Voluson 730 Expert BT08

Innovation in Volume Ultrasound

Product Description

The Voluson® 730 Expert BT08 is our leadership imaging system designed for obstetrics, gynecology, neonatal, abdominal, vascular, urology, trans-cranial, cardiology and small parts applications combining premium image quality with the unique volume ultrasound technology.

Highlights

- RealTime 4D
- RealTime 4D Biopsy
- STIC/Color, Angio, HD-Flow, Contrast & B-Flow
- 3D Multiplanar Display
- “Glass-Body” rendering
- 3D Power Doppler
- XTD View Imaging
- B-Flow Imaging (BF)
- Coded Contrast Imaging – Contrast Media
- CHI - Coded Harmonic Imaging
- VCI - Volume Contrast Imaging
- CrossXBeam-CRI (Compound Resolution Imaging)
- SRI II - Speckle Reduction Imaging
- CE - Coded Excitation
- Automatic Optimization
- Inversion (3D Visualization of anechoic structures)
- VOCAL II – automated volume calculation
- T.U.I – Tomographic Ultrasound Imaging
- HD-Flow
- SonoVCAD – Sonography based Volume Computer Aided Diagnosis

Figure 1. Voluson 730 EXPERT with Volume Ultrasound technology
**General Specifications**

**Dimensions and Weight**
- Height: 142 cm (55.9 in)
- Width: 68 cm (26.7 in)
- Depth: 100 cm (39.4 in)
- Weight (no Peripherals): 300 lb (136 kg)

**Electrical Power**
- Voltage: 115 Vac or 230 Vac
- Frequency: 50/60 Hz
- Power Max: 1010 VA with on-board Peripherals
- Thermal Output: 3446 BTU/h

**Console Design**
- 4 Active Probe Ports (incl. 1 non-imaging port)
- Integrated HDD (80 GB)
- Integrated DVD+ R/W / CD-RW drive
- Integrated MOD drive (optional)
- On-Board storage for Peripherals
- Wheels
- Wheel diameter:
  - Front: 125 mm
  - Rear: 175 mm
- Integrated locking mechanism that provides rolling lock
- Integrated cable management that provides rolling lock
- Front and rear handles

**User Interface**

**Operator Keyboard**
- Floating Keyboard:
  - Rotation: adjustable +30° from center
- Full-sized, backlit alphanumeric keyboard
- Ergonomic hard key layout
- Interactive back-lighting
- Integrated recording keys for remote control of up to 3 Peripherals or DICOM devices and one additional remote control for VCR

**Touch Screen**
- 10.4 in High Resolution color LCD screen
- Interactive dynamic software menu
- User-configurable layout

**Monitor**
- 15” High-Resolution non-interlaced flat CRT
- High brightness with 250 cd
- Tilt/Rotate Adjustable Monitor
  - Tilt Angle: +/- 11°
  - Rotate Angle: +/- 90°
- Wide Image area
- Digital brightness & contrast adjustment

**System Overview**

**Applications**
- Abdominal
- Obstetrical
- Gynecological
- Small parts
- Vascular / Peripheral
- Pediatric and Neonatal
- Urological
- Cardiology
- Neurology
- Orthopedical

**Operating Modes**
- B-Mode (2D)
- M-Mode (M)
- M-Color-Mode (MC)
- Color Flow Mode (C)
- Power Doppler Imaging (PD)
- Tissue Doppler Imaging (TD)
- HD-Flow Imaging (HD-Flow)
- PW Doppler with high PRF (PW)
- B-Flow (BF)
- Extended View (XTD View)
- CW Doppler (CW)
- Contrast Imaging (Contrast Media)
- Volume Mode (3D/4D):
  - 3D Static
  - 4D Real Time
  - VCI
  - STIC / Color, Angio, HD-Flow, Contrast & B-Flow
  - 4D Biopsy

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

**Transducer Types**
- Sector Phased Array
- Convex Array
- Microconvex Array
- Linear Array
- Volume probes ‘4D’:
  - Convex Array
  - Microconvex Array
  - Linear Array
  - 1.25D Array
  - Convex Array
  - Linear Array

**System Standard Features**
- State-of-the-art user interface with high resolution 10.4 inch LCD touch panel
- Automatic Tissue Optimization
- Tissue Doppler
- Coded Harmonic Imaging
- Coded Excitation (CE)™
- HD-Flow
- CrossBeam CRI (Compound Resolution Imaging)
- 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
- Beta-View
- Patient information database
- Image Archive on MOD and 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
  - Ortho
  - Neurology
  - Multigestational Calculations
  - B-Flow
  - VCI (Volume Contrast Imaging)

**System Options**
- 4D Real Time
- 4D Real Time Biopsy
- VOCAL II
- CW Doppler (Hardware Option)
- DICOM
- 4D – 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 + Contrast
  - STIC + B-Flow
  - XTD-View
  - TLI – Tomographic Ultrasound Imaging
  - SonoVCAD
  - SRI II (Speckle reduction imaging)
  - Coded Contrast Imaging
  - CW Doppler (Hardware Option)
  - Foot Switch, with programmable functionality
  - Integrated MOD drive (supports up to 1.3 GB disks)
  - MODEM (for service only)
Peripheral Options
- Integrated printers:
  - B&W thermal printer
  - Color thermal printer
  - S-VHS VCR
  - ECG Digital Module
- External Color PC desktop printer & connection kits

Display Modes
- Simultaneous Capability
  - B/PW
  - B/CFM, B/PD, B/TD, B/HD-Flow
  - B/M
  - B/3D
  - B+CRI/3D+CRI
  - B+CRI/STIC+CRI
  - B+SRI/3D+SRI
  - B+SRI/4D+SRI
  - B+SRI/STIC+SRI
  - B/B+CRI
  - B/B+SRI
  - B/B+SRI+CRI
  - B/CFM+CRI
  - B/PD+CRI
  - B/HD-Flow+CRI
- 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
- Multi-image (split, quad)
  - split: B+B, B/CFM + B/CFM, or B/PD or B/TD or B/HD-Flow or B+BF
  - split: B+B/CFM or PD or HD-Flow
  - split: B+PW or CW or M
  - split: Frame Review / XTD-View
  - quad: B+B+B+B
  - B/CFM+B/CFM+B/CFM +B/CFM or B/PD or B/TD or B/HD-Flow, B+BF+BF+B+BF
  - Independent Cine playback
  - Quad: A+B+C+3D
  - 3x3: T.U.I Overview + 8 parallel slices
  - Quad: T.U.I Overview + 3 parallel slices
  - 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
  - Accession #: max 16 characters
  - Hospital Name: 30 Characters max
- Sonographer (up to 5 characters)
  - Position
  -_ED
  -_ID
  - First: max 15 characters
  - Middle: max 15 characters
  - Last: max 32 characters

System Parameters

System Setup
- Pre-programmable Categories
  - date format.
  - User Programmable Preset Capability, User program etc
- Languages: English, French, German, Spanish, Italian + additional languages loadable
  - Up to 400 Programmable
  - Annotations organized in 10 anatomical groups

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

Pre-Processing
- Write Zoom up to 8x
  - B/M-Mode
  - Gain
  - TGC
  - Dynamic Range
• Post-Processing
  • Read Zoom: max: 3.4
    Max Zoom (Write+Read) up to 24x
  • B/M-Mode
    • Gray Map
    • Colorized B and M
    • Speckle Reduction Imaging (SRI II)
  • PW-Mode
    • Gray Map
    • Baseline Shift
    • Angle Correction
    • Colorized D
    • Scale (KHz, m/s, cm/s)
    • Trace
    • Invert
  • Color Flow Imaging Modes (CFM, PD, TD, HD-Flow)
    • Display Threshold
    • Display Mode (V, V-T, T, P, P-T)
      (CFM only)
    • Scale (CFM and HD-Flow)
    • Baseline
  • B-Flow
    • Gray Map

Image Processing and Presentation

• PW-Mode
  • Gain
  • Dynamic Range
  • Acoustic Output
  • PRF
  • Wall Filter
  • Sample Volume Gate
  • Length, Depth, Pos
  • Velocity Scale
  • Sweep Speed
  • Color Flow Imaging Modes (CFM, PD, TD, HD-Flow)
  • Read Zoom: max: 3.4
    Max Zoom (Write+Read) up to 24x

CINE Memory/Image Memory
• CINE Memory: up to 256 MB (up to 3000 2D images)
• Dual Image CINE Display
• Quad Image CINE Display
• CINE Review Loop
• CINE Review Speed: 4 speeds: 25/50/100/200%
• Length of CINE Sequence Review selectable (start/end image)
• Measurements/Calculations & Annotations on CINE Playback

Image/Volume Storage
• On-board data storage software (SonoView, SonoView II):
  • Image file: 3 files
    DICOM file (about 1MB)
    JPEG compression available for DICOM file
    JPEG file: full size (46KB)
    JPEG file: “thumbnails” (6KB)
  • Volume file:
    Format: proprietary
    Size: typically: 0.8 - 5MB
    (depending on probe and adjusted volume size)
    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).
    • Cine Review
    • Single Volume (raw data, conversion to Cartesian format)
    • Volume Cine (raw data)
    • 3D Movie
    • Measure Reports
    • Information from past exams

Export functions:
• Format: BMP, TIFF or JPEG or AVI
• Export to: MO-Disk, DVD+ R/W, Network, USB devices
• Ethernet network connection:
  • Export Format: DICOM
  • E-Mail: data files as attachment
• MO Disk Storage: 128MB, 230MB, 520MB, 640MB, 1.3GB
• Backup function to internal HD, MO, DVD+ R/W, Network, USB devices
• AVI-Files: conversion and export to: MO-Disk, DVD+ R/W, Network, USB devices
• Hard Drive Data Storage
• Hard Drive Data Storage

Connectivity
• Ethernet network connection
• Modem (for service only)
• USB for USB devices
• DICOM support (option)
• Verify
• Print
• Store
• Modality Worklist
• Structured Reporting
• Storage Commitment
• MPPS (Modality performed procedure step)
• Media Exchange
• Off network / mobile storage queue

Scanning Parameters

B-Mode
• B Acoustic Power: 1-100%
• B Gain: +/-15dB range, 1dB steps
• Slide pots: +/- -15dB
• Dynamic Range: max.180 dB, 12 dynamic Contrast curves
• Persistence: 8 steps
• B Gray Scale Map: 12 maps
• B Edge Enhancement: 5 steps
• Line Filter: 3 steps
• Reject: range 0-255, step size 5
• Frequency Selection: 3 steps (multi-frequency, wideband probes)
• Quality (Line Density): 3 steps
• Scanning Size (FOV or Angle)
• Depending on probe
• B Colorization: 5 chroma maps
• BetaView (Volume probes only)

M-Mode
• M Acoustic Power: 1-100%
• M Gain: +/-15dB range, 1dB steps
• Slide pots: +/- -15dB
• Dynamic Range: max.180 dB, 12 Dynamic Contrast curves
• M Gray Scale Map: 12 maps
• M Edge Enhancement: 5 step-
- M Sweep Speed: 4 types
- M Colorization: 5 chroma maps
- M Reject: range 0-255, step size 5

M-Color Flow Mode
- Acoustic MCFM Power: 1-100%
- Frequency range: 1-15Mhz
- Doppler Auto Trace: on/off
- Pre-settable and independently adjustable B-, M and MCFM Gain
- CFM Shadowing: 1-255 steps
- Wall Filter: 8 – 3000 Hz
- Ensemble (color shots per line) 8-16, step size 1
- Gentle color filter
- Echo smoothing: on/off

Spectral Doppler Mode (PW, CW)
- CW Doppler: optional
- Acoustic Power: 1-100%
- Transmit Frequency Range:
  - PW: 1 – 15Mhz
  - CW: 2 – 7.75Mhz
- Gain: +15/-25dB range, 1dB steps
- Displayed Dynamic Range: 10 – 40 dB, 2 dB steps
- Gray Scale Map: 12 maps
- PW Wall Filter: 70 – 500Hz, 7 steps, PRF dependent
- CW Wall Filter: 30 – 1000Hz, 7 steps, PRF dependent
- Colorization: 6 chroma maps
- PW PRF: 1.3 – 22.0 kHz
- CW PRF: 1.3 – 40.0kHz
- PW: Velocity Scale Range
  - Depending on the probe Frequency
  - 2MHz, 0°, max. zero shift range: 1cm/s - 8m/s
  - 2MHz, 60°, max. zero shift range: 1cm/s - 16m/s
- CW: Velocity Scale Range:
  - Depending on probe Frequency
  - 2MHz, 0°, max. zero shift range: 1cm/s - 11.6m/s
  - 2MHz, 60°, max. zero shift range: 1cm/s - 23.2m/s
- PW Sweep Speed:
- Time Resolution:

Simplex 2.2, 3.3, 4.4, 6.6,10 msec
- Duplex/Triple 4.4, 6.6,10 msec.
- Sample Volume Length: (1mm, 1-10 (steps 1mm), 15mm)
- Spectrum Analyzer (FFT):
  - max: 256 channels
  - 255 amplitude levels
- Angle Correction: ± 0-85°, 1° step
- Available before Freeze and after Freeze
- Steered Linear: 0° - 25°
- (Depending on probe)
- Spectrum Inversion
- Baseline Shift: +/-8 steps from center
- Doppler Auto Trace

Color Flow Mode
- Acoustic Power: 1-100%
- Frequency range: 1-15Mhz
- Color Display Mode:
  - V (Velocity)
  - V-T (Velocity + Turbulence)
  - V-P (Velocity + Power)
  - T (Turbulence)
  - P-T (Power + Turbulence)
- Balance: 25 – 225, step size 5
- CFM Threshold: 1 – 255 steps
- Wall Filter: 8 – 3000 Hz
- Ensemble (color shots per line) 7-31, step size 1
- Line Density: 10 steps
- Gentle color filter
- Smooth filter:
  - Rise: 12 steps
  - Fall: 12 steps
- CFM Window Size:
  - max: same as B-image size
- Maximum Steer-able Angle
  - +/- 25 ° (probe dependent)
- CFM Spectrum Inversion
- CFM Baseline Shift: 17 steps
- Pre-settable and independently adjustable B-Mode Gain in B/CFM-Mode
- CFM Threshold: 1 – 255 steps
- Balance: 25 – 225, step size 5
- Artifact suppression: on/off
- HD Spectrum Inversion
- HD Baseline Shift: 17 steps
- Pre-settable and independently adjustable B-Mode Gain in B/HDF-Mode
- HD Threshold: 1 – 255 steps
- Balance: 25 – 225, step size 5
- Artifact suppression: on/off
- Real-time Triplex Mode:
  - B + HD-PW in any depth

Power Doppler Imaging (PD)
- Acoustic Power: 1-100%
- Frequency range: 1-15Mhz
- Doppler Auto Trace: on/off
- Pre-settable and independently adjustable B-Mode Gain in B/PD-Mode
- PD Threshold: 0 – 255 steps
- Artifact suppression: on/off
- Balance: 25 – 225, step size 5
- Real-time Triplex Mode:
  - B + PD/PW in any depth

HD-Flow
- Acoustic Power: 1-100%
- Frequency range: 1-15Mhz
- CFM Shadowing: 1-255 steps
- Wall Filter: 8 – 3000 Hz
- Ensemble (color shots per line) 7-31, step size 1
- Line Density: 10 steps
- Line Filter: 8 steps
- Smooth filter:
  - Rise: 12 steps
  - Fall: 12 steps
- HD Window Size:
  - max: same as B-image size
- Maximum Steer-able Angle
  - +/- 25 ° (probe dependent)
- HD Spectrum Inversion
- HD Baseline Shift: 17 steps
- Pre-settable and independently adjustable B-Mode Gain in B/HDF-Mode
- HD Threshold: 1 – 255 steps
- Ensemble (color shots per line) 7-31, step size 1
- Line Density: 10 steps
- Line Filter: 8 steps
- Smooth filter:
  - Rise: 12 steps
  - Fall: 12 steps
- HD Window Size:
  - max: same as B-image size
- Maximum Steer-able Angle
  - +/- 25 ° (probe dependent)
- HD Spectrum Inversion
- HD Baseline Shift: 17 steps
- Pre-settable and independently adjustable B-Mode Gain in B/HDF-Mode
- HD Threshold: 1 – 255 steps
- Balance: 25 – 225, step size 5
- Artifact suppression: on/off
- Real-time Triplex Mode:
  - B + HD-PW in any depth

Tissue Doppler Imaging (TD)
- Acoustic Power: 1-100%
- Frequency range: 1-15Mhz
- TD Map: 4 maps
- Gain: 30dB range, 1 dB steps
- Velocity Scale Range:
  - PRF: 100Hz to 11kHz
- Wall Filter: 8 – 3000 Hz
- Ensemble (color shots per line)
  - 7-31, step size 1
- Line Density: 10 steps
- Gentle color filter
- Line Filter: 8 steps
- Smooth filter:
  - Rise: 12 steps
  - Fall: 12 steps
- TD Window size:
  - Max: same as B-image size
  - CMF Spectrum Inversion
  - Pre-settable and independently adjustable B-Mode Gain in B/TD-Mode
- TD Threshold: 1 – 255 steps
- Balance: 25 – 225, step size 5
- Real-time Triplex Mode: B + TD/PW in any depth

Auto Optimization
- Available in:
  - B-Mode
  - PW Doppler

Coded Excitation (CE)
- Available on the following probes:
  - AB2-7
  - AC2-5
  - M7C-H
  - RAB4-8P
  - RAB4-8L
  - RIC5-9
  - RIC5-9H
  - RIC5-9W
  - RRE6-10
  - SP6-12

Coded Harmonic Imaging
- Harmonic Imaging
- Available on all probes except SP4-10

Compound Resolution Imaging (CRI)
- CRI
- 1-8 steps selectable
- Available on all probes except phased array PA2-5P, PA6-8

Focus Frequency Composite (FFC)
- Available on the following probes:
  - AB2-7
  - AC2-5
  - M7C-H
  - 4C-A
  - IC5-9
  - IC5-9H
  - RAB2-5
  - RAB2-5L
  - RAB4-8P
  - RAB4-8L
  - RIC5-9
  - RIC5-9H
  - RIC5-9W
  - RRE6-10
  - RNA5-9

Speckle Reduction Imaging (SRI)
- 1-6 steps selectable

Volume Mode (3D/4D)
- Acquisition Modes:
  - 3D Static: B-Mode (incl. CRI)
  - 3D B-Flow (optional)
  - STIC Angio: B/Power Doppler (optional)
  - STIC CMF: B/Color Doppler (optional)
  - STIC HD-Flow: B/HDFlow (optional)
  - STIC B-Flow (optional)
  - STIC Contrast (optional)
- Visualization Modes:
  - 3D Rendering (3D static only)
  - Sectional Planes (3 Section planes perpendicular to each other)
  - Niche: 3D Static only
  - VOCA II optional: semi-auto/ manual segmentation tool (segmentation using touchscreen), (3D Static only) + Threshold Volume: measure volume below and above a threshold
  - TUI (optional): Tomographic Ultrasound Imaging (overview image + parallel slices)
  - VCI Static (optional): 3D Static only (Sectional planes with VCI)
  - VCD Heart (optional): Volume Computer Aided Diagnosis

Render Mode:
- Surface texture, Surface Smooth, max-, min- and X-ray (average intensity projection), Gradient, Inversion, Glass Body, Mix Mode of two render Modes
- 3D Movie
- Curved render start
- SRI post-processing for A, B and C-Plane and rendered image
- Magicut: 3D/4D Cut tool
- Display Format:
  - Quad: A-/B-/C-Plane/3D
  - Dual: A-Plane/3D
  - Dual: A-Plane/VCI
  - Single: 3D or A- or B- or C-Plane
  - TUI 3x3: Overview image + 8 slices
  - TUI Quad: Overview image + 3 slices

Available on all probes

Virtual Convex
- Provides a convex field of view for all linear transducers

SP6-12
- SP10-16
- SP4-10
- RSP6-16
- M12L-H

Measurements / Calculations

Generic B-Mode and 3D
- Distance
- Distance (Point to Point)
- Distance (Line to Line)
- 2D Trace (Trace Length)
- Stenosis (% Dist)
- Area/Circumference
  - Ellipse
  - Trace (Line & Point)
  - Stenosis (% Area)

Volume: following Methods:
- 1 Distance
- 1 Ellipse
- 1 Dist. + Ellipse
- 3 Distance
- Planimetric Volume (3D only)
- Angle:
  - Angle(3 Point)
  - Angle(2 Line)
  - Hip Joint
- Histogram

Generic M-Mode
- Distance
- Time
- Velocity
- HR
- Stenosis (% Dist)

Generic Doppler Measurements / Calculations
- 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)
  - TARMEAN (Time avg. mean Velocity)
  - VTI (Velocity Time Integral)
  - Heart Rate

Single Measurements:
  - Vel, Acceleration, RI, PI, PS/ED, Time, HR

Real-time Doppler Auto Measurements / Calculations
- PS (Peak Systole)
Obstetrics

Measurements / Calculations

- Gestational Age by:
  - AC (Abdominal Circumference)
  - APTD (Anterior Posterior Thoracic Diameter)
  - APTDxTTD
  - BOD (Biparietal Diameter)
  - CEREB (Cerebellum)
  - CLAV (Clavicle)
  - CRL (Crown Rump Length)
  - EFW (Estimated Fetal Weight)
  - FL (Femur Length)
  - FTA (Fetal Trunk Area)
  - GS (Gestational Sac)
  - HC (Head Circumference)
  - HL (Humeral Length)
  - LV (Length of Vertebral)
  - MAD (Middle Abdomen Diameter)
  - OFD (Occipital Frontal Diameter)
  - RAD (Radius)
  - TIB (Tibia Length)
  - TTD (Transverse Thoracic Diameter)
  - ULNA (Ulna Length)

- Gestational Growth by:
  - AC (Abdominal Circumference)
  - APAD (Anterior Posterior Abdomen Diameter)
  - APTD (Anterior Thoracic Diameter)
  - APTDxTTD
  - BOD (Biparietal Diameter)
  - CEREB (Cerebellum)
  - CLAV (Clavicle)
  - CRL (Crown Rump Length)
  - EFW (Estimated Fetal Weight)
  - FTA (Fetal Trunk Area)
  - FL (Femur Length)
  - GS (Gestational Sac)
  - HC (Head Circumference)
  - HL (Humeral Length)
  - LV (Length of Vertebral)
  - MAD (Middle Abdomen Diameter)

Measurements / Calculations

- Use measurement results from other systems for fetal trending (post exam)
- Estimated Fetal Weight (EFW) by:
  - AC
  - AC, BPD
  - AC, BPD, FL
  - AC, BPD, FL, HC
  - AC, FL
  - AC, FL, HC
  - BPD, FTA, FL
  - BPD, MAD, FL
  - BPD, TTD
  - BPD, APTD, TTD, FL
  - BPD, APTD, TTD, LV
  - HC, FL, AC

Calculations and Ratios

- FL/BDP
- FL/AC
- FL/HC
- HC/AC
- CC/TC
- CI (Cephalic Index)
- Va/Hem, Vp/Hem
- AFI (Amniotic Fluid Index)

Tables / Calculations

- ASUM, Brenner, Bunduki, Bahlman, Campbell, CFFEF, Chitty, Daya, Eik-Nes, Goldstein, Hadlock, Hansmann, Helmman, Hill, Hohler, Holländer, Jeanty, Johnsen, JSUM, Karmannavicius, Kurtz, Marsal, Merz, Nelson, Nicolaides, O’Brien, Osaka, Rempen, Persson, Robinson, Shinozuka, Tokyo University, Shephard, Sabbagh, Sonek, Wardo, Williams, Yarkoni
- 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, B, Area, PISA
- TV (Diameter)
- AV/VA (Ao & LA Diam.)
- PV (Diameter)
- M Mode:
  - LV (IVS, LVD, LVPW, RVD)
  - AV/VA (Ao Diam, LA Diam, AV Sep., AoRoot Ampl.)
  - MV (D-E, E-F Slope, A-C Intervall, E-EPSS, E-S Dist.)
  - HR (Heart Rate)
- Spectral Doppler Mode:
Probes

- AB2-7 Wide Band Convex Probe
  - Applications: Abdomen, OB Gyn, Urology
  - Maximum Band Width (-20dB): 2 – 7 MHz
  - Number of Elements: 192
  - Convex Radius: 40 mm
  - FOV: 80°
  - Foot Print: 60 x 20 mm
  - Doppler Transmission Frequency: 2.31, 2.73, 3.33 MHz
  - Harmonic Transm. Frequency: 2.3, 3.0 MHz
  - Biopsy Guide Available: Single-Angle, Reusable

- AC2-5 Wide Band Convex Probe
  - Applications: Abdomen, OB Gyn, Urology
  - Maximum Band Width (-20dB): 1.6 – 5.3 MHz
  - Number of Elements: 128
  - Convex Radius: 40 mm
  - FOV: 60°
  - Foot Print: 48 x 17 mm
  - Doppler Transmission Frequency: 2.0, 2.73, 3.75 MHz
  - Harmonic Transm. Frequency: 1.76 MHz
  - Biopsy Guide Available: Single-Angle, Reusable

- 4C-A Wide Band Convex Probe
  - Applications: Abdomen, OB Gyn, Urology
  - Maximum Band Width (-20dB): 1.5 – 4.6 MHz
  - Number of Elements: 128
  - Convex Radius: 60 mm
  - FOV: 58°
  - Foot Print: 60.8 x 13 mm
  - Doppler Transmission Frequency: 2.0, 2.72, 3.33 MHz
  - Harmonic Transm. Frequency: 2 MHz
  - Biopsy Guide Available: Multi-Angle, disposable with reusable bracket

- M7C-H Wide Band Convex Probe (1.25D Array)
  - Applications: Abdomen, OB Gyn, Urology
  - Maximum Band Width (-20dB): 4.5 – 16.5 MHz
  - Number of Elements: 192
  - FOV: 33.7 mm
  - Foot Print: 38 x 8.0 mm
  - Doppler Transmission Frequency: 7.0, 10, 10 MHz
  - Harmonic Transm. Frequency: 5 MHz
  - Steered Angle: Max. 25°

Abdominal Measurements/Calculations

- Liver
- Gallbladder
- Pancreas
- Spleen
- Left/Right Kidney
- Renal Artery
- Aorta
- Portal Vein
- Vessel
- Summary Reports

Small Parts Measurements/Calculations

- Thyroid
- Testicle
- Vessel
- Summary Reports

Urology Measurements/Calculations

- Bladder
- Prostate
- Testicle
- Left/Right Kidney
- Vessel
- Summary Reports including PSAD, PPSA(1), PPSA(2) calculation

Pediatric Measurements/Calculations

- Hip Joint

IC5-9H Wide Band Convex Probe

- Applications: OB GYN, Urology
- Middle Frequency: 6.5MHz
- Band Width (-20dB): 3.7–9.3MHz
- Number of Elements: 192
- Convex Radius: 10 mm
- FOV: 146°
- Foot Print: 30 x 8.0 mm
- Doppler Transmission Frequency: 5.0, 6.0, 7.5 MHz
- Harmonic Transm. Frequency: 3.75, 4.3, 5.0MHz
- Biopsy Guide Available: Single-Angle, Reusable

PA2-5P Wide Band Phased Array Probe

- Applications: Abdomen, OB Cardiology, Pediatrics, Neurology
- Maximum Band Width (-20dB): 1.3 – 4 MHz
- Number of Elements: 128
- FOV: 90°
- Foot Print: 20 x 14 mm
- Doppler Transmission Frequency: 1.76, 2.3, 3.0 MHz
- Harmonic Transm. Frequency: 2.0 MHz

PA6-8 Wide Band Phased Array Probe

- Applications: Abdomen, OB Cardiology, Pediatrics
- Maximum Band Width (-20dB): 4 – 9.8 MHz
- Number of Elements: 128
- FOV: 89°
- Foot Print: 13 x 9.5 mm
- Doppler Transmission Frequency: 5.0, 6.0, 7.5 MHz
- Harmonic Transm. Frequency: 4.3 MHz

SP10-16 Wide Band Linear Probe

- Applications: Small Parts, Peripherals, Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 4.5 – 16.5 MHz
- Number of Elements: 192
- FOV: 33.7 mm
- Foot Print: 38 x 5.0 mm
- Doppler Transmission Frequency: 7.0, 10, 10 MHz
- Harmonic Transm. Frequency: 5 MHz
- Steered Angle: Max. 25°

SPA-10 Wide Band Linear Probe

- Applications: Small Parts, Peripherals, Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 3 – 8 MHz
- Number of Elements: 192
- FOV: 46 mm
- Foot Print: 50 x 10 mm
Doppler Transmission
Frequency: 7.0, 10, 10 MHz
Steered Angle: Max. 20°

SP6-12 Wide Band Linear Probe
Applications: Small Parts,
Peripherals, Vascular, Pediatrics, Ortho
Maximum Band Width (-20dB): 3 – 11 MHz
Number of Elements: 192
FOV: 37.4 mm
Foot Print: 42 x 8.0 mm
Doppler Transmission
Frequency: 5.0, 7.5, 10 MHz
Steered Angle: Max. 20°
Harmonic Frequency: 10 MHz
Biopsy Guide Available: Single-
Angle, Reusable

M12L-H Wide Band Linear Probe
(1.25D Array)
Applications: Small Parts,
Peripherals, Vascular, Pediatrics,
Ortho
Maximum Band Width (-20dB): 4.7 – 13 MHz
Number of Elements per row: 192
Number of Rows: 5
FOV: 37.4 mm
Foot Print: 38.4x6mm
Doppler Transmission
Frequency: 5.0, 6.0, 7.5 MHz
Steered Angle: Max. 20°
Biopsy Guide available: Multi-
Angle, disposable with reusable bracket

RAB2-5L Wide Band Convex
Volume Probe
Applications: Abdomen, OB Gyn,
Maximum Band Width (-20dB): 2 – 5 MHz
Number of Elements: 192
Convex Radius: 40.5 mm
Volume Sweep Radius: 20.15mm
FOV: 80° (B), 85° x 80° (Volume scan)
Foot Print: 53.2 x 40.6
Doppler Transmission
Frequency: 2.0, 2.72, 3.75 MHz
Harmonic Transm. Frequency: 2.0, 2.5 MHz
Biopsy Guide Available: Single-
Angle, Reusable

RAB4-8L Wide Band Convex
Volume Probe
Applications: Abdomen, OB, Gyn, Pediatric
Maximum Band Width (-20dB): 4 – 8.5 MHz
Number of Elements: 192
Convex Radius: 41.6 mm

Volume Sweep Radius: 19.95 mm
FOV: 70° (B), 85° x 70° (Volume scan)
Foot Print: 53.2 x 40.6 mm
Doppler Transmission
Frequency: 3.0, 3.75, 5.0 MHz
Harmonic Frequency: 2.5, 3.0 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 11.6 mm
FOV: 117° (B), 117°*90° (Volume scan)
Foot Print: 32 x 27 mm
Doppler Transmission
Frequency: 5.0, 6.0, 7.5 MHz
Harmonic Transm. Frequency: 3.75, 4.3, 5.0MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 11.6 mm
FOV: 80° (B), 85° x 80° (Volume scan)
Foot Print: 53.2 x 40.6
Doppler Transmission
Frequency: 2.0, 2.72, 3.75 MHz
Harmonic Transm. Frequency: 2.0, 2.5 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 20.15mm
FOV: 80° (B), 85° x 80° (Volume scan)
Foot Print: 53.2 x 40.6
Doppler Transmission
Frequency: 2.0, 2.72, 3.75 MHz
Harmonic Transm. Frequency: 2.0, 2.5 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 19.95 mm
FOV: 70° (B), 85° x 70° (Volume scan)
Foot Print: 53.2 x 40.6 mm
Doppler Transmission
Frequency: 3.0, 3.75, 5.0 MHz
Harmonic Frequency: 2.5, 3.0 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 11.6 mm
FOV: 117° (B), 117°*90° (Volume scan)
Foot Print: 32 x 27 mm
Doppler Transmission
Frequency: 5.0, 6.0, 7.5 MHz
Harmonic Transm. Frequency: 3.75, 4.3, 5.0MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 11.6 mm
FOV: 80° (B), 85° x 80° (Volume scan)
Foot Print: 53.2 x 40.6
Doppler Transmission
Frequency: 2.0, 2.72, 3.75 MHz
Harmonic Transm. Frequency: 2.0, 2.5 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 19.95 mm
FOV: 70° (B), 85° x 70° (Volume scan)
Foot Print: 53.2 x 40.6 mm
Doppler Transmission
Frequency: 3.0, 3.75, 5.0 MHz
Harmonic Frequency: 2.5, 3.0 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 11.6 mm
FOV: 117° (B), 117°*90° (Volume scan)
Foot Print: 32 x 27 mm
Doppler Transmission
Frequency: 5.0, 6.0, 7.5 MHz
Harmonic Transm. Frequency: 3.75, 4.3, 5.0MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 11.6 mm
FOV: 80° (B), 85° x 80° (Volume scan)
Foot Print: 53.2 x 40.6
Doppler Transmission
Frequency: 2.0, 2.72, 3.75 MHz
Harmonic Transm. Frequency: 2.0, 2.5 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Volume Sweep Radius: 19.95 mm
FOV: 70° (B), 85° x 70° (Volume scan)
Foot Print: 53.2 x 40.6 mm
Doppler Transmission
Frequency: 3.0, 3.75, 5.0 MHz
Harmonic Frequency: 2.5, 3.0 MHz
Biopsy Guide Available: Single-
Angle, Reusable

Maximum Band Width (-20dB): 5.6 – 18.4 MHz
Number of Elements: 192
Volume Sweep Radius: 33 mm
FOV: 37.4 mm (B), 37.4 mm * 29°
Volume Sweep Radius: 6.0, 5.0 MHz
Biopsy Guide Available: Single-
Angle, Reusable

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External Inputs and Outputs
Connectivity on rear panel (direct access)
- VGA Out
- Composite Video out (Color)
- Footswitch
- Network (RJ45)
- Modem (RJ11)
- USB (2x)
- RS 232 (Optional, RS232 to USB converter)

Connectivity behind rear panel (access after opening):
- Video Out
  - RGB
  - Comp. Video (B/W Printer)
  - S-Video (VTR)
• Video In:
  - Composite Video
  - S-Video

• Audio Out
  - Left/right

• Audio In
  - Left/right

• USB (3x)

• Parallel Port

• Remote BW Printer

• Remote Color Printer via USB

• Remote VCR (RS232)

• External microphone

Safety Conformance

The V730Expert is:

• Listed to UL 2601-1 by a Nationally Recognized Test Lab

• Certified to CSA 22.2, 60601.1 by an SCC accredited Test Lab

• CB-Test report by National Certification Body


• Conforms to the following standards for safety:
  • EN 60601-1 Electrical medical equipment
  • EN 60601-1-1 Electrical medical equipment
  • EN 60601-1-2 Electromagnetic compatibility
  • EN 60601-1-4 Programmable medical systems
  • IEC 601157 Declaration of acoustic output
  • ISO 10993 Biological evaluation of medical devices
  • NEMA UD3 Acoustic output display (MI, TIS, TIB, TIC)