

Voluson 730 Expert

Product Description

The Voluson® 730 Expert 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.

GE's Voluson 730 is among the most trusted women's healthcare systems in the world. Today more than 7,000 systems are in use, imaging more than 15 million women each year. Thousands of articles and studies attest to the clinical efficacy of Voluson's industry-leading volume imaging technologies.

Here are just a few examples of how GE is bringing you more:

- **Speckle Reduction Imaging (SRI)** heightens the visibility of organs and lesions through improved contrast resolution and border detection while reducing artifact characteristics of ultrasound.
- **CrossXBeamCRI™ (CRI)** enhances tissue and border differentiation with an exclusive spatial compounding acquisition and processing technique.
- **HD-Flow™** is a bi-directional power Doppler feature that enables a more sensitive vascular study and reduces the overwriting associated with standard color Doppler.
- **Volume Contrast Imaging (VCI)** allows for better assessment of size, margins and internal structures of lesions through maximized image quality in all three planes.
- **Tomographic Ultrasound Imaging (TUI)** makes analysis and documentation of dynamic studies easier by providing a simultaneous view of multiple slices of a volume data set.
- **Spatio-Temporal Image Correlation (STIC)** is an innovative technique that allows clinicians to quickly capture a full fetal heart cycle beating in real-time and save the volume for later analysis.



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

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-R(W) 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
- 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 noninterlaced flat CRT
- High brightness with 250cd
- 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)
- Coded Contrast Imaging (Contrast Media)
- Volume Mode (3D/4D):
- 3D Static

- 4D Real Time
- VCI
- STIC /Color, Angio, HD-Flow, Contrast & B-Flow
- 4D Biopsy

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
- CrossXBeamCRI (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

System Options

- 4D Real Time
- 4D Real Time Biopsy
- VOCAL II
- VCI (Volume Contrast Imaging)
- 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
- B-Flow
- XTD-View
- T.U.I – Tomographic
Ultrasound Imaging
- SRI II (Speckle reduction
imaging)
- Coded Contrast Imaging
- CW Doppler (Hardware Option)
- Foot Switch, with
programmable functionality
- Integrated MO drive (supports
up to 1.3GB 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

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

- Auto & Manual Trace:
- PS (Peak Systole)
- ED (End Diastole)
- MD (Min. Diastole)
- PS/ED (Ratio)
- PI (Pulsatility Index)
- RI (Resistance Index)
- TAm_{ax} (Time avg. max.
Velocity)
- TAm_{ean}(Time avg. mean
Velocity)
- VTI (Velocity Time Integral)
- Heart Rate
- Single Measurements:
Vel, Acceleration, RI, PI, PS/ED,
Time, HR

Real-time Doppler Auto

- PS (Peak Systole)
- ED (End Diastole)
- PD (Peak Diastole)
- MnV (Mean Velocity)
- VTI (Velocity Time Integral)
- RI (Resistance Index)
- PI (Pulsatility Index)
- S/D (Ratio)
- HR (Heart Rate)

Obstetrics

- Gestational Age by:
 - AC (Abdominal
Circumference)
 - APTD (Anterior Posterior
Thoracic Diameter)
 - APTDxTTD
 - BOD (Binocular Distance)
 - BPD (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 (Humerus Length)
 - LV (Length of Vertebra)
 - 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 (Binocular Distance)
- BPD (Biparietal Diameter)
- CEREB (Cerebellum)
- CLAV (Clavicle)
- CM (Cisterna Magna)
- CRL (Crown Rump Length)
- EFW (Estimated Fetal Weight)
- FTA (Fetal Trunk Area)
- FL (Femur Length)
- GS (Gestational Sac)
- HC (Head Circumference)
- HL (Humerus Length)
- LV (Length of Vertebra)
- MAD (Middle Abdomen
Diameter)
- MCA RI, PI
- NBL (Nasal Bone Length)
- OFD (Occipital Frontal
Diameter)
- RAD (Radius)
- TAD (Transverse Abdomen
Diameter)
- TIB (Tibia Length)
- TTD (Transverse Thoracic
Diameter)
- ULNA (Ulna Length)
- UmA RI, PI
- Use measurement results from
other systems for fetal trending
(past 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/BPD
 - FL/AC
 - FL/HC
 - HC/AC
 - CC/TC
 - CI (Cephalic Index)
 - Va/Hem, Vp/Hem
 - AFI (Amniotic Fluid Index)
- Tables / Calculations by:
ASUM, Brenner, Bunduki,
Bahlman, Campbell, CFEF,
Chitty, Daya, Eik-Nes, Goldstein,
Hadlock, Hansmann, Hellman,
Hill, Hohler, Holländer, Jeanty,
Johnsen, JSUM, Kurmanavicius,
Kurtz, Marsal, Merz, Nelson,

Nicolaides, O'Brien, Osaka, Rempen, Persson, Robinson, Shinozuka, Tokyo University, Shephard, Sabbagha, Sonek, Warda, Williams, Yarkoni

- Programmable OB Tables
- Programmable OB Formuals
- OB Report including:
- Measure results (Calc)
- Measure results (Generic)
- Fetal Qualitative Description (Anatomical survey)
- Fetal Environmental Description

(Biophysical profile)

- Fetal Graphical Trending
- Fetal Compare

Gynecology

- Right/Left Ovary Length, Width, Height, Volume
- Right/Left Kidney Length, Width, Height, Volume
- Uterus Length, Width, Height, Volume
- ENDO (Endometrial thickness)
- Cervix Length
- Follicular measurements (12)
- Ovarian Artery
- Uterine Artery
- Vessel
- Summary Reports
- Possibility to add OB measurements to Gyn application

Vascular

- CCA (Common Carotid Artery)
- ICA (Internal Carotid Artery)
- ECA (External Carotid Artery)
- Vertebral Artery
- Subclavia
- Bulb
- Vessels
- Summary Reports

Neurology

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

Cardiology

- 2D Mode:
- 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/LA (Ao & LA Diam.)
- PV (Diameter)
- M Mode:
- LV (IVS, LVD, LVPW, RVD)
- AV/LA (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:
- MV (Mitral Valve)
- AoV (Aortic Valve)
- TV (Tricuspid Valve)
- PV (Pulmonary Valve)
- LVOT & RVOT-Doppler (Left & Right Ventricle Outflow Tract)
- Pulmonic Veins
- PAP (Pulmonary Artery Pressure measurement)
- R-R Interval
- HR (Heart Rate)
- CFM Mode:
- PISA-Radius
- PISA-Alias Velocity
- Additional Calculations
- Diast. Vol.(Bi)
- Syst.Vol.(Bi)
- Stroke Volume
- Cardiac Output
- Eject. Fraction
- Fract. Shortening FS
- Myocardial Thickness
- LA/Ao, Ratio, E/A
- Peak Gradient, Peak Gradient Acceleration
- Mean Gradient, Mean Gradient Acceleration
- VTI, TVA, PG, PHT, MVA, AVA, ERO, etc

Abdominal

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

Small Parts

- Thyroid
- Testicle
- Vessel
- Summary Reports

Urology

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

Pediatric

- Hip Joint

Probes

• AB2-7 Wide Band Convex Probe

- Applications: Abdomen, OB Gyn, Urology, Pediatrics
- Maximum Band Width (-20dB): 2 – 7 MHz

• AC2-5 Wide Band Convex Probe

- Applications: Abdomen, OB Gyn,
- Maximum Band Width (-20dB): 1.6 – 5.3 MHz

• 4C-A Wide Band Convex Probe

- Applications: Abdomen, OB, Gyn
- Maximum Band Width (-20dB): 1.5 - 4.6 MHz

• M7C-H Wide Band Convex Probe (1.25D Array)

- Applications: Abdomen, OB, Gyn, Pediatrics
- Maximum Band Width (-20dB): 2.6 – 7.7 MHz

• IC5-9H Wide Band Convex Probe

- Applications: OB GYN, Urology
- Band Width (-20dB):3.7–9.3MHz

• PA2-5P Wide Band Phased Array Probe

- Applications: Abdomen, OB Cardiology, Pediatrics, Neurology
- Maximum Band Width (-20dB): 1.3 – 4 MHz

• **PA6-8 Wide Band Phased Array Probe**

- Applications: Abdomen, Cardiology, Pediatrics
- Maximum Band Width (-20dB): 4 – 9.8 MHz

• **SP10-16 Wide Band Linear Probe**

- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 4.5 – 16.5 MHz

• **SP4-10 Wide Band Linear Probe**

- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 3 – 8 MHz

• **SP6-12 Wide Band Linear Probe**

- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 3 – 11 MHz

• **M12L-H Wide Band Linear Probe (1.25D Array)**

- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 4.7 – 13 MHz

• **RAB2-5L Wide Band Convex Volume Probe**

- Applications: Abdomen, OB Gyn
- Maximum Band Width (-20dB): 2 – 5 MHz

• **RAB4-8L Wide Band Convex Volume Probe**

- Applications: Abdomen, OB, Gyn, Pediatric
- Maximum Band Width (-20dB): 4 – 8,5 MHz

• **RIC5-9H Wide Band Convex Volume Probe**

- Applications: OB, GYN, Urology
- Band Width(-20dB):3.7–9.3MHz

• **RRE6-10 Wide Band Convex Volume Probe**

- Applications: Urology, GYN
- Maximum Band Width (-20dB): 3.3 – 10 MHz

• **RSP5-12 Wide Band Linear Volume Probe**

- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 3.5 – 11 MHz

• **RSP6-16 Wide Band Linear Volume Probe**

- Applications: Small Parts, Peripherals. Vascular, Pediatrics, Ortho
- Maximum Band Width (-20dB): 5.6 – 18.4 MHz

• **RNA5-9 Wide Band Convex Volume Probe**

- Applications: Abdomen, SM P, OB, CARDIO, PED
- Band Width (-20dB): 3.3–9.1MHz

• **SCW 2.0; non imaging suprasternal CW-Pencil Probe**

- Application: Cardio
- Frequency: 2.0Mhz

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