GE Healthcare

LOGIQ P6 Premium

TruScan* Imaging Technology

Product description

The LOGIQ* P6 Premium is a high-end, highly mobile and intuitive, performance multipurpose color Doppler imaging system, designed for Abdominal, Obstetrics, Gynecology, Cardiology, Musculoskeletal, Vascular, Urological, Small Parts, Superficial, Pediatric, Neonatal, Transcranial, and other applications.

General specifications

Dimensions and weight

Height	Max.: 1525/1465 mm Min.: 1360/1300 mm
Width	430 mm
Depth	640 mm
Weight	Approx. 80 kg (176 lb)

Electrical power

Voltage	100-120 Vac or 220-240 Vac
Frequency	50/60 Hz
Power	Max. 750 VA with built-in and on-board peripherals
Maximum Thermal Output	2500 BTU/hr

Console design

- 3 active probe ports
- Integrated HDD (Capacity: 250 GB)
- Integrated DVD-R/W Drive
- On-board storage for peripherals (Max 3 peripherals)
- Wheels
  - Wheel diameter: 12.5 cm
  - Integrated locking mechanism that provides rolling lock and optional caster swivel lock
- Probe holders, removable for cleaning and washing
- Gel holder, removable for cleaning and washing
- Air filters, easily removable
- Front handle

User interface

Operator keyboard

- Keyboard width: 43 cm
- Keyboard height: 84/90 cm
- 17 mm spacing alphanumeric keyboard
- Ergonomic hard key operations
- Indicator lights identify activated keys
- Integrated recording keys for remote control of up to 2 peripheral devices and DICOM® devices
- 8 TGC pods, with re-mapping functionality at any depth

Monitor

- 17 inch TFT LCD
- XGA Format:
  - Display size: 1024 x 768
- Tilt/rotate/translate
  - Tilt angle +40°– -90°
  - Rotate angle: ±90°
  - Translate horizontal ±442 mm
  - Translate vertical 165 mm
- Digital brightness/dim bright/contrast adjustment

System overview

Applications

- Abdominal
- Obstetrical
- Gynecological
- Cardiac
- Musculoskeletal
- Vascular
- Urological
- Small Parts and superficial
- Breast
- Pediatric and Neonatal
- Trancranial
- Endocavitary
- Intraoperative
- Transesophageal

Scanning methods

- Electronic sector
- Electronic convex
- Electronic linear
- TEE multi plane sector array
- Real Time 4D Volume Sweep

Transducer types

- Sector phased array
- Convex array
- Micro-convex array
- Linear array
- Single CW (pencil) probes
- TEE multi plane sector array probes
- Bi-plane Micro convex arrays
- Volume probes (4D)

Operating modes

- B-Mode
- Coded Harmonic Imaging
- M-Mode
- Color Flow Mode (CFM)
- Power Doppler Imaging (PDI) with Directional Map
- PW Doppler with High PRF
- M-Color Flow Mode
- Anatomical M-Mode (option)
- Anatomical M-Color Mode (option)
- B-Flow* Mode (option)
- B-Flow Color Mode (option)
- Coded Contrast Imaging (option)
- CW Doppler Mode (option)
- PFD Mode (option)

System overview *(cont.)*

Operating modes *(cont.)*

- Tissue Velocity Imaging (TVI) Mode (option)
- 3D/4D Volume Modes (option)
  - 3D Static (option)
  - 4D Real time (option)
  - Elastography (option)

System standard features

- Hard disk partition of 50 GB for image storage
- Without compression:
  - Raw DICOM: up to 33,000 images
  - DICOM image only: HDD up to 71,000 images
- CINE Memory, 256 MB
- Up to 60s
- Up to 1000 frames depending on depth, FOV, line density, etc.
- Real-time Triplex mode at any depth and PRF
- CrossXbeam
- SRI: Speckle Reduction Imaging
- Automatic Optimization
- ATO: Auto Tissue Optimization
- Auto TGC
- ASO: Auto Spectrum Optimization
- ACO: Auto Color Optimization
- Coded Harmonic Imaging
- Coded Excitation
- Virtual Convex
- Patient information database
- Image Archive on CD/DVD and hard drive
- Easy backup to media for data security
- TruAccess, Raw Data processing and analysis
- Real-time Automatic Doppler Calcs
- OB calcs
- Report designer
- Fetal trending
- Multi Gestational calcs
- Hip Dysplasia calcs
- Gynecological calcs
- Vascular calcs
- Cardiac calcs
- Urological calcs
- Renal calcs
- InSite* capability, remote service
- iLinq capability, remote service
- On-board electronic documentation (XPS format)
- MPEGVue
- Key macro
- Network storage
- Quick save

System options

- Auto IMT
- Elastography
- Easy 3D (baby face, vascular)
- Advanced 3D, with 3D landscape
- DICOM 3.0 connectivity
- LOGIQ View
- B-Flow color
- Hybrid Contrast Imaging
- Anatomical M-Mode
- Real Time 4D
- ECG
- ECG Cable
- Steered CWD
- Rear handle
- Drawer
- Probe cable hanger
- Urology probe holder
- Stress Echo package
- PFD (Pulsatile Flow Detection)
- Tissue Velocity Imaging (TVI), with Q-Analysis
- 1-pedal and 3-Pedal Foot Switch, with programmable functionality
- Remote control switch
- On-board electronic documentation (PDF format)

Media & peripheral options

- Integrated mounting kits and remote controls provided for
  - B/W digital thermal printer
  - Digital Color A6 Digital thermal printer
  - Digital Color A5 Digital thermal printer
  - DVD video recorder

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
- Simultaneous capability
  - B/PW
  - B/CFM or PDI
  - B/M
  - B+CFM/M
  - Real-time Triplex Mod (B + CFM or PDI/PW)
  - B-Flow + PW (option)
  - Dual B (B/B)
  - Dual B + CFM or PDI
  - B/PFD (option)

System overview *(cont.)*

Display modes *(cont.)*

Selectable alternating modes
- B/M
- B/PW
- B + CFM/M
- B + CFM (PDI)/PW
- B-Flow + PW (option)
- 3D – Mode
- 3D – Color Mode (option)
- B/CW (option)
- B + CFM (PDI)/CW (option)
- B + PFD/PW (option)

Simultaneous Display with Bi-plane probe
- B/CFM

Multi Image split screen
- Live and/or frozen
- B + B/CFM or PDI
- B+B/PFD (option)
- Independent CINE playback
- Quad screen format

Zoom: write/read/pan

Colorized image
- Colorized B
- Colorized M
- Colorized PW
- Colorized CW (option)
- Colorized B-Flow (option)

Time line display
- Independent Dual B/PW display
- Display formats: Top/bottom selectable format (Size: 1/2:1/2; 1/3:2/3; 2/3:1/3) side/side selectable format (1/2:1/2; 1/3:2/3; 0:1)
- Switchable after freeze

Virtual Convex

CrossXbeam

Tissue Velocity Imaging (TVI) Mode

Elastography and simultaneous B/Elasto

Display annotation

1st Patient name: First, last, and middle name each store 27 characters. Up to 64 total characters displayed

Patient ID: 31 characters. Up to 27 total characters displayed

2nd Patient ID

Age, sex and birth date (optional)

Hospital name: 23 characters

Date: 3 types selectable (MM/DD/YY, DD/MM/YY, YY/MM/DD)

Time: 2 types selectable
- 24 hours
- 12 hours

Gestational age from LMP/EDD/GA/BBT

Probe name

Gray Map names

Probe orientation

Depth scale marker

Lateral scale marker

Focal Zone markers

Image depth

Zoom depth

B-Mode
- Gain
- Dynamic range
- Imaging frequency
- Edge enhance
- Frame averaging
- Gray Map
- ATO On/off

M-Mode
- Gain
- Dynamic Range
- Time Scale

Doppler Mode
- Gain
- Angle
- Sample volume depth and width
- Wall filter
- Velocity and/or frequency scale
- Spectrum inversion
- Time scale
- PRF
- Doppler frequency

Color Flow Mode
- Line density
- Frame averaging
- Packet size
- Color scale
- Color velocity range and baseline
- Color threshold marker
- Color gain
- PDI
- Color scale inversion
- Color doppler frequency

TGC Curve

Acoustic frame rate

Cine frame number

VCR counter

VCR status

VCR playback counter

Body pattern

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 Power output

Biopsy guide line and/or zone

Heart rate

General system parameters

System setup

- 8 Pre-programmable Categories
- User Programmable Preset Capability
- Factory default preset data
- Languages: English, French, German, Spanish, Italian, Portuguese, Russian, Greek, Swedish, Danish, Dutch, Finnish, Norwegian, Japanese
- OB Report format: 5 Types, Tokyo Univ., Osaka Univ., USA, Europe, and ASUM
- EFBW: 10 types, Japan, USA and Europe (Tokyo Univ., Osaka Univ., Tokyo Shinozuka, JSUM, German, Shephard, Merz, Hadlock/Shephard, Williams, Brenner)
- 348 Pre-defined annotations and user programmable libraries/annotations
- Body patterns: 140 human types plus 14 animal types
- 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

- CINE memory: 256 MB
- Dual Image CINE display
- Quad Image CINE display
- CINE Gauge and CINE Image Number display
- CINE Review Loop
- CINE Review Speed: 20 steps (10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 150, 200, 300, 400, 500, 600, 700, 800, 900, 1000%)
- Selectable CINE Sequence for CINE Review
- Measurements, calculations and annotations on CINE Playback
- Scrolling timeline memory
- Cine Capture Function
- Digital Continuous CINE Capture

Image storage

- On-board database of patient information from past exams
- Storage Format: DICOM/Raw Data
- DICOM Still Image storage size:
  - Gray image: ~300K to ~1.3 MB
  - Color image: ~900K to 1.9 MB
- Multiframe
- Display Format: Full size, 4x4, and “thumbnails”
- Live image and stored image side-by-side display
- CD-R storage: 650, 700 MB
- DVD storage: -R (4.7 GB)
- Conversion to JPEG, AVI (SaveAs) and WMV (MPEGvue) file formats
- Internal Hard Drive partition of 50 GB for image storage
- External USB 2.0 hard drive support for import, export, DICOM Read, SaveAs and MPEGVue
- USB 1.1/2.0 Memory Stick support for SaveAs and MPEGVue
- Network Storage support for import, export, DICOM Read, SaveAs, MPEGVue

Connectivity

- Ethernet network connection
- RS-232 serial data output (need a converter cable)
- 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; supported on Centricity and other compatible vendors
  - Structured reporting; compatible with LOGIQworks
  - Public SR Template
  - Media Store of SR
  - iLinq capability

Scanning parameters

- Digital Beam former
- 75.189 effective system processing channels
- Maximum frame rate: 1652 F/s
- Displayed Imaging Depth: 0 – 30 cm
- Minimum Depth of Field: 0 – 2 cm (probe dependent)
- Maximum Depth of Field: 0 – 30 cm (probe dependent)
- Transmission focus
  - 1 – 8 Focus points selectable (probe and application dependent)
- Continuous Dynamic Receive, Focus/Aperture
- Multi-Frequency/Wideband Technology
- Frequency Range 1 to 15 MHz
- 256 Shades of Gray
- Up to 259 dB composite Dynamic Range
- 16,777,216 Hues of Color
- Adjustable Field of View (FOV) up to 170° depending on probe
- Image reverse: Right/left
- Image rotation: 4 steps rotation: 0°, 90°, 180°, 270°

B-Mode

- B/M Acoustic output: 0 – 100%, 2% step
- Image reverse: On/off
- B Color: 10 types
- Thermal Index: TIC, TIS, TIB
- Softener: 4 steps
- Focus number: 8 steps
- Focus width: 3 types
- Range focus: On/off

General system parameters *(cont.)*

B-Mode *(cont.)*

Compression: 0.5 – 1.5, 0.1 step
Line Density: 4 steps
Line Density Zoom: 4 steps
Suppression: 6 steps
Frame average: 8 steps
Edge enhance: 6 steps
Scanning Size (FOV or Angle): probe dependent, see probe specifications
Gray Scale Map: 23 types
Clear Map: 23 types
Tint Map: 10 types
Gain: 0 – 98 dB, 2 dB step
Dynamic Range: 30 – 120 dB, 3 dB step
Depth: 1 – 30 cm, 1 cm step, depend on probe
Rejection: 6 steps
Frequency: Up to 5 steps, depend on probe
Auto Line Density: On/off pre-settable
Diff: On/off
Steered Linear: ±15°

Color flow mode

Base Line: 0 – 100 %, 10 % step
Invert: On/off
CF/PDI Focus Depth: default pre-settable for 0 – 100 % of ROI in depth, 10 % step
CF/PDI Flash Suppression: 2 steps
CF/PDI Acoustic Output: 0 – 100%, 10% step
CF/PDI Angle Steer: 0, ±20°
Packet Size: 5 – 16, dependent on probe/application
Line Density: 5 steps
Line Density Zoom: 5 steps
Frame Average: 7 steps
PRF: 280 Hz – 19600 Hz
Spatial filter: 6 steps
Gain: 0 – 40 dB, 0.5 dB step
Wall filter: 4 steps depend on probe/application
Scanning size (FOV or Angle): Probe dependent
CF/PDI Vertical Size (mm) of ROI: Default pre-settable
CF/PDI Center Depth (mm) of ROI: Default pre-settable
CF/PDI Frequency: Up to 3 steps, depend on probe
Color Map: 20 types depend on application
Transparent: 5 steps
Color Threshold: 0 – 100%, 5% step
Arbitration Threshold: 15 steps pre-settable
Auto Line Density: On/off pre-settable
PW/CF Ratio: 1, 2, 4
Accumulation: 8 steps

Power doppler imaging

PDI Map: 13 types
CF/PDI Flash Suppression: 2 steps
CF/PDI Focus Depth: default pre-settable for 0 – 100% of ROI in depth, 10% step
CF/PDI Acoustic Output: 0 – 100%, 10% step
CF/PDI Angle Steer: 0, ±20°
Packet size: 5 – 16, dependent on probe/application
Spatial Filter: 6 steps
Frame Average: 7 steps
PRF: 280 Hz – 19,600 Hz
Power Threshold: 0 – 100%, 5% step
Gain: 0 – 40 dB, 0.5 dB step
Wall Filter: 7 steps depend on probe/application
CF/PDI Frequency: Up to 3 steps, depend on probe
Auto Line Density: On/off pre-settable
Transparent: 5 steps
Invert: On/off
Accumulation: 8 steps

M-Mode

Sweep speed: 8 steps
M Color: 10 types
M/PW Display format: V-1/3B, V-1/2B, V-2/3B, H-1/2B, H-1/4B, TL only
B/M Acoustic Output: 0 – 100%, 2% step
Rejection: 6 steps
Dynamic Range: 30 – 120 dB, 3 dB step
Edge Enhance: 6 steps
Gray Scale Map: 23 types
Clear Map: 23 types
M Gain: 0 – 98 dB, 2 dB step

Anatomical M-Mode

M-Mode cursor adjustable at any plane
Can be activated from a CINE loop from a live or stored image
Available with Color Flow Mode
M & A capability

PW/CW-Mode

Maximum and Minimum Velocity Scales
- Max: 10 m/sec
- Min: 5 cm/sec

Gray Scale Map: 4 types
Dynamic Range: 24 – 60, 4 dB step
Base Line: 5 – 95%, 11 steps
SV Gate: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16 mm
Angle Correct: ±90°, 1° step
Spectral Color: 6 types

General system parameters *(cont.)*

PW/CW-Mode *(cont.)*

- PW Sweep Speed: 8 steps
- Invert: On/off
- M/PW Display Format: V-1/3B, V-1/2B, V-2/3B, H-1/2B, H-1/4B, TL only
- Duplex: On/off (PW only)
- PW Acoustic Output: 0 – 100 %, 10 % step
- Spectral Averaging: 4 steps
- Time Resolution: 4 steps
- PW/CF Ratio: 1, 2, 4
- Rejection: 15 steps
- Gain: 0 – 32 dB, 1 dB step
- Wall Filter: 5 – 1500 Hz, 22 steps, depend on probe/application
- PW Angle Steer: 0, ±5, 10, 15, 20°
- PRF: 640 – 29800 Hz with PW, 50000 Hz with CW
- Sample Volume Depth: 29 steps default pre-settable
- CW-Mode (option) is available on the following probes
  - 3S
  - 3Sp
  - 5Sp
  - 6Tc
  - P2D
  - P6D

Coded harmonic imaging

Available on the following probes

- 3CRF
- 4C
- 5CS
- E8C
- E8CS
- 8C
- ERB
- BE9CS
- 3S
- 3Sp
- 5Sp
- 8L
- 9L
- 11L
- ML6-15
- i739
- T739
- 6Tc
- 4D3C-L
- 4D5C-L
- 4DE7C
- 4D8C

- Softener: 4 steps
- Line Density: 4 steps
- Line Density Zoom: 4 steps
- Suppression: 6 steps
- Edge Enhance: 6 steps
- Gray Scale Map: 23 types
- Clear Map: 23 types
- Tint Map: 10 types
- Gain: 0 – 98 dB, 2 dB step
- Dynamic Range: 30 – 120 dB, 3 dB step
- Rejection: 6 steps
- Auto Line Density: On/off pre-settable
- Frequency: Up to 5 steps, depend on probe

Coded excitation

Available on the following probes

- 11L
- 8C
- E8C
- E8CS
- BE9CS
- ERB

Virtual convex

Provides a Convex Field of View for Convex, Linear and Sector probes

Available on the following probes

- 8L
- 9L
- 11L
- ML6-15
- T739
- I739
- 3S
- 3Sp
- 5Sp
- 6Tc
- ERB – Linear
- 4C
- 5CS
- 4D3C-L
- 4D5C-L
- 3CRF
- 8C
- E8C
- 4D8C

Automatic optimization

- Optimize B-Mode, B-Flow image to improve contrast resolution
- Selectable amount of contrast resolution improvement (low, medium, high)
- Auto-TGC in B-Mode and Color – adjusts overall and axial gain
- Optimize Spectral Waveform -adjusts baseline, invert, PRF (on live image), and angle correction
- Algorithm works on focal zone/ number and depth changes
- Available on stored or live image
- Available in B-Mode, B-Flow, PW Doppler, and Color Doppler

B-Flow color (option)

- Available on 8L, 9L, 11L, ML 6-15, i739, T739, 4C, 5CS and 4D3C-L, 4D5C- L Probes
- Background: On/off
- Sensitivity/PRI: 14 steps
- Line Density: 4 steps
- Edge Enhance: 6 steps
- Frame Average: 8 steps
- Gray Scale Map: 23 types
- Clear Map: 23 types
- Tint Map: 10 types
- Dynamic Range: 30 – 120 dB, 3 dB step
- Rejection: 6 steps
- Gain: 0 – 98 dB, 2 dB step
- Auto Line Density: On/off pre-settable
- Dual Beam: On/off pre-settable
- B-Flow Color: 8 color maps and 3 directional color maps
- Accumulation: 8 steps

General system parameters *(cont.)*

Elastography mode (option)

- Elasto Acoustic Output: 0 – 100%
- Line Density
- Elasto Frequency
- Frame Average
- Axial Smoothing
- Later Smoothing
- Window
- Frame Reject
- Noise Reject
- Transparency Map
- Color and Gray Map
- Soft Compress
- Hard Compress
- Quality Graph : On/off
- Available on the following probes
  - 11L
  - ML6-15

Auto IMT (option)

- Automated measurement of the intimae media thickness of common carotid artery
- Result window displayed on screen

Hybrid contrast imaging (option)

- Coded Harmonic Angio: Available on 4C, 5CS, i739 and t739 probes
  - Tissue Background Selection: 4 steps
- TruAgent Detection: Available on 4C and 5CS probes
  - 2 frequencies on 4C and 5CS probes
  - Monitor Mode
- Coded Phase Inversion
  - 3 types, Available on 4C and 5CS probes
  - 1 type, Available on i739, t739 probes
  - Tissue Background Selection: 4 steps
- Visulaization Contrast Imaging
  - Available on 4C, 5CS, i739 and t739 probes
  - Display Tissue image and Contrast Enhanced image simultaneously in split screen
- Max Enhancement: On/off
- Gray Scale Map: 21 types
- Clear Map: 21 types
- Contrast Clock Display
- Colorization: On/off
- Time Trigger Scan: 0.3, & 0.5 – 10 sec, 0.5 sec step
- Time Intensity Curve Analysis
- Accumulation: 8 steps
- SRI-HD

The LOGIQ P6 is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use. GE Medical Systems makes no claims concerning the safety or effectiveness of contrast agents.[1]

LOGIQ view (option)

- Available on all probes
- Extended Field of View imaging
- For use in B-Mode
- LOGIQ View Status
- Auto detection of scan direction
- Pre or post-process zoom up to 10X
- Rotation
- Auto best fit on monitor
- Measurements in B-Mode
- Up to 60 cm scan length

Easy 3D (option)

- Colorize
- Threshold (Opacification)
- Render
- Texture
- Gray Surface
- Scalpel Auto
- Movie
- Undo
- Reset

Advanced 3D (option)

- Acquisition of Color data
- Automatic rendering
- 3D Landscape technology
- 3D Movie
- Main Mode

CrossXBeam

- Provides Spatial Compounding
- Available on the linear and convex probes
  - 3CRF
  - 4C
  - 5CS
  - 8C
  - E8C
  - E8CS
  - 8L
  - 9L
  - 11L
  - ML6-15
  - T739
  - BE9C
  - BE9CS
  - 4D3C-L
  - 4DE7C
  - 4D8C
  - ERB

General System Parameters *(cont.)*

CrossXBeam

- Provides 3, 5 or 7 angles for Compounding on Linear probes, 3 or 5 angles on Convex probes
- Compatible with side-by-side display
- Compatible with: Color mode, Timeline mode, SRI-HD, Coded Harmonic Imaging, Virtual Convex on linear probes

Stress echo package (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 180 sec available
- Wall motion scoring (bulls-eye and segmental)

PFD (option)

- Available on all probes
- PFD Map: 4 types
  - PFD directional/pulsatile: 2 types
  - PFD pulsatile/non pulsatile: 2 types
- PFD Type: 6 steps
- PFD Scale: 1-109, 3 step
- CF/PDI/PFD Flash Suppression: 2 steps
- CF/PDI/PFD Focus Depth: default pre-settable for 0 – 100% of ROI in depth, 10% step
- CF/PDI/PFD Acoustic Output: 0 – 100%, 10% step
- CF/PDI/PFD Angle Steer: 0, ±20°
- Packet Size: 5 – 16, dependent on probe/application
- Spatial Filter: 6 steps
- Frame Average: 7 steps
- PRF: 280 Hz – 19600 Hz
- Power Threshold: 0 – 100%, 5% step
- Arbitration Threshold: 15 steps pre-settable
- Gain: 0 – 40 dB, 0.5 dB step
- Wall Filter: 4 steps
- CF/PDI/PFD Frequency: Up to 3 steps, depend on probe
- Auto Line Density: On/off pre-settable
- Transparent: 5 steps
- Invert: On/off
- Accumulation: 8 steps

SRI-HD

- High Definition Speckle Reduction Imaging (SRI-HD)
- Provides 6 levels of speckle reduction
- Side-by-side display
- Available on all probes
- Compatible with ALL scanning modes
- Compatible with side-by-side display
- Pre and post processing

TVI (option)

- Myocardial Doppler Imaging with color overlay on tissue image
- Available on all sector probes
- Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information
- Anatomical M-Mode: free placement 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

Real time 4D (option)

- Acquisition Modes:
  - Real-time 4D B-Mode
  - Static 3D B-Mode
- Max Volumes: 43.8 Hz
- Visualization Modes:
  - 3D Rendering (diverse surface and intensity projection modes)
  - Sectional Planes (3 Section planes perpendicular to each other)
- Render Mode:
  - Surface texture, Surface Smooth, max-, min- and X-ray (average intensity projection), Gradient, Inversion, Glass Body, Mix Mode of two render Modes
- Curved 3point 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

Pre-Processing

- Acoustic power output
- Write Zoom up to 8x
- B/M-Mode
  - Gain
  - TGC
  - Image Reverse Depth
  - Scan Area Auto
  - Optimize (ATO)
  - Dynamic Range Focus
  - Number Focus
  - Position Line Density
  - Frequency Image
  - Rotation Gray Map
  - Colorize Frame
  - Average Edge Enhance
  - Rejection Virtual
  - Convex Focus Width
  - Suppression B
  - Softener M/D Cursor
  - Sweep Speed for M-Mode

General System Parameters *(cont.)*

Pre-Processing *(cont.)*

PW-Mode
- Gain
- Sample Volume Depth
- PRF
- Wall Filter
- Baseline
- Angle Steer
- Angle Correct
- Quick Angle Correct
- Auto Angle Correct
- Doppler Frequency
- Doppler Invert
- Display Format Sweep Speed
- Full Timeline
- Rejection Time
- Resolution
- Gray Map
- Colorize
- Duplex Auto Calcs
- Trace Direction
- Modify Calcs
- Number of Average Cycles
- Trace Method
- Trace Sensitivity
- Auto Optimize (ASO)
- Audio Volume

Color Flow Mode (optional)
- Gain
- ROI Position, Size
- PRF
- Wall Filter
- Baseline
- Angle Steer
- Color
- Line
- Density Color
- Frequency
- Packet Size
- Color Invert
- Color Map
- Threshold Frame
- Average Focus
- Position
- ACE
- Spatial Filter
- CFM/PWD Ratio
- Duplex
- Sweep Speed for Color M-Mode
- Anatomical Color M-Mode

3D Acquisition
- Scan Distance
- ROI Style
- Display Format
- Scan Plane
- Front to back, side to side
- Acquisition Mode
- Parallel Sweep

Post-Processing w/TruAccess (Raw Data)

SRI – 5 Selectable level

Read Zoom up to 8x

B/M-Mode
- Gain
- Dynamic Range
- TGC
- Image Reverse
- Auto Tissue Optimize (ATO)
- Compression
- Image Rotation
- Gray Map
- Colorize
- Frame Average (in loop images)
- Rejection
- Sweep Speed for M-Mode
- Anatomical M-Mode

PW/CW-Mode
- Post Gain
- Baseline Angle
- Correct Quick Angle
- Correct Doppler Invert
- Display Format Sweep
- Speed
- Full Timeline
- Rejection
- Map Gray
- Colorize
- Compression (Dynamic Range)
- Auto Optimize (ASO)

Color Flow Mode
- Auto Color Optimization (ACO)
- Baseline
- Color Invert
- Color Map
- Threshold
- Frame Average (in loop images)
- Sweep Speed for Color M-Mode
- Anatomical Color M-Mode

Easy 3D (option)
- Colorize
- Threshold (Opacification)
- Mix Type 1
- Render
- Texture
- Gray Surface
- Scalpel
- Auto Movie
- Undo
- Reset

Advanced 3D (option)
- 3D Landscape
- Colorize
- Threshold (Opacification)
- Re-slice
- Type 1/2
- Group Planes
- Scalpel Define Axis
- Visible Data
- Tile
- Active Data
- Auto Movie
- Rotate Undo
- Reset

3D Movie
- Colorize
- Pause
- Movie Speed
- Axis
- Define Start/End
- Auto Movie
- 360° Manual

Measurements/calculations

1. Abdomen and small parts measurements/calculations:
   - Aorta Diameter
   - Renal Length
   - Doppler Abdomen and Renal Artery Exam/Cals
   - Thyroid

2. Urology measurements/calculations:
   - Bladder
   - Prostate
   - Renal
   - Testicle
   - STVOL
   - Pelvic Floor Study

3. Pediatrics measurements/calculations:
   - Hip Dysplasia
   - Alpha HIP
   - d:D Ratio

General B-Mode

Depth & Distance

Circumference (Ellipse/Trace)

Area (Ellipse/Trace)

Volume (Ellipsoid)

% Stenosis (Area or Diameter)

Angle between two lines

Measurements/calculations *(cont.)*

General M-Mode *(cont.)*

- 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)
- LV (Length of Vertebra)
- 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

Calculations and Ratios
- FL/BPD
- FL/AC
- FL/HC
- HC/AC
- CI (Cephalic Index)
- AFI (Amniotic Fluid Index)

Measurements/Calculations by: Jeanty, Merz, Tokyo University, Mercer, Hansmann, Erickson, Hill, Shephard, Hadlock, Hohler, Campbell

- 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

GYN measurements/calculations

- Right ovary length, width, height
- Left ovary length, width, height
- Uterus length, width, height
- Ovarian volume
- ENDO (Endometrial thickness)
- Ovarian RI
- Uterine RI
- Follicular measurements
- Summary reports

Vascular measurements/calculations

- Carotid Artery
- Lower extremity artery
- Lower extremity vein
- Upper extremity artery
- Upper extremity vein
- Abdominal
- Renal Artery

Measurements/calculations *(cont.)*

Vascular measurements/calculations *(cont.)*

TCD

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)

Summary Reports

Mean IMT Measurement Tools

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 Annulus Diameter (Ao Annulus Diam)
- Aorta Isthmus (Ao Isthmus)
- Aorta (Ao st junct)

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

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

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

Mitral Valve
- Mitral Valve Annulus Diameter (MV Ann Diam)
- E-Point-to-Septum Separation (EPSS)
- Mitral Valve Area by Pressure Half Time (MVA By PHT)
- 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
- Interventricular Septum Thickness (IVSd, IVSs)
- Inferior Vena Cava
- Pulmonary Artery Diameter (MPA)
- Systemic Vein Diameter (Systemic Diam)
- Patent Ductus Arterosis Diameter (PDA Diam)

Cardiac measurements/calculations *(cont.)*

B-Mode measurements *(cont.)*

- Pericard Effusion (PEs)
- Patent Foramen Ovale Diameter (PFO Diam)
- Ventricular Septal Defect Diameter (VSD Diam)
- Interventricular Septum (IVS)
- Fractional Shortening (IVSd, IVSs)

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

M-Mode measurements

Aorta
- Aortic Root Diameter (Ao Root Diam)

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

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

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

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

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

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

System
- Interventricular Septum Thickness (IVSd, IVSs)
- Pericard Effusion (PE(d))
- Interventricular Septum (IVS)
- Fractional Shortening (IVSd, IVSs)

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

Doppler Mode measurements

Aortic Valve
- Aortic Insufficiency Mean Pressure Gradient (AR Trace)
- Aortic Insufficiency Peak Pressure Gradient (AR Vmax)
- Aortic Insufficiency End Diastole Pressure Gradient (AR Trace)
- Aortic Insufficiency Mean Velocity (AR Trace)
- Aortic Insufficiency Mean Square Root Velocity (AR Trace)
- Aortic Insufficiency Velocity Time Integral (AR Trace)
- Aortic Valve Mean Velocity (AV Trace)
- Aortic Valve Mean Square Root 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 Mean Square Root Velocity (LVOT Trace)
- Left Ventricle Outflow Tract Velocity Time Integral (LVOT Trace)
- Left Ventricle Ejection Time (LVET)
- Cardiac Output by Aortic Flow (AVA Planimetry, AV Trace)
- Stroke Volume Index by Aortic Flow (AVA Planimetry, AV Trace)

Mitral Valve
- Mitral Valve Regurgitant Flow Acceleration (MR Trace)
- Mitral Valve Regurgitant Mean Velocity (MR Trace)
- Mitral Regurgitant Mean Square Root 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 Mean Square Root 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)

Cardiac measurements/calculations *(cont.)*

Doppler Mode measurements *(cont.)*

- Mitral Valve Flow Deceleration (MV Trace)
- Mitral Valve Pressure Half Time (PV PHT)
- Mitral Valve Flow Acceleration (MV Trace)
- Mitral Valve E-Peak to A-Peak Ratio (A-C and D-E) (MV E/A Ratio)
- Mitral Valve Acceleration Time (MV Acc Time)
- Mitral Valve Deceleration Time (MV Dec Time)
- Mitral Valve Ejection Time (MV Trace)
- Mitral Valve A-Wave Duration (MV A Dur)
- Mitral Valve Time to Peak (MV Trace)
- Mitral Valve Acceleration Time/Deceleration Time Ratio (MVAcc/Dec Time)
- Stroke Volume Index by Mitral Flow (MVA Planimetry, MVTrace)
- Mitral Valve Area from Continuity Equation (MVAPlanimetry, LVOT Vmax, MV Vmax)

Pulmonic Valve

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

Right Ventricle

- Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax)
- Right Ventricle Systolic Pressure (RVOT Vmax)
- Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax)
- Right Ventricle Diastolic Pressure (RVOT Trace)
- Right Ventricle Outflow Tract Velocity Time Integral (RVOTTrace)
- Right Ventricle Ejection Time (RV Trace)
- Stroke Volume by Pulmonic Flow (RVOTPlanimetry, 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 Artery Velocity Time Integral (PV Trace)
- Systemic Vein Velocity Time Integral (PDA Trace)
- Pulmonary Vein A-Wave Duration (P Vein A Dur)
- IsoVolumetric Relaxation Time (IVRT)
- IsoVolumetric Contraction Time (IVCT)
- Pulmonary Vein S/D Ratio (P Vein D, P Vein S)
- Ventricular Septal Defect Peak Pressure Gradient (VSD Vmax)
- Pulmonic-to-Systemic Flow Ratio (Qp/Qs)

Tricuspid Valve

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

Color Flow Mode measurements

Aortic Valve

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

Mitral Valve

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

Cardiac measurements/calculations *(cont.)*

Combination Mode measurements

Aortic Valve
- Aortic Valve Area (Ao Root Diam, LVOT Vmax, AV Vmax)
- Aortic Valve Area by Continuity Equation by Peak Velocity (Ao Root Diam, LVOT Vmax, AV Vmax)
- Stroke Volume by Aortic Flow (AVA 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, LVIDs, 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)
- Stroke Volume by Aortic Flow (AVA Planimetry, AV Trace)

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)

Report Writer

On-board reporting package automates report writing
Formats various exam results into a report suitable for printing to a windows printer or reviewing on a standard PC
Exam results include patient info, exam info, measurements, calculations, images, comments and diagnosis
Standard templates provided
Customizable templates

Probes

3CRF

Wide Band Micro-convex Probe	
Applications	Abdomen, Urology, Vascular
Probe Band Width	2.0 – 4.0 MHz
Number of Element	128
Convex Radius	20 mmR
FOV (Max)	80°
Physical Foot Print	28 x 15 mm
B-Mode Imaging Frequency	2.0, 3.0, 3.5, 4.0 MHz
Harmonic Frequency	3.6, 3.8, 4.0, 4.2 MHz
Doppler Frequency	2.5, 3.3 MHz
Biopsy Guide Available	Single-angle, Reusable

4C

Wide Band Convex Probe	
Applications	Abdomen, OB/GYN, Urology, Vascular
Probe Band Width	1.4 – 5 MHz
Number of Element	128
Convex Radius	60 mmR
FOV (Max)	58°
Physical Foot Print	60 x 18 mm
B-Mode Imaging Frequency	2.0, 3.0, 4.0, 5.0 MHz
Harmonic Frequency	4.0, 5.0, 5.2, 5.5 MHz
Doppler Frequency	2.5, 3.3 MHz
Biopsy Guide Available	Multi-angle, Reusable

5CS

Convex Probe	
Applications	Abdomen, OB/GYN, Urology
Probe Band Width	2 – 6 MHz
Number of Element	128
Convex Radius	60 mmR
FOV (Max)	58°
Physical Foot Print	60 x 18 mm
B-Mode Imaging Frequency	2.0, 3.0, 4.0, 5.0 MHz
Harmonic Frequency	4.0, 5.0, 5.2, 6.0 MHz
Doppler Frequency	2.5, 3.3 MHz
Biopsy Guide Available	Multi-angle, Reusable

Probes *(cont.)*

E8C

Wide Band Micro-convex Probe	
Applications	OB/GYN, Urology, Endocavity
Probe Band Width	4 – 11 MHz
Number of Element	128
Convex Radius	11 mmR
FOV (Max)	133°
Physical Foot Print	26 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Biopsy Guide Available	Single-angle, Disposable and Reusable

E8CS

Wide Band Micro-convex Probe	
Applications	OB/GYN, Urology, Endocavity
Probe Band Width	4 – 11 MHz
Number of Element	128
Convex Radius	9 mmR
FOV (Max)	168°
Physical Foot Print	15 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Biopsy Guide Available	Single-angle, Disposable and Reusable

8C

Wide Band Micro-convex Probe	
Applications	Neonatal, Pediatrics
Probe Band Width	4 – 11 MHz
Number of Element	128
Convex Radius	11 mmR
FOV (Max)	133°
Physical Foot Print	26 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Biopsy Guide Available	None

3S

Wide Band Phased Array Sector Probe	
Applications	Cardiac, Trancranial, Abdomen
Probe Band Width	1.5 – 3.5 MHz
Number of Element	64
FOV (Max)	90°
Physical Foot Print	19 x 12 mm
B-Mode Imaging Frequency	2.0, 2.5, 3.0 MHz
Harmonic Frequency	2.8, 3.0, 3.2, 3.6 MHz
Doppler Frequency	1.7, 2.0, 2.2 MHz
CW Doppler Frequency	2.0 MHz
Biopsy Guide Available	Multi-angle, Reusable

3Sp

Wide Band Phased Array Sector Probe	
Applications	Cardiac, Trancranial, Abdomen
Probe Band Width	1.5 – 5.5 MHz
Number of Element	64
FOV (Max)	90°
Physical Foot Print	16 x 14 mm
B-Mode Imaging Frequency	2.0, 3.0, 4.0, 5.0 MHz
Harmonic Frequency	3.0, 3.5, 4.0, 5.0, 5.5 MHz
Doppler Frequency	1.8, 2.0, 2.5, 3.3, 4.0 MHz
CW Doppler Frequency	2.0 MHz
Biopsy Guide Available	Multi-angle, Reusable

5Sp

Wide Band Phased Array Sector Probe	
Applications	Cardiac, Trancranial, Abdomen
Probe Band Width	4.0 – 10.0 MHz
Number of Element	64
FOV (Max)	90°
Physical Foot Print	10 x 10 mm
B-Mode Imaging Frequency	4.0, 5.0, 6.7, 8.0 MHz
Harmonic Frequency	5.0, 6.0, 8.0, 10.0 MHz
Doppler Frequency	2.7, 3.0, 3.3, 4.0, 5.0 MHz
CW Doppler Frequency	2.5 MHz
Biopsy Guide Available	Multi-angle, Reusable

Probes *(cont.)*

8L

Wide Band Linear Probe	
Applications	Vascular, Small Parts
Probe Band Width	4 – 11 MHz
Number of Element	128
FOV (Max)	38 mm
Physical Foot Print	38 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0, 12.0 MHz
Doppler Frequency	5.0, 6.7 MHz
Steered Angle	0, ±5, 10, 15, 20°
Biopsy Guide Available	Multi-angle, Reusable

9L

Wide Band Linear Probe	
Applications	Vascular, Small Parts
Probe Band Width	3 – 10 MHz
Number of Element	192
FOV (Max)	44 mm
Physical Foot Print	44 x 10 mm
B-Mode Imaging Frequency	5.0, 7.0, 9.0 MHz
Harmonic Frequency	8.0, 10.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Steered Angle	0, ±5, 10, 15, 20°
Biopsy Guide Available	Multi-angle, Reusable

11L

Wide Band Linear Probe	
Applications	Small Parts, Vascular, Neonatal, Pediatrics
Probe Band Width	5 – 13 MHz
Number of Element	192
FOV (Max)	38.4 mm
Physical Foot Print	38 x 10 mm
B-Mode Imaging Frequency	7.0, 10.0, 12.0 MHz
Harmonic Frequency	10.0, 12.0, 13.0 MHz
Doppler Frequency	5.0, 6.7 MHz
Steered Angle	0, ±5, 10, 15, 20°
Biopsy Guide Available	Multi-angle, Reusable

ML6-15

Wide Band Linear Probe	
Applications	Small Parts, Vascular, Neonatal, Pediatrics
Probe Band Width	6 – 15 MHz
Number of Element	576
FOV (Max)	50.4 ±2 mm
Physical Foot Print	50.4 x 3 mm
B-Mode Imaging Frequency	9.0, 11.0, 13.0, 15.0 MHz
Harmonic Frequency	10.0, 12.0, 15.0 MHz
Doppler Frequency	5.0, 6.7, 8.0 MHz
Steered Angle	0, ±7, 20°
Biopsy Guide Available	Multi-angle, Reusable

T739

Intraoperative Wide Band Linear Probe	
Applications	Intraoperative, Small Parts, Vascular, Pediatrics
Probe Band Width	4 – 12 MHz
Number of Element	192
FOV (Max)	39 mm
Physical Foot Print	39 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0, 12.0 MHz
Doppler Frequency	5.0, 6.7 MHz
Steered Angle	±5, 10, 15, 20°
Biopsy Guide Available	None

I739

Intraoperative Wide Band Linear Probe	
Applications	Intraoperative, Small Parts, Vascular, Pediatrics
Probe Band Width	4 – 12 MHz
Number of Element	192
FOV (Max)	39 mm
Physical Foot Print	39 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0, 12.0 MHz
Doppler Frequency	5.0, 6.7 MHz
Steered Angle	±5, 10, 15, 20°
Biopsy Guide Available	None

Probes *(cont.)*

6Tc

Wide Band Multiplane Transesophageal Phased Array Sector Probe	
Applications	Cardiac
Probe Band Width	3 – 7 MHz
Number of Element	64
FOV (Max)	90°
B-Mode Imaging Frequency	4.0, 5.0,6.0 MHz
Harmonic Frequency	6.0 MHz
Doppler Frequency	4.0, 5.0 MHz
CW Doppler Frequency	4.0 MHz
Biopsy Guide Available	None

BE9CS

Wide Band Biplane Micro-convex Probe	
Applications	Urology, Endocavity
Probe Band Width	4 – 11 MHz
Number of Element	96 x 2
Convex Radius	9 mmR
FOV (Max)	127°
Physical Foot Print	20 x 10 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Biopsy Guide Available	Single-angle, Reusable (stainless steel), Disposable

ERB

Wide Band Biplane Probe	
Applications	Urology
Probe Band Width	3 – 11 MHz ERB Linear: 3 – 10 MHz ERB Convex: 4 – 9 MHz
Number of Element	128
FOV (Max)	ERB Linear: 51 mm ERB Convex: 123°
Physical Foot Print	ERB Linear: 51 x 10 mm ERB Convex: 17 x 10.5 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0 MHz
Doppler Frequency:	5.0, 6.7 MHz
Biopsy Guide Available	Multi-angle, Grid-reusable

4D3C-L

Convex Volume Probe	
Applications	Abdomen, OB/GYN
Probe Band Width	2 – 5 MHz
Number of Element	192
Convex Radius	39.1 mmR
Volume Sweep Radius	19.8 mmR
FOV	87° Volume 85° x 80°
Physical Foot Print	60 x 13 mm
B-Mode Imaging Frequency	3.0, 4.0, 5.0 MHz
Harmonic Frequency	4.0, 4.5, 4.8, 5.0 MHz
Doppler Frequency	2.5, 3.3 MHz
Biopsy Guide Available	Single-angle, Reusable (stainless steel, plastic)

4D5C-L

Convex Volume Probe	
Applications	Abdomen, OB/GYN
Probe Band Width	3 – 7 MHz
Number of Element	192
Convex Radius	39.1 mmR
Volume Sweep Radius	19.8 mmR
FOV	87° Volume 85° x 80°
Physical Foot Print	60 x 13 mm
B-Mode Imaging Frequency	4.0, 5.0, 6.0 MHz
Harmonic Frequency	5.0, 6.0, 6.5, 7.0 MHz
Doppler Frequency	2.5, 3.3 MHz
Biopsy Guide Available	Single-angle

4D8C

Micro Convex Volume Probe	
Applications	Neonatal, Pediatrics
Probe Band Width	4 – 11 MHz
Number of Element	192
Convex Radius	14.0 mmR
Volume Sweep Radius	80 mm
FOV	120° Volume 37.4 mm x 29°
Physical Foot Print	30 x 50 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0, 11.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Biopsy Guide Available	Single-angle, Reusable (stainless steel, plastic)

Probes *(cont.)*

4DE7C

Convex Volume Probe	
Applications	OB/Gyn, Urology
Probe Band Width	4 – 11 MHz
Number of Element	192
Convex Radius	10.1 mmR
Volume Sweep Radius	11.6 mmR
FOV	133° Volume 146° x 90°
Physical Foot Print	27 x 6 mm
B-Mode Imaging Frequency	6.0, 8.0, 10.0 MHz
Harmonic Frequency	8.0, 10.0, 11.0 MHz
Doppler Frequency	4.0, 5.0 MHz
Biopsy Guide Available	Single-angle, Reusable (stainless steel)

P2D

Non-imaging Single CW Doppler Pencil Probe	
Applications	Cardiac
Frequency	2.0 MHz

P6D

Non-imaging Single CW Doppler Pencil Probe	
Applications	Cardiac, Vascular, Pediatric
Frequency	5.0 MHz

Inputs and outputs

Video In
- S-Video
- Composite color

Video Out
- S-Video
- Analog VGA
- Composite color

Audio stereo in

Audio stereo out

External microphone in

Connectors

Footswitch

USB for BW printer

USB for Color Printer

USB for remote control

USB for DMC

Additional USB (2)

Ethernet

Power for Peripherals (3)

Safety conformance

The LOGIQ P6/P6 PRO are:

Listed to UL 2601-1 by a Nationally Recognized Test Lab

Certified to CSA 22.2, 60601.1 by an SCC accredited Test Lab

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

Conforms to the following standards for safety:
- EN 60601-1 Electrical medical equipment
- EN 60601-1-1 Electrical medical equipment
- EN 60601-1-2 Electromagnetic compatibility
- EN 60601-1-4 Programmable medical systems
- EN 60601-1-6 Usability
- IEC 61157 Declaration of acoustic output
- EN 60601-2-37 Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment
- ISO 10993 Biological evaluation of medical devices
- NEMA UD3 Acoustic output display (MI, TIS, TIB, TIC)
- EMC Emissions Group 1 Class B device requirements as per Sub clause 4.2 of CISPR 11

GE LOGIQ P6/P6 PRO are designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use.

Contrast related product features are enabled only on systems for delivery to an authorized country or region of use. GE Healthcare makes no claims concerning the safety or effectiveness of contrast agents.

Not all features or specifications described in this document may available in all probes and/or modes.

[1] LOGIQ LOGIQ P6 Premium is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use.

[1] CEUS cleared by the United States FDA only for LVO imaging.

Europe
GE Healthcare
Beethovenstr. 239
D – 42655 Solingen
T 49 212 2802 0
F 49 212 2802 28

APAC
GE Healthcare Asia Pacific
4-7-127, Asahigaoka,
Hino-shi, Tokyo
191-8503 Japan
T +81 42 585 5111

GE Healthcare
9900 Innovation Drive
Wauwatosa, WI 53226
U.S.A.
www.gehealthcare.com

imagination at work

February 6, 2014
DOC0771639