LOGIQ™ E10

Specifications sheet

The LOGIQ E10 is GE's leadership ultrasound imaging system designed for abdominal, vascular, obstetric, gynecologic, neonatal, pediatric, urological, transcranial, cardiac and small parts applications.

gehealthcare.com

General specifications

Dimensions and weight *(Dimensions given with floating keyboard stowed and display tilted for transport)*	
Height	1300 mm (51")
Width	585 mm (23")
Depth	900.9 mm (35.5")
Weight	126 kg (278 lbs)

Electrical power
Voltage 100 – 240 VAC
Frequency 50/60 Hz
Power consumption maximum of 0.9 KVA with peripherals

Console design
4 active probe ports
2 inactive probe storage ports
Integrated HDD (1 TB) and SSD (128 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	• Height • Rotation • Extension
Full-sized, backlit alphanumeric keyboard	
Ergonomic hard key layout	
Interactive back-lighting	
Integrated recording keys for remote control of up to 4 peripheral or DICOM® devices	
Integrated gel warmer (option)	

Touch screen
12.1" 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)
350 mm (13.7") horizontal (both directions)
150 mm (5.9") vertical
90° swivel (both directions)
Fold-down and lock mechanism for transportation
Resolution: 1920 x 1080
Anti-glare
Viewing angle 89/89/89°

System overview

Applications
Abdominal
Obstetrical
Gynecological
Breast
Small Parts
Peripheral Vascular
Transcranial (adult and neonatal)
Pediatric and neonatal
Musculoskeletal (general and superficial)
Urological
Cardiac (adult and pediatric)

Operating modes
B-Mode
M-Mode
Color Flow Mode (CFM)
B-Flow™

System overview *(cont.)*

Operating modes *(cont.)*

Extended field of view (LOGIQView)	
Power Doppler Imaging (PDI)	
PW Doppler	
CW Doppler (option)	
Volume Modes (3D/4D) (option)	• 3D Static • 4D Real Time
Anatomical M-Mode	
Coded Contrast Imaging (option)	
Strain elastography	
Shear wave 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
- Split crystal

System standard features

- Advanced user interface with high-resolution 12.1" display touch panel
- Automatic optimization
- CrossXBeam™
- Speckle Reduction Imaging (SRI-HD)
- Fine angle steer
- Coded harmonic imaging
- Virtual convex
- Patient information database

System standard features *(cont.)*

- Image archive on integrated CD/DVD and hard drive
- Advanced 3D
- Raw data analysis
- Real-time automatic doppler calculations
- OB calculations
- Fetal trending
- Multigestational calculations
- Hip dysplasia calculations
- Gynecological calculations
- Vascular calculations
- Urological calculations
- Renal calculations
- Cardiac calculations
- InSite™ capability
- On-board electronic documentation
- Tricefy™
- Auto CF/PW positioning feature
- Privacy and security
- DICOM
- B-Flow
- LOGIQView
- Compare Assistant
- Scan Assistant
- Auto IMT
- Breast productivity package
- Thyroid productivity package
- OB measure assistant
- Color quantification
- Strain elastography
- External USB printer connection
- HDMI output available for compatible devices

Options

- Power assistant
- Storage bins

System overview *(cont.)*

Peripheral options	
Integrated options for	• Digital B&W thermal printer • DVD video recorder
Digital color thermal printer	
Digital A6 color thermal printer	
Foot switch, with programmable functionality	
Console protective cover	
LOGIQ smart device apps	• Photo Assistant • Remote Control

Display modes	
Live and stored display format	• Full size and split screen – both w/thumbnails. For still and CINE
Review image format	• 4x4, and thumbnails. For still and CINE
Time line display	• Independent Dual B or CrossXBeam/PW display • CW • Display formats top/bottom selectable format • Side/side selectable format
Virtual convex	

Simultaneous capability
B or CrossXBeam/PW
B or CrossXBeam/CW (option)
B or CrossXBeam/CFM or PDI
B/M
B/CrossXBeam
B-Flow/PW
Real-time Triplex Mode
(B or CrossXBeam + CFM or PDI/PW)

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

Display annotation	
Patient name: first, last and middle	
Patient ID	
Alternate patient ID	
Age, sex and date of birth	
Hospital name	
Date format: three types selectable	• MM/DD/YY • DD/MM/YY • YY/MM/DD
Time format: two types selectable	• 24 hours • 12 hours
Gestational age from	• LMP • GA • EDD • BBT
Probe name	
Map names	
Probe orientation	
Depth scale marker	
Lateral scale marker	
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 *(cont.)*

Display annotation *(cont.)*	
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 • Color scale: 3 types: power, directional PDI, and symmetrical velocity imaging • Color velocity range and baseline • Color threshold marker • Color gain • PDI • Spectrum 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-programmed categories
User programmable preset capability
Factory default preset data

System setup *(cont.)*
Languages: English, French, German, Spanish, Italian, Brazilian Portuguese, Russian, Greek, Swedish, Danish, Dutch, Finnish, 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 USB with each system. A printed manual is available upon request.

CINE memory/image memory
1 GB 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 • Enhanced (3D/4D) • With/without raw data
Export JPEG, JPEG 2000, WMV (MPEG 4) 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: ~830 GB
Compare previous exam images with current exam	
Reload of archived data sets	

General system parameters *(cont.)*

Connectivity

Ethernet network connection	
Wireless LAN 802.11ac/a/b/g/n (option)	
DICOM 3.0	• 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 capability	
Advanced privacy and security (option)	

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	
Auto Ejection Fraction	

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

cSound™ Imageformer: 11,750,000 channels
Frame rate: 9,766 Hz maximum
Displayed imaging depth: 0 – 50 cm
Minimum depth of field: 0 – 2 cm (zoom, probe dependent)
Maximum depth of field: 0 – 50 cm (probe dependent)
Continuous dynamic receive focus/continuous dynamic receive aperture
291 dB dynamic range
System frequency range: 0.7 – 18.7 MHz
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) • Framerate • 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 *(cont.)*

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: 25 – 100% • Gain: 0 – 85 dB/1 dB steps • Dynamic range: 0.5 – 2.4 dB/ 9 steps • Gray scale maps: 8 • Transmit frequency: Up to 8 steps • Wall filter: 0 – 26/27 steps • PW colorization: 6 maps • Velocity scale range: 10 – 1000 cm/s • Sweep speed: 0 – 7/8 steps • Sample volume length: 0.5 – 16 mm/13 steps • Angle correction: -90 to 90°/ 1 degree steps • Steered linear: 0-20° • Spectrum inversion • Trace method • Baseline shift: 0 – 100%/ 11 steps • Doppler auto trace • Time resolution: 1 – 12 seconds • Compression • Trace direction • Trace sensitivity

Digital Color Flow Mode

Adjustable	• Acoustic power: 25 – 100% • Color maps, including velocity-variance maps: 13 • Gain • Velocity scale range: 1 – 300 cm/s • Wall filter: 0 – 3/4 steps • Packet size: 5 – 24/9 steps • Line density • Spatial filter • Steering angle (linear): 0 – 20° • Baseline shift: 0 – 100%/ 11 steps • Frame average: 0 – 10/ 11 steps • Threshold: 0 – 100% • Accumulation mode: 8 levels • Flash suppression • Auto ROI placement and steering on linear

Digital Power Doppler Imaging

Adjustable	• Acoustic power: 25 – 100% • Color maps, including velocity-variance maps: 17 • Gain: -20 to 30 dB/101 steps • Wall filter: 0 – 3/4 steps • Packet size: 5 – 24/9 steps • Frame average: 0 – 10/ 11 steps • Line density • Spatial filter • Steering angle (Linear): 0 – 20° • Frame average: 0 – 10/ 11 steps • Threshold: 0 – 100%/ 11 steps • Accumulation mode: 8 levels • Flash suppression • Shortcuts • Microvascular imaging (MVI, probe dependent)

Continuous Wave Doppler (option)

Available on M5Sc-D, 6Tc-RS, and P2D probes	
Steerable CW mode included	
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
Auto CF and PW positioning – adjusts ROI position, sample volume position and steering

General system parameters *(cont.)*

Coded Harmonic Imaging

Available on all 2D and 4D probes

B-Flow

Available on C1-6-D, C1-6VN-D, C2-7-D, C2-7VN-D, C2-7-D-LC, C2-9-D, C2-9VN-D, C3-10-D, L2-9-D, L2-9VN-D, ML6-15-D, M5Sc-D and L8-18i-D probes

Background

Sensitivity/PRI

Acoustic power

Frequency

Line density

Frame average

Gray scale map

Tint map

Dynamic range

Rejection

Gain

Suppression

SRI-HD

Accumulation

B Steer+

Available on the following probes: L2-9-D, ML6-15-D, L8-18i-D

Coded contrast imaging (option)

Available on C1-6-D, C1-6VN-D, C2-9-D, C2-9VN-D, C2-7-D, C2-7VN-D, C2-7-D-LC, C3-10-D, IC5-9-D, L2-9-D, L2-9VN-D, ML6-15-D, RAB6-D, RIC5-9-D, M5Sc-D

2 contrast timers

Timed updates: 0.05 – 10 seconds

Accumulation mode, seven levels

Maximum enhance mode

Flash

Time intensity curve (TIC) analysis

Parametric imaging

Coded contrast imaging (option) *(cont.)*

The LOGIQ E10 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.

LOGIQView

Extended field of view imaging

Up to 160 cm (63") scan length

Available on all 2D imaging probes

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 *(cont.)*

Real Time 4D (option)	
Acquisition modes	• Real Time 4D • Static 3D • Spatio-Temporal Image Correlation
Visualization modes	• 3D rendering (diverse surface and intensity projection modes) • Sectional planes (3 section planes perpendicular to each other) • OmniView • Volume contrast imaging-static • Volume contrast imaging – OmniView • Tomographic ultrasound imaging
Render mode	• Surface texture, surface smooth, max-, min- and X-ray (average intensity projection), mix mode of two render modes • HD*live*™
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	
Betaview	

Volume navigation (Option)	
Available on the C1-6VN-D, C2-9VN-D, C2-7VN-D, C3-10-D, L2-9VN-D, ML6-15-D, IC5-9-D, and L8-18i-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
Factory programs
User-defined programs
Steps include image annotations, mode transitions, basic imaging controls and measurement initiation

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

Breast productivity package
Auto measurement
Worksheet summary includes measurements and locations for lesions and lymph nodes
Feature assessment
BI-RADS® assessment
User editable

Thyroid productivity package
Auto measurement
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, L2-9-D and L2-9VN-D probes
User programmable measurement display in kPa and meters per second
Single and dual view display

Strain elastography
Available on ML6-15-D, L2-9-D, L2-9VN-D, IC5-9-D, C2-9-D, C2-9VN-D, C1-6-D, and C1-6VN-D probes
Relative analysis tool

Quantitative flow analysis
Available in color and power doppler

General system parameters *(cont.)*

TVI (Option)

Myocardial doppler imaging with color overlay on tissue image

Available on M5Sc-D and 6Tc-RS 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

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

User editable

Cardiac AFI (option)

Allows assessment of the complete left ventricle with all segments at a glance by combining three longitudinal views into one comprehensive bulls-eye view

2D strain based data moves into clinical practice

Virtual convex

Provides a convex field of view

Compatible with CrossXBeam

Available on all linear and sector transducers

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 w/B-Mode, color, contrast agent and 3D/4D imaging

CrossXBeam

Provides variable angle spatial compounding

Live side-by-side DualView display

Compatible with	• Color mode • PW • SRI-HD • Coded harmonic imaging • Virtual convex

Available on all curved and linear probes

Controls available while “live”

Write zoom

B/M/CrossXBeam-Mode	• Gain • TGC • Dynamic range • Acoustic output • Framerate control • Sweep speed for M-Mode • CrossXBeam angle
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

General system parameters *(cont.)*

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

General B-Mode
Depth and 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)

Measurements/calculations *(cont.)*

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) • OOD (Outer Orbital Diameter) • IOD (Inner Orbital Diam-eter) • FIB (Fibula length) • Radius (Radius length) • LV (Lateral Ventricle width) (= SL)

OB measurements/calculations *(cont.)*
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 calculations
Expanded worksheets

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 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

OB measure assistant
Allows automatic measurement of BPD, HC, FL and AC
User editable

Measurements/calculations *(cont.)*

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
Fibroid 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
Summary reports

Urological calculations
Bladder volume
Prostate volume
Left/right renal volume
Generic volume
Post-void bladder volume
Pelvic floor measurements

Probes *(all optional)*

C1-6-D, XDclear convex probe
Applications: abdomen, OB/GYN, pediatric, peripheral vascular, general musculoskeletal
Biopsy guide: multi-angle, disposable with a reusable bracket (H4917VB)
Bandwidth: 1.0 – 6.0 MHz
Number of elements: 192
Field of view (max): 70°
Physical foot print: 67 x 11 mm
B-Mode frequency: 2.0, 2.5, 3.0, 4.0 MHz
Harmonic frequency: 2.5, 3.0, 4.5, 6.0 MHz
PW Doppler frequency: 1.7, 2.1, 2.5, 3.6 MHz
Color Doppler frequency: 1.8, 2.1, 2.5, 2.8, 3.0 MHz

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, general musculoskeletal
Biopsy guide: multi-angle, disposable with a reusable bracket (H4917VB)
Bandwidth: 1.0 – 6.0 MHz
Number of elements: 192
Field of view (max): 70°
Physical foot print: 67 x 11 mm
B-Mode frequency: 2.0, 2.5, 3.0, 4.0 MHz
Harmonic frequency: 2.5, 3.0, 4.5, 6.0 MHz
PW Doppler frequency: 1.7, 2.1, 2.5, 3.6 MHz
Color Doppler frequency: 1.8, 2.1, 2.5, 2.8, 3.0 MHz

Probes *(cont.)*

C2-9-D, XDclear convex probe

Applications: abdomen, OB/GYN, pediatric, peripheral vascular, neonatal, neonatal transcranial, general musculoskeletal

Biopsy guide: multi-angle, disposable with a reusable bracket (H4913BA)

Bandwidth: 2.0 – 9.0 MHz

Number of elements: 192

Field of view (max): 80°

Physical foot print: 52 x 9 mm

B-Mode frequency: 3.0, 4.5, 6.0, 7.0 MHz

Harmonic frequency: 3.5, 5.0, 7.0, 9.0 MHz

PW Doppler frequency: 2.5, 3.1, 3.6, 4.2, 5.0, 6.3 MHz

Color Doppler frequency: 3.1, 4.2, 4.6, 5.4 MHz

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, neonatal, neonatal transcranial, general musculoskeletal

Biopsy guide: multi-angle, disposable with a reusable bracket (H4913BA)

Bandwidth: 2.0 – 9.0 MHz

Number of elements: 192

Field of view (max): 80°

Physical foot print: 52 x 9 mm

B-Mode frequency: 3.0, 4.5, 6.0, 7.0 MHz

Harmonic frequency: 3.5, 5.0, 7.0, 9.0 MHz

PW Doppler frequency: 2.5, 3.1, 3.6, 4.2, 5.0, 6.3 MHz

Color Doppler frequency: 3.1, 4.2, 4.6, 5.4 MHz

C2-7-D, micro convex biopsy probe

Applications: abdomen, pediatric

Biopsy guide: multi-angle, disposable with a reusable bracket (H40482LK), multi-angle, reusable stainless bracket (H40482LL)

Bandwidth: 1.0 – 6.0 MHz

Number of elements: 144

Field of view (max): 110°

Physical foot print

B-Mode frequency: 2.5, 4.0, 6.0 MHz

C2-7-D, micro convex biopsy probe *(cont.)*

Harmonic frequency: 3.0, 4.0, 5.0, 6.0 MHz

PW Doppler frequency: 1.8, 2.1, 2.5, 3.1 MHz

Color Doppler frequency: 2.1, 2.4, 3.1, 3.7 MHz

C2-7VN-D, VNav inside micro convex biopsy probe

VNav sensor inside transducer for Volume Navigation tracking without sensor cables

Applications: abdomen, pediatric

Biopsy guide: multi-angle, disposable with a reusable bracket (H40482LK), multi-angle, reusable stainless bracket (H40482LL)

Bandwidth: 1.0 – 6.0 MHz

Number of elements: 144

Field of view (max): 110°

Physical foot print

B-Mode frequency: 2.5, 4.0, 6.0 MHz

Harmonic frequency: 3.0, 4.0, 5.0, 6.0 MHz

PW Doppler frequency: 1.8, 2.1, 2.5, 3.1 MHz

Color Doppler frequency: 2.1, 2.4, 3.1, 3.7 MHz

C3-10-D, XDclear micro convex probe

Applications: neonatal, pediatric, peripheral vascular, neonatal transcranial, small parts

Bandwidth: 2.0 x 11.0 MHz

Number of elements: 192

Field of view (max): 95°

Physical foot print: 26 x 5 mm

B-Mode frequency: 4.0, 6.0, 8.0 MHz

Harmonic frequency: 6.0, 8.0, 10.0 MHz

PW Doppler frequency: 3.1, 4.2, 6.3, 7.1 MHz

Color Doppler frequency: 3.9, 5.3, 6.6 MHz

IC5-9-D, micro convex probe

Applications: OB/GYN, urology

Biopsy guide: single angle, disposable with a disposable bracket (E8385MJ) or reusable bracket (H40412LN)

Bandwidth: 3 – 10 MHz

Number of elements: 192

Field of view (max): 180°

Physical foot print: 26 x 6 mm

Probes *(cont.)*

IC5-9-D, micro convex probe *(cont.)*

B-Mode frequency: 4.5, 5.0, 5.5, 6.0, 7.0, 8.0 MHz

Harmonic frequency: 6.0, 6.5, 7.0, 9.0 MHz

PW Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz

Color Doppler frequency: 4.6, 5.9, 6.7 MHz

M5Sc-D, XDclear sector probe

Applications: adult cardiac, pediatric cardiac, adult cephalic, abdominal

Biopsy guide: multi-angle, disposable with a reusable bracket (H45561FC)

Bandwidth: 1.0 – 5.0 MHz

Number of elements: 288

Field of view (max): 120°

Physical foot print: 28 x 17 mm

B-mode frequency: 2.0,2.5,3.5,4.5 MHz

Harmonic frequency: 2.4, 3.0, 3.2, 3.3, 3.7, 4.0, 4.5, 4.6 MHz

PW Doppler frequency: 1.6,1.7,1.8,1.9,2.1,2.5,3.1,3.6 MHz

Color Doppler frequency: 1.8, 1.9, 2.2, 2.4, 2.5, 3.0, 3.1, 3.7, 3.8 MHz

L2-9-D, XDclear linear probe

Applications: peripheral vascular, small parts, pediatric, abdomen, OB/GYN, general musculoskeletal, superficial musculoskeletal, neonatal, neonatal transcranial

Biopsy guide: multi-angle, disposable with a reusable bracket (H44901AM)

Bandwidth: 2.0 – 10.0 MHz

Number of elements: 192

Field of view (max): 44mm

Physical foot print : 14 x 53 mm

B-mode frequency: 4.0, 4.5, 5.0, 6.0, 7.0 MHz

Harmonic frequency: 5.0, 6.0, 7.0, 8.0, 9.0 MHz

PW Doppler frequency: 2.5, 2.8, 3.1, 3.6, 4.2, 5.0 MHz

Color Doppler frequency: 3.1, 4.0, 4.6, 5.3 MHz

L2-9VN-D, VNav inside XDclear linear probe

VNav sensor inside transducer for Volume Navigation tracking without sensor cables

Applications: peripheral vascular, small parts, pediatric, abdomen, OB/GYN, general musculoskeletal, superficial musculoskeletal, neonatal, neonatal transcranial

L2-9VN-D, VNav inside XDclear linear probe *(cont.)*

Biopsy guide: multi-angle, disposable with a reusable bracket (H44901AM)

Bandwidth: 2.0 – 10.0 MHz

Number of elements: 192

Field of view (max): 44 mm

Physical foot print : 14 x 53 mm

B-Mode frequency: 4.0, 4.5, 5.0, 6.0, 7.0 MHz

Harmonic frequency: 5.0, 6.0, 7.0, 8.0, 9.0 MHz

PW Doppler frequency: 2.5, 2.8, 3.1, 3.6, 4.2, 5.0 MHz

Color Doppler frequency: 3.1, 4.0, 4.6, 5.3 MHz

ML6-15-D, matrix array linear probe

Applications: small parts, peripheral vascular, neonatal, pediatric, neonatal transcranial, general musculoskeletal, superficial musculoskeletal

Biopsy guide: multi-angle, disposable with a reusable bracket (H40432LJ)

Bandwidth: 4 – 15.0 MHz

Number of elements: 1008

Field of view (max): 50 mm

Physical foot print: 50 x 6 mm

B-Mode frequency: 7.0, 9.0, 10.0, 11.0, 12.0, 15.0 MHz

Harmonic frequency: 10.0, 12.0, 14.0, 15.0 MHz

PW Doppler frequency: 5.0, 6.3, 8.3 MHz

Color Doppler frequency: 5.1, 6.1, 7.3, 8.2, 9.2, 10.3, 11.4, 12.4 MHz

L8-18i-D, linear probe

Applications: small parts, peripheral vascular, neonatal, neonatal transcranial, general musculoskeletal, superficial musculoskeletal, intraoperative

Bandwidth: 4.0 – 15.0 MHz

Number of elements: 168

Field of view (max): 25 mm

Physical foot print: 35 x 10 mm

B-Mode frequency: 7.0, 9.0, 13.0, 16.0 MHz

Harmonic frequency: 14.0, 16.0, 18.0 MHz

PW Doppler frequency: 5.0, 6.3, 7.1, 8.3 MHz

Color Doppler frequency: 6.3, 6.7, 9.6, 10.5 MHz

Probes *(cont.)*

RAB6-D, convex volume probe
Applications: abdomen, OB/GYN, pediatric, neonatal
Biopsy guide: single angle, reusable bracket (H46701AE)
Bandwidth: 2.0 – 8.0 MHz
Number of elements: 192
Field of view (max): 80°
Physical foot print: 62 x 34 mm
B-Mode frequency: 3.5, 5.0, 8.0 MHz
Harmonic frequency: 4.0, 5.0, 6.5, 8.0 MHz
PW Doppler frequency: 3.1, 4.2, 5.0 MHz
Color Doppler frequency: 2.8, 3.5, 3.8 MHz

RIC5-9-D, convex volume probe
Applications: OB/GYN, urology
Biopsy guide: single angle, reusable (H46721R)
Bandwidth: 3 – 10 MHz
Number of elements: 192
Field of view (max): 180°
Physical foot print: 26 x 6 mm
B-Mode frequency: 4.5, 5.0, 5.5, 6.0, 7.0, 8.0 MHz
Harmonic frequency: 6.0, 6.5, 7.0, 9.0 MHz
PW Doppler frequency: 3.6, 4.2, 5.0, 6.3 MHz
Color Doppler frequency: 4.6, 5.9, 6.7 MHz

P2D, CW split crystal probe
Applications: adult cardiac, pediatric cardiac, peripheral vascular, adult cephalic
Frequency: 2.1 MHz

6Tc-RS, trans-esophageal probe
Applications: adult cardiac
Bandwidth: 2.0 – 8.0 MHz
Number of elements: 64
Field of view (max): 90°
Physical foot print: 37 x 13 x 10 mm
B-Mode frequency: 5.0, 6.0, 6.5 MHz

6Tc-RS, trans-esophageal probe *(cont.)*
Harmonic frequency: 6 MHz
PW Doppler frequency: 3.1, 3.6, 4.2, 5.0, 6.3 MHz
Color Doppler frequency: 3.3, 4.1, 4.7, 5.5 MHz

External Inputs and outputs (not including on-board peripherals)
HDMI
Ethernet
Multiple USB 3.0 ports

Safety conformance

The LOGIQ E10 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 62304 Medical device software – Software life-cycle processes • 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	• 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)

B-Mode measurements *(cont.)*	
Left ventricle *(cont.)*	• 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)

Supplement: cardiac measurements/calculations *(cont.)*

B-Mode measurements *(cont.)*	
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-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-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 Time) • Aortic Valve Deceleration Time (AV Dec Time) • Aortic Valve Ejection Time (AVET) • Aortic Valve Acceleration to Ejection Time Ratio (AV Acc Time, AVET) • Aortic Valve Area(VTI): AVA (Vmax)
Left ventricle	• Left Ventricle Outflow Tract Peak Pressure Gradient (LVOT 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 (MV Trace)

Supplement: cardiac measurements/calculations *(cont.)*

Doppler Mode measurements *(cont.)*	
Mitral valve *(cont.)*	• Mitral Valve Velocity Time Integral (MV Trace) • Mitral Valve Mean Pressure Gradient (MV Trace) • Mitral Regurgitant Peak Pressure Gradient (MR Vmax) • Mitral Valve Peak Pressure Gradient (MV Vmax) • Mitral Regurgitant Peak Velocity (MR Vmax) • Mitral Valve Peak Velocity (MV 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 DecT) • Mitral Valve Pressure Half Time (MV PHT) • Mitral Valve Flow Acceleration (MV AccT) • 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 ((MVET) • Mitral Valve A-Wave Duration (MV A Dur) • Mitral Valve Time to Peak (MV TTP) • 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 (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) • Pulmonic Insufficiency Velocity Time Integral (PR Trace) • Pulmonic Valve Mean Velocity (PV Trace) • Pulmonic Valve Velocity Time Integral (PV Trace)

Doppler Mode measurements *(cont.)*	
Pulmonic valve *(cont.)*	• 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 (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	• 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)

Supplement: cardiac measurements/calculations *(cont.)*

Doppler Mode measurements *(cont.)*	
Tricuspid valve *(cont.)*	• 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 TTP) • Tricuspid Valve Ejection Time (TV Acc/Dec Time) • Tricuspid Valve A-Wave Duration (TV A Dur) • QRS Complex to End of Envelope (Q-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)

Combination Mode measurements *(cont.)*	
Aortic valve *(cont.)*	• 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	• 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)

Supplement: cardiac measurements/calculations *(cont.)*

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

August 2018
DOC2133956