Acclarix LX9 Series

Diagnostic Ultrasound

Version 1.2

Technical Specification

Incorporating innovative imaging technologies and intelligent workflows inside the slim body, the top-level Acclarix LX9 Color Doppler Ultrasound Systems delivers clear image quality and efficient scanning to meet the demands of General Imaging, Gynecology/Obstetrics and Cardiac applications. With the vision of being reliable diagnosis assistance to any Sonographer, Acclarix LX9 is designed with powerful ergonomic features of articulating arm, height and direction adjustable console, and foot rest enabling the image screening seen from every angle at a ease posture, presents definitive image quality in versatile imaging modes by a complete set of transducers compacting with advanced transducer technologies, and takes the work out of workflow by reducing heavy operation procedures to one-key control through efficient and accurate measurement functions of eOB, eFollicle etc, enhancing the diagnosis confidence.

Advanced Technique and Features

- TAI-Tissue Adaptive Imaging
- Adaptive Doppler imaging
- Frequency Compounding Imaging
- Spatial Compounding Imaging
- Harmonic Imaging
- eSRI-Speckle Reduction Imaging
- Spectrum Enhancement
- Digital Multi-Beam forming
- Trapezoid Imaging
- Extended FOV
- B Steer
- Spot Zoom (Acoustic Zoom)
- Full Screen Zoom
- Pan Zoom (Digital Zoom)
- Auto Trace
- Panorama Imaging
- Needle Enhancement Visualization
- HPRF (High Pulse Repetition Frequency)
- Anatomic M mode
- Color M mode
- TDI mode
- 3D/4D Imaging
- Elastography mode
- Contrast Imaging
- ECG synchronization
- Stress Echo

Efficient Workflows

- B mode one-key Optimization
- Color mode one-key Optimization
- PW mode one-key Optimization
- Auto IMT
- Auto NT
- eOB (BPD, OFD, HC, FL, HUM, AC)
- eVol.Flow
- eFollicle*
- eLV (Auto EF, Strain, WMSI)*

*Feature is subject to regulatory approval, and may not be available for sale in specific countries.

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System Overview

System Architecture

Physical Channels	128
Digital Channels	≤92160
Gray scale	256
Beam Forming	Eight beams
Processor	i7 with quad cores
Memory	16GB
Hard Drive	ITB SSD
Operating System	64 bit Linux
System Boot-up	About 40s
Boot-up from sleep	2s
Shutdown	18s

Dimensions and Weight

Max. Dimension	1776±5mm(H)×550±3mm(W)×828±3 mm(D)
Net Weight	73kg (no batteries and peripherals)

Display Monitor

- 21.5'' high resolution LCD monitor
- Resolution: 1920 x 1080
- Image Size: 1050*768
- Variable monitor position adjustment(height, swivel, tilt)
- View angle: right 178°,left 178°,up 178°,down 178°
- Brightness and Contrast adjustable
- Articulating arm allows monitor left/right swivel articulation: ±180°in either direction.
- Folds down for transport.

Battery

- Rechargeable Li-ion Battery
- Two batteries, total 10000mAh capacity.
- Removable
- Approximately 1.5 hours of typical ultrasound exam use for two fully charged batteries.
- Two batteries fully charged in about 3.5 hours.
- Battery level icon displayed on the main screen.

Transducer Ports& Holders

- Five active transducer ports
- Electronic transducer selection
- Ergonomic access to all transducer ports
- Dedicated cable hook
- Two ultrasound gel holders. One can be configured with removable gel warmer.
- 6 integrated transducer holders on the control panel, and removable transducer cups compatible for holding all types of transducers.

AC Power Requirements

Voltage	100 -240 V~
Frequency	50 Hz/60 Hz
Power	250W

Environment Requirements

Operating Environment

Ambient temperature	0° to 40°C
Relative Humidity	15%~95% (no condensing)
Atmospheric pressure	86kPa-106kPa

Storage Environment

Ambient temperature	-20° to 55°C
Relative Humidity	15%~95% (no condensing)
Atmospheric pressure	70kPa-106kPa

Language Supported

- English
- Chinese
- German
- Italian

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- Spanish
- French
- Russian
- Portuguese
- Polish

I/O Ports

- S-Video port
- USB 3.0 port(Four)
- USB 2.0 port(Three)
- Ethernet port
- DVI port
- VGA port
- HDMI port
- Audio output port
- Microphone port

Wheel

- Diameter: 5 inch
- 4 wheels with brakes

Options

- Transducers
- Needle Guide Bracket Kits
- Advanced DICOM (Modality Worklist, Structured Report, MPPS, Print, Storage Commitment, Query/Retrieve)
- TDI mode
- Elastography mode
- Contrasting Imaging
- Color M mode
- Curved Anatomic M mode
- eOB
- eFollicle*
- eLV*
- Internal ECG Module
- Printers
- USB Disk
- DVD Drives
- Footswitch
  - Single button/Double buttons
  - User-defined Functions(Freeze, Save, Print)
- Ultrasound gel warmer
- External USB WiFi Module

Other Features

- eLearn instruction tool for basic scanning and nerve blocks.
  - Support instructions for OB&GYN, Nerve block, and GI(ABD, Cardiac, etc) scanning.
  - Provides descriptions of Transducer position, Scan technique, Standard ultrasound image, Anatomy, Needle guide, tips, etc.
  - The illustration pictures can be enlarged to full touch screen display by pressing it.
- One-key full screen zoom(3 levels) by user-defined key F1 or F2.

System Ergonomic Design

- Interactive back-lighting
- 5 active transducer ports
- Touch Screen configurable User interface
- 20° Tiltable touch screen
- Control panel electronic lift up/down: 20 cm, and left/right swivel: ±90°
- Articulating arm
- Display monitor left/right swivel: ±180°
- Tiltable display monitor
- Retractable physical keyboard with targeted down-lighting
- 8 segment physical TGC sliders
- Rear storage tray.

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User Interface

Control Panel

- Interactive back-lighting
- Plastic and Rubber Hard Keys provides tactile feedback
- Programmable store keys
- Physical trackball
- Electronic lift up/down: 20 cm
- Left/right swivel: ±90°
- 8 segment TGC sliders
- Retractable keyboard with targeted down-lighting
- High-performance audio speaker integrated with the control panel.
- 6 transducer holders integrated with the control panel.
- Front and rear handles.

Touch Screen

- 14'' Touch screen(resolution1920 x 1080)
- 20° tiltable
- Gesture-control
- User configurable UI
- 5 user-defined touch screen keys
- Support visual Chinese and English QWERTY keyboard and French AZERTY keyboard for text input
- Brightness adjustable

Main Screen Display

Information Field

- EDAN logo
- Hospital name
- Date
- Time
- Patient ID
- Patient Name
- Patient Gender
- Patient Age
- Transducer model
- Preset name
- Exam preset

Image Field

- Mechanical Index (MI)
- Thermal Index (TI)
- Imaging parameters
- Gray Scale bar
- Depth Scale
- Center Mark
- Measurement result window
- TGC curve
- LMP, EDD

Measurements Menu Field

- Available generic and application measurements for current exam preset.
- Pre-categorized measurement groups.
- Consistent with the display on Measurement Touch Screen(14-inch).

Thumbnail Field(Clipboard)

- All captured static images and cine clips
- Shortcut keys for selecting, viewing, deleting, exporting images
- Quick viewing the thumbnail in the image area.

User Feedback Field

- Virtual trackball and trackball keys display
- Cine bar

Status Bar

- Image Store Icon
- USB Icon
- Printer Icon
- WIFI Icon
- Network Status Icon
- Hard Drive Icon
- DVD Icon
- Battery Icon
- Current active functions of user-defined key F1 and F2

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User Login Management

- Supports User Login at boot up.
- Supports user type of Administrator and Operator.
- Supports switching users without powering off the system.
- Support a Emergency user login for emergency use

Exam Presets

- System pre-defined exam presets include(Transducer specific) :
  - ABD
  - Abd Diff
  - Early OB
  - OB
  - Fetal Echo
  - GYN
  - Renal
  - Aorta
  - Spine
  - Prostate
  - Thyroid
  - Breast
  - Testis
  - Carotid
  - Low Ext A (Lower Extremity Artery)
  - Low Ext V (Lower Extremity Vein)
  - Up Ext A (Upper Extremity Artery)
  - Up Ext V (Upper Extremity Vein)
  - Nerve
  - Sciatic N (Sciatic Nerve)
  - Sup Nerve (Superficial Nerve)
  - MSK
  - Sup MSK (Superficial MSK)
  - Knee
  - Shoulder
  - Vascular
  - Adult Cardiac
  - Pediatric Cardiac
  - Intra-operative
  - Pediatric Abd
  - Neonatal Abd
  - Neonatal Head
  - Vascular Access
  - Lung
  - IVF
  - FAST
  - Appendix
- User customizable presets: Copy, Delete, Save, Save as
- Exam presets are configurable in Set-up.
- Supports a second page, up to 30 presets per transducer.
- Each preset can share comment and body mark measure presets.

Annotations

Comments

- User-programmable home position
- Arrow with user controlled orientation
- Arrow size adjustable
- Soft touch keyboard
- Block move and delete for separate blocks of text
- Smart text replacement for predefined text (e.g., Long replaces Trans with one keystroke)
- 266 pre-defined comments
- User customizable

Body Mark

- Up to 124 Body Mark graphics in library
- Support separate body mark in Dual and Quad
- User customizable

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Imaging

Imaging Modes

B-mode

M-mode

- M-mode
- Anatomic M mode(3-line AMM and Curved AMM)
- Color M mode

Color Doppler

- Velocity-based color Doppler
- PDI
- DPDI

PW Doppler

CW Doppler

TDI mode

- TVI(Color-TDI)
- TVD(PW-TDI)
- TVM(TDI+M)

3D/4D mode

Elastography Mode

Contrast Imaging

Display Modes

Dual Imaging

- Available for B and Color(PDI/DPDI) mode.
- Displays two image side-by-side, two frozen or one active/one frozen.
- Allows to switch between two images
- Measurements and calculations are supported on each image and across the dual images.
- Annotations are supported on each image.

Quad Imaging

- Available for B and Color(PDI/DPDI) mode.
- Displays images in four quadrants, four frozen or one active/three frozen.
- Allows to switch between four images.
- Measurements and calculations are supported on each image.
- Annotations are supported on each image.

Imaging Mode Combinations

- B+M
- B/C(PDIor DPDI), Single
- B/C(PDI or DPDI), Dual
- B+B/C(PDI or DPDI),Dual live
- B+Color(PDIor DPDI)+M
- B+PW (Duplex)
- B+PW (Update)
- HPRF
- B/C(PDI or DPDI)+PW (Triplex)
- B/C(PDI or DPDI)+PW (Update)
- B+CW (Update)
- B/C(PDI or DPDI)+CW (Update)
- B+ Color-TDI (Dual Live)
- B+PW-TDI (Update)
- B+ PW-TDI(duplex, simultaneous)
- B+ Color-TDI + PW-TDI (Update)
- B+ Color-TDI + PW-TDI ((triplex mode)
- B+ Color-TDI+M
- B+E

Imaging Parameters

B- mode(Live imaging)

Image Type	Detail/General/Penetration
One-key Optimization	TGC, Gain
Pan Zoom	x0.7-x2.0, PIP(Picture in Picture) display
Spot Zoom	Available on Live B and Color image, zoom in the image in ROI box with high resolution. PIP(Picture in Picture) display.
Display Depth	1-45cm(Probe dependent)
Frequency	1-17MHz 3 Fundamental &2 Harmonic
eSRI	0,1,2,3,4,5,6,7
FOV	Small, Med, Large, Full
Trapezoid	Off, 1, 2, 3(3 levels for

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	expanded view) Max. expanded angle: 10°(Linear transducer)
Steer	0°, ±10°
Gain	0-100dB
TGC	8 segments
LGC	8 segments
Dynamic Range	40-96 dB, 2dB/step
Line density	Low, Med, High ≥512 lines
Max. Frame Rate	2400f/s, depends on transducer
Map	10 types
Persistence	Off, Low, Med, High
Focus Position	Adjustable, depends on transducer
Focus Number	1-3, adjustable
Colorize	On, off
Tint	5 Types
Up/Down Flip	
Left/Right Flip	
Spatial Compounding	On, off (max 3angles)
Panorama	On, Off (Max. length 1.2m)
	Real-time speed indicator
	360° rotation of Panoramic image
Acoustic Power	10%-100%

B- mode(Post-processing & retrospective)

- Gain
- DR
- TGC
- LGC
- Zoom
- eSRI
- Colorize
- Map

M- mode(Live imaging)

Sweep Speed	Fast/High/Med/Low/ Slow (Corresponds to sweep time of 1s, 2s, 4s, 8s and 12s per screen respectively.)
Line Persist	Off, Low, Med, High
Map	10 types
Colorize	On, off
Tint	5 Types
Gain	0-100dB
Frequency	1-17MHz 3 fundamental + 2 harmonic
Dynamic Range	40-96 dB, 2dB/step
Strip size	Full, large, Med., small
Side-by-side	On(Left/Right) Off(Up/Down)
Acoustic Power	10%-100%
Anatomic M	On, Off
	Up to 3 linear sample lines
	Adjustable angle of each sample line
Curved AMM	On, Off
	Free-hand drawing of sample line; Sample line supports edition and deletion.

M-mode(Post-processing & retrospective)

- Gain
- DR
- TGC
- Colorize
- Map
- Strip size
- Side-by-side

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Color/PDI/DPDI Mode(Live imaging)

Image Type	HighFlow/MidFlow/LowFlow
Dual Live	B+C(PDI/DPDI)
ROI size/position	Adjustable
Frequency	2 levels
Dynamic Range	10-70 dB, 5dB/step (not available in Color mode)
Gain	0-100dB, 1dB/step
Line density	Low, Med, High
Max. Frame Rate	240f/s, depends on transducer
Persistence	Off, Low, Med, High
Smooth	Off, Low, Med, High
Wall Filter	Low, Med, High
Color Map	10 types
Steer Angle	0°, ±5°,±10°,±15°,±20° (linear transducers)
PRF	0.6- 11.4kHz
Scale	2.8-210 cm/s
Baseline	31 levels (Not available for PDI mode)
Threshold	0-100
Invert	On, off (Not available for PDI mode)
Color Hide	On,Off
Vel Distribution	On, Off
One-key Optimization	Gain, Scale
Acoustic Power	10%-100%
Panorama	On, Off (Max. length 1.2m)
	Real-time speed indicator
	360° rotation of Panoramic image

Color/PDI/DPDI Mode

(Post-Processing & Retrospective)

- Zoom
- Baseline
- Color map
- Invert

PW mode(Live imaging)

Image Type	HighFlow/MidFlow/LowFlow
HPRF	Automatic invocation to maintain gate location/scale
Auto Trace	User selectable trace side
Auto Trace Side	Up, down, both
Duplex	
Triplex	
Frequency	2 levels
PRF	0.9- 14.7kHz
Gain	0-100dB, 1dB/step
Dynamic Range	10-70 dB, 5dB/step
Wall Filter	Low, Med, High
Sweep Speed	Fast/High/Med/Low/ Slow (Corresponds to sweep time of 2s, 4s, 6s, 8s and 12s per screen respectively.)
Baseline	9 levels
Angle Correction	-80° to 80°
Quick Angle	-60°/0°/60°
Steer	0°,±5°,±10°, ±15°, ±20°(linear transducers)
Invert	On, Off
Volume	0-99
Map	10 types
Colorize	On, off
Tint	5 Types
Gate Size	0.5-20 mm
Strip size	Full, large, Med., small
One-key Optimization	Gain, DR or Scale/Baseline, user configurable
Acoustic Power	10%-100%

PW Mode (Post-Processing & Retrospective)

- Gain
- DR
- Colorize
- Map

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- Baseline
- Angle
- Invert
- Strip size
- Auto trace
- Trace side

CW mode(Live imaging)

Image Type	HighFlow/MidFlow/LowFlow
PRF	1- 89.3kHz
Gain	0-100dB,1dB/step
Dynamic Range	10-70 dB, 5dB/step
Wall Filter	Low, Med, High
Sweep Speed	Fast/High/Med/Low/ Slow (Corresponds to sweep time of 2s, 4s, 6s, 8s and 12s per screen respectively.)
Baseline	9 levels
Angle Correction	-80° to 80°
Quick Angle	-60°/0°/60°
Steer	0°,±5°,±10°, ±15°, ±20°(linear transducers)
Invert	On, Off
Volume	0-99
Map	10 types
Colorize	On, off
Tint	5 Types
Strip size	Full, large, Med., small
Acoustic Power	10%-100%

CW Mode (Post-Processing & Retrospective)

- Gain
- DR
- Colorize
- Map
- Baseline
- Angle Correct
- Invert
- Strip size

TVI(Color-TDI) Mode(Live imaging)

Image Type	HighFlow/MidFlow/LowFlow
Dual Live	B+Color-TDI(TVI)
ROI size/position	Adjustable
Frequency	2 levels
Gain	0-100dB, 1dB/step
Line density	Low, Med, High
Max. Frame Rate	115f/s, Probe dependent
Persistence	Off, Low, Med, High
Smooth	Off, Low, Med, High
Wall Filter	Low, Med, High
Color Map	10 types
PRF	0.6- 7.0kHz
Scale	10.0-116 cm/s
Baseline	31 levels (Not available for PDI mode)
Threshold	0-100
Invert	On, off (Not available for PDI mode)
Color Hide	On,Off
Vel Distribution	On, Off
Acoustic Power	40%-100%

TVI(Color-TDI) Mode

(Post-Processing & Retrospective)

- Zoom
- Baseline
- Color map
- Invert

TVD(PW-TDI) mode(Live imaging)

Image Type	HighFlow/MidFlow/LowFlow
Duplex	On, Off
PRF	0.9- 9.8kHz
Frequency	2 levels
Gain	0-100dB, 1dB/step
Dynamic Range	10-70 dB, 5dB/step
Wall Filter	Low, Med, High
Sweep Speed	Fast/High/Med/Low/ Slow

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	(Corresponds to sweep time of 2s, 4s, 6s, 8s and 12s per screen respectively.)
Baseline	8 levels
Angle Correction	-80° to 80°
Quick Angle	-60°/0°/60°
Steer	0°,±5°,±10°, ±15°, ±20°(linear transducers)
Invert	On, Off
Volume	0-99
Map	10 types
Colorize	On, off
Tint	5 Types
Gate Size	0.5-20 mm
Strip size	Full, large, Med., small
Acoustic Power	90%-100%

TVD(PW-TDI)(Post-Processing & Retrospective)

- Gain
- DR
- Colorize
- Map
- Baseline
- Angle
- Invert

3D/4Dmode(Live imaging)

Acquisition modes	3D, 4D
Visualization modes	Volume rendering, MPRs, Multi-Slice
Multi-Slice	Max. 21 slices can be displayed on the same screen; Distance between each slice is 0.5-10.0mm
VOI size/Position	Adjustable
Render modes	Surface, Max, Min, X-Ray, Depth
Inversion	On, off
3D clip	
Cut tools	Trace, Box, Eraser
Cut functions	Undo, Undo all, Redo
Display formats	Single 3D, Dual(A-plane + 3D), Quad(A/B/C Planes + 3D)
3D parameters	Threshold, Smooth, Brightness, Contrast, Tint
eFace	EDAN auto show face
4D frame rate	Max. 20vps

Elastography mode(Live imaging)

Opacity	1, 2, 3, 4 levels
Smooth	Off, Low, Med., High
Persistence	Off, Low, Med, High
Map	0-6
DR	0-5
Invert	On, Off
Display formats	E, B+E(Up/down; left/right)

Elastography Mode (Post-Processing&Retrospective)

- Opacity
- Smooth
- Map
- DR
- Invert

Contrast Imaging

Timer	
Display formats	C, T+C, C+T
Destroy	Destroy power, Destroy time
Frequency	
Acoustic Power	
eSRI	
Persistence	
Dynamic Range	
Tint	
Map	
Cine Speed	
TIC Analysis	Ellipse and trace tool

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	supported for adding Up to 7 ROIs.
	Independent TIC Analysis window displayed below the contrast image;
	TIC parameters supported: 1. PI(Peak Intensity) 2. AT(Arrival time) 3. TTP(Time to Peak)
	Fit curving

Review and Post-Processing functions

Cine Review

- Frame by frame manual review/Auto review
- Independent cine review in Dual/Quad mode.
- Maximum cine memory in the cine bar(depending on transducers and image parameters):
  - 50107 frames for B mode
  - 5394 frames for Color mode
  - 51s for M mode
  - 1000s for PW/CW Doppler mode

RawData Post-Processing Features

The following Post-Processing features are available when in image/cine review of current exam or the stored exam.

- Adjusting imaging parameters in B mode and 3D/4D mode
- Annotations: Body Mark, Comments
- Reports
- Storing static image/ cine loop

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Transducers and Biopsy Guide

Transducer Applications

Transducer	Applications	Transducer	Applications
C5-1Q 	Abdomen Fetal / Obstetrics Urology Gynecology Musculoskeletal	C5-2Q 	Abdomen Fetal / Obstetrics Urology Gynecology Musculoskeletal
L17-7HQ 	Small Parts Peripheral Vascular Musculoskeletal	L12-5Q 	Small parts Peripheral Vascular Musculoskeletal
MC8-4Q 	Pediatric Abdomen Neonatal Musculoskeletal Peripheral Vascular	L17-7SQ 	Intra-operative Musculoskeletal Peripheral Vascular
P7-3Q 	Adult Cardiac Pediatric Abdomen Pediatric Cardiac Neonatal cephalic	MC9-3TQ 	Pediatric Abdomen Neonatal Musculoskeletal Peripheral Vascular
C6-2MQ 	Fetal / Obstetrics Abdomen Gynecology Urology	P5-1Q 	Adult Cardiac Abdomen Pediatric Cardiac Adult Cephalic
E10-3BQ 	Fetal / Obstetrics Gyncecology Trans-vaginal Trans-rectal Urology	E8-4Q 	Fetal / Obstetrics Gyncecology Trans-vaginal Trans-rectal Urology
E10-3HQ 	Fetal / Obstetrics Gyncecology Trans-vaginal Trans-rectal Urology		

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Transducer Specifications

Transducer	C5-1Q	C5-2Q	L12-5Q
Transducer Type	Convex, Crystal	Convex	Linear
Bandwidth@ -6dB	2-5MHz	2-5MHz	5-12MHz
Elements	160	128	128
Footprint	NA	NA	38mm
Convex Radius	50mm	60mm	NA
FOV	64°	60°	NA
Display Depth	45cm	45cm	11cm
Max. PW Velocity(±60°)	9m/s	9m/s	4.75m/s
Max. CW Velocity(±60°)	NA	NA	NA
Biopsy Guide	No	Yes	Yes
Cable Length	2.0m	2.0m	2.0m

Transducer	L17-7HQ	L17-7SQ	MC8-4Q	MC9-3TQ
Transducer Type	Linear	Linear	Micro Convex	Micro Convex
Bandwidth@ -6dB	7-17MHz	7-17MHz	4-10MHz	3-9MHz
Elements	192	128	128	128
Footprint	38mm	26mm	NA	NA
Convex Radius	NA	NA	15mm	10mm
FOV	NA	NA	NA	NA
Display Depth	11cm	11cm	15cm	15cm
Max. PW Velocity(±60°)	3.25m/s	3.25m/s	5m/s	6m/s
Max. CW Velocity(±60°)	NA	NA	NA	NA
Biopsy Guide	Yes	No	Yes	Yes
Cable Length	2.0m	2.0m	2.0m	2.0m

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Transducer	P5-1Q	P7-3Q	C6-2MQ
Transducer Type	Phased	Phased	Wobbler
Bandwidth@ -6dB	1-5MHz	3-8MHz	2-5MHz
Elements	64	96	128
Footprint	16 mm	15 mm	NA
Convex Radius	NA	NA	40mm
FOV	90°	90°	64°
Display Depth	30cm	18cm	30cm
Max. PW Velocity(±60°)	10m/s	8m/s	8m/s
Max. CW Velocity(±60°)	64 m/s	45 m/s	NA
Biopsy Guide	Yes	No	No
Cable Length	2.0m	2.0m	2.0m

Transducer	E8-4Q	E10-3BQ	E10-3HQ
Transducer Type	Intra-cavity	Intra-cavity	Intra-cavity
Bandwidth@ -6dB	4-8MHz	3-10MHz	3-10MHz
Elements	128	192	192
Footprint	NA	NA	NA
Convex Radius	10mm	14mm	14mm
FOV	150°	200°	200°
Display Depth	14cm	14cm	14cm
Max. PW Velocity(±60°)	6m/s	8m/s	8m/s
Max. CW Velocity(±60°)	NA	NA	NA
Biopsy Guide	Yes	Yes	Yes
Cable Length	2.0m	2.0m	2.0m

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Biopsy Guide

- **Needle Guide**
  - Supports guide lines of multiple angles.
  - Supports single and parallel guide line
  - Supports guide line calibration.
- **Need Visualization**
  - Supports three needle inserted angles for linear transducers
- **Center Line**
  - Center Line is a vertical dotted line displayed at the middle of the image field, representing the middle of ultrasound beam. It helps to locate the position and depth of a target disease focus for out-of-plane biopsy, lithotripsy and etc.
- **Supported Needle Guided Brackets**

Model	Type	Angle/Depth	Description
BGK-CR10UA	In-plane	2°	For use with the E8-4Q, Supports: 16G, 18G
BGK-002	In-plane	38°, 46°, 58°	For use with the L12-5Q/L17-7HQ, Supports: 14G-23G
BGK-003	Out-of-plane	1.0cm,1.5cm,2.0cm	For use with the L12-5Q/L17-7HQ, Supports: 21G
BGK-004	In-plane	12°, 20°	For use with the MC9-3TQ, Supports: 14G-23G
BGK-005	In-plane	0°	For use with the E10-3BQ, Supports: 16G, 18G
BGK-006	In-plane	1°	For use with the E10-3HQ, Supports: 16G, 18G
BGK-007	In-plane	18°, 25°, 35°	For use with the C5-2Q, Supports: 14G-23G
BGK-008	In-plane	12° , 22°	For use with the P5-1Q Supports: 14G-23G
BGK-012	In-plane	11°, 20°, 37°	For use with the MC8-4Q Supports: 14G-23G

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Measurements

- Default measurement unit options
  - Distance: mm, or cm
  - Area: mm2, or cm2
  - Volume: mm3, or cm3
- Caliper Size: switch automatically according to the distance (3 sizes)
- Dynamic display of measurement results
- Reposition caliper
- Pre-categorized measurement groups based on clinical applications; Configurable in Measure Preset. Measured results of each measurement is configurable in Measure Preset.
- Measurements displayed on main screen and touch screen are consistent.

General Measurements

B-mode

- Distance(2-point, trace)
- Circumference/Area (Ellipse, Trace, Spline)
- Angle(3-point, 2 lines)
- Volume(3-distance, Ellipse+ 1 distance)
- %Dist Stenosis(Distance)
- % Area Stenosis (Ellipse, Trace, Spline)

M-mode

- Distance
- Time
- Slope
- HR

Doppler mode

- PS
- ED
- RI
- PI
- PS,ED,RI,S/D
- Time
- HR
- Manual Trace
- Spline Trace
- Auto Trace(measured results is configurable)
- Velocity
- PGMax
- PGMean
- Volume Flow
- TEI index: COT, ET

Elastography mode

- Eratio(Ellipse, Trace)

Application Measurements/calculations

Abdomen

B-mode:

- Liver
  - Length, Width, Height
  - Volume(calculation)
  - Portal Vein Diameter
  - Common Hepatic Duct
- Gallbladder
  - Length, Height
  - Gallbladder Wall Thickness
  - Common Bile Duct
- Pancreas
  - Head, Body, Tail, Duct
- Spleen
  - Length, Height
- Renal
  - Length, Width, Height
  - Volume(calculation)
  - Renal Cortex Thickness
- Aorta Diameter

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PW mode:

- Abdominal Aorta
- Superior Mesenteric Artery
- Inferior Mesenteric Artery
- Hepatic Artery
- Splenic Artery
- Renal Artery
- Portal Vein
- Inferior Vena Cava
- Main Portal Vein
- Hepatic Vein
- Middle Hepatic Vein
- Splenic Vein
- Superior Mesenteric Vein
- Inferior Mesenteric Vein

Gynecology

B-mode:

- Uterus
  - Length, Width, Height
  - Endometrium Thickness
  - UT Cavity
  - UT-L/CX-L(calculation)
- Cervix
  - Length, Width, Height
  - UT-L/CX-L(calculation)
- Ovary
  - Length, Width, Height
- Follicle
- Cyst
- Fluid POD

PW mode:

- Uterine Artery
- Ovary Artery

Obstetrics

B-mode:

• Fetal Biometry	BPD, HC, AC, FL, HUM, CER, OFD, NF, TAD, APAD, THD, APTD, TTD, FTA,
• Early Gest	CRL, BPD, FL, HUM, NT, GS, YS, AF
• Long Bones	HUM, ULNA, RAD, TIB, FIB, Foot
• Fetal Cranium	CER, NT, NF
• AFI	Q1, Q2,Q3,Q4
• Chamber	LV Diam, LA Diam, RV Diam, RA Diam
• LVOT/AO	LVOT Diam, Ao Asc, Ao Arch, Ao Isthmus, Desc Ao
• RVOT/PA	RVOT Diam, MPA Diam, Ductus A
• CTAR	

PW mode:

- MCA
- Umb. A
- Planenta A
- Ovary A
- Ut. A
- Fetal Ao
- Desc Aorta
- Ductus V
- FHR
- MV
- TV
- MPV
- Ductus A

M-mode:

- FHR

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Cardiac

B-mode:

• LV Simpson	A4C Dias., A4C Sys., A2C Dias., A2C Sys.
• A/L(LV)	LVd, LVs
• Simp(LA)	LA A4Cs, LA A2Cs
• Simp(RA)	RA A4Cs
• Mass	LVAd Sax Epi, LVAd Sax Endo, LVLd Apical
• LV/RV	RVAWd, RVIDd, IVSTd, IVSTs, LVIDd, LVIDs, LVPWd, LVPWs
• AO	AoD, AoAsc
• Dimensions	RVOT Diam, LVOT Diam, MV Diam, MVA, MPA Diam, PV Diam, TV Diam, IVC Diam, RVDs
• LA/RA	RA length, RA Width, LA length, LA width, LA Dimen

Color mode:

• PISA	MR Rad, MR Als. Vel, AR Rad, AR Als. Vel, TR Rad, TR Als. Vel, PR Rad, PR Als. Vel

PW mode:

• Mitral Valve	MV E Vel, MV A Vel, MV PHT, MV VTI, IVRT, MV E Dur, MV A Dur, MV DecT, MR Vmax, MR VTI
• MVA(VTI)	LVOT VTI, MV VTI, LVOT Diam(unavailable in PW)
• LV TEI	MV C-O Dur, LVET
• Tricuspid Valve	TV E Vel , TV A Vel , TV VTI, TV Vmax
• RV TEI	TV C-O Dur, RVET
• Aortic Valve	LVOT VTI, LVOT Vmax, LVOT Accel Time, AV VTI, AV Vmax, AV Accel Time, AV Decel Time, AR VTI, AR Vmax, AR Accel Time, AR PHT, AR Decel Time
• AVA(VTI)	LVOT VTI, AV VTI, LVOT Diam(unavailable in PW)
• AVA(Vmax)	LVOT Vmax, AV Vmax, LVOT Diam(unavailable in PW)
• CO(LVOT)	LVOT VTI, HR-AV, LVOT Diam(unavailable in PW)
• Pulmonic Valve	PV VTI, PV Vmax, PV Accel Time, PR Vmax
• PVA(VTI)	RVOT VTI, PV VTI, RVOT Diam(unavailable in PW)
• PVA(Vmax)	RVOT Vmax, PV Vmax, RVOT Diam(unavailable in PW)
• CO(LVOT)	RVOT VTI, HR-PV, RVOT Diam(unavailable in PW)
• Pulmonic Vein	Pulm S Vel, Pulm D Vel, Pulm A Vel, Pulm A Dur, Hep S Vel, Hep D Vel, Hep. A Vel, Hep A Dur
• PISA	MR Trace, AR Trace, TR trace, PR Trace
• TDI	Sa Medial, Ea Medial, Aa Medial, Sa Lateral, Ea Lateral, Aa Lateral

M- mode:

• LV/RV	RVAWd, RVIDd, IVSTd, LVIDd, LVPWd, IVSTs, LVIDs, LVPWs
• Time	LVET, LV PEP, RV PEP
• AV	AV Cusp Sep
• Mitral Valve	MV D-E Exc, MV D-E Slope, E-F Slope, EPSS, MV E-E Sep, MV A-C Interval
• LA/Ao	LA, AoR Diam, RVOT Diam

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EDAN

- HR

Small Parts

B-mode:

- Thyroid
  - Length, Width, Height
  - Thyroid Isthmus
- Breast
  - Lesion1, Lesion2, Lesion3, Lesion4, Lesion5
- Testis
  - Length, Width, Height

PW mode:

- Superior Thyroid Artery
- Inferior Thyroid Artery

Urology

B-mode:

- Renal
  - Length, Width, Height
  - Renal Cortex Thickness
- Bladder
  - Pre-void Bladder (Length, Width, Height, volume)
  - Post-void Bladder (Length, Width, Height, volume)
- Prostate
  - Length, Width, Height
- Seminal
  - (Length, Width, Height
- Testis
  - Length, Width, Height

PW mode:

- Renal Artery
- Arcuate Artery
- Segmental Artery
- Interlobar Artery

Vascular

• Carotid	**B-mode:** Common Carotid Artery Intima-Media Thickness, Internal Carotid Artery Intima-Media Thickness, Carotid Artery Bifurcation Intima-Media Thickness **PW mode:** Common Carotid Artery, External Carotid Artery, Internal Carotid Artery, Vert Artery, Subclavian Artery, HR
• Upper Extremity Artery	**PW mode:** Subclavian Artery, Axillary Artery, Brachial Artery, Ulnar Artery, Radial Artery, HR
• Upper Extremity Vein	**PW mode:** Subclavian Vein, AxillaryVein, Brachial Vein, Cephalic Vein, Basilic Vein, Ulnar Vein, Radial Vein, Median Cubital Vein
• Lower Extremity Artery	**PW mode:** 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	**PW mode:** Common Femoral Vein, Deep Femoral Vein, Superficial Femoral Vein, Common Iliac

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	Vein, External Iliac Vein, Internal Iliac Vein,Great Saphenous Vein, Popliteal Vein, Peroneal Vein, Posterior Tibial Vein, Anterior Tibial Vein, Small Saphenous Vein
• Volume Flow	**B mode:** Volume Flow Area **PW mode**: TAMean, TAMax, Volume Flow (Calcu.)

Pediatrics

B-mode:

- Left lateral ventricle
- Right lateral ventricle
- left trigone
- right trigone
- Hip joint
  - HIP Angle
  - HIP d/D

Reports

- Editable worksheet
- Report type: ABD, GYN, OB, URO, VAS, SMP, FETAL, CARD, PED
- Findings/Comments section
- Supports fetal growth curve and grow bar display; supports data display of max. 4 fetus
- User-imported Report Header
- User-defined hospital logo
- Multiple number of selected images
- Support zoom in preview
- Support Export as PDF format to USB disk, or sending to FTP server.
- Support print by report printer.

Image Storage& Exam Archiving

Image Storage

- Static image/Cine clip is stored in ultrasound system in DICOM format.
- Static image/Cine clip stored in B-mode and 3D/4D mode also supports Raw Data formats, and can be reviewed for adjusting imaging parameters.
- Two dedicated hard keys on the console for capturing static image and cine clips respectively.
- Supports storage of up to 400,000 lossless single frames.
- Supports storage of cine clips with length configurable.
- Compression types of static image and clip: lossless, high, mid, low
- Supports one-key export of image/cine clip to USB disk
- Supports storing long clip in B mode through the user-defined key F1/F2, maximum length 30min.
- Supports cine clips export of up to 10s (250 frames) to USB disk.

Exam Database

Support exam storage without patient information

Support exam query

Support review current exam or prior exam

Support review images and report of an exam

Support export images as BMP, JEPG, TIF or DICOM format

Support export cine clip as AVI, WMV or DICOM format

Support import/export exams (including patient information, images, etc).

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Exam Archiving

All Clips and Static images stored on the system can be archived to other storage device for long-term storage as described below.

- Archived to DICOM server.
- Archived to USB device.
- Archived to FTP server
- Archived to DVD drives.
- Sent to Mobile devices

Connectivity

Network

- Wired network connection
- Wi-Fi connection

DICOM 3.0 Service

- DICOM Storage
  - Connectivity to PACS system for storage of all static image or cine clips with patient information.
  - DICOM store to multiple networks
  - Manual-Transfer in background on Demand
  - In-progress network storage in background
  - Auto-transfer in background at exam end
  - Transfer management UI for viewing transfer task status, retransferring a task or deleting a transfer task.
  - Transfer process encrypted.
  - Supports Structured Report transferring: OB, GYN, Cardiac, and Vascular
- DICOM Modality Worklist
  - Enables query of the patient worklist schedule from hospital information system to the ultrasound system via DICOM network connection.
  - Query of worklist on demand or on start of exam.
  - Populates the Patient Information screen with patient demographic information automatically when one patient is selected.
- DICOM MPPS
  - The MPPS service enables the ultrasound system sending the exam status to Worklist server automatically when starting or ending an exam.
- DICOM Print
  - Prints the images remotely via a DICOM printer which connects to a DICOM server.
  - Multiple parameters for printing are configurable.
- DICOM Storage Commitment
  - Enables the function to confirm whether the DICOM transfer task to the DICOM server is successful.
- DICOM Query/Retrieve
  - Supports entering key words for query prior exams from DICOM server.
  - Supports download a queried exam to local disk for reviewing.

FTP Network Store Service

- Supports to transfer exams to FTP servers for storage in the background.
- Transfer management UI for viewing transfer task status, retransferring a task or deleting a transfer task.
- A PDF report can be sent to FTP server together with the exam.

Mobile Device Transfer

- Supports sending image/clips to mobile devices by scanning the QR code on Exam Database page.

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Supported Peripherals

Printers

- Video printers
  - SONY UP-X898MD
  - SONY UP-D25MD
  - SONY UP-25MD
- Local report printer
  - HP OfficeJet Pro 251dw
  - HP LaserJet Pro 200 M251n
  - HP Laserjet CP1525n Color
  - HP Deskjet Ink Advantage 2010
  - HP Deskjet 1010 Color
  - HP Deskjet 1510 Color
  - HP Deskjet Pro 400
  - HP Deskjet Pro M401d
  - Canon PIXMA E518
  - Canon iP2780
  - HP Deskjet 2029
  - HP Deskjet 1112
  - EPSON L310
  - HP DeskJet 1050
  - HP DeskJet 2050
  - HP DeskJet M252n
  - EPSON L130

The printers listed above are the recommended printer which were verified. More compatible printers which were not verified can be got from EDAN Service.

- Network report printer

DVD Drives

- LITEON eBAU108

The Acclarix LX9 series Diagnostic Ultrasound System have been designed, manufactured and tested to comply with the following internationally recognized standards:

Safety and Regulatory

- 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

Device Classification:

- FDA Class II Device
- CE/MDD Class IIa Device

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Revision History

Version	Revisions	Date
1.0	Initial release.	2020-01-20
1.1	Updated for R1.1 release. Add eFollicle and eLV description.	2020-08-04
1.2	**Updated for R1.11 release. See the blue color for changes.**	**2021-01-26**

This datasheet applies to Acclarix LX9 series Diagnostic Ultrasound Systems, including Acclarix LX9, Acclarix LX9 Exp, Acclarix LX9 Super, Acclarix LX85 and Acclarix LX88 models. The configuration difference between each model is listed in the following table.

Models	Configuration Difference		
	Feature 1	Feature 2	Feature 3
	Seminal Vesicle Meas.	Testis Meas.	Single Button Footswitch
Acclarix LX9	X	√	√
Acclarix LX9 Exp	√	X	√
Acclarix LX9 Super	√	√	√
Acclarix LX85	X	√	X
Acclarix LX88	√	X	X

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