

LOGIQ E9

Product description

The LOGIQ™ E9 is GE's leadership ultrasound imaging system designed for abdominal, vascular, obstetric, gynecologic, neonatal, pediatric, urological, transcranial, cardiac and small parts applications.

System architecture

Agile Acoustic Architecture – GE's innovative, patented, model-based technology provides vast computational power, ease of imaging, workflow flexibility and product upgradeability. The LOGIQ E9 excels in the following areas:

- **Exceptional Image Quality** is created through the use of SRI-HD, coded techniques and advanced E-Series transducers.
- **Raw Data** is GE's innovative technology that allows a virtual rescan on archived images by applying many of the same scan controls available during the original exam.
- **Productivity** features help enable LOGIQ E9 users to enhance their scan productivity – including Scan Assistant and Automatic Optimization.
- **Ergonomics** with power-assisted control panel, articulating display arm and lightweight transducers combine to make one of the most ergonomic ultrasound systems available.



General Specification

Dimensions and Weight

Height	1300 mm, 51 in
Width	585 mm, 23 in
Depth	870 mm, 33.5 in
Weight	135 kg, 297 lbs

Electrical Power

Voltage	100-240 Vac
Frequency	50/60 Hz

Power Consumption maximum of 1KVA with peripherals

Console Design

4 Active Probe Ports

Integrated HDD (500 GB)

Integrated DVD-R Multi Drive

On-board storage of thermal printer

Integrated speakers with sub-woofer for premium sound

Integrated 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

Floating keyboard adjustable in three dimensions	<ul style="list-style-type: none">• Height• Rotation• Extension
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Full-sized, backlit alphanumeric keyboard

Ergonomic hard key layout

Interactive backlighting

Integrated recording keys for remote control of up to 4 peripheral or DICOM® devices

Integrated gel warmer (option)

Touch Screen

10.4 in High-Resolution, Color, Touch, display screen

Interactive dynamic software menu

Brightness adjustment

User-configurable layout

DISPLAY Monitor

22" Wide screen High-Resolution OLED display

Display translation (independent of console)	<ul style="list-style-type: none">• 350 mm, 13.7 in horizontal• 120 mm, 4.7 in vertical• 90° swivel
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Fold-down and lock mechanism for transportation

Resolution: 1920 X 1080

Anti-glare

Viewing Angle 89/89/89/89°

System Overview

Applications

Abdominal

Obstetrical

Gynecological

Breast

Small Parts

Vascular/Peripheral

Transcranial

Pediatric and Neonatal

Musculoskeletal

Urological

Cardiac

Operating Modes

B-Mode

M-Mode

Color Flow Mode (CFM)

B-Flow/B-Flow Color (option)

Extended Field of View (LOGIQView, option)

Power Doppler Imaging (PDI)

Pulsed Wave Doppler (PW)

CW Doppler (option)

Volume Modes (3D/4D)

- 3D Static
- 4D Real Time (option)

Anatomical M-Mode

Coded Contrast Imaging (option)

Elastography (option)

Scanning Methods

Electronic Sector

Electronic Convex

Electronic Linear

Mechanical Volume Sweep

Transducer Types

Sector Phased Array

Convex Array

Micro convex Array

Linear Array

Matrix Array

Volume Probes (4D)

Convex Array

Micro convex Array

Linear Array

Split Crystal

System Standard Features

Advanced user interface with high-resolution 10.4 inch display 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

Advanced 3D

System Overview (continued)

System Standard Features (continued)

Raw Data Analysis

Real-time Automatic Doppler Calcs

OB Calcs

Fetal Trending

Multigestational Calcs

Hip Dysplasia Calcs

Gynecological Calcs

Vascular Calcs

Urological Calcs

Renal Calcs

Cardiac Calcs

InSite™ ExC capability

On-board electronic documentation

Display Modes

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

Review Image Format: 4x4, 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

Selectable alternating Modes

- B or CrossXBeam /PW
- B or CrossXBeam + CFM (PDI)/PW
- 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

Time line display

- Independent Dual B or CrossXBeam/PW Display
- CW
- Display Formats (Top/Bottom selectable format, Side/Side selectable format)

Virtual Convex

Peripheral Options

Integrated options for

- Digital B&W thermal printer
- DVD video recorder

Digital color thermal printer

Digital A6 color thermal printer

External USB printer connection

DVI-I output available for compatible devices

S-Video output (option)

Foot Switch, with programmable functionality

Console Protective Cover

Display Annotation

Patient Name: First, Last and Middle

Patient ID

Alternate Patient ID

Age, Sex and Birth Date

Hospital Name

Date format, 3 selectable: MM/DD/YY, DD/MM/YY, YY/MM/DD

Time format, 2 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

System Overview (continued)

Display Annotation (continued)

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 Doppler Mode

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

TGC Curve

Acoustic Frame Rate

CINE Gauge, 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, Finnish, Portuguese, Russian, Greek, Swedish, Danish, Dutch, Norwegian

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

User Defined Annotations

Body Patterns

Customized Comment Home Position

Complete 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

776 MB of CINE Memory

Selectable CINE Sequence for CINE Review

Prospective CINE Mark

Measurements/Calculations & 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

General System Parameters

(continued)

Image Storage

On-board database of patient information from past exams

Storage Formats:

DICOM – compressed/
uncompressed, single/
multiframe, enhanced (3D/4D),
with/without Raw Data

- Export JPEG, JPEG 2000, WMV (MPEG 4), and AVI formats

Storage Devices

- USB Memory Stick: 64 MB to 64 GB (for exporting individual images/clips)
- CD-R storage: 700 MB
- DVD storage: -R (4.7 GB)
- Hard Drive Image Storage: ~325 GB

Compare previous exam images with current exam

Reload of archived data sets

Connectivity

Ethernet network connection

Wireless LAN 802.11ac/a/b/g/n (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, Cardiac and Breast standard

InSite ExC capability

Physiological Input Panel (Option)

Physiological
Input

- ECG, 1 channel
- PCG, 1 channel
- AUX, 1 channel
- Dual R-Trigger
- Pre-settable ECG R Delay Time
- Pre-settable ECG Position
- Adjustable ECG Gain Control
- Pre-settable PCG Position
- Adjustable PCG Gain Control
- Pre-settable AUX Position
- Adjustable AUX 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 results include patient info, exam info, measurements, calculations, images, and comments Standard templates provided

Customizable templates

Scanning Parameters

Displayed Imaging Depth: 0 – 36 cm

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

Maximum Depth of Field: 0 – 36 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 (application dependent)
- Line Density
- Scanning Size (FOV or Angle – depending on the probe, see probe specifications)
- CrossXBeam
- B Colorization
- Reject
- Suppression
- SRI-HD

Digital M-Mode

Adjustable:

- Acoustic Power
- Gain
- Dynamic Range
- Gray Scale Map
- Frequency
- Sweep Speed
- M Colorization
- M Display Format
- Rejection

General System Parameters

(continued)

Anatomical M-Mode

M-mode cursor adjustable at any plane

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

M & A capability

Available with Color Flow 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, S4-10-D, 6S-D, 6Tc, P2D and P6D probes

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 improvement (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, except M4S

General System Parameters

(continued)

B-Flow (Option)

Available on C1-6-D, C1-6VN-D, C2-9-D, C2-9VN-D, C3-10-D, 9L-D, ML6-15-D and L8-18i-D probes

Background: On/Off

Tissue: Low/High

Sensitivity/PRI

Acoustic Power

Frequency

Line Density

Frame Average

Gray Scale Map

Tint Map

Dynamic Range

Rejection

Gain

Suppression

SRI-HD

B-Flow Color

Accumulation

B Steer+

Available on the following probes 9L-D, 11L-D, ML6-15-D, L8-18i-D, L3-9i-D, RSP6-16-D

Coded Contrast Imaging (Option)[†]

Available on 3CRF-D, S1-5D, C1-5D, C1-6D, C1-6VN-D, C2-9D, C2-9VN-D, C2-7-D, C2-7VN-D, C2-6b-D, IC5-9D, L3-9i-D, 9L-D, ML6-15D, RAB2-5D, RSP6-16D, RIC5-9D, M5S-D

2 Contrast Timers

Timed Updates: 0.05 – 10 seconds

Accumulation mode, seven levels

Maximum Enhance Mode

Flash

Time Intensity Curve (TIC) Analysis

The LOGIQ E9 is designed for compatibility with most 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.

Parametric Imaging[†] (Option – not available in the United States)

Arrival Time analysis of contrast-enhanced raw data cine clips

User configurable settings

- Color Bar
- Transparency
- Gradation
- Capture
- Threshold
- Motion correction

LOGIQView (Option)

Extended Field of View Imaging

Available on the following probes: 9L-D, 11L-D, ML6-15D, L8-18i-D, L3-9i-D, 3CRF-D, C2-7-D, C2-7VN-D, C1-5D, C1-6D, C1-6VN-D, C2-9D, C2-9VN-D, C2-6b-D, C3-10-D, M6C-D, IC5-9D, RIC5-9D, RAB 2-5D, RAB4-8D, RAB6-D, RNA5-9D, RSP6-16D, M4S-D, M5S-D, S1-5D, S4-10-D, 6S-D

For use in B-Mode

CrossXBeam is available on linear probes

Auto detection of scan direction

Pre or post-process zoom

Rotation

Auto best 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

General System Parameters

(continued)

Real Time 4D (Option)

Acquisition Modes	<ul style="list-style-type: none">• Real Time 4D• Static 3D
Visualization Modes	<ul style="list-style-type: none">• 3D Rendering (diverse surface and intensity projection modes)• Sectional Planes (3 Section planes perpendicular to each other)• Volume Contrast Imaging-Static (optional)• Tomographic Ultrasound Imaging (optional)
Render Mode	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• Quad: A-/B-/C-Plane/3D• Dual: A-Plane/3D• Single: 3D or A- or B- or C-Plane
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Automated Volume Calculation – VOCAL II (option)

Betaview

Volume Navigation (Option)

Available on the C1-6D, C1-6VN-D, C2-9D, C2-9VN-D, C2-6b-D, C2-7-D, C2-7VN-D, C1-5D, C3-10-D, S1-5D, 9L-D, ML6-15D, 3CRF-D, IC5-9, S4-10-D and L8-18i-D, M5S-D probes

Sensor-based acquisition

Position Markers

Needle tip tracking

Virtual tracking

Auto image registration

Tru3D feature includes: Display of data in: Main-, Parallel-, Angular-Mode

Render Modes: Gray Surface, Texture, Min-, Max-, Average-Intensity

Measurements: distance, angle, area, volume

3D Movie

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

Breast Productivity Package (Option)

Worksheet summary includes measurements and locations for lesions and lymph nodes

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

Shear Wave Elastography (Option)

Available on C1-6-D, C1-6VN-D and 9L-D transducers

User programmable measurement display in kPa and meters per second

Single and Dual view display

Strain Elastography (Option)

Available on ML6-15-D, 9L-D, IC5-9-D, C2-9-D, C2-9VN-D, C1-6-D, C1-6VN-D, and C1-5-D probes

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

Relative quantification tool

Available on ML6-15-D, 9L-D, IC5-9-D, C1-5-D, C2-9-D, C2-9VN-D, C1-6-D, C1-6VN-D transducers

Quantitative Flow Analysis (Option)

Available in Color and Power Doppler

General System Parameters

(continued)

TVI (Option)

Myocardial Doppler Imaging with color overlay on tissue image

Available on M5S-D, 6S-D and 6Tc transducers

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

6 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 (e.g. geometry, frequency, gain) according to same projection on previous level

Auto EF (Option)

Allows semi-automatic measurement of the global EF (Ejection fraction)

User editable

RF Data Capture (Option)

Allows collection and export of B-mode RF data for offline analysis.

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, L3-9i-D, RSP6-16-D, M5S-D, S1-5-D, S4-10-D, 6S-D, 6Tc

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/4D 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 the following probes: 9L-D, 11L-D, ML6-15D, L8-18i-D, L3-9i-D, -D, C2-7-D, C2-7VN-D, C1-5-D, C1-6-D, C1-6VN-D, C2-9-D, C2-9VN-D, C3-10-D, C2-6b-D, M6C-D, IC5-9D, RIC5-9D, RAB 2-5D, RAB4-8D, RAB6-D, RNA5-9D, RSP6-16D

General System Parameters

(continued)

Controls Available While "Live"

Write Zoom

B/M/CrossXBeam Mode	<ul style="list-style-type: none"> • 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
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PW Mode

- Gain
- Dynamic Range
- Acoustic Output
- Transmission Frequency
- PRF
- Wall Filter
- Spectral Averaging
- Sample Volume Gate
 - Length
 - Depth
- Velocity Scale

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	<ul style="list-style-type: none"> • Gray Map Optimization • TGC • Colorized B and M • Frame Average (loops only) • Dynamic Range
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Anatomical M-Mode

Max Read Zoom to 8x

Baseline Shift

Sweep Speed

PW Mode	<ul style="list-style-type: none"> • 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
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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	<ul style="list-style-type: none"> • Gray Map, Colorize • Post Gain • Change display – single, dual, quad sectional or rendered
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Measurements/Calculations

General B-Mode

Depth & Distance

Circumference (Ellipse/Trace)

Area (Ellipse/Trace)

Volume (Ellipsoid)

% Stenosis (Area or Diameter)

Angle between two lines

Dual B-mode capability

General M-Mode

M-Depth

Distance

Time

Slope

Heart Rate

General 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

Measurements/Calculations

(continued)

OB Measurements/Calculations (continued)

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 measurement of BPD, HC, FL and AC

User editable

Breast Measure Assistant (Option)

Allows automatic detection and measurement of breast lesions in a user selected ROI

Feature Assessment

BI-RADS Assessment

User editable

Urological Calcs

Bladder Volume

Prostate Volume

Lt/Rt Renal Volume

Generic Volume

Post-Void Bladder Volume

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

Pelvic Floor measurements

Summary Reports

Qualitative Description (Anatomical survey)

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 (Systolic 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

Probes (All Optional)

C1-6-D XDclear Convex Probe

Applications: Abdomen, OB/GYN, Pediatric, Peripheral Vascular

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H4913BB)

C1-6VN-D VNav Inside XDclear Convex Probe

VNav sensor inside transducer for Volume Navigation tracking without sensor cables

Applications: Abdomen, OB/GYN, Pediatric, Peripheral Vascular

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H4913BB)

C1-5-D Convex Probe

Applications: Abdomen, OB/GYN, Pediatric, Peripheral Vascular

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H40432LE)

C2-9-D XDclear Convex Probe

Applications: Abdomen, OB/GYN, Pediatric, Peripheral Vascular

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H4913BA)

C2-9VN-D VNav Inside XDclear Convex Probe

VNav sensor inside transducer for Volume Navigation tracking without sensor cables

Applications: Abdomen, OB/GYN, Pediatric, Peripheral Vascular

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H4913BA)

C2-7-D Micro Convex Biopsy Probe

Applications: Abdomen

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H40482LL)

C2-7VN-D VNav Inside Micro Convex Biopsy Probe

Applications: Abdomen

Biopsy Guide: Multi-Angle, disposable with a reusable bracket (H40482LK), Multi-Angle, reusable stainless bracket (H40482LL)

C2-6b-D Biopsy Convex Probe

Applications: Abdomen

Biopsy Guide: Multi-Angle, disposable (H46332LY)

C3-10-D XDclear Micro convex Probe

Applications: Neonatal, Pediatric, Vascular

M6C-D Matrix Array Convex Probe

Applications: Abdomen, OB/GYN, Pediatric

Biopsy Guide: Multi-angle, disposable with a reusable bracket (E8385RF)

IC5-9-D Micro-convex Probe

Applications: OB/GYN, Urology

Biopsy Guide: Single Angle, Disposable with a disposable bracket (E8385MJ) or reusable bracket (H40412LN)

S1-5-D Sector Probe

Applications: Abdomen, OB/GYN

Biopsy Guide: Multi-angle, disposable with a reusable bracket (H4908SD)

S4-10-D Sector Probe

Applications: Pediatric, Pediatric Cardiac, Neonatal

M5S-D Sector Probe

Applications: Cardiac, Adult Cephalic, Abdominal, OB/GYN Pediatric

6S-D Sector Probe

Applications: Pediatric Cardiac

9L-D Linear Probe

Applications: Peripheral Vascular, Small Parts, Pediatric, Abdomen, OB/GYN, Musculoskeletal

Biopsy Guide: Multi-angle, disposable with a reusable bracket (H4906BK)

Probes (All Optional) (continued)

11L-D Linear Probe

Applications: Peripheral Vascular, Musculoskeletal, Small Parts, Abdomen

Biopsy Guide Available: Multi- Angle, disposable with a reusable bracket (H40432LC)

ML6-15-D Matrix Array Linear Probe

Applications: Small Parts, Peripheral Vascular, Neonatal, Pediatric, Musculoskeletal

Biopsy Guide Available: Multi-Angle, disposable with a reusable bracket (H40432LK)

L8-18i-D Linear Probe

Applications: Small Parts, Peripheral Vascular, Musculoskeletal, Pediatric, Neonatal, Intraoperative

L3-9i-D Intraoperative Linear Probe

Applications: Intraoperative

RAB2-5-D Convex Volume Probe

Applications: Abdomen, OB/GYN

Biopsy Guide: Single Angle, disposable with a reusable bracket (H4601AE), single angle, reusable (H48621Y)

RAB6-D Convex Volume Probe

Applications: Abdomen, OB/GYN, Pediatric

RIC5-9-D Convex Volume Probe

Applications: OB/GYN, Urology

Biopsy Guide: Single Angle, Reusable (H46721R)

RNA5-9-D Convex Volume Probe

Applications: Neonatal, Pediatric

Biopsy Guide: Single Angle, disposable with a reusable bracket (H46701AF), single angle, reusable (H468651DG)

RSP6-16-D Linear Volume Probe

Applications: Small Parts, Peripheral Vascular, Pediatric, Musculoskeletal

Biopsy Guide: Single Angle, disposable with a reusable bracket (H47001AD), single angle, reusable (H46721W)

P2D CW Split Crystal Probe

Applications: Cardiac, Peripheral Vascular, Adult Cephalic

P6D CW Split Crystal Probe

Applications: Cardiac, Peripheral Vascular, Adult Cephalic

6Tc Trans-esophageal Probe

Applications: Adult Cardiac

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

DVI-I

Audio Stereo Out

Ethernet

Multiple USB 2.0 ports

Safety Conformance

The LOGIQ E9 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

Compliant to Council Directive 2011/65/EU for RoHS

Conforms to the following standards for safety (including national deviations)

- IEC 60601-1 Medical electrical equipment – Part 1: General requirements for safety
- IEC 60601-1-2 Medical electrical equipment – Part 1 – 2 General requirements for safety – Collateral Standard: Electromagnetic compatibility – requirements and tests
- IEC 62366 Medical Devices – Application of Usability Engineering to Medical Devices
- IEC 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 A device requirements as per Sub clause 4.2 of CISPR 11

Supplement: Cardiac Measurements/Calculations

B-Mode Measurements

Aorta	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Aortic Valve Cusp Separation (AV Cusp) • Aortic Valve Area Planimetry (AVA Planimetry) • (Trans AVA)
Left Atrium	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)

Supplement: Cardiac Measurements/Calculations

(continued)

B-Mode Measurements (continued)

Left Ventricle (continued)	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Mitral Valve Annulus Diameter (MV Ann Diam) • E-Point-to-Septum Separation (EPSS) • Mitral Valve Area Planimetry (MVA Planimetry)
Pulmonic Valve	<ul style="list-style-type: none"> • Pulmonic Valve Area (PV Planimetry) • Pulmonic Valve Annulus Diameter (PV Annulus Diam) • Pulmonic Diameter (Pulmonic Diam)
Right Atrium	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)
Tricuspid Valve	<ul style="list-style-type: none"> • Tricuspid Valve Area (TV Panimetry) • Tricuspid Valve Annulus Diameter (TV Annulus Diam)

B-Mode Measurements (continued)

System	<ul style="list-style-type: none"> • Inferior Vena Cava • Systemic Vein Diameter (Systemic Diam) • Patent Ductus Arteriosus 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)
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M-Mode Measurements

Aorta	<ul style="list-style-type: none"> • Aortic Root Diameter (Ao Root Diam)
Aortic Valve	<ul style="list-style-type: none"> • Aortic Valve Diameter (AV Diam) • Aortic Valve Cusp Separation (AV Cusp) • Aortic Valve Ejection Time (LVET)
Left Atrium	<ul style="list-style-type: none"> • Left Atrium Diameter to AoRoot Diameter Ratio (LA/Ao Ratio) • Left Atrium Diameter (LA Diam)
Left Ventricle	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • QRS complex to end of envelope (Q-to-PV close)
Right Ventricle	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Pericard Effusion (PE (d))
Tricuspid Valve	<ul style="list-style-type: none"> • QRS complex to end of envelope (Q-to-TV close)

Supplement: Cardiac Measurements/Calculations

(continued)

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 Time)
- 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)

Doppler Mode Measurements (continued)

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/ARatio)
- 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 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)
- Pulmonic Insufficiency Peak Pressure Gradient (PR Vmax)

Supplement: Cardiac Measurements/Calculations

(continued)

Doppler Mode Measurements (continued)

Pulmonic Valve (continued)	<ul style="list-style-type: none"> • Pulmonic Insufficiency End-Diastolic Pressure Gradient (PRTrace) • 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)
Right Ventricle	<ul style="list-style-type: none"> • Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax) • Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax) • Right Ventricle Outflow Tract Velocity Time Integral (RVOTTrace) • Right Ventricle Ejection Time (RV Trace) • Stroke Volume by Pulmonic Flow (RVOT Planimetry, RVOTTrace) • Right Ventricle Stroke Volume Index by Pulmonic Flow (RVOT Planimetry, RVOT Trace)
System	<ul style="list-style-type: none"> • 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)

Doppler Mode Measurements (continued)

Tricuspid Valve	<ul style="list-style-type: none"> • 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)
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Color Flow Mode Measurements

Aortic Valve	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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)

Supplement: Cardiac Measurements/Calculations

(continued)

Combination Mode Measurements

Aortic Valve	<ul style="list-style-type: none"> • 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 Planimetry, 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	<ul style="list-style-type: none"> • 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)

Combination Mode Measurements (continued)

Mitral Valve	<ul style="list-style-type: none"> • Stroke Volume by Mitral Flow (MVA Planimetry, MV Trace) • Cardiac Output by Mitral Flow (MVA Planimetry, MV Trace, HR)
Pulmonic Valve	<ul style="list-style-type: none"> • Stroke Volume by Pulmonic Flow (PV Planimetry, PV Trace) • Cardiac Output by Pulmonic Flow (PV Planimetry, PV Trace, HR)
Tricuspid Valve	<ul style="list-style-type: none"> • 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

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Data subject to change.

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