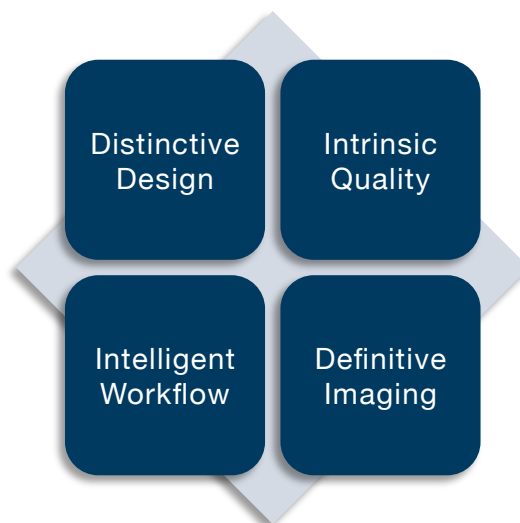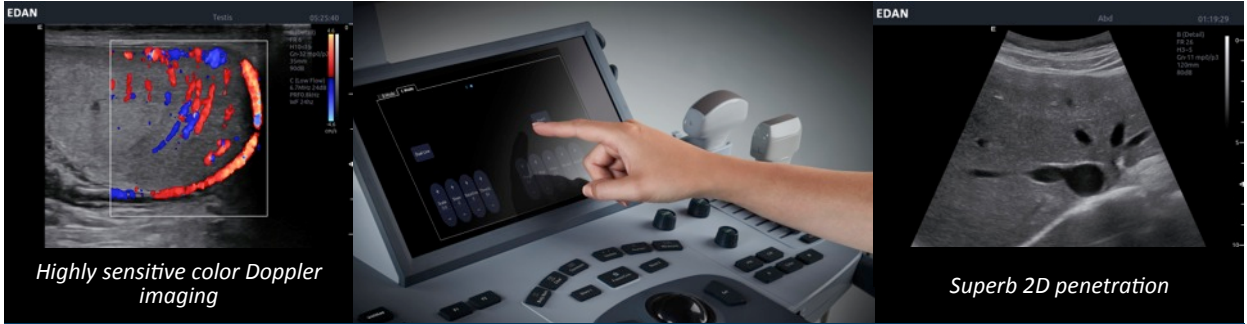# Acclarix™ LX8
Ultrasound System

System Specifications

The Acclarix™ LX8 Ultrasound System delivers power, performance, innovation and flexibility along with a full suite of next-generation transducers and 3D capability. Designed to address the challenges of busy ultrasound environments, the Acclarix LX8 is the ideal system for hospitals to private practices to imaging centers.

The Acclarix LX8 Ultrasound System features a host of design breakthroughs that make day-to-day operation easy, fast and intuitive. The Acclarix LX8 has been designed from the ground up with a relentless focus on delivering unexpected levels of innovation and performance at a price point that is equally surprising.

- Distinctive Design
- Intrinsic Quality
- Intelligent Workflow
- Definitive Imaging

Highly sensitive color Doppler imaging

Superb 2D penetration

Image Quality Without Compromise

The Acclarix LX8 system delivers brilliant clarity and stunning image quality with exquisite sensitivity so you can appreciate even the smallest details.

SYSTEM ARCHITECTURE
- 128 channels, transmit and receive
- Quad beam
- i7 processor with quad virtual cores
- 16GB memory
- Up to 1TB hard drive storage

SYSTEM DESIGN
- Dimensions: W <70 cm, D <100 cm, H 140-180 cm
- Weight: <90 kg
- Motorized, height-adjustable console, 20 cm of travel, console to floor distance range 143-163 cm
- 21.5" main screen with HD resolution (1920 x 1080)
  - Tilt: 30° upward, 20° downward
  - Swivel: 90° left and right
- 10.1" gesture-control touch screen
- Four active transducer ports
- Integrated DVD

B-MODE IMAGING
- Tissue adaptive imaging: continuous and automatic optimization including: dynamic range, speckle reduction, spatial compounding and persistence
- Enhanced border detection algorithms
- One-key auto optimization
- Digital zoom with five levels
- Depth: up to 30cm (see transducers)
- Frequency range: Up to three fundamental and two harmonic frequencies per transducer
- Frequency compounding
- Spatial compounding
- Speckle reduction with four levels
- Imaging formats
  - Curved
  - Linear
  - Phased array
  - Trapezoid
  - FOV for increased frame rate
  - Up/Down, Left/Right invert
  - Linear steering
  - Dual
- Additional optimization parameters
  - Gain, TGC, dynamic range (40-96), frame rate, map, tint, persistence, focus position and number
- Cine loop length: up to 12,287 frames

COLOR DOPPLER
- Adaptive Doppler imaging: automatically and continuously adapts to flow state to optimize color fill-in, boundary detection and hemodynamic display
- Supported modes:
  - Velocity
  - Power Doppler Imaging (PDI)
  - Directional PDI (DPDI)
- Side-by-side live format B-mode/color Doppler
- Additional optimization parameters
  - Gain, dynamic range (10-70 dB), frame rate, frequency, persistence, smoothing, wall filter, map, steer angle, scale, invert, baseline, threshold
- Cine loop length: up to 11,489 frames

SPECTRAL DOPPLER
- Adaptive PW and CW spectral Doppler: automatically and continuously adapts to flow state to optimize spectral display
- HPRF: automatic invocation as needed to maintain gate location/scale
- Auto Doppler measurements: user selectable sensitivity and direction
- Duplex and Triplex displays

SPECTRAL DOPPLER *(continued)*

- Additional optimization parameters
  - Scale, gain, dynamic range (10-70 dB), wall filter, sweep speed, baseline, angle, steer, invert, volume, map, tint, frequency, gate size
- Display formats: 1/3 image-2/3 spectral, 1/2 image-1/2 spectral, 2/3 image-1/3 spectral, full screen Doppler trace
- Cine loop length: up to 1,214 seconds

M-MODE

- Optimization parameters, independent M-mode:
  - Sweep speed, persist, map, tint, dynamic range
- Optimization parameters, shared with B-mode:
  - Gain and frequency
- Display formats: 1/3 image-2/3 trace, 1/2 image-1/2 trace, 2/3 image-1/3 trace, full screen trace, side-by-side
- Cine loop length: up to 147 seconds

ADVANCED FEATURES

- Panorama
  - Available on all linear array transducers
- Auto IMT
  - CCA, ICA, Bifurcation
- Needle Visualization
  - Improved needle visualization – even at steep angles
  - Available on linear array transducers
- 3D imaging: volume and curved MPR, cubic view, niche view, multi-slice view, multi-slice D'Art, gradient mode, skeleton mode, X-ray mode, cavity, scalpel and eraser, HQ rendering

USER INTERFACE

- Touch screen: three levels of access, drag-and-drop functionality for quick customization
  - Core functionality on one page
  - Swipe between pages for second tier controls
  - User created folders store infrequently used controls
- Down lit, pullout QWERTY keyboard
- Hard key access to core controls provides tactile feedback and landmarks for eyes-up navigation
- Two programmable hard keys for direct access to most frequently used features
- Languages: English, Chinese, German, Italian, French, Turkish, Russian
  - Keyboard support: most European character sets

ENVIRONMENTAL OPERATING REQUIREMENTS

- Ambient temperature: 0° to 40°C
- Relative humidity: 20%～80% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa
- 110V-240V power supply

CONNECTIVITY

- DICOM
  - Verify SCP
  - Static image store SCU
  - Ultrasound multi-image store SCU
  - Four levels of compression
  - Data transfer options
  - Removable media
  - In-progress network storage
  - Auto store at exam end
  - Manual store on demand
- 6 USB ports (4 USB 2.0; 2 USB 3.0)
- Video out: S-video, VGA port, DVI port
- Export: DICOM studies, AVI and BMP files, PDF report
- Ethernet (wired RJ45)

PRESETS

- Transducer specific presets
- One-key "Image Look" optimization, all imaging modes
- User customizable presets: Update, Copy, Delete
- Each preset can share annotation, body mark and measure presets

ANNOTATION AND BODY MARKS

- Annotate live or frozen images
- User-programmable home position
- Multiple arrows with user controlled size and orientation
- Soft keyboard with full support for diacritic characters
- Block move and delete for separate blocks of text
- Smart text replacement for pre-defined text (e.g., *Long* replaces *Trans* with one keystroke)
- User customizable pre-defined comment presets:
  - Abdomen
  - Breast
  - Cardiac
  - Carotid
  - Gynecology
  - Hand-wrist
  - Knee
  - Lower Extremity Vascular
  - Nerve
  - Obstetrics
  - Pediatrics
  - Shoulder
  - Testis
  - Thyroid
  - Urology
  - Upper Extremity Vascular

ANNOTATION AND BODY MARKS
(continued)

- User customizable, pre-defined Body Mark presets:
  - Abdomen
  - Breast
  - Cardiac
  - Carotid
  - Gynecology
  - Nerve/MSK
  - OB and OB first trimester
  - Testis
  - Thyroid
  - Vascular
  - Urology

MEASUREMENTS AND REPORTS

- Predefined measurement packages with dedicated report. (Detailed contents in Appendix)
  - OB and OB first trimester
  - Gynecology
  - Breast
  - Abdomen
  - Carotid
  - Fetal Echo
  - Thyroid
  - Cardiac
  - Urology (includes Renal, Testis and Prostate)
  - Lower extremity arteries/veins
  - Upper extremity arteries/veins
- Generic measurements, up to 5 simultaneous tools
- Application specific results from generic tools:
  - B-mode: distance, area or circumference (ellipse or trace), angle, volume, stenosis
  - Doppler: V1, V2, time, accel, HR, PS, ED, MD, RI, PI, S/D, HR, time, TAMx, TAMn, max PG, mean PG, VTI
  - M-mode: distance, time, slope, HR

Down lit, pullout keyboard provides flexibility for annotations and data entry.

Transducers and Applications

The Acclarix LX8 System boasts a new generation of transducers, including 3D capability, and feature multiple, selectable fundamental and harmonic frequencies to provide exquisite sensitivity, excellent detail and contrast resolution, and image uniformity throughout the field of view.

The full suite of new generation transducers of the Acclarix LX8 system.

Transducer Name	Imaging Format	Footprint or Radius	Fundamental Frequency Range	Harmonic Frequency Range	Applications Supported
C5-2XD	Curved linear array	60 mm	2-5 MHz	H2-5 MHz	Abdomen, OB, Gynecology, Spine, Nerve, MSK
C5-2D*	Curved linear array	60 mm	2-5 MHz	H2-5 MHz	Abdomen, OB, Gynecology, Spine, Nerve, MSK
MC8-4D*	Micro-convex array	15 mm	4-8 MHz	H4-8 MHz	Neonatal head and Abdomen, Pediatric Abdomen, Nerve, Vascular
L12-5D*	Linear array	38 mm	5-11 MHz	H6-12 MHz	Small parts, MSK, Nerve, Vascular
L10-4D	Linear array	38 mm	4-9 MHz	H5-10 MHz	Small parts, MSK, Nerve, Vascular
L17-7HD	High frequency linear array	38 mm	7-15 MHz	H9-17 MHz	Small Parts, MSK, Nerve, Vascular
E8-4D	Endocavity tightly curved array	10 mm	4-8MHz	H5-8 MHz	OB, Gynecology, Prostate, Endovaginal, Endorectal
P5-1XD	Phased array	16 mm	1-5 MHz	H2-5MHz	Adult and Pediatric Cardiac screening, Abdomen
L17-7SD	High-frequency compact linear array	26 mm	7-15 MHz	H9-17 MHz	MSK, Nerve, Vascular, Intraoperative
C5-2MD	3D mechanical curved array	--	2-5 MHz	H3-5 MHz	OB

Requires regulatory clearance

APPENDIX: Measurement and Report Detail

Package	B-mode	M-mode	Doppler
OB PACKAGE • Multiple fetuses (up to four) • Growth Curves	• BPD • OFD • HC • AC • FL • TAD • APAD • CER • HUM • RAD • TIB • FIB • APTD • TTD • FTA • THD • NF • ULNA • Foot • AF • AFI (Q1, Q2, Q3, Q4) • EFW	• Fetal heart rate	• Middle cerebral artery* • Umbilical artery* • Placenta artery* • Ductus venosus • Fetal heart rate
OB FIRST TRIMESTER PACKAGE	• GS • YS • CRL • NT • BPD • FL • HUM • AF	• Fetal heart rate	• Ovarian artery* • Uterine artery* • Ductus venosus • Fetal heart rate
GYNECOLOGY PACKAGE • Multiple follicles (up to four)	• Uterus length • Uterus width • Uterus height • Uterus volume • Endometrium thickness • Cervix • Uterus length/cervix • Ovary length • Ovary width • Ovary height • Ovary volume • Follicle length • Follicle width • Follicle height • Follicle volume		• Ovarian artery* • Uterine artery* • HR
BREAST PACKAGE • Left and right breast (up to five each)	• Breast lesion 1 • Breast lesion 2 • Breast lesion 3 • Breast lesion 4 • Breast lesion 5		

APPENDIX: Measurement and Report Detail *(continued)*

Package	B-mode	M-mode	Doppler
ABDOMEN PACKAGE	• Liver length • Liver width • Liver height • Portal vein • Common hepatic duct • Gallbladder length • Gallbladder height • Gallbladder wall thickness • Common bile duct • Pancreatic body • Pancreatic duct • Pancreatic head • Pancreatic tail • Spleen length • Spleen height • Renal length • Renal width • Renal height • Renal volume • Renal cortex thickness • Aorta diameter		• Abdominal aorta* • Inferior mesenteric artery* • Superior mesenteric artery* • Hepatic artery* • Splenic artery* • Renal artery* • Portal vein • Inferior vena cava • Main portal vein • Hepatic vein • Middle hepatic vein • Splenic vein • Inferior mesenteric vein • Superior mesenteric vein • HR
FETAL ECHO PACKAGE	• RV diameter • RA diameter • RVOT diameter • LV diameter • LA diameter • LVOT diameter • Ascending aorta diameter • Aorta arch diameter • Aorta isthmus diameter • Descending aorta diameter • Main PA diameter • Ductus arteriosus diameter • Cardiothoracic area ratio		• Main PA diameter • Ductus arteriosus diameter • Cardiothoracic area ratio • Fetal aorta* • Descending aorta* • Mitral valve • Tricuspid valve • Main pulmonary vein • Uterine artery* • Ovarian artery* Middle cerebral artery* • Umbilical artery* • Placenta artery* • Ductus venosus • Fetal heart rate

CAROTID DOPPLER PACKAGE	• Auto IMT
	  –CCA, ICA, Bifurcation
	  –Left, Right
	  –Far, Near
	  –Proximal, Mid, Distal
			• Common carotid artery*
			• External carotid artery*
			• Internal carotid artery*
			• Vertebral artery*
			• Subclavian artery*
			• HR

THYROID PACKAGE	• Thyroid length • Thyroid width • Thyroid height • Thyroid volume • Isthmus		• Superior thyroid artery* • Inferior thyroid artery* • HR

Package	B-mode	M-mode	Doppler
CARDIAC PACKAGE	• IVSTd • LVIDd • LVPWd • IVSTs • LVIDs • LVPWs • PV diameter • RVDd • RVDs • RA length • RA width • LA length • LA width • Ascending aorta diameter • Aortic root diameter • LVOT diameter • RVOT diameter • RVW	• IVSTd • LVIDd • LVPWd • IVSTs • LVIDs • LVPWs • EDV • ESV • SV • CO • EF • SI • CI • MVCF • FS • LVET • MV E-F slope • MV EPSS • LAD • AoD • RVOT diameter • LAD/AoD • Heart rate	• MV E/A • MV PHT • MV trace • IVRT • MV A Dur • MV DecT • Vel • TV trace • TR Vmax • LVOT trace • LVOT Vmax • AoV trace • AoV Vmax • PV trace • PV Vmax • PVein S Vel • PVein D Vel • PVein S/D • PV A Vel • HR

UROLOGY
Includes:
• Renal
• Prostate
• Testis
  −right and
   left labels
	• Renal cortex thickness
	• Pre-void and post-void bladder:
	  − Length
	  − Width
	  − Height
	  − Volume
	• Micturated volume
	• Renal, prostate and testis:
	  − Length
	  − Width
	  − Height
	  − Volume
	• Seminal length
	• Seminal width
	• Seminal height
			• Renal artery*
			• Segmental artery*
			• Interlobar artery*
			• Arcuate artery*
			• HR

UPPER EXTREMITY ARTERY PACKAGE			• Subclavian artery* • Axillary artery* • Brachial artery* • Ulnar artery* • Radial artery* • HR

APPENDIX: Measurement and Report Detail *(continued)*

Package	B-mode	M-mode	Doppler
UPPER EXTREMITY VEIN PACKAGE			• Axillary vein • Basilic vein • Brachial vein • Cephalic vein • Subclavian vein • Ulnar vein • Radial vein • Median cubital vein
LOWER EXTREMITY ARTERY PACKAGE			• Common femoral artery* • Deep femoral artery* • Superficial femoral artery* • Common iliac artery* • External iliac artery* • Internal iliac artery* • Popliteal artery* • Peroneal artery* • Posterior tibial artery* • Anterior tibial artery* • Dorsalis pedis artery* • HR
LOWER EXTREMITY VEIN PACKAGE			• Common femoral vein • Deep femoral vein • Superficial femoral vein • Common iliac vein • External iliac vein • Internal iliac vein • Great saphenous vein • Popliteal vein • Peroneal vein • Posterior tibial vein • Anterior tibial vein • Small saphenous vein

*These measurements can be done with calipers, trace or Auto trace; depending on the tool, the following may be provided: PS, ED, MD, RI, S/D, TAMax, TAMean, PI, HR.

REGULATORY APPROVALS

CE/MDD Class IIa (pending)
IEC 60601-1: Medical Equipment Safety
IEC 60601-1-2: Medical Device Electromagnetic Safety
IEC 60601-2-37: Ultrasonic Medical Equipment Safety
IEC 62304: Medical Device Software Life-cycle Process
IEC 62366: Medical Device Usability Engineering
EN ISO 14971: Medical Device Risk Management
ISO 10993: Medical Device Biocompatibility
NEMA UD 2: Output Measurement for Diagnostic Ultrasound Equipment
NEMA UD 3: Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment