYN)
- Birth date (selectable)
- Date: 3 Types selectable
  - MM/DD/YYYY
  - DD/MM/YYYY
  - YYYY/MM/DD
- Time: 2 types selectable
  - 24 hours
  - 12 hours
- Probe Name
- Application Name
- Gray Scale bar
- Depth Scale
- Focal Zone Marker
- Frame Rate
- Zoom Start/Depth
- B-Mode
  - User program
  - Receiver Frequency
  - Acoustic Power
  - Gain
  - Dynamic Contrast
  - Gray Map
  - Edge Enhance
  - Persistence
  - SRI, CRI
  - Focal Zone Markers
  - Depth Scale Marker
  - Probe Orientation
- M-Mode/ AMM-Mode
  - Gain
  - Dynamic Contrast
  - Edge Enhance
  - Reject
  - M-Cursor, AMM-Cursor
  - Time Scale
- Doppler Mode
  - Acoustic Power
  - Gain
  - Angle
  - Sample Volume Depth and Width
  - Wall Motion Filter
  - Velocity or Frequency Scale
  - Spectrum Inversion
  - Time Scale
  - PRF
  - HPRF
  - Doppler Frequency
- Color Flow Imaging Modes (CFM, PD, TD, HD-Flow)
  - Acoustic Power
  - Color Gain
  - Color Balance
  - Color Balance Marker
  - Quality
  - Wall Motion Filter
  - PRF
  - Color Map
  - Color Scale: KHz, cm/s, m/s
  - Power and Symmetrical Velocity Imaging
  - Color Velocity Range
  - Spectrum Inversion
- 3D/4D Mode
  - 3D/4D Sub Program
  - Threshold
  - Quality
  - Volume Box Angle
  - Mix
  - Acquisition Mode
  - Compression
  - Orientation Markers
  - T.U.I.: slice distance (0.5-10mm)
  - T.U.I.: slice position in overview image
  - VCAD *Heart* & *Labor*
- Elastography Mode:
  - Acoustic Output
  - Tx Frequency
  - Transparency
  - Elasto Map
  - Persistence
  - Line Density
  - Velocity Range
- TGC Curve
- Cine Frame Number
- Recorder Status
- Body Pattern: 117 types organized in 10 anatomical groups
- Measurement Results
- Displayed Acoustic Output
  - TIS: Thermal Index Soft Tissue
  - TIC: Thermal Index Cranial (Bone)
  - TIB: Thermal Index Bone
  - MI: Mechanical Index
- Power output
- Biopsy Guide Line
- ECG Line
- Trackball function (Trackball and Trackball buttons)
- GE Logo
- Zoom overview image (zoom box position)

System Parameters

System Setup

- Pre-programmable Categories date format.
- User Programmable Preset Capability, User program etc.
- Languages: English, French, German, Spanish, Italian, Danish, Dutch, Finnish, Norwegian, Swedish
- EUM Languages: English, German, Spanish, Italian, French
- Up to 400 Programmable Annotations organized in 10 anatomical groups
- Free programmable Scan assistant lists including Add, Delete, Edit and Reorder of checklist items
- Four programmable Px buttons for documentation preferences like Save, DICOM Send, Print, Check, Cine length etc.
- Several user configurable functions:
  - Clinic Name
  - Display (TGC curve, Screen Lock, Screensaver, Auto Scan Stop, Beeper, 3D/4D Screen Controls)
  - Trackball speed
  - Dim function
  - Zoom: Overview window
  - Patient Info display
  - Title bar settings
  - Start Exam & End Exam Configuration

Measure Setup

- M&A Setup including Add, Delete, Edit and Reorder of measure items

- Application Setup including several parameters of Measurement, Doppler Trace and Calculation presets
- Global Setup including several parameters of Measurement, Cursor and Result window presets

Biopsy Setup
User programmable needle guidelines

Pre-Processing
- Write Zoom up to 8x
- B/M-Mode
  - Gain
  - TGC
  - Dynamic Range
  - Acoustic Output
  - Transmission Focus Position
  - Transmission Focus Number
  - Transmission Frequency
  - Edge Enhancement
  - Persistence Control
  - Line Density Control
  - Reject
  - Sweep Speed
  - M-Cursor position
- PW-Mode
  - Gain
  - Dynamic Range
  - Acoustic Output
  - Transmission Frequency
  - PRF
  - Wall Motion Filter
  - Sample Volume Gate Length, Depth, Pos
  - Velocity Scale
  - Sweep Speed
- Color Flow Imaging Modes (CFM, PD, TD, HD-Flow)
  - Gain
  - Acoustic Output
  - PRF
  - Wall Motion Filter
  - Line density
  - Ensemble
  - Dynamic
  - Smooth (Rise and Fall)
  - Frequency
  - Balance
  - Line Filter
  - Quality
  - Artifact Suppression

Post-Processing
- Read Zoom: 0.8x - 3.4x Zoom (with HD-Zoom functionality up to 22x Zoom)
  - B-Mode
    - 2D Gain
    - Dyn. Contr.
    - Gray Map
    - Colorized B
    - SRI II (Speckle Reduction Imaging)
  - M-Mode
    - Gray Map
    - Colorized M
    - Display Format
    - Sweeo Sped
- PW-Mode
    - Gray Map
    - Baseline Shift
    - Angle Correction
    - Colorized D
    - Scale (KHz, m/s, cm/s)
    - Trace
    - Invert
    - Sweep Speed
- Color Flow Imaging Modes (CFM, PD, TD, HD-Flow)
  - Color Map
    - Display Threshold
    - Display Mode (V, V-T,T,P,P-T) (CFM only)
    - Scale (CFM and HD-Flow)
    - Baseline
  - B-Flow
    - Gray Map
    - Colorized B-Flow
    - SRI II (Speckle Reduction Imaging)
    - Dyn. Contr.

Image Processing and Presentation
- Digital Beam former
- 67,584 system processing channel technology
- Displayed Imaging Depth: 0 – 30 cm
- Minimum Depth of Field: 0 – 1 cm (Zoom, probe dependent)
- Maximum Depth of Field: 0 – 36 cm (probe dependent)
- Transmission Focus
- 1- 5 Focus Points selectable (probe and application dependent)
- Focal Zone position, up to 7 steps
- Continuous Dynamic Receive Focus / Continuous Dynamic Receive Aperture
- 256 shades of gray
- 16,8 Mio Colors 24 bit
- Up to 180 dB Dynamic. Range adjustable by selecting 12 Dynamic Contrast Curves
- Image Reverse: Right/ Left
- Rotation: 0°, 180°

Cine Features
- Cine Features:
  - Dual/Quad Image CINE Display
  - CINE Gauge and CINE Image number display
  - CINE Review Loop
  - Selectable CINE Sequence for CINE Review (by Start Frame and End Frame)
  - Side Change in dual CINE Mode
  - Measurements/Calculations & Annotations on CINE
- Length:
  - 2D: 512 MB: up to 10 min (depending on B-image size and FPS); typical: about 3min/4,000 images (with curved array: 15cm depth, angle 81°, 22 FPS)
  - M-Mode: 32 MB: up to 20 min motion time (depending on sweep speed and depth)
  - Dop.– Mode: 32 MB: up to 10 min motion time (depending on sweep speed)
- Cine operation:
  - manual: image by image
  - auto run: speed: 25 to 200% of Real-Time rate, play repeat mode: forward–forward, forward-backward-forward

Image/ Volume Storage (Archive)
- Image data stored as:
  - Raw Data file (proprietary format)
  - DICOM file (Single- or Multi-frame) (Option)
- Volume file stored as
  - Raw Data file (proprietary format)
  - Size: typically: 0.8 – 5 MB (depending on probe and adjusted volume size)
- Compression:
  - 2D: JPEG, Lossless, high, mid low

- 3D/4D: Lossy and lossless compression available. Typical compression rates are 50% with lossless compression, 15% with lossy compression but maximum quality and 5% with lossy compression and reduced quality (approximate values).
- Review:
  Review of current Exam and archived data sets (Single Images and Cine Clips). View Format: Raw data, DICOM data. Display Formats: 1x1, 2x2, 3x3
- Reload:
  Reload of current/ archived data sets: 2D Raw Data (incl. Color Doppler, Spectral Doppler and M-Mode). 3D Raw Data (Single Volume incl. Calc. Cine) . 4D Raw Data (Volume Cine).
- Export as:
  - Bitmap files: BMP, TIFF, JPEG;
  - Raw files: RAW (2D), VOL (Volume data), 4DV (RAW, VOL incl. Patient data)
  - Sequence of Bitmaps: BMP, AVI, MOV;
  - DICOM Files: DCM, DICOM Files with DICOMDIR (Option)
  - 3D Raw Data: conversion to Cartesian format possible
- AVI Codec: MPEG4, MS Video 1, Full Frames
- Export to: DVD+/- R(W), CD-R(W), Network, USB devices
- Export Anonymous function: yes, available for following image types: AVI, MOV, BMP, TIFF, JPEG
- Backup function to: DVD+/- R(W) / CD-R(W), Network, USB devices
- Repro function: Settings recall (e.g. Geometry, Gain, Color map, etc.) from a stored or reloaded picture
- Exam History: direct access to images from previous exams; direct access to Measure Reports images from previous exams; Image compare window on screen to compare images from previous exams with current exam image
- Hard Drive Data Storage size: about 280 GB

Connectivity

- Ethernet network connection
- USB for USB devices
- DICOM support (option)
  - Verify
  - Print
  - Store
  - Modality Work list
  - Structured Reporting
  - Storage Commitment
  - MPPS (Modality performed procedure step)
  - Media Exchange
  - Off network / mobile storage queue
  - Query/Retrieve

Scanning Parameters

B-Mode

- B Acoustic Power: 1-100
- Scan Angle: max 360° (probe dependent)
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- Frame rate > 700 fps (depending on probe and application
- GAIN range: + 15 to - 15dB
- Gray scale values: 32 bit
- SRI: 6 steps (0-5)
- CRI: 8 steps (1-8)
- CRI filter: 4 steps: off, low, mid, high
- CE: On/Off (Probe dependent)
- FFC: On/Off (Probe dependent)
- Persistence filter: 8 steps (pre)
- Line filter: 3 steps (pre) off, low (12.5/75/12.5%), high (25/50/25%)
- Line Density: 3 steps (pre) low, norm, high
- Reject: 51 steps (pre) from 0 to 225\
- Enhance: 6 steps (pre) 0, 1, 2, 3, 4, 5
- Gray maps: 21 (18 basic maps and 3 User-defined maps)
- Tint maps: 15
- Dynamic: 12 different dynamic curves C1 – C12
- Display Modes: B, XTD
- Screen Formats:
  - 2D Imaging: Single (B), Dual (B+B), Quad (B+B+B+B)
  - XTD-View: Single (XTD), Dual (B+XTD)

M-Mode

- Working Modes: M (conventional M-Mode)l, AMM (Anatomical M-Mode)
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- M Acoustic Power: 1-100
- M Gain: +/-15dB range, 1dB steps
- M sweep speeds:
  - 900 / 450 / 300 / 225 / 150 / 100 pixels/sec;
  - 26,44 / 13.22 / 8.81 / 6.61 / 4.40 / 2.94 cm/s in relation to system monitor
- Review (memory times): >60 s (32MB)
- Signal processing M:
  - Dynamic range: 1 to 12
  - Reject: 0 to 255
  - Enhance: 0 to 5
  - Gray maps: 18
  - Tint maps: 15
- Display Modes
  - M: 2D+M, 2D+M/CFM, 2D+M/HD-Flow, 2D+M/PD, 2D+M/TD
  - AMM: 2D+AMM, 2D/CFM+AMM/CFM, 2D/HD-Flow+AMM/HD-Flow, 2D/TD+AMM/TD
- Screen Formats: (window arrangement)
  - 2D+M and 2D+AMM: up/down (horizontal): three different sub formats 30/70, 50/50, 70/30% left/right (vertical): 50/50%
  - 2D+AMM+AMM: left/rt-up/rt-down: 50/25/25%

M-Color Flow Mode

- Acoustic MCFM Power: 1-100
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- MCFM Color Maps: 8 maps
- CFM Gain: +/-16dB range, 1 dB steps
- CFM Velocity Scale Range:
  PRF: 150Hz to 13 KHz
- Wall Motion Filter: 8 – 3,000 Hz
- Ensemble (color shots per line)
  8-16, step size 1
- Gentle color filter
- Smooth filter:
  - Rise: 12 steps
  - Fall: 12 steps
- CFM Spectrum Inversion
- CFM Baseline Shift: 17 steps
- Pre-settable and independently adjustable B-, M and MCFM Gain
- CFM Threshold: 1 – 255 steps
- Balance: 25 – 225, step size 5
- Artifact suppression: on/off
- Color Display Mode:
  V (Velocity)
  V-T (Velocity + Turbulence)
  V-P (Velocity + Power)
  T (Turbulence)
  P-T (Power + Turbulence)
- Real-Time Triplex Mode:
  B + M +MCFM in any depth

Spectral Doppler Mode (PW, CW)
- Operating Modes: PW (Pulsed Wave Doppler, Single Gate), CW (Continuous Wave Doppler)
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- Pulse Repetition Frequency (PRF): PW-Doppler: 1.3 ...22.0 KHz, CW-Doppler: 1.3 ...40.0 KHz
- Sample Volume (Doppler Gate): Length: 0.7, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15 mm Position: 5 mm to B-Scan end Angle correction: -85° ... 0° ... + 85°
- Power control range: 1 - 100
- GAIN range: + 15 to - 25dB (PW), + 15 to – 15dB (CW)
- WMF (wall motion filter): PW: 60...500Hz, CW: 30...1,000Hz
- Zero line shift: ± PRF/2, ± 8 steps
- Spectrum Analyzer: FFT (Fast Fourier Transformation), max. 256 channels, 255 amplitude levels
- PW sweep speeds: Simplex (26,44 / 13.22 / 8.81 / 6.61 / 4.40 / 2.94 cm/s), Duplex/Triplex (8.81 / 6.61 / 4.40 / 2.94 cm/s)
- Review (memory times): >60 s (32MB)
- Measurable flow velocities:
  - PW: 1cm/s - 8m/s (a = 0°, 2.0 MHz, max. zero shift) 1cm/s - 16m/s (a = 60°, 2.0 MHz, max. zero shift)
  - CW: 1cm/s - 11.60m/s (a = 0°, 2.0 MHz, max. zero shift) 1cm/s - 23.20m/s (a = 60°, 2.0 MHz, max. zero shift))
  - Signal processing: Dynamic range: 15 steps (10 to 40) . Gray maps: 18 basic curves and 3 User-defined (pre, post), Tint maps: 15
- Scale display: Vert.: KHz, cm/s, m/s (selectable), Hor.: 1s marker (big), ½ s marker (small)
- Screen Formats: 2D/D: up/down (horizontal): three different sub formats 30/70, 50/50, 70/30% left/right (vertical): 50/50%. D: pencil probes only
- Display Formats: 2D/D (duplex update, simultaneous); 2D+CFM/D, 2D+HD-Flow/D, 2D+PD/D, 2D+TD/D (triplex update, CW or PW). 2D+CFM/PW, 2D+PD/PW, 2D+HDFlow/PW, 2D+TD/PW, (triplex simultaneous, PW only)
- Audio-Modes: Stereo (both directions separately in both channels)
- Audio Volume: Adjustable, control digipots

Color Doppler Mode
- Screen Formats: 2D+CFM (Single, Dual, Quad)
- Display Modes:
  - Simultaneous dual mode: 2D/2D+CFM;
  - Triplex mode: 2D+CFM/PW, 2D/M+MCFM;
  - Volume Mode: 3D+CFM
- Color coding:
  - steps: 65536 color steps
  - Display modes: V-T (velocity + turbulence), V (velocity), V-P (velocity + power), T (turbulence), P-T (power + turbulence)
- Depth range: axial: 0 to B scan range lateral: 0 to B scan range
- Baseline shift: 17 steps (independent from spectral Doppler)
- Inversion of color direction: yes
- Wall Motion Filter: 7 steps (low1, low2, mid1, mid2, high1, high2, max)
- Smoothing Filter: 12 steps rising time 12 steps falling time
- Gain control: +15dB to -15dB, 0.2dB step
- Line Density (color line density): 10 steps
- Ensemble (color shots per line): CFM: 7 to 31 MCFM: 8 to 16
- Flow Resolution: 4 steps (low, mid1, mid2, high)
- Pulse repetition frequency: CFM: 150 Hz to 20.5 KHz, MCFM: 150 Hz to 20.5 KHz
- Color Map: 8 different color codes for each probe
- Frequency range: 1 to 18 MHz depending on the probe, adjustable in 3 steps (low, mid, high)
- Balance: from 25 to 225
- Max. meas. velocity: 4.23 m/sec
- Min. meas. velocity: 0.3 cm/sec
- Scale: KHz, cm/s, m/s
- Automatic moving tissue suppression: yes

Power Doppler Mode (PD)
- Screen Formats: 2D+PD (Single, Dual, Quad)
- Display Modes:
  - Simultaneous dual mode: 2D/2D+PD;
  - Triplex mode: 2D+PD/PW;
  - Volume Mode: 3D+PD;
- PD coding: 256 color steps
- PD window size: lateral: maximum to minimum B-Mode Scan angle
  axial: B-Scan range
- Display mode: P (power)
- Wall motion Filter: 7 steps (low1, low2, mid1, mid2, high1, high2, max)
- Smoothing Filter: rising edge: 12 steps, falling edge: 12 steps
- Gain control: +15dB to -15dB, 0.2dB steps
- PD Ensemble: 7 to 31
- PD Line Density: 10 steps
- Pulse repetition frequency: 150 Hz to 20,5KHz
- PD Map: 8 different color codes for each probe
- Frequency range: 1 to 16 MHz depending on the probe, adjustable in 3 steps (low, mid, high)
- Flow Resolution: 4 steps (low, mid1, mid2, high)
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- Balance: from 25 to 225 in 41 steps
- Artifact suppression: yes

HD-Flow
- Screen Formats: 2D+HDF (Single, Dual, Quad)
- Display Modes:
  - Simultaneous dual mode: 2D/2D+HDF
  - Triplex mode: 2D+HDF/PW; 2D/M+MHDF
  Volume Mode: 3D+HDF
- HD-Flow Coding Steps: 256 color steps
- HD-Flow window size: lateral: maximal to minimal B mode scan angle; axial: B-scan range
- Display mode: P (power)
- Wall Motion Filter: 7 steps (low1, low2, mid1, mid2, high1, high2, max)
- Smoothing Filter: 12 steps rising edge; 12 steps falling edge
- Gain Control: +15dB to -15dB, 0.2dB steps
- HD-Flow Ensemble: 7 to 31
- HD-Flow Line Density: 10 steps
- Pulse Repetition Frequency: 150Hz to 20.5KHz
- HD-Flow Map: 8 different color codes for each probe
- Frequency Range: 1 to 18 MHz depending on the probe adjustable in three steps (low, mid, high)
- Flow Resolution: 4 steps (low, mid1, mid2, high)
- Balance: from 25 to 225
- Artifact suppression: yes

Tissue Doppler Mode (TD)
- Screen Formats: 2D+TD (Single, Dual, Quad)
- Display Modes: Simultaneous dual mode: 2D/2D+TD; Triplex mode: 2D+TD/PW, 2D/M+MTD;
- TD coding steps: 65536 color steps
- Depth range: axial: 0 to B-scan range, lateral: 0 to B-scan-range
- Zero line shift: 17 steps
- Inversion of color direction: yes
- Smoothing Filter: 12 steps rising time, 12 steps falling time
- Gain control: +15dB to -15dB, 0.2dB steps
- Line Density (color line density): 10 steps
- Ensemble (color shots per line): 7 to 31
- Flow Resolution: 4 steps (low, mid1, mid2, high)

- Pulse repetition frequency: 150 Hz to 20,5 KHz
- TD Map: 4 different color codes for each probe
- Frequency range: 1 to 18 MHz depending on the probe, adjustable in 3 steps (low, mid, high)
- Balance: from 25 to 225
- Max. meas. velocity: 4.23 m/sec
- Min. meas. velocity: 0.3 cm/sec
- Display Mode: V (velocity)
- Scale: KHz, cm/s, m/s

Volume Scan Module

- Vol. scan size: max. 64 MB for gray volumes; max. 90 MB for color volumes; The required memory space depends on scan parameters (VOL-box size and quality (low, mid1, mid2, high1, high2, max). Typical: 0.8-5 MB
- Lines/2D-image: max. 1024 (typ. 80 to 350)
- 2D-images/volume: Up to 4096 (Acquisition Mode dependent)
- VOL-Frames/sec.: max. 40 (typ. 4-8); The frame rate depends on scan parameters: VOL-Box size, quality and probe.
- 4D Volume Cine: up to 128 volumes
- Display of sectional plane images: synchronous with control setting, arbitrary movement in volume, and monitored position in volume.
- Rotation: 360°, 1° or 3° increments (X-, Y- and Z-axis)
- Magnification: adjustable from 0.3 to a factor of 4.00
- Acquisition Modes:
  - 3D Static:
    - 3D (2D incl. CRI)
    - 3D/PD (incl. CRI)
    - 3D/CFM (incl. CRI)
    - 3D/HD-FLow incl. CRI)
    - 3D B-Flow
    - 3D Contrast (Option)
    - 4D Real-Time
    - 4D Biopsy (Option)
    - VCI-A
    - VCI- OmniView
    - STIC
      - Fetal Cardio
      - STIC Angio: B/Power Doppler (incl. CRI),
      - STIC CFM: B/Color Doppler (incl. CRI)
      - STIC HD-Flow: B/HD-Flow (incl. CRI)
      - STIC B-Flow
- Visualization Modes:
  - 3D Rendering (diverse surface and intensity projection modes)
  - SonoRenderStart
  - Sectional Planes
    - Multiplanar
    - OmniView, actual and projected view
    - Niche
    - SonoVCAD *Labor* (Option)
  - TUI (Tomographic Ultrasound Imaging (overview image + parallel slices)
    - TUI (Standard)
    - VCAD *Heart* (Option)
  - Volume Analyses
    - VOCAL : semi-auto/ manual segmentation tool (segmentation using touch screen), (3D Static only) Threshold Volume: measure volume below and above a threshold (Option)
    - SonoAVC *Follicles* (Sono Automated Volume Count) (Opt.)
    - SonoAVC Generic (Option)
    - VCI (Volume Contrast Imaging)
- Render Modes:
  - Surface texture
  - Surface Smooth
  - Surface Enhanced
  - Surface Skin and Smooth
  - max-, min- and X-ray (average intensity projection)
  - Gradient
  - Inversion
  - Glass Body
  - Mix Mode of two Render Modes
- Display graphics:
  - Rotation axis, center point;
  - ROI box, 3D Frame;
  - Temporary display of onscreen controls (rotation, translation)
- Gray maps: Slices: 21 (18 basic curves and 3 User-defined (pre, post) 3D Image: one general map adjustable with bright (1-100) & contrast (1-100)
- Tint maps: Slices: 15; 3D Image: 15
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- Depth render maps: 3

BF (B-Flow)

- Screen Formats: Single (BF), Dual (BF+BF), Quad (BF+BF+BF+BF)
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- Display Modes: BF, Update: BF/PW
- Acc. Power range: 1 - 100
- Scan angle: taken from 2D
- GAIN range: + 15 to - 15dB
- Gray scale values: 32 bit
- SRI taken from 2D
- Persistence filter: 8 steps (pre)
- S./PRI: 1.00, 1.50, 2.00, 3.00, 4..00, 5.00
- Quality: 3 steps (pre) low, norm, high
- Enhance: 6 steps (pre) 0, 1, 2, 3, 4, 5
- Gray maps: 21 (18 basic maps and 3 User-defined maps)
- Tint maps: 15
- Dynamic: 12 different dynamic curves C1 – C12
- Accumulation: Off, 0.20, 0.35, 0.50, 0.75, 1.00, 1.50, Infinite
- Background: 0, 1, 2

Contrast Imaging (Option)

- Acc. Power range: 1 - 100
- Frequency range: 1-18 MHz (Depending on the probe, 3 steps high, mid, low)
- Scan angle: taken from 2D
- GAIN range: + 15 to - 15dB
- Gray scale values: 32 bit
- SRI: 6 steps (1-6)
- Persistence filter: 8 steps (pre)
- S./PRI: 1.00, 1.50, 2.00, 3.00, 4..00, 5.00
- Quality: 3 steps (pre) low, norm, high
- Enhance: 6 steps (pre) 0, 1, 2, 3, 4, 5
- Gray maps: 21 (18 basic maps and 3 User-defined maps)
- Tint maps: 5
- Dynamic: 12 different dynamic curves C1 – C12
- Accumulation Off, 0.20, 0.35, 0.50, 0.75, 1.00, 1.50, Infinite
- Background: 0, 1, 2
- Time Delay: 0, 0.5, 1, 2, 3, ..., 10
- 3D HyCoSy
- Display Modes:
- Code Harmonic Angio
- Coded PI
- Coded PI: CIS
- Coded PI: CCIS
- Screen Formats:
- Coded Harm. Angio: Single (B), Dual (B+B), Quad (B+B+B+B)
- Code PI: Single (B), Dual (B+B), Quad (B+B+B+B)
- CIS: Dual simultan (2D + Coded PI)
- CCIS: Sngle (B), Dual (B+B), Quad (B+B+B+B)

Elastography

- Not available in all countries
- Acoustic Power range: 1 - 100
- Tx. Frequency: 3 (penet./norm./resol.)

- Transparency: 51 steps 90,5,10,...,255)
- Soft compress:
  - Range: 0-9
  - Step Size: 1
- Hard Compress:
  - Range 0-9
  - Step Size: 1
- PRF: 10, 15, 25, 40, 60, 85 Hz
- Elasto Maps: 8
- Persistance:
  - Range: 1-9
  - Step Size: 1
- Line Dens.:
  - Range: 1-2
- Filter Axial:
  - Range: 1-9
  - Step Size: 1
- Filter lateral:
  - Range: 1-21
  - Step Size: 2
- Window length:
- Range: 8-25
  - Step Size: 1
- Screen Formats:
  - Single (2D/Elasto)
  - Dual (2D/Elasto+2D/Elasto)
  - Quad (2D/Elasto+2D/Elasto+2D/Elasto+2D/Elasto)

Scanning Features

Coded Excitation (CE)
- Available on the following probes:
  - AB2-7-D
  - C4-8-D
  - 11L-D
  - M6C
  - RAB4-8-D
  - RIC5-9-D
  - RIC6-12-D
  - RM6C
  - RAM3-8

Coded Harmonic Imaging
- Harmonic Imaging
- Available on all probes, except:
  - P2D
  - P6D

Focus Frequency Composite (FFC)
Available on the following probes:
- 4C-D
- M6C
- AB2-7
- IC5-9-D
- C1-5-D
- RAB2-5-D
- RAB4-8-D
- RIC5-9-D
- RIC6-12-D
- RRE5-10-D
- RRE6-10-D
- RNA5-9-D
- RM6C
- RAM3-8

Compound Resolution Imaging (CRI)
- CRI
- 1-8 steps selectable
- Available on all probes, except:
  - 3SD
  - PA6-8-D
  - P2D
  - P6D

Speckle Reduction Imaging (SRI II)
- 0-5 steps selectable
- Available on all probes, except:
  - P2D
  - P6D

Virtual Convex
- Available on all linear probes

Wide Sector
- Available on:
  - IC5-9-D
  - RIC 5-9-D
  - RIC 6-12-D
  - RRE5-10-D
  - RRE6-10-D
  - C 1-5-D
  - C 4-8-D
  - M6C
  - 4C-D
  - AB 2-7-D
  - RAB 4-8-D
  - RAB 2-5 –D
  - RM6C-D
  - RNA 5-9-D

Measurements Tool

Generic Measurements
- Distance
  - Distance (Point to Point)
  - Distance (Line to Line)
  - 2D Trace (Trace Length)
  - 2D Trace (Point Length)
  - Stenosis (% Dist)
- Area/Circumference
  - Ellipse
  - Trace (Line)
  - Trace (Point)
  - Stenosis (% Area)
  - Area (2 Dist.)
- Volume: following Methods:
  - 1 Distance
  - 1 Ellipse
  - 1 Dist. + Ellipse
  - 3 Distance
  - Multiplane - Planimetric Volume (3D only)
- Angle:
  - Angle (3 Point)
  - Angle (2 Line)
- M-Mode
  - Distance (Point to Point)
  - Time
  - Slope
  - HR
  - Stenosis (% Dist)
- Doppler Mode
  - Auto & Manual Trace:
    PS (Peak Systole)
    ED (End Diastole)
    MD (Min. Diastole)
    PS/ED (Ratio)
    PI (Pulsatility Index)
    RI (Resistance Index)

TAmax (Time avg. max. Velocity)
TAmean(Time avg. mean Velocity)
VTI (Velocity Time Integral)
Ductus venosus: S, D, a, PI, PLI, PVIV
Heart Rate
- Single Measurements:
  Velocity
  Acceleration,
  RI,
  PI,
  PS/ED,
  Time,
  HR

Abdomen Calculations
- Liver
- Gallbladder
- Pancreas
- Spleen
- Kidney (right/left)
- Renal Artery (right/left)
- Aorta (Proximal, Mid, Distal)
- Portal Vein
- Vessel
- Bladder Volume
- Summary Reports

Small Part Default Calculations
- Thyroid (right/left)
- Testicle (right/left)
- Vessel
- Summary Reports

Small Part Breast Calculations
- Lesion 1-5 (right/left)
- Summary Reports

Obstetrics Calculations
- Fetal Biometry
- Early Gestation
- Fetal Long Bones
- NBL (Nasal Bone Length)
- Fetal Cranium
- NE Method: SonoNT/Manual
- IT
- AFI
- Uterus
- Ovary
- Fetal Doppler measurements (Ductus Art., Ductus Ven.,Ao, Carotid, MCA, Celiac Artery, Superior Mesenteric Artery, Umbilical Art., Umbilical Vein, Uterine Art., Umbilical Vein, FHR, Atrial FHR)
- Gestational Age Calculation
- Gestational Growth Calculation
- Fractional Limb Volume
- Fetal Weight (FW) Estimation
- Fetal Trend Graph
- Multi-Gestational Calculation & Fetal Compare
- Calculation and Ratios
- Fetal Qualitative Description (Anatomical survey)
- Fetal Environmental Description (Biophysical profile)
- Summary Reports

Obstetrics Fetal Echo
- 4-Chamber-view
- Thorax
- Outflow Tract, Aortic arch
- Venous
- Tricuspid valve
- Mitral Valve
- Aortic Valve
- Main Pulmonary Artery
- Pulmonary Valve
- Aorta, Ductus Art.
- Umbilical Vein, Ductus Ven.
- FHR
- Atrial FHR
- LVOT
- RVOT
- Pulmonary Veins
- Carotid
- TEI Index
- RT/LT-UM A
- IVC
- Summary Report

Cardiology
- 2D Mode:
  - LV Simpson (Single & Bi-Plane)
  - Volume (Area Length)
  - LV-Mass (Epi & Endo Area, LV Length)
  - LV (RVD, IVS, LVD, LVPW)
  - LVOT Diameter
  - RVOT Diameter
  - MV (Dist A, Dist B, Area)
  - TV (Diameter)
  - AV/LA (Aortic Valve/Left Atrium)
  - PV (Diameter)
- M-Mode:
  - LV (IVS, LVD, LVPW, RVD)
  - AV/LA (Ao Root Diam, LA Diam, AV Cusp Sep., Ao Root Ampl)
  - MV (D-E, E-F Slope, A-C Interval, EPSS)
  - HR (Heart Rate), Atrial HR
- D-Mode:
  - MV (Mitral Valve)
  - AV (Aortic Valve), TV (Tricuspid Valve)
  - PV (Pulmonary Valve)
  - LVOT & RVOT Doppler (Left & Right Ventricle Outflow Tract)
  - Pulmonic Veins
  - PAP (Pulmonary Artery Pressure measurement)
  - HR (Heart Rate)
- C-Mode:
  - PISA
  - Tei-Index
- Others:
  - Diast. Vol (Bi)
  - Syst.Vol.(Bi)
  - Stroke Volume
  - Volume Flow
  - Cardiac Output
  - Ejection Fraction
  - Fractional Fract. Shortening
  - Myocardial Thickness
  - LA/Ao Ratio
  - E/A Peak
  - Peak Gradient Acceleration
  - Mean Gradient
  - Mean Gradient Acceleration
  - VTI
  - TVA
  - PG
  - PHT
  - MVA
  - AVA
  - ERO
- Summary Reports

Urology
- Bladder
- Prostate
- Left/Right Testicle
- Left/Right Kidney
- Left/Right Renal Artery
- Left/Right Dorsal Penile Artery
- Vessel
- Summary Reports incl. PSAD, PPSA(1), PPSA(2) calculation

Vascular
- Left/Right CCA (Common Carotid Artery)
- Left/Right ICA (Internal Carotid Artery)
- Left/Right ECA (External Carotid Artery)
- Left/Right Vertebral Artery
- Left/Right Subclav.
- Left/Right Bulb
- Vessels
- Summary Reports

Gynecology
- Uterus
- Right/Left Ovary
- Right/Left Follicle
- Fibroid
- Endometrial thickness
- Cervix Length
- Left/Right Ovarian Artery
- Left/Right Uterine Artery
- Vessels
- Pelvic Floor
- FHR
- Summary Reports

Pediatrics
- Left/Right Hip Joint
- Pericallosal Artery
- Summary Report

Neurology
- Left/Right ACA (Anterior Cerebral Artery)
- Left/Right MCA (Middle Cerebral Artery)
- Left/Right PCA (Posterior Cerebral Artery)
- Basilar Artery
- A-Com. A (Anterior Com. Artery)
- P-Com. A (Posterior Com. Artery)
- Left/Right CCA (Common Carotid Artery)
- Left/Right ICA (Internal Carotid Artery)
- Left/Right Vertebral Artery
- Vessels
- Summary Reports

OB Tables
- Age Tables:
  - AC: ASUM, CFEF, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Jeanty, JSUM, Kurmanavicius, Merz, Nicolaides, Shinozuka, Siriraj, Tokyo
  - AD: Persson
  - APAD: Merz
  - APTD: Hansmann
  - APTDxTTD: Shinozuka, Tokyo
  - BOD: Jeanty
  - BPD: ASUM, ASUM (old), Campbell, CFEF, Chitty (outer-outer) (outer-inner), Chitty, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Jeanty, Johnsen, JSUM, Kurmanavicius, Kurtz, Persson, Merz, Nicolaides, OSAKA, Rempen, Sabbagha, Shinozuka, Siriraj, Tokyo, Verburg (outer-outer
  - CLAV: YARKONI
  - CRL: ASUM, ASUM(old), DAYA, Hadlock, Hansmann, JSUM, Persson, Nelson, OSAKA, Rempen, Robinson, Shinozuka, Tokyo, Verburg
  - EFW: Hadlock, JSUM 2001, Osaka, Shinozuka, Tokyo
  - FL: ASUM, ASUM_OLD, CFEF, Chitty, Hadlock_82, Hadlock_84, Hansmann, Hobbins, Hohler, Jeanty, JSUM, Kurmanavicius, Persson, Merz, Nicolaides, O´Brien, OSAKA, Shinozuka, Siriraj, Tokyo, WARDA, Jojhnsen
  - FTA: OSAKA
  - FIB: Jeanty
  - GS: Hansmann, Hellman, Holländer, Rempen, Tokyo
  - HC: ASUM, CFEF, Chitty, Hadlock_82, Hadlock_84, Hansmann, Jeanty, Johnsen, Kurmanavicius, Merz, Nicolaides, Siriraj, Johnsen
  - HL: ASUM, Hobbins, Jeanty, Merz, OSAKA
  - LV: Tokyo
  - MAD: EIK-NES, Kurmanavicius
  - OFD: ASUM, Chitty, Hansmann, Jeanty, Kurmanavicius, Merz, Nicolaides
  - RAD: Jeanty, Merz
  - TIB: Jeanty, Merz
  - TAD: CFEF, Merz, Chitty, Goldstein, HILL, Hobbins, Nicolaides, Hansmann
  - ULNA: Jeanty, Merz
- Growth Tables:
  - AC: ASUM, CFEF, Chitty, Hadlock, Hansmann, Jacot-Uillarmod, Jeanty, JSUM, Kurmanavicius, Lessoway, Merz, Nicolaides, Shinozuka, Siriraj, Tokyo, Verburg, Johnsen
  - AD: Persson
  - AFI: Moore
  - Aorta Vmax: Rizzo
  - APTDxTTD: Shinozuka, Tokyo
  - BOD: Jeanty
  - BPD: ASUM, Campbell, CFEF, Chitty, Hadlock, Hansmann, Jacot-Uillarmod, Jeanty, JSUM, Kurmanavicius, Lessoway, Persson, Merz, Nicolaides, OSAKA, Sabbagha, Shinozuka, Siriraj, Tokyo, Verburg
  - CLAV: YARKONI
  - CM: Nicolaides
  - CRL: ASUM, Hadlock, Hansmann, JSUM, Persson, OSAKA, Robinson, Shinozuka, Tokyo
  - DV PI, DV PLI, DV PVIV, DV S/a: Baschat
  - EFW: Brenner, Doubilet, Hadlock, Hansmann, Hansmann(86), Hobbins/Persutte, JSUM 2001, Persson, Osaka, Shinozuka, Tokyo, Williams, Yarkoni (Twins) , Ananth (Twins, Monochorionic), Ananth (Twins Dichorionic), Johnsen
  - FL: ASUM, CFEF, Chitty, Chitty, Hadlock, Hansmann, Jacot-Uillarmod, Jeanty, JSUM, Kurmanavicius, Lessoway, Persson, Merz, Nicolaides, O´Brien, OSAKA, Shinozuka, Siriraj, Tokyo, Verburg, WARDA, Johnsen
  - FTA: OSAKA
  - FIB: Chitty, Jeanty, Siriraj
  - Foot: Chitty
  - GS: Hellman, Rempen, Tokyo
  - HC: ASUM, CFEF, Chitty, Hadlock, Hansmann, Jacot-Uillarmod, Jeanty, Kurmanavicius, Lessoway, Merz, Nicolaides, Siriraj, Verburg, Johnsen
  - HL: ASUM, Chitty, Jeanty, Merz, OSAKA, Siriraj
  - LV: Tokyo
  - MCA PI, RI: JSUM, Bahlman
  - MCA PV: Mari
  - MAD: EIK-NES, Kurmanavicius
  - MV E/A: HARADA
  - NBL: BUNDUKI, SONEK
  - OFD: ASUM, Chitty, Hansmann, Jeanty, Kurmanavicius, Merz, Nicolaides
  - MainPA Vmax: Rizzo
  - RAD: Chitty, Jeanty, Merz, Siriraj

- TAD: CFEF, JACOT-GUILLARMOD, Merz,
- TCD: Goldstein, HILL, JACOT-GUILLARMOD, Nicolaides, Verburg
- TIB: Chitty, Jeanty, Merz, Siriraj
- TTD: Hansmann
- TV E/A: HARADA
- ULNA: Chitty, Jeanty, Merz, Siriraj
- UmbArt PI: JSUM, Merz
- UmbArt RI: JSUM, Merz, Kurmanavicius
- Fractional Limb AVol/TVol: Lee

- Fetal weight Extimation (EFW)
  - Campbell (AC)
  - Hadlock (AC, BPD)
  - Hadlock 1 (AC, FL)
  - EFW
  - Hadlock 2 (BPD, AC, FL)
  - Hadlock 3 (HC, AC, FL)
  - Hadlock 4 (BPD, HC,AC, FL)
  - Hansmann (BPD, TTD)
  - Merz (AC, BPD)
  - Osaka (BPD, FTA, FL)
  - Persson (BPD, MAD, FL)
  - Persson 2
  - Schild (HC, AC, FL)
  - Shepard (AC, BPD)
  - Shinozuka 1 (BPD, APTD, TTD, FL)
  - Shinozuka 2 (BPD, FL, AC)
  - Shinozuka 3 (BPD, APTD, TTD, LV)
  - Tokyo (BPD, APTD, TTD, FL)

Fetal Ratios

- CI (BPD/OFD) (Hadlock)
- FL/AC (Hadlock)
- FL/BPD (Hohler)
- FL/HC (Hadlock)
- HC/AC (Campbell)
- Va/Hem (Nicolaides)
- Va/Hem (Hansmann)
- Vp/Hem (Nicolaides)

Probes

4C-D:

- Wide Band Convex Probe
- Applications: Abdomen, OB, GYN
- Maximum Band Width (-20dB): 2.0 – 5.0 MHz
- Number of Elements: 128
- Convex Radius: 60.5 mm
- FOV: 58°
- FOV (Wide Sector): 81°
- Foot Print: 18.3 x 68.7 mm
- Depth: max. 30cm
- Biopsy Guide available: 4C, Multi-Angle, disposable with reusable bracket

C1-5-D:

- Wide Band Convex Probe
- Applications: Abdomen, OB, GYN
- Maximum Band Width (-20dB): 20. – 5.0 MHz
- Number of Elements: 192
- Convex Radius: 56.1 mm
- FOV: 69°
- FOV (Wide Sector): 113°
- Foot Print: 69.3 x 17.2mm
- Depth: max. 30cm
- Biopsy Guide available: Multi-Angle, disposable with reusable bracket

C4-8-D:

- Wide Band Convex Probe
- Applications: Abdomen, OB, GYN, Pediatric
- Maximum Band Width (-20dB): 2.0 - 8.0 MHz
- Number of Elements: 192
- Convex Radius: 39.1 mm
- FOV: 70°
- Foot Print: 55.2 x 17.6mm
- Depth: max. 26 cm
- Biopsy Guide available: Multi-Angle, disposable with reusable bracket

AB2-7-D:

- Wide Band Convex Probe
- Applications: Abdomen, OB GYN, Urology, Pediatrics
- Maximum Band Width (-20dB): 2.0 – 8.0 MHz
- Number of Elements: 192
- Convex Radius: 41.2 mm
- FOV: 80°
- FOV (Wide Sector): 107°
- Foot Print: 58.9 x 23.4 mm
- Depth: max. 28cm
- Biopsy Guide Available: Single-Angle, Reusable

M6C:

- Wide Band Convex Probe (1.25D Array)
- Applications: Abdomen, OB, GYN, Pediatrics
- Maximum Band Width (-20dB): 2.0 – 6.0 MHz
- Number of Elements: 960
- Convex Radius: 50.7 mm
- FOV: 60°
- FOV (Wide Sector): 84°
- Foot Print: 62.8 x 24.8 mm
- Depth: max. 26cm
- Biopsy Guide available: Multi-Angle, disposable with reusable bracket

IC 5-9-D:

- Wide Band Convex Probe
- Number of Elements: 192
- Applications: OB, GYN, Urology
- Maximum Band Width (-20dB): 4.0 – 9.0 MHz
- Convex Radius: 10.0 mm
- FOV: 146°
- FOV (Wide Sector): 179°
- Foot Print: 21.2 x 17.2 mm
- Depth: max. 16cm
- Biopsy Guide Available: Single-Angle, Reusable

SP10-16-D:

- Wide Band Linear Probe
- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 7.0 - 18.0 MHz
- Number of Elements: 192
- FOV: 33.7 mm
- Foot Print: 43.4 12.7 mm
- Depth: max. 6.0cm
- Steered Angle: Max. 25°
- Biopsy Guide available: PEC64

11L-D:

- Wide Band Linear Probe
- Applications: Small Parts, Peripheral Vascular, Pediatrics, Ortho

- Maximum Band Width (-20dB): 4.0- 10.0 MHz
- Number of Elements: 192
- FOV: 38 .4
- Foot Print: 46.9 x 14.4 mm
- Depth: max. 11cm
- Biopsy Guide Available: Multi-Angle, disposable with reusable bracket

9L-D:
- Wide Band Linear Probe
- Number of Elements: 192
- Applications: Small-Parts, Peripherals. Pediatrics, Ortho
- Maximum Band Width (-20dB): 3.0 – 8.0 MHz
- FOV: 43mm (width)
- Foot Print: 5.31 x 13.8 mm
- Depth: max. 14cm
- Biopsy Guide available: 9L, Multi-Angle, disposable with reusable bracket

ML6-15-D:
- Wide Band Matrix Linear Probe
- Number of Elements: 672
- Applications: Small-Part, Periphero-vascular., Pediatric, Ortho. (Breast, Musculoskeletal, Pediatric, Neonatal, Urology, Small-Parts, Peripherals. Pediatrics, Ortho)
- Maximum Band Width (-20dB): 4.0 – 13.0 MHz
- FOV: 49.6 mm (width)
- Foot Print: 60.7 x 16 mm
- Depth: max. 12cm
- Biopsy Guide available: Multi-Angle, disposable with reusable bracket

RAB2-5-D:
- Wide Band Convex Volume Probe
- Applications: Abdomen, OB, GYN
- Maximum Band Width (-20dB): 1.0 – 4.0 MHz
- Number of Elements: 192
- Convex Radius: 46 mm
- Volume Sweep Radius: 22.6 mm
- FOV: 80° (B), 80° x 85° (Volume scan)
- FOV (Wide Sector): 98° (B), 98° x 85° (Volume scan)
- Foot Print: 63.6 x 38.9
- Depth: max. 30cm
- Biopsy Guide Available: PEC74, Single-Angle, Reusable and disposable

RAB4-8-D:
- Wide Band Convex Volume Probe
- Applications: Abdomen, OB, GYN, Pediatric, Urology
- Maximum Band Width (-20dB): 2.0 – 8.0 MHz
- Number of Elements: 192
- Convex Radius: 46 mm
- Volume Sweep Radius: 22.6 mm
- FOV: 70° (B), 70° x 85° (Volume scan)
- FOV (Wide Sector): 90° (B), 90° x 85° (Volume scan)
- Foot Print: 63.6 x 37.8 mm
- Depth: max. 26cm
- Biopsy Guide Available: PEC74, Single-Angle, Reusable and disposable

RM6C:
- Wide Band Convex Volume Probe with Active Matrix Array Technology
- Number of Elements: 960
- Applications: Abdomen, OB, GYN, Pediatric, Urology
- Maximum Band Width (-20dB): 1.0 – 7.0 MHz
- Convex Radius: 58.8 mm
- Volume Sweep Radius: 22.8mm
- FOV: 60° (B), 60° x 85° (Volume scan)
- FOV (wide phased): 90° (B), 90° x 85° (Volume scan)
- Foot Print: 64.1 x 40.1 mm
- Depth: max. 26cm
- Biopsy Guide Available: PEC 81, Single-Angle, Reusable

RIC5-9-D:
- Wide Band Convex Volume Probe
- Applications: OB, GYN, Urology
- Band Width (-20dB): 4.0–9.0 MHz
- Number of Elements: 192
- Convex Radius: 11.6 mm
- Volume Sweep Radius: 11.6 mm
- FOV: 146° (B), 146°*120° (Volume scan)
- FOV (Wide Sector): 179° (B), 179°*120° (Volume scan)
- Foot Print: 22.4 x 22.6 mm
- Depth: max. 16cm
- Biopsy Guide Available: PEC63, Single-Angle, Reusable, Disposable, disposable with latex cover.

RIC6-12-D:
- Wide Band Convex Volume Probe
- Applications: OB, GYN, Urology
- Band Width(-20dB): 5.0–13.0 MHz
- Number of Elements: 256
- Convex Radius: 11.6 mm
- Volume Sweep Radius: 11.6 mm
- FOV: 149° (B), 149*120° (Volume scan)
- FOV (wide phased): 195° (B), 195° x 120° (Volume scan)
- Foot Print: 22.4 (B) x 22.6 (V) mm
- Depth: max. 13cm
- Biopsy Guide Available: PEC63, Single-Angle, Reusable, Disposable, disposable with latex cover.

RSP6-16-D:
- Wide Band Linear Volume Probe
- Applications: Small Parts, Peripherals. Vascular, Pediatrics, MSK
- Maximum Band Width (-20dB): 6.0 – 18.0 MHz
- Number of Elements: 192
- Volume Sweep Radius: 80.7 mm
- FOV: 37.4 mm (B); 37.4 mm * 29° (Volume scan)
- Foot Print: 48.6 x 55.9 mm
- Depth: max. 8cm
- Biopsy Guide Available: PEC75, Single-Angle, Reusable and Disposable

RSM 5-14:
- Wide Band Linear Volume Probe with Active Matrix Array Technology
- Number of Elements: 960
  Applications: Small Parts, Peripherals. Vascular, Pediatrics, MSK
- Maximum Band Width (-20dB): 5.0 – 13.0 MHz
- Volume Sweep Radius: 61.1mm
- FOV: 37.5mm (B) x 30° (Volume scan)
- Foot Print: 54.3mm x 50.5mm
- Depth: max. 8cm
- Biopsy Guide Available: PEC 80, Single-Angle, Reusable

RM14L:
- Wide Band Linear Volume Probe with Active Matrix Array Technology
- Number of Elements: 960
  Applications: Small Parts, Peripherals. Vascular, Paediatrics, Ortho
- Maximum Band Width (-20dB): 4.0 – 14.0MHz
- Volume Sweep Radius: 61.1mm
- FOV: 37.4mm (B) x 30° (Volume scan)
- Foot Print: 54.3mm x 50.5mm

- Depth: max. 10cm
- Biopsy Guide Available: PEC 80, Single-Angle, Reusable

RNA5-9-D:
- Wide Band Convex Volume Probe
- Number of Elements: 192
- Applications: Abdominal, Small Parts, Obstetrics, Cardiology, Pediatrics
- Maximum Band Width (-20dB): 3.0–9.0 MHz
- Convex Radius: 15.4mm
- Volume Sweep Radius: 15.4 mm
- FOV: 116° (B); 116°*90° (Volume scan)
- FOV (Wide Sector): 144° (B), 144° x 90° (Volume scan)
- Foot Print: 26.7 x 22.9 mm
- Depth: max. 18cm
- Biopsy Guide Available: PEC 76, Single-Angle. Reusable and Disposable

RRE6-10-D:
- Wide Band Convex Volume Probe
- Number of Elements: 192
- Applications: Gynecology, Urology
- Maximum Band Width (-20dB): 4.0 – 9.0 MHz
- Convex Radius: 11.7 mm
- Volume Sweep Radius: 11.7 mm
- FOV: FOV: 146° (B), 146°*135° (Volume scan)
- FOV (Wide Sector): 206° (B), 206° x 85° (Volume scan)
- Foot Print: 29.9 x 32.6 mm
- Depth: max. 12cm
- Biopsy Guide Available: PEC 69, Single-Angle

RRE5-10-D:
- Wide Band Convex Volume Probe
- Number of Elements: 192
- Applications: Gynecology, Urology
- Maximum Band Width (-20dB): 4.0 – 9.0 MHz
- Convex Radius: 11.7 mm
- Volume Sweep Radius: 12.2 mm
- FOV: FOV: 147° (B), 147°*135° (Volume scan)
- FOV (Wide Sector): 206° (B), 206°*135° (Volume scan)
- Foot Print: 23.6 x 24.9 mm
- Depth: max. 16 cm
- Biopsy Guide Available: PEC 69, Single-Angle

3S-D:
- Wide Band Phased Array Probe
- Number of Elements: 64
- Applications: Abdominal, Cardiology, Pediatrics, Neurology, OB
- Maximum Band Width (-20dB): 1.0 – 3.0 MHz
- FOV: 90°
- Foot Print: 27.6 x 19.3 mm
- Depth: max. 24cm
- Biopsy Guide Available: 3S, Multi-Angle, disposable with reusable bracket

3Sp-D:
- Wide Band Phased Array Probe
- Number of Elements: 64
- Applications: Abdominal, Cardiology, Paediatrics, Neurology, OB
- Maximum Band Width (-20dB): 1.0 – 5.0MHz
- FOV: 90°
- Foot Print: 23.4 x 20.2 mm
- Depth: max. 24 cm
- Biopsy Guide Available: Multi-Angle, disposable with reusable bracket

PA 6-8-D:
- Wide Band Phased Array Probe
- Number of Elements: 128
- Applications: Abdominal, Cardiology, Pediatrics
- Maximum Band Width (-20dB): 4.0 – 10.0 MHz
- FOV: 90°
- Foot Print: 22.0 x 11.8 mm
- Depth: max. 14cm

P2-D:
- CW Doppler Pencil Probe
- Number of Elements: 2
- Applications: Cardiology, Periphero-vascular, Neurology
- Center Frequency: 2.0 MHz
- Foot Print: diam.:17mm
- Biopsy Guide Available: not available

P6-D:
- CW Doppler Pencil Probe
- Number of Elements: 2
- Applications: Cardiology, Periphero-vascular
- Center Frequency: 6.0 MHz
- Foot Print: diam.: 9mm
- Biopsy Guide Available: not available

External Inputs and Outputs

Connectivity on rear panel (direct access)
- VGA Out
- Network (RJ45)
- Wireless Network interface (USB) (Option)
- USB (6x)
- S-Video Out 1

Connectivity behind rear panel (access after opening):
- DVI-D out
- S-Video Out 2 (VTR)
- S-Video In (VTR)
- S-Video Out 1
- Audio Out
  - Left/right
- Audio In
  - Left/right
- USB (5x internal)
- RS 232:Optional, USB to RS232 converter
- Parallel Port
- Ext. Device/Remote Connections:
  - Remote BW Printer via USB
  - Remote Color Printer/DVR via USB
  - Remote VCR (RS232) /DVR via USB
  - Remote Printer via Bluetooth Connection Kit (Option)
  - Footswitch via USB
  - ECG

Safety Conformance

The Voluson E8 Expert is:
- NRTL certified according UL 60601-1 (TÜVPS)
- Certified to CSA 22.2, 60601.1 by an SCC accredited Test Lab
- CB-Test Report by National Certification Body
- CE Marked to Council Directive 93/42/EEC on Medical Devices
- Conforms to the following standards for safety:
- EN 60601-1 General safety requirements for medical products
- EN 60601-1-1 Particular requirements for electrical medical systems

- EN 60601-1-2 Electromagnetic compatibility
- EN 60601-1-4 Programmable medical systems
- EN60601-1-6 Usability requirements for medical products
- EN 60601-2-37 Particular requirements for the safety of ultrasound medical diagnostic and monitoring equipment
- IEC 601157 Declaration of acoustic output
- ISO 10993 Biological evaluation of medical devices
- NEMA UD3 Acoustic output display (MI, TIS, TIB, TIC)
- WEEE (Waste Electrical and Electronic Equipment)