GE Healthcare

LOGIQ S8

Product Datasheet

Product description

The LOGIQ* S8 is our premium multi-purpose ultrasound imaging system designed for abdominal, vascular, breast, cardiac, small parts, obstetrics, gynecology, neonatal, pediatrics, urology and transcranial applications.

General specifications

Dimensions and weight

Height	Maximum: 1750 mm (68.9 in) Minimum: 1150 mm (45.3 in)
Width	Keyboard: 500 mm (19.7 in) Caster: 620 mm (24.4 in)
Depth	Maximum: 880 mm (34.6 in) Caster: 790 mm (31.1 in)
Weight	85 kg (187.4 lbs)

Electrical power

Voltage	100 – 120 Vac or 220 – 240 Vac
Frequency	50/60 Hz
Power consumption	Maximum of 900 VA with peripherals

Console design

4 Active probe ports and 1 parking

Integrated HDD

Integrated DVD multi-drive

On-board storage of thermal printer

Integrated speakers

Locking mechanism that provides rolling lock and caster swivel lock

Integrated cable management

Front and rear handles

Easily removable air filters

User interface

Operator keyboard

Operating keyboard adjustable in two dimensions:
• Height
• Rotation

Backlit alphanumeric keyboard

Ergonomic hard key layout

Interactive back-lighting

Integrated recording keys for remote control of up to 6 peripheral or DICOM** devices

Integrated gel warmer

Touch screen

Wide 9" high-resolution, color, touch, LCD screen

Interactive dynamic software menu

Brightness adjustment

User-configurable layout

LCD Monitor

19" high-resolution LCD

LCD translation (independent of console):
• 660 mm horizontal (end to end)
• 135 mm vertical (end to end)
• 90° swivel

Fold-down and lock mechanism for transportation

Brightness and contrast adjustment

Resolution: 1280 x 1024

Horizontal/Vertical viewing angle of ±170°

System overview

Applications

Abdominal

Obstetrical

Gynecological

Breast

Small parts

Vascular/peripheral

Transcranial

Pediatrics and neonatal

Musculoskeletal

Urological

Cardiac

Operating Modes

B-Mode

M-Mode

Color Flow Mode (CFM)

TVI (Option)

B-Flow*/B-Flow Color (Option)

Extended Field of View (LOGIQView, Option)

Power Doppler Imaging (PDI)

PW Doppler

CW Doppler (Option)

Volume Modes (3D/4D)
• Static 3D
• Real-Time 4D (Option)

Anatomical M-Mode

Curved Anatomical M-Mode

B Steer+ (Option)

Coded Contrast Imaging (Option)

Elastography (Option)

Scanning methods

Electronic Sector

Electronic Convex

Electronic Linear

Mechanic Volume Sweep

Transducer types

Sector Phased Array

Convex Array

Micro convex Array

Linear Array

Matrix Array

Volume Probes (4D)
• Convex Array
• Micro convex Array

Split Crystal

System standard features

Advanced user interface with high resolution wide 9" LCD touch panel

Automatic Optimization

CrossXBeam*

Speckle Reduction Imaging (SRI-HD)

Fine Angle Steer

Coded Harmonic Imaging

Virtual Convex

Patient information database

Image Archive on integrated CD/DVD and hard drive

3D

Raw Data Analysis

Real-Time automatic Doppler Calcs

OB Calcs

Fetal Trending

Multi-gestational Calcs

Hip Dysplasia Calcs

Gynecological Calcs

Vascular Calcs

Urological Calcs

Renal Calcs

Cardiac Calcs

InSite*ExC capability

On-board electronic documentation

Peripheral Options

Integrated options for:
• Digital BW thermal printer
• DVD video recorder
• Digital color thermal printer

Digital A6 color thermal printer

External USB printer connection

DVI-D output available for compatible devices

Foot Switch with programmable functionality

Display modes

Live and Stored Display Format: Full size and split screen – both with thumbnails. For still and Cine.

Review Image Format: 4 x 4 and "thumbnails." For still and Cine.

Simultaneous Capability
• B or CrossXBeam/PW
• B or CrossXBeam/CFM or PDI
• B/M
• B/CrossXBeam

• Real-Time Triplex Mode (B or CrossXBeam + CFM or PDI/PW or CW (Option))

Selectable alternating Modes
• B or CrossXBeam/PW
• B or CrossXBeam + CFM (PDI)/PW (CW (Option))
• B/CW (Option)

Multi-image (split/quad screen)
• Live and/or frozen
• B or CrossXBeam + B or CrossXBeam/CFM or PDI
• PW/M
• Independent Cine playback

Timeline display
• Independent Dual B or CrossXBeam/PW Display
• CW

Display Formats
• Top/Bottom selectable format
• Side/Side selectable format
• Timeline only

Virtual Convex

Display annotation

Patient Name: First, Last and Middle

Patient ID

2nd Patient ID

Age, Sex and Birth Date

Hospital Name

Date format: 3 types selectable
• MM/DD/YY
• DD/MM/YY
• YY/MM/DD

Time format: 2 types selectable
• 24 hours
• 12 hours

Gestational Age from LMP/EDD/GA/BBT

Probe Name

Map names

Probe Orientation

Depth Scale Marker

Lateral Scale Marker

Focal Zone Markers

Image Depth

Zoom Depth

B-Mode
• Gain
• Dynamic Range
• Imaging Frequency
• Frame Averaging
• Gray Map
• SRI-HD

M-Mode
• Gain
• Dynamic Range
• Time Scale

Doppler Mode
- Gain
- Angle
- Sample Volume Depth and Width
- Wall Filter
- Velocity and/or Frequency Scale
- Spectrum Inversion
- Time Scale
- PRF
- Doppler Frequency

Color Flow Mode
- Line Density
- Frame Averaging
- Packet Size
- Color Scale: 3 types
  – Power, Directional PDI, and Symmetrical Velocity Imaging
- Color Velocity Range and Baseline
- Color Threshold Marker
- Color Gain
- PDI
- Inversion
- Doppler Frequency

TGC Curve

Acoustic Frame Rate

Cine Gage, Image Number/Frame Number

Body Pattern: Multiple human and animal types

Application Name

Measurement Results

Operator Message

Displayed Acoustic Output
- TIS: Thermal Index Soft Tissue
- TIC: Thermal Index Cranial (Bone)
- TIB: Thermal Index Bone
- MI: Mechanical Index

% of Maximum Power output

Biopsy Guide Line and Zone

Heart Rate

General System parameters

System setup

Pre-programmable Categories

User Programmable Preset Capability

Factory Default Preset Data

Languages: English, French, German, Spanish, Italian, Portuguese, Russian, Greek, Swedish, Danish, Dutch, Finnish, Norwegian, Japanese (message only), Chinese (message only)

OB Report Formats including Tokyo Univ., Osaka Univ., USA, Europe, and ASUM

User Defined Annotations

Body Patterns

Customized Comment Home Position

User Manual available on board through Help (F1)

User Manual and Service Manual are included on CD with each system. A printed manual is available upon request.

Cine memory/Image memory

384 MB of Cine Memory

Selectable Cine Sequence for Cine Review

Prospective Cine Mark

Measurements/Calculations and Annotations on Cine Playback

Scrolling timeline memory

Dual Image Cine Display

Quad Image Cine Display

Cine Gauge and Cine Image Number Display

Cine Review Loop

Cine Review Speed

Image storage

On-board database of patient information from past exams

Storage Formats:
- DICOM – compressed/uncompressed, single/multi-frame, with/without Raw Data
- Export JPEG, JPEG2000, WMV (MPEG 4) and AVI formats

Storage Devices:
- USB Memory Stick: 64 MB to 4 GB (for exporting individual images/clips)
- CD-RW storage: 700 MB
- DVD storage: -R (4.7 GB)
- Hard Drive Image Storage: ~112 GB

Compare previous exam images with current exam images

Reload of archived data sets

Network Storage support for Import, Export, DICOM Read, SaveAs, SaveAs Image, Report SaveAs, MPEGVue

Connectivity and DICOM

Ethernet network connection

Wireless LAN (Option)

DICOM 3.0 (Option)
- Verify
- Print
- Store
- Modality Worklist
- Storage Commitment
- Modality Performed Procedure Step (MPPS)
- Media Exchange
- Off network/mobile storage queue
- Query/Retrieve

Public SR Template
- Structured Reporting – compatible with vascular and OB standard

InSite ExC capability

Physiological Input Panel (Option)

Physiological Input
• ECG, 2 lead
• Dual R-Trigger
• Pre-settable ECG R Delay Time
• Pre-settable ECG Position
• Adjustable ECG Gain Control

Automatic Heart Rate Display

Report Writer (Option)

On-board reporting package automates report writing

Formats various exam results into a report suitable for printing or reviewing on a standard PC

Exam result reports can include patient info, exam info, measurements, calculations, images, comments and physician diagnosis

Standard templates provided

Customizable templates

Scanning parameters

Displayed Imaging Depth: 0 – 33 cm

Minimum Depth of Field: 0 – 2 cm (Zoom) (probe dependent)

Maximum Depth of Field: 0 – 33 cm (probe dependent)

Continuous Dynamic Receive Focus/Continuous Dynamic Receive Aperture

Adjustable Dynamic Range

Adjustable Field of View (FOV)

Image Reverse: Right/Left

Image Rotation of 0°, 180°

Digital B-Mode

Adjustable:
• Acoustic Power
• Gain
• Dynamic Range
• Frame Averaging
• Gray Scale Map
• Frequency
• Speed of Sound (probe, application dependent)
• Line Density
• Scanning Size (FOV or Angle – depending on the probe, see probe specifications)
• B Colorization
• Reject
• Suppression
• SRI-HD
• Edge Enhance

Digital M-Mode

Adjustable:
• Acoustic Power
• Gain
• Dynamic Range
• Gray Scale Map
• Frequency

• Sweep Speed
• M Colorization
• M Display Format
• Rejection

Anatomical M-Mode

M-mode cursor adjustable at any plane

Can be activated from a Cine loop from a live or stored image

M and A capability

Available with Color Flow Mode

Curved Anatomical M-Mode

Digital Spectral Doppler Mode

Adjustable:
• Acoustic Power
• Gain
• Dynamic Range
• Gray Scale Map
• Transmit Frequency
• Wall Filter
• PW Colorization
• Velocity Scale Range
• Sweep Speed
• Sample Volume Length
• Angle Correction
• Steered Linear
• Spectrum Inversion
• Trace Method
• Baseline Shift
• Doppler Auto Trace
• Time Resolution
• Compression
• Trace Direction
• Trace Sensitivity

Digital Color Flow Mode

Adjustable:
• Acoustic Power
• Color Maps, including velocity-variance maps
• Gain
• Velocity Scale Range
• Wall Filter
• Packet Size
• Line Density
• Spatial Filter
• Steering Angle
• Baseline Shift
• Frame Average
• Threshold
• Accumulation mode
• Sample Volume Control
• Flash Suppression

Digital Power Doppler Imaging

Adjustable:
- Acoustic Power
- Color Maps, including velocity-variance maps
- Gain
- Velocity Scale Range
- Wall Filter
- Packet Size
- Line Density
- Spatial Filter
- Steering Angle
- Frame Average
- Threshold
- Accumulation mode
- Sample Volume Control
- Flash Suppression

Continuous Wave Doppler (Option)

Available on M5S-D, 3Sp-D, S4-10-D, 6Tc-RS, P2D, P6D

Steerable CW mode includes Adjustable:
- Acoustic Power
- Gain
- Dynamic Range
- Gray Scale Map
- Transmit Frequency
- Wall Filter
- CW Colorization
- Velocity Scale Range
- Sweep Speed
- Angle Correction
- Spectrum Inversion
- Trace Method
- Baseline Shift
- Doppler Auto Trace
- Compression
- Trace Direction
- Trace Sensitivity

Automatic Optimization

Optimize B-Mode image to help improve contrast resolution

Selectable amount of contrast resolution enhancement (low, medium, high)

Auto-Spectral Optimize – adjusts baseline, invert, PRF (on live image), and angle correction

Coded Harmonic Imaging

Available on all 2D and 4D probes

B-Flow (Option)

Available on C1-5-D, 9L-D, 11L-D, ML6-15-D, M5S-D, S1-5-D, L8-18i-D, 10C-D

Background: On/Off

Sensitivity/PRI

Line Density

Edge Enhance

Frame Average

Gray Scale Map

Tint Map

Dynamic Range

Rejection

Gain

Dual Beam

B-Flow Color

Accumulation

B Steer+ (Option)

Available on 9L-D, 11L-D, ML6-15-D, L8-18i-D

Coded Contrast Imaging (Option)

Available on 3CRF-D, C1-5D, C2-6b-D, IC5-9-D, 9L-D, 11L-D, ML6-15-D, M5S-D, L8-18i-D, RAB6-D

2 Contrast Timers

Timed Updates: 0.05 – 10 seconds

Accumulation mode, six levels

Maximum Enhance Mode

Flash

Time Intensity Curve (TIC) Analysis

Auto MI control

The LOGIQ S8 is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use.

LOGIQView (Option)

Extended Field of View Imaging

Available on the following probes: 9L-D, 11L-D, ML6-15-D, L8-18i-D, 3CRF-D, C1-5D, C2-6b-D, 10C-D, IC5-9-D, S1-5-D, M5S-D, 3Sp-D, S4-10-D, RAB6-D, RIC5-9-D, 6Tc-RS

For use in B-Mode

CrossXBeam is available on linear probes

Auto detection of scan direction

Pre- or post-process zoom

Rotation

Auto fit on monitor

Measurements in B-Mode

3D

Allows unlimited rotation and planar translations

3D reconstruction from Cine sweep

Advanced 3D

Acquisition of Color data
Automatic rendering
3D Landscape technology
3D Movie

Real-Time 4D (Option)

Acquisition Modes: • Real-Time 4D • Static 3D
Visualization Modes: • 3D Rendering (diverse surface and intensity projection modes) • Sectional Planes (3 Section planes perpendicular to each other) • Volume Contrast Imaging-Static (Option) • Tomographic Ultrasound Imaging (Option)
Render Mode: • Surface Texture, Surface Smooth, max-, min- and X-ray   (average intensity projection), mix mode of two render modes
Curved 3 point Render start
3D Movie
Scalpel: 3D Cut tool
Display Format: • Quad: A-/B-/C-Plane/3D • Dual: A-Plane/3D • Single: 3D or A- or B- or C-Plane
Automated Volume Calculation – VOCAL II (Option)
BetaView
Auto Sweep

Scan Assistant (Option)

Factory Programs
User-defined programs
Steps include image annotations, mode transitions, basic imaging controls and measurement initiation

Compare Assistant (Option)

Allows side-by-side comparison of previous ultrasound and other modality exams during live scanning

Power Assistant (Option)

Allows moving the system without a complete system shutdown and boot-up power cycle

Breast Productivity Package (Option)

Allows automatic contour and measurement of breast lesions
Worksheet summary
Feature Assessment
BI-RADS Assessment
User editable

Thyroid Productivity Package (Option)

Worksheet summary includes measurements and locations for nodule, parathyroid and lymph node
Feature Assessment
User editable

Elastography (Option)

Available on ML6-15-D, 11L-D, 9L-D, C1-5-D, IC5-9-D

Elastography Quantification (Option – not available in the United States)

Relative quantification tool
Available on ML6-15-D, 11L-D, 9L-D, IC5-9-D, C1-5-D

Quantitative Flow Analysis (Option)

Available in Color and Power Doppler

TVI (Option)

Myocardial Doppler Imaging with color overlay on tissue image
Available on the sector probes
Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information
Curved Anatomical M-mode: free (curved) drawing of M-mode generated from the cursor independent from the axial plane
Q-Analysis: Multiple Time-Motion trace display from selected points in the myocardium

Stress Echo (Option)

Advanced and flexible stress-echo examination capabilities
Provides exercise and pharmacological protocol templates
8 default templates
Template editor for user configuration of existing templates or creation of new templates
Reference scan display during acquisition for stress level comparison (dual screen)
Baseline level/Previous level selectable
Raw data continuous capture
Over 100 sec available
Wall motion scoring (bulls-eye and segmental)
Smart stress: Automatically set up various scanning parameters (for instance, geometry, frequency, gain, etc.) according to same projection on previous level

Virtual Convex

Provides a convex field of view

Compatible with CrossXBeam

Available on all linear and sector transducers: 9L-D, 11L-D, ML6-15-D, L8-18i-D, S1-5-D, M5S-D, 3Sp-D, S4-10-D, 6Tc-RS

SRI-HD

Speckle Reduction Imaging

Provides multiple levels of speckle reduction

Compatible with Side by Side DualView Display

Compatible with ALL linear, convex and sector transducers

Compatible with B-Mode, Color, Contrast Agent and 3D imaging

CrossXBeam

Provides 3, 5, 7, or 9 angles of spatial compounding

Live Side by Side DualView Display

Compatible with:
• Color Mode
• PW
• SRI-HD
• Coded Harmonic Imaging
• Virtual Convex

Available on 9L-D, 11L-D, ML6-15-D, L8-18i-D, 3CRF-D, C1-5D, C2-6b-D, 10C-D, IC5-9-D, RAB6-D, RIC5-9-D

Controls Available While "Live"

Write Zoom

B/M/CrossXBeam-Mode
• Gain
• TGC
• Dynamic Range
• Acoustic Output
• Transmission Focus Position
• Transmission Focus Number
• Line Density Control
• Sweep Speed for M-Mode
• Number of Angles for CrossXBeam

PW-Mode
• Gain
• Dynamic Range
• Acoustic Output
• Transmission Frequency
• PRF
• Wall Filter
• Spectral Averaging
• Sample Volume Gate
  – Length
  – Depth
• Velocity Scale
• Time Resolution

Color Flow Mode
• CFM Gain
• CFM Velocity Range
• Acoustic Output
• Wall Echo Filter
• Packet Size
• Frame Rate Control
• CFM Spatial Filter
• CFM Frame Averaging
• CFM Line Resolution
• Frequency/Velocity Baseline Shift

Controls Available on "Freeze" or Recall

Automatic Optimization

SRI-HD

CrossXBeam – Display non-compounded and compounded image simultaneously in split screen

3D reconstruction from a stored Cine loop

B/M/CrossXBeam Mode
• Gray Map Optimization
• TGC
• Colorized B and M
• Frame Average (loops only)
• Dynamic Range

Anatomical M Mode
• Max. Read Zoom to 8x
• Baseline Shift
• Sweep Speed

PW Mode
• Gray Map
• Post Gain
• Baseline shift
• Sweep Speed
• Invert Spectral wave form
• Compression
• Rejection
• Colorized Spectrum
• Display Format
• Doppler Audio
• Angle Correct
• Quick Angle Correct
• Auto Angle Correct

Color Flow
• Overall Gain (loops and stills)
• Color Map
• Transparency Map
• Frame Averaging (loops only)
• Flash Suppression
• CFM Display Threshold
• Spectral Invert for Color/Doppler

Anatomical M-Mode on Cine loop

4D
• Gray Map, Colorize
• Post Gain
• Change display – single, dual, quad sectional or rendered

Measurements/Calculations

Generic B-Mode

Depth and Distance

Circumference (Ellipse/Trace)

Area (Ellipse/Trace)

Volume (Ellipsoid)

% Stenosis (Area or Diameter)

Angle between two lines

General M-Mode

M-Depth

Distance

Time

Slope

Heart Rate

Generic Doppler Measurements/Calculations

Velocity

Time

A/B Ratio (Velocities/Frequency Ratio)

PS (Peak Systole)

ED (End Diastole)

PS/ED (PS/ED Ratio)

ED/PS (ED/PS Ratio)

AT (Acceleration Time)

ACCEL (Acceleration)

TAMAX (Time Averaged Maximum Velocity)

Volume Flow (TAMEAN and Vessel Area)

Heart Rate

PI (Pulsatility Index)

RI (Resistivity Index)

Real-Time Doppler Auto Measurements/Calculations

PS (Peak Systole)

ED (End Diastole)

MD (Minimum Diastole)

PI (Pulsatility Index)

RI (Resistivity Index)

AT (Acceleration Time)

ACC (Acceleration)

PS/ED (PS/ED Ratio)

ED/PS (ED/PS Ratio)

HR (Heart Rate)

TAMAX (Time Averaged Maximum Velocity)

PVAL (Peak Velocity Value)

Volume Flow (TAMEAN and Vessel Area)

OB Measurements/Calculations

Gestational Age by:
- GS (Gestational Sac)
- CRL (Crown Rump Length)
- FL (Femur Length)
- BPD (Biparietal Diameter)
- AC (Abdominal Circumference)
- HC (Head Circumference)
- APTD x TTD (Anterior/Posterior Trunk Diameter by Transverse Trunk Diameter)
- FTA (Fetal Trunk Cross-sectional Area)
- HL (Humerus Length)
- BD (Binocular Distance)
- FT (Foot Length)
- OFD (Occipital Frontal Diameter)
- TAD (Transverse Abdominal Diameter)
- TCD (Transverse Cerebellum Diameter)
- THD (Thorax Transverse Diameter)
- TIB (Tibia Length)
- ULNA (Ulna Length)

Estimated Fetal Weight (EFW) by:
- AC, BPD
- AC, BPD, FL
- AC, BPD, FL, HC
- AC, FL
- AC, FL, HC
- AC, HC
- BPD, APTD, TTD, FL
- BPD, APTD, TTD, SL

Calculations and Ratios
- FL/BPD
- FL/AC
- FL/HC
- HC/AC
- CI (Cephalic Index)
- AFI (Amniotic Fluid Index)
- CTAR (Cardio-Thoracic Area Ratio)

Measurements/Calculations by: ASUM, ASUM 2001, Berkowitz, Bertagnoli, Brenner, Campbell, CFEF, Chitty, Eik-Nes, Ericksen, Goldstein, Hadlock, Hansmann, Hellman, Hill, Hohler, Jeanty, JSUM, Kurtz, Mayden, Mercer, Merz, Moore, Nelson, Osaka University, Paris, Rempen, Robinson, Shepard, Shepard/Warsoff, Tokyo University, Tokyo/Shinozuka, Yarkoni

Fetal Graphical Trending

Growth Percentiles

Multi-Gestational Calculations (4)

Fetal Qualitative Description (Anatomical survey)

Fetal Environmental Description (Biophysical profile)

Programmable OB Tables

Over 20 selectable OB Calcs

Expanded Worksheets

OB Measure Assistant (Option)

Allows automatic contour and measurement of BPD, HC, FL and AC
User editable

Breast Measure Assistant (Option)

Allows automatic contour and measurement of breast lesions
User editable

GYN Measurements/Calculations

Right Ovary Length, Width, Height
Left Ovary Length, Width, Height
Uterus Length, Width, Height
Cervix Length, Trace
Ovarian Volume
ENDO (Endometrial thickness)
Ovarian RI
Uterine RI
Follicular measurements
Summary Reports

Vascular Measurements/Calculations

SYS DCCA (Systolic Distal Common Carotid Artery)
DIAS DCCA (Diastolic Distal Common Carotid Artery)
SYS MCCA (Systolic Mid Common Carotid Artery)
DIAS MCCA (Diastolic Mid Common Carotid Artery)
SYS PCCA (Systolic Proximal Common Carotid Artery)
DIAS PCCA (Diastolic Proximal Common Carotid Artery)
SYS DICA (Systolic Distal Internal Carotid Artery)
DIAS DICA (Diastolic Distal Internal Carotid Artery)
SYS MICA (Systolic Mid Internal Carotid Artery)
DIAS MICA (Diastolic Mid Internal Carotid Artery)
SYS PICA (Systolic Proximal Internal Carotid Artery)
DIAS PICA (Diastolic Proximal Internal Carotid Artery)
SYS DECA (Systolic Distal External Carotid Artery)
DIAS DECA (Diastolic Distal External Carotid Artery)
SYS PECA (Systolic Proximal External Carotid Artery)
DIAS PECA (Diastolic Proximal External Carotid Artery)
VERT (Systolic Vertebral Velocity)
SUBCLAV (Systolic Subclavian Velocity)
Automatic IMT (Option)
Summary Reports

Auto EF (Option)

Allows semi-automatic measurement of the global EF (Ejection Fraction)
User editable

Urological Calculations

Bladder Volume
Prostate Volume
Lt/Rt Renal Volume
Generic Volume
Post-Void Bladder Volume

Probes (All Optional)

3CRF-D

Micro Convex Biopsy Probe

Applications	Abdomen
Biopsy Guide	Single-Angle, disposable with a reusable bracket (40442LR), Multi-Angle with a reusable bracket (H40452LP)

C1-5-D

Convex Probe

Applications	Abdomen, OB, Gynecology, Urology, Vascular
Biopsy Guide	Multi-Angle, disposable with a reusable bracket (H40432LE)

C2-6b-D

Biopsy Convex Probe

Applications	Abdomen
Biopsy Guide	Multi-Angle, disposable with a disposable bracket

10C-D

Micro convex Probe

Applications	Neonatal, Pediatrics, Vascular

IC5-9-D

Micro convex Probe

Applications	OB, Gynecology, Urological
Biopsy Guide	Single-Angle, Disposable with a disposable bracket (E8385MJ) or reusable bracket (H40412LN)

S1-5-D

Sector Probe

Applications	Abdomen, OB, Gynecology, Vascular
Biopsy Guide	Multi-Angle, disposable with a reusable bracket (H4908SD)

S4-10-D

Sector Probe	
Applications	Pediatrics, Neonatal

M5S-D

Sector Probe	
Applications	Cardiac, Transcranial

3Sp-D

Sector Probe	
Applications	Cardiac, Transcranial

9L-D

Linear Probe	
Applications	Vascular, Small Parts, Pediatrics, Abdomen
Biopsy Guide	Multi-Angle, disposable with a reusable bracket (H4906BK)

11L-D

Linear Probe	
Applications	Vascular, Small Parts, Pediatrics, Neonatal
Biopsy Guide Available	Multi- Angle, disposable with a reusable bracket (H40432LC)

ML6-15-D

Matrix Array Linear Probe	
Applications	Small Parts, Vascular, Neonatal, Pediatrics
Biopsy Guide Available	Multi-Angle, disposable with a reusable bracket (H40432LK)

L8-18i-D

Linear Probe	
Applications	Small Parts, Vascular, Intraoperative

RAB6-D

Convex Volume Probe	
Applications	Abdomen, OB, Gynecology, Pediatrics
Biopsy Guide	Single-Angle, disposable with a reusable bracket (H48681ML)

RIC5-9-D

Convex Volume Probe	
Applications	OB, Gynecology, Urology
Biopsy Guide	Single-Angle, Reusable (H46721R)

6Tc-RS

Trans-esophageal Probe	
Applications	Cardiac
TEE RS-DLP Adapter (H46352LK) required	

P2D

CW Split Crystal Probe	
Applications	Cardiac, Vascular

P6D

CW Split Crystal Probe	
Applications	Cardiac, Vascular

External Inputs and Outputs
(not including on-board peripherals)

DVI-D signal with HDMI connector
Ethernet
Multiple USB 2.0 ports

Safety Conformance
The LOGIQ S8 is:

Classified to UL 60601-1 by a Nationally Recognized Test Lab

Certified to CAN/CSA-C22.2 No. 601.1-M90 by an SCC accredited Test Lab

CE Marked to Council Directive 93/42/EEC on Medical Devices

Conforms to the following standards for safety:
- EN 60601-1 Medical electrical equipment – Part 1: General requirements for safety
- EN 60601-1-1 Medical electrical equipment – Part 1-1 General requirements for safety – Collateral Standard: Safety requirements for medical electrical systems
- EN 60601-1-2 Medical electrical equipment – Part 1-2 General requirements for safety – Collateral Standard: Electromagnetic compatibility – requirements and tests
- EN 60601-1-4 Medical electrical equipment Part 1-4 General requirements for safety – Collateral Standard: programmable electrical medical systems
- EN 60601-1-6 Medical electrical equipment Part 1-6 General requirements for basic safety and essential performance – Collateral Standard: Usability
- EN 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment
- ISO 10993-1 Biological evaluation of medical devices – Part 1 Evaluation and testing
- NEMA UD2 Acoustic output measurement standard for diagnostic ultrasound equipment
- NEMA UD3 Standard for Real-Time display of thermal and mechanical acoustic output indices on diagnostic ultrasound equipment (MI, TIS, TIB, TIC)
- EMC Emissions Group 1 Class B device requirements as per Subclause 4.2 of CISPR 11

SUPPLEMENT

Cardiac Measurements/Calculations

B-Mode Measurements

Aorta
- Aortic Root Diameter (Ao Root Diam)
- Aortic Arch Diameter (Ao Arch Diam)
- Ascending Aortic Diameter (Ao Asc)
- Descending Aortic Diameter (Ao Desc Diam)
- Aorta Isthmus (Ao Isthmus)
- Aorta (Ao st junct)

Aortic Valve
- Aortic Valve Cusp Separation (AV Cusp)
- Aortic Valve Area Planimetry (AVA Planimetry)
- (Trans AVA)

Left Atrium
- Left Atrium Diameter (LA Diam)
- LA Length (LA Major)
- LA Width (LA Minor)
- Left Atrium Diameter to AoRoot Diameter Ratio (LA/Ao Ratio)
- Left Atrium Area (LAA(d), LAA(s))
- Left Atrium Volume, Single Plane, Method of Disk (LAEDV A2C, LAESV A2C) (LAEDV A4C, LAESV A4C)

Left Ventricle
- Left Ventricle Mass (LVPWd, LVPWs)
- Left Ventricle Volume, Teichholz/Cubic (LVIDd, LVI Ds)
- Left Ventricle Internal Diameter (LVIDd, LVI Ds)
- Left Ventricle Length (LVLd, LVLs)
- Left Ventricle Outflow Tract Diameter (LVOT Diam)
- Left Ventricle Posterior Wall Thickness (LVPWd, LVPWs)
- Left Ventricle Length (LV Major)
- Left Ventricle Width (LV Minor)
- Left Ventricle Outflow Tract Area (LVOT)
- Left Ventricle Area, Two Chamber/Four Chamber/Short Axis (LVA (d), LVA (s))
- Left Ventricle Endocardial Area, Width (LVA (d), LVA(s))
- Left Ventricle Epicardial Area, Length (LVAepi (d), LVAepi(s))
- Left Ventricle Mass Index (LVPWd, LVPWs)
- Ejection Fraction, Teichholz/Cube (LVIDd, LVIDs)
- Left Ventricle Posterior Wall Fractional Shortening (LVPWd, LVPWs)
- Left Ventricle Stroke Index, Teichholz/Cube (LVIDd, LVIDs and Body Surface Area)
- Left Ventricle Fractional Shortening (LVIDd, LVIDs)
- Left Ventricle Stroke Volume, Teichholz/Cubic (LVIDd, LVIDs)
- Left Ventricle Stroke Index, Single Plane, Two Chamber, Method of Disk (LVI Dd, LVIDs, LVSd, LVSs)
- Left Ventricle Stroke Index, Single Plane, Four Chamber, Method of Disk (LVI Dd, LVIDs, LVSd, LVSs)
- Left Ventricle Stroke Index, Bi-Plane, Bullet, Method of Disk (LVAd, LVAs)
- Interventricular Septum (IVS)
- Left Ventricle Internal Diameter (LVI D)
- Left Ventricle Posterior Wall Thickness (LVPW)

Mitral Valve
- Mitral Valve Annulus Diameter (MV Ann Diam)
- E-Point-to-Septum Separation (EPSS)
- Mitral Valve Area Planimetry (MVA Planimetry)

Pulmonic Valve
- Pulmonic Valve Area (PV Planimetry)
- Pulmonic Valve Annulus Diameter (PV Annulus Diam)
- Pulmonic Diameter (Pulmonic Diam)

Right Atrium
- Right Atrium Diameter, Length (RAD Ma)
- Right Atrium Diameter, Width (RAD Mi)
- Right Atrium Area (RAA)
- Right Atrium Volume, Single Plane, Method of Disk (RAAd)
- Right Atrium Volume, Systolic, Single Plane, Method of Disk (RAAs)

Right Ventricle
- Right Ventricle Outflow Tract Area (RVOT Planimetry)
- Left Pulmonary Artery Area (LPA Area)
- Right Pulmonary Artery Area (RPA Area)
- Right Ventricle Internal Diameter (RVIDd, RVIDs)
- Right Ventricle Diameter, Length (RVD Ma)
- Right Ventricle Diameter, Width (RVD Mi)
- Right Ventricle Wall Thickness (RVAWd, RVAWs)
- Right Ventricle Outflow Tract Diameter (RVOT Diam)
- Left Pulmonary Artery (LPA)
- Main Pulmonary Artery (MPA)
- Right Pulmonary Artery (RPA)

System
- Inferior Vena Cava
- Systemic Vein Diameter (Systemic Diam)
- Patent Ductus Arterosis Diameter (PDA Diam)
- Pericard Effusion (PEs)
- Patent Foramen Ovale Diameter (PFO Diam)
- Ventricular Septal Defect Diameter (VSD Diam)
- Interventricular Septum (IVS) Fractional Shortening (IVSd, IVSs)

Tricuspid Valve
- Tricuspid Valve Area (TV Panimetry)
- Tricuspid Valve Annulus Diameter (TV Annulus Diam)

M-Mode Measurements

Aorta
- Aortic Root Diameter (Ao Root Diam)

Aortic Valve
- Aortic Valve Diameter (AV Diam)
- Aortic Valve Cusp Separation (AV Cusp)
- Aortic Valve Ejection Time (LVET)

Left Atrium
- Left Atrium Diameter to AoRoot Diameter Ratio (LA/Ao Ratio)
- Left Atrium Diameter (LA Diam)

Left Ventricle
- Left Ventricle Volume, Teichholz/Cubic (LVIDd, LVI Ds)
- Left Ventricle Internal Diameter (LVIDd, LVI Ds)
- Left Ventricle Posterior Wall Thickness (LVPWd, LVPWs)
- Left Ventricle Ejection Time (LVET)
- Left Ventricle Pre-Ejection Period (LVPEP)
- Interventricular Septum (IVS)
- Left Ventricle Internal Diameter (LVI D)
- Left Ventricle Posterior Wall Thickness (LVPW)

Mitral Valve
- E-Point-to-Septum Separation (EPSS)
- Mitral Valve Leaflet Separation (D-E Excursion)
- Mitral Valve Anterior Leaflet Excursion (D-E Excursion)
- Mitral Valve D-E Slope (D-E Slope)
- Mitral Valve E-F Slope (E-F Slope)

Pulmonic Valve
- QRS complex to end of envelope (Q-to-PV close)

Right Ventricle
- Right Ventricle Internal Diameter (RVIDd, RVIDs)
- Right Ventricle Wall Thickness (RVAWd, RVAWs)
- Right Ventricle Outflow Tract Diameter (RVOT Diam)
- Right Ventricle Ejection Time (RVET)
- Right Ventricle Pre-Ejection Period (RVPEP)

System
- Pericard Effusion (PE (d))

Tricuspid Valve
- QRS complex to end of envelope (Q-to-TV close)

Doppler Mode Measurements

Aortic Valve
- Aortic Insufficiency Mean Pressure Gradient (AR Trace)
- Aortic Insufficiency Peak Pressure Gradient (AR Vmax)
- Aortic Insufficiency End Diastole Pressure Gradient (AR Trace)
- Aortic Insufficiency Mean Velocity (AR Trace)
- Aortic Insufficiency Velocity Time Integral (AR Trace)
- Aortic Valve Mean Velocity (AV Trace)
- Aortic Valve Velocity Time Integral (AV Trace)
- Aortic Valve Mean Pressure Gradient (AV Trace)
- Aortic Valve Peak Pressure Gradient (AR Vmax)
- Aortic Insufficiency Peak Velocity (AR Vmax)
- Aortic Insufficiency End-Diastolic Velocity (AR Trace)
- Aortic Valve Peak Velocity (AV Vmax)
- Aortic Valve Peak Velocity at Point E (AV Vmax)
- Aorta Proximal Coarctation (Coarc Pre-Duct)
- Aorta Distal Coarctation (Coarc Post-Duct)
- Aortic Valve Insufficiency Pressure Half Time (AR PHT)
- Aortic Valve Flow Acceleration (AV Trace)
- Aortic Valve Pressure Half Time (AV Trace)
- Aortic Valve Acceleration Time (AV Acc Ti me)
- Aortic Valve Deceleration TIme (AV Trace)
- Aortic Valve Ejection Time (AVET)
- Aortic Valve Acceleration to Ejection Time Ratio (AV Acc Time, AVET)
- Aortic Valve Area according to PHT

Left Ventricle
- Left Ventricle Outflow Tract Peak Pressure Gradient (VLOT Vmax)
- Left Ventricle Outflow Tract Peak Velocity (LVOT Vmax)
- Left Ventricle Outflow Tract Mean Pressure Gradient (LVOT Trace)
- Left Ventricle Outflow Tract Mean Velocity (LVOT Trace)
- Left Ventricle Outflow Tract Velocity Time Integral (LVOT Trace)
- Left Ventricle Ejection Time (LVET)

Mitral Valve
- Mitral Valve Regurgitant Flow Acceleration (MR Trace)
- Mitral Valve Regurgitant Mean Velocity (MR Trace)
- Mitral Regurgitant Mean Pressure Gradient (MR Trace)
- Mitral Regurgitant Velocity Time Integral (MR Trace)
- Mitral Valve Mean Velocity (MR Trace)
- Mitral Valve Velocity Time Integral (MR Trace)
- Mitral Valve Mean Pressure Gradient (MR Trace)
- Mitral Regurgitant Peak Pressure Gradient (MR Vmax)
- Mitral Valve Peak Pressure Gradient (MR Vmax)
- Mitral Regurgitant Peak Velocity (MR Vmax)
- Mitral Valve Peak Velocity (MR Vmax)
- Mitral Valve Velocity Peak A (MV A Velocity)
- Mitral Valve Velocity Peak E (MV E Velocity)
- Mitral Valve Area according to PHT (MV PHT)
- Mitral Valve Flow Deceleration (MV Trace)
- Mitral Valve Pressure Half Time (PV PHT)
- Mitral Valve Flow Acceleration (MV Trace)
- Mitral Valve E-Peak to A-Peak Ratio (A-C and D-E) (MV E/A Ratio)
- Mitral Valve Acceleration Time (MV Acc Time)
- Mitral Valve Deceleration Time (MV Dec Time)
- Mitral Valve Ejection Time ((MV Trace)
- Mitral Valve A-Wave Duration (MV A Dur)
- Mitral Valve Time to Peak (MV Trace)
- Mitral Valve Acceleration Time/Deceleration Time Ratio (MVAcc/Dec Time)
- Stroke Volume Index by Mitral Flow (MVA Planimetry, MVTrace)

Pulmonic Valve
- Pulmonic Insufficiency Peak Pressure Gradient (PR Vmax)
- Pulmonic Insufficiency End-Diastolic Pressure Gradient (PR Trace)
- Pulmonic Valve Peak Pressure Gradient (PV Vmax)
- Pulmonic Insufficiency Peak Velocity (PR Vmax)
- Pulmonic Insufficiency End-Diastolic Velocity (Prend Vmax)
- Pulmonic Valve Peak Velocity (PV Vmax)
- Pulmonary Artery Diastolic Pressure (PV Trace)
- Pulmonic Insufficiency Mean Pressure Gradient (PR Trace)
- Pulmonic Valve Mean Pressure Gradient (PV Trace)
- Pulmonic Insufficiency Mean Square Root Velocity (PR Trace)
- Pulmonic Insufficiency Velocity Time Integral (PR Trace)
- Pulmonic Valve Mean Velocity (PV Trace)
- Pulmonic Valve Velocity Time Integral (PV Trace)
- Pulmonic Insufficiency Pressure Half Time (PR PHT)
- Pulmonic Valve Flow Acceleration (PV Acc Time)
- Pulmonic Valve Acceleration Time (PV Acc Time)
- Pulmonic Valve Ejection Time (PVET)
- QRS complex to end of envelope (Q-to-PV close)
- Pulmonic Valve Acceleration to Ejection TIme Ratio (PV Acc Time, PVET)

Right Ventricle
- Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax)
- Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax)
- Right Ventricle Outflow Tract Velocity Time Integral (RVOT Trace)
- Right Ventricle Ejection Time (RV Trace)
- Stroke Volume by Pulmonic Flow (RVOT Planimetry, RVOT Trace)
- Right Ventricle Stroke Volume Index by Pulmonic Flow (RVOT Planimetry, RVOT Trace)

System
- Pulmonary Artery Peak Velocity (PV Vmax)
- Pulmonary Vein Velocity Peak A (reverse) (P Vein A)
- Pulmonary Vein Peak Velocity (P Vein D, P Vein S)
- Systemic Vein Peak Velocity (PDA Diastolic, PDA Systolic)
- Ventricular Septal Defect Peak Velocity (VSD Vmax)
- Atrial Septal Defect (ASD Diastolic, ASD Systolic)
- Pulmonary Vein A-Wave Duration (P Vein A Dur)
- IsoVolumetric Relaxation Time (IVRT)
- IsoVolumetric Contraction Time (IVCT)
- Pulmonary Vein S/D Ratio (P Vein D, P Vein S)
- Ventricular Septal Defect Peak Pressure Gradient (VSD Vmax)
- Pulmonic-to-Systemic Flow Ratio (Qp/Qs)

Tricuspid Valve
- Tricuspid Regurgitant Peak Pressure Gradient (TR Vmax)
- Tricuspid Valve Peak Pressure Gradient (TV Vmax)
- Tricuspid Regurgitant Peak Velocity (TR Vmax)
- Tricuspid Valve Peak Velocity (TV Vmax)
- Tricuspid Valve Velocity Peak A (TV A Velocity)
- Tricuspid Valve Velocity Peak E (TV E Velocity)
- Tricuspid Regurgitant Mean Pressure Gradient (TR Trace)
- Tricuspid Valve Mean Pressure Gradient (TV Trace)
- Tricuspid Regurgitant Mean Velocity (TR Trace)
- Tricuspid Regurgitant Velocity Time Integral (TR Trace)
- Tricuspid Valve Mean Velocity (TV Trace)
- Tricuspid Valve Velocity Time Integral (TV Trace)
- Tricuspid Valve Time to Peak (TV Acc/Dec Time)
- Tricuspid Valve Ejection Time (TV Acc/Dec Time)
- Tricuspid Valve A-Wave Duration (TV A Dur)
- QRS complex to end of envelope (Q-to-TV close)
- Tricuspid Valve Pressure Half Time (TV PHT)
- Stroke Volume by Tricuspid Flow (TV Planimetry, TV Trace)
- Tricuspid Valve E-Peak to A-Peak Ratio (TV E/A Velocity)

Color Flow Mode Measurements

Aortic Valve
- Proximal Isovelocity Surface Area: Regurgitant Orifice Area (AR Radius)
- Proximal Isovelocity Surface Area: Radius of Aliased Point (AR Radius)
- Proximal Isovelocity Surface Area: Regurgitant Flow (AR Trace)
- Proximal Isovelocity Surface Area: Regurgitant Volume Flow (AR Trace)
- Proximal Isovelocity Surface Area: Aliased Velocity (AR Vmax)

Mitral Valve
- Proximal Isovelocity Surface Area: Regurgitant Orifice Area (MR Radius)
- Proximal Isovelocity Surface Area: Radius of Aliased Point (MR Radius)
- Proximal Isovelocity Surface Area: Regurgitant Flow (MR Trace)
- Proximal Isovelocity Surface Area: Regurgitant Volume Flow (MR Trace)
- Proximal Isovelocity Surface Area: Aliased Velocity (MR Vmax)

Combination Mode Measurements

Aortic Valve
- Aortic Valve Area (Ao Root Diam, LVOT Vmax, AV Vmax)
- Aortic Valve Area by Continuity Equation by Peak Velocity (Ao Root Diam, LVOT Vmax, AV Vmax)
- Stroke Volume by Aortic Flow (AVA Pl ani met ry, AV Trace)
- Cardiac Output by Aortic Flow (AVA Planimetry, AV Trace, HR)
- Aortic Valve Area by Continuity Equation VTI (Ao Root Diam, LVOT Vmax, AV Trace)

Left Ventricle
- Cardiac Output, Teichholz/Cubic (LVIDd, LVI Ds, HR)
- Cardiac Output Two Chamber, Single Plane, Area-Length/Method of Disk(Simpson) (LVAd, LVAs, HR)
- Cardiac Output Four Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs, HR)
- Ejection Fraction Two Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs)
- Ejection Fraction Four Chamber, Single Plane, Area-Length/Method of Disk (Simpson) (LVAd, LVAs)
- Left Ventricle Stroke Volume, Single Plane, Two Chamber/Four Chamber, Area-Length (LVAd, LVAs)
- Left Ventricle Stroke Volume, Single Plane, Two Chamber/Four Chamber, Method of Disk (Simpson) (LVIDd, LVIDs, LVAd, LVAs)
- Left Ventricle Volume, Two Chamber/Four Chamber, Area-Length (LVAd, LVAs)
- Ejection Fraction, Bi-Plane, Method of Disk (LVAd, LVAs, 2CH, 4CH)
- Left Ventricle Stroke Volume, Bi-Plane, Method of Disk (LVAd, LVAs, 2CH, 4CH)
- Left Ventricle Volume, Bi-Plane, Method of Disk (LVAd, LVAs, 2CH, 4CH)
- Left Ventricle Stroke Index, Single Plane, Two Chamber/Four Chamber, Area-Length (LVSd, LVSs and BSA)
- Left Ventricle Volume, Single Plane, Two Chamber/Four Chamber, Method of Disk (LVAd, LVAs)
- Left Ventricle Volume, Apical View, Long Axis, Method of Disk (LVAd, LVAs)

Mitral Valve
- Stroke Volume by Mitral Flow (MVA Planimetry, MV Trace)
- Cardiac Output by Mitral Flow (MVA Planimetry, MV Trace, HR)

Pulmonic Valve
- Stroke Volume by Pulmonic Flow (PV Planimetry, PV Trace)
- Cardiac Output by Pulmonic Flow (PV Planimetry, PV Trace, HR)

Tricuspid Valve
- Cardiac Output by Tricuspid Flow (TV Planimetry, TV Trace, HR)

Cardiac Worksheet

Parameter: lists the mode, the measurement folder and the specific measurement

Measured Value: Up to six measurement values for each item. Average, maximum, minimum, or last

Generic Study in Cardiology

Stroke Volume (SV)

Cardiac Output (CO)

imagination at work