

LOGIQ[®] e

This is huge.

Product Description

The LOGIQ e is a high performance multipurpose color compact imaging system designed for cardiac, abdominal, obstetrics, gynecology, vascular, musculoskeletal, small parts, pediatric, neonatal and intraoperative applications.



TruScan™ Architecture

GE's exclusive, software-intensive ultrasound imaging platform gives you unsurpassed computational power, image-manipulation capability, workflow flexibility and product upgradeability.

- **TruAccess**- is the new, GE-exclusive, raw-data processing technology that will change the future of ultrasound imaging. By accessing raw data, TruAccess applies live scanning techniques to stored image data. This maintains excellent image quality and ensures unsurpassed image management.
- **SmartScan**- utilizes new advances in operating algorithms and system operations to improve image acquisition and patient throughput while increasing diagnostic confidence and exam consistency.
- **ComfortScan**- our most advanced ergonomic design ever, helps maximize productivity and simplify every exam you perform. The LOGIQBook has increased flexibility and mobility for all scanning conditions.



General Specification

Dimensions and Weight

- Height: 61 mm (2.49 in) console only
76.5 mm (3.12 in) with handle
- Width: 340 mm (13.88 in)
- Depth: 287 mm (11.71 in) console only
327 mm (13.35 in) with handle
- Weight: approx. 4.6 kg (10.1 lb.)

Electrical Power

- Voltage: 100- 240 V AC
- Frequency: 50/60 Hz
- Power: Max. 130 VA with Peripherals

Console Design

- Laptop Style
- Integrated HDD
- Wireless LAN Support
- USB ECG (AHA / IEC) (Optional) Support
- CWD (Optional) Support
- 1 probe port with micro-connector
- Rear handle

User Interface

Operator Keyboard

- Alphanumeric Keyboard
- Ergonomic Hard Key Operations
- Integrated Recording Keys for Remote Control of Peripheral Devices and DICOM Devices
- 6 TGC Pods, with Re-mapping functionality at any depth
- Backlight keys

Display Screen

- Wide High-Resolution Color LCD
- Interactive Dynamic Software Menu
- Wide Angle Adjustable
- Integrated Speakers
- Brightness Adjustment
- Audio Volume Adjustment

System Overview

Applications

- Abdominal
- Cardiology
- Obstetrical
- Gynecological
- Musculoskeletal
- Vascular
- Urological
- Small Parts and Superficial
- Pediatric and Neonatal
- Intraoperative

Scanning Methods

- Electronic Convex
- Electronic Linear with slant scanning

Transducer Types

- Convex Array
- Microconvex Array
- Linear Array
- Phase Array

Operating Modes

- B-Mode
- M-Mode
 - Anatomical M-mode
- Color Flow Mode (CFM)
- Power Doppler Imaging (PDI)
- Continuous Wave Doppler (optional)
- Pulse Wave Doppler (PWD)

Standard Features

- High Resolution Color LCD
- Extended Cine Loop memory with application and preset dependent duration of recorded cine loops
- High Speed Hard Drive
- External DVD R/W storage
- Loops storage-from 'on the fly'scanning and from memory
- Automatic Optimization
 - Auto Tissue Optimization: ATO
 - Auto CFM Optimization: ACO
 - Auto Spectrum Optimization: ASO
- ACE™(Adaptive Color Enhancement)
- TruAccess, Raw Data Processing
- Patient Information Database
- Image Archive on Hard Drive
- Full M&A Calculation Package with Real Time Auto Doppler Calculations
- Vascular Calcs
- Cardiac Calcs
- OB Calcs and Tables
- Fetal Trending
- Multi Gestational Calcs
- Hip Dysplasia Calcs
- Gynecological Calcs
- Urological Calcs
- Renal Calcs

Software Options

- Easy 3D
- DICOM 3.0 Connectivity
- LOGIQ View

Hardware Options

- Battery Pack
- 3 pedal Foot Switch (IPX8)
- Docking Cart

- Simple Cart
- CWD (Optional)
- USB ECG (AHA / IEC) (Optional)

Media & Peripherals

- External USB DVD-RW (standard)
- USB thermal B&W printer, Sony UPD-897 (option)
- USB thermal color printer, Sony UPD-23 MD (option)
- USB DeskJet color printer, HP460/HPK550
- Bluetooth wireless printers, using HP450 printers, where available
- Wireless LAN using Linksys WUSB54G supporting the 802.11a/b/g formats, where available
- Memory Stick

Display Modes

- Simultaneous Capability
 - B/PW/CW
 - B/CFM or PDI
 - B/M
 - Dual B (B/B)
 - Dual B + CFM or PDI
 - Real-time Triplex Mode
- Selectable Alternating Modes
 - B/M
 - B/PW
 - B/CW
 - B + CFM (PDI)/M(optional)
 - B + CFM (PDI)/PW
 - B + CFM (PDI)/CW
 - 3D – Mode (option)
- Multi Image Split Screen
 - Live and/or frozen
 - B + B/CFM or PDI
 - Independent Cine playback
- Zoom: Read/Pan and from archive
- Colorized Image
 - Colorized B
 - Colorized M
 - Colorized PW
 - Colorized CW
- Time line Display
 - Independent Dual B/PW/CW Display
 - Display Formats:
Top/ Bottom or Side/ Side selectable
Format Size: 1/2: 1/2; 1/3: 2/3;full
format, switchable after freeze
 - Update mode: timed based on sweep
- Quad Screen Display access from split Screen

Display Annotation

- Institution/Hospital Name
- Date: 3 types selectable
YY/MM/DD, MM/DD/YY, DD/MM/YY
- Time: 2 types selectable
24 hours, 12 hours
- Operator Identification
- Patient Name: First, Last & Middle
- Patient Identification: 31 characters
- Gestational Age from
LMP/EDC/GA/BBT
- Power Output Readout
 - MI: Mechanical Index
 - TIS: Thermal Index Soft Tissue
 - TIC: Thermal Index Cranial (Bone)
 - TIB: Thermal Index Bone
- System Status (real-time or frozen)
- Probe Orientation Marker: Coincides with a probe orientation marking on the probe.
- Image Preview
- Gray/Color Bar
- Cine Gauge
- Measurement Summary Window
- Measurement Results Window: pre-settable display location
- Probe Type
- Application Name
- Imaging Parameters by Mode (current mode)
 - B/M-Mode
 - Frequency
 - Gain
 - Edge Enhance/Frame Averaging
 - Gray Map
 - Image Depth
 - Dynamic Range
 - Frame Rate
 - % of Power Output
 - Color Flow Mode
 - Color Flow Frequency
 - Color Gain
 - Spatial Filter/Packet Size
 - Line Density/Frame Average
 - PRF
 - Wall Filter
 - % of Power Output
 - PW-Mode
 - Doppler Frequency
 - Doppler Gain
 - PRF
 - Wall Filter
 - Sample Volume Width
 - Dynamic Range
 - Angle Correction
 - % of Power Output
 - CW-Mode
 - Doppler Frequency
 - Doppler Gain
 - PRF
 - Wall Filter
 - Dynamic Range
 - Angle Correction
 - % of Power Output
- Focal Zone Markers
- Body Pattern: 84 types
- B Scale Markers: 3 types
Depth/Width, Depth, Combination
- M Scale Markers: 2 types
Time/Depth, Time
- Image Management Menu: Menu, Delete, and Image Manager
- Image Palette
- Caps Lock: On/Off
- System Messages Display
- Trackball Functionality Status: Scroll, M&A (Measurement and Analysis), Position, Size, Scan Area Width and Tilt
- Battery status
- Biopsy Guide Line and Zone
- Heart Rate
- Primary Parameter Menu (depend on current mode)
 - B Mode
 - Frequency
 - Grey Map
 - Dynamic Range
 - Image Rotate
 - Focus Position
 - Colorize
 - Edge Enhance
 - Updown Invert
 - Focus Number
 - Rejection
 - Virtual Convex
 - Rotation
 - Color Flow Mode
 - Frequency
 - Spatial Filter
 - Frame Average
 - Angle Steer
 - Packet Size
 - PRF
 - Color Map
 - Threshold
 - Color Invert
 - Wall Filter
 - M Mode
 - Gray Map
 - Dynamic Range
 - Sweep Speed
 - Display Format
 - Colorize
 - Edge Enhance
 - Full Timeline
 - Power Output
 - Anatomical M
 - Rejection
 - PW Mode
 - Frequency
 - Baseline
 - Quick Angle
 - Angle Steer
 - Sweep Speed
- PRF
- SV Length
- Colorize
- Angle Correct
- Spectral Invert
- Wall Filter
- Cine Mode
 - Loop Speed
 - Cycle select
 - Start Frame
 - End Frame
 - Frame by Frame
 - Run/Stop
 - Num Cycles
 - Select All
 - Cine Mode select
 - First
 - Last
- Secondary Parameters Menu
 - B Mode
 - Rejection
 - Frame Average
 - Biopsy
 - Line Density
 - Focus Width
 - B Softener
 - Suppression
 - Power Output
 - Biopsy Kit
 - M Mode
 - Rejection
 - Power Output
 - CF Mode
 - Baseline
 - Dynamic Range
 - Line Density
 - Transparency Map
 - Focus Position
 - ACE
 - Capture
 - Spatial Filter
 - Power Output
 - Frame Average
 - PW Mode
 - Rejection
 - Dynamic Range
 - Display Format
 - Full Timeline
 - Trace Direction
 - Auto Calculations
 - Modify Calcs
 - PW/CF Ratio
 - Triplex on/off
 - Duplex
 - Colorize
 - Trace Method
 - Trace Sensitivity
 - Time Resolution

Spectral Average
 Power Output
 -CW-Mode
 Display Format
 Full Timeline
 Trace Direction
 Trace Method
 Trace Sensitivity
 Auto Calculations
 Modify Calcs
 Time Resolution
 Colorize
 Spectral Average
 Power Output
 Cycles to Change

- Measurement Clear Operation: 2 types
 Meas.-only, with-Comment
- Display Unit Age: 5 types
 Year, Month, Week, Day, No display
- Ultra Fast System Boot Up

Pre-Processing

- Acoustic Power Output
- Multi scale Read Zoom
- B/M-Mode
 - Gain
 - TGC
 - Image Reverse
 - Depth
 - Scan Area
 - Auto Optimize (AO)
 - Dynamic Range
 - Focus Number
 - Focus Position
 - Line Density
 - Frequency
 - Frame Average
 - Edge Enhance
 - Focus Width
 - M/D Cursor
 - Sweep Speed for M-Mode
- PW-Mode
 - Gain
 - Sample Volume Gate Position, Length
 - PRF
 - Doppler Frequency
 - Dynamic Range
 - Auto Optimize (ASO)
 - Audio Volume
- CW-Mode
 - Gain
 - Velocity
 - Doppler Frequency
 - Dynamic Range
 - Auto Optimize (ASO)
 - Audio Volume
- Color Flow Mode
 - Gain
 - ROI Position, Size
 - PRF
 - Color Line Density
 - Color Frequency
 - Packet Size
 - Threshold
 - Frame Average
 - Focus Position
- 3D Acquisition (option)
 - Scan Distance
 - ROI Style
 - Display Format
 - Scan Plane
 - Acquisition Mode

Post-Processing

- TruAccess: GE-exclusive, raw-data digital processing
- Multi scale read zoom
- B/M-Mode
 - Gain
 - Image Reverse
 - Auto Optimize (ATO)
 - Compounding
 - PIH
 - Image Rotation
 - Gray Map
 - Colorize
 - Rejection
 - B Softener
 - Sweep Speed for M-Mode
- PW-Mode
 - Gain
 - Baseline
 - Angle Correct
 - Quick Angle
 - Doppler Invert
 - Display Format
 - Sweep Speed
 - Full Timeline
 - Rejection
 - Colorize
 - Compression (Dynamic Range)
 - Auto Calcs
 - Trace Direction
 - Modify Calcs
 - Number of Average Cycles
 - Trace Method
 - Trace Sensitivity
 - Auto Optimize (ASO)
- CW-Mode
 - Gain
 - Baseline
 - Angle Correct
 - Quick Angle
 - Doppler Invert
 - Display Format
 - Sweep Speed
 - Full Timeline
 - Rejection
 - Colorize
 - Compression (Dynamic Range)
 - Auto Calcs
 - Trace Direction
 - Modify Calcs
 - Number of Average Cycles
 - Trace Method
 - Trace Sensitivity
 - Auto Optimize (ASO)
- Color Flow Mode
 - Gain
 - Baseline
 - Color Invert

System Parameters

System Setup

- Diagnostic Categories: 8 types, pre-settable
 Rad/Abd, OB, GYN, Cardiac, Vasc, Urol, Smallparts, Pediatric
- User Programmable Preset Capability
- Factory Default Preset Data
- Languages setup:
 English, Chinese, Japanese, French, German, Spanish, Italian, Portuguese, Russian, Greek, Finnish, Swedish, Dutch
- Languages for Manuals:
 English, French, German, Spanish, Italian, Portuguese, Japanese
 Chinese
- Operation Error Beep
- Body Surface Area: 2 types
 Oriental, Occidental
- OB Report Format: 4 types
 Tokyo Univ., Osaka Univ., USA, Europe
- EFBW: 8 types
 Tokyo Univ., Osaka Univ., USA and Europe (Shephard, Merz, Hadlock/Shephard, Williams, Brenner)
- CUA/AUA for Hadlock
- Body Pattern Copy to Active Side:
 On/Off
- Colorized B/M/PWD/CWD: 4 types for each
- Programmable Annotation Library:
 24 annotations
- Customized Common Home Position
- Menu Selection at New Patient: 2 types
 Patient Entry, Schedule
- Sort Criteria for Schedule List: 2 types
 Date&Time, Name
- Patient Name Format: 2 types
 Full Name, Last&First
- Auto Deletion of Transferred Queue:
 Yes/No
- Pre-settable Doppler Audio Volume

- Color Map
- Threshold
- Frame Average (in loop images)
- Easy 3D (option)
 - Threshold (Opacification)
 - Mix Type 1
 - Render
 - Texture
 - Gray Surface
 - Scalpel
 - Auto Movie
 - Undo
 - Reset

Imaging Processing and Presentation

TrueScan : software Intensive Ultrasound Imaging Platform

- Digital Beamformer
- Wide Band Beamformer implementing latest miniaturization high performance technology
- Full Digital Processing Channel Technology
- Displayed Imaging Depth: Zoom and probe dependent
- Multi Transmission Focus technology
 - probe and application dependent
 - Focal Zone Position
- Continuous Dynamic Receive Focus/Aperture
- Multi-Frequency/Wideband Technology
- Adjustable Field of View (FOV)
- Image Reverse: Right/Left
- Image Rotation: 2 steps
Rotation: 0°, 180°

CINE Memory/Image Memory

- Typical duration depends on FOV, Scanning Lines etc.
- CINE Gauge and CINE Image Number Display
- CINE Review: Frame-by-frame, Loop
- CINE Review Speed: 9 types
1/1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, 1/9
- Selectable CINE Sequence for CINE Review
- Start and End Frame Selections for Loop Playback
- Separation Maker to Indicate Time Discontinuity
- Measurements, Calculations and Annotations on CINE Playback

- Scrolling Timeline Memory

Image Archive/Connectivity

- Clipboard: displays thumbnail images of the acquired data for the current exam
- Previewing Clipboard Images: An enlarged preview of the image
- Recalling Images from the Clipboard
- Image Browser: Archived images from past patient exams appear as well as images stored for the current exam
 - Previewing an Image
 - Grouping a Set of Images
 - Analyzing Images
- Image Management
 - Select All/Unselect All
 - Permanent Store
 - Discard all the Temporary Images
 - Delete Selected Image
 - Analyze
- Ethernet Network Connection
- Configurable 3 Print (Recording) Keys (P1-P3) to Multiple Output Devices/Workflows
- Archiving Format:
 - DICOM with ultrasound raw data
 - DICOM
- Capture Area: pre-settable for each print key
 - Video Area
 - Application Window
 - Whole Screen
- Archiving Image Frames: / pre-settable for each print key
 - Single: stores single frame only
 - Multiple: stores cineloop
 - Secondary Capture: screen shot
- Image Compression/Picture Quality: pre-settable for each print key
 - Quality: 1% to 100%
- Dataflow: a set of pre-configured services
 - When you select a dataflow, the Ultrasound system automatically works according to the services associated with the dataflow
- Configurable Examination List Window, Patient Information Window, and Search/Create Patient Window
 - Free text addresses, birth date, extended patient dialog in Pts Info window
 - Extended search dialog, auto search for patient in Search/Create Pts window
 - Pre-defined text directly in Exam List window

- Examination list on Archive button
- Automatic generation of patient ID
- Request acknowledge of End Exam action
 - Go directly screen from search
 - Detect unfinished examination
- Tools
 - Verify DICOM directory on removable media
 - Format removable media (rewritable DVD)
- Views: shows you an overview of the Ultrasound system's connectivity architecture
 - The currently selected dataflow
 - All configured data flows
 - The network structure tree
 - The configured buttons data flows
- AVI and JPEG Export
DICOM Support (option)
- Verify
- Print
- Store
- Modality Worklist
- Multiframe
- Storage Commitment
- Modality Performed Procedure Step (MPPS)
- Media Exchange
- Off network/mobile storage queue

Scanning Parameters

B-Mode

- B/M Acoustic Output: 0 – 100%, 10% step
- Image Reverse: On/Off
- B Colorize: 8 types
- Thermal Index: TIC, TIS, TIB
- Softener: 4 steps
- Focus Number: 8 steps
- Line Density: 6 steps (Probe dependent)
- Frame Average: 6 steps
- Edge Enhance: 6 steps
- Angle (deg): probe dependent, 10 – 120°, 10 step
- Gray Scale Map: 40 types
- Harmonic start: on/off
- Virtual Convex: on/off
- Rejection: 6 steps
- Frequency: 3-4 steps, probe dependent

Color Flow Mode

- Base Line
- Invert: On/Off

- Capture: 4 steps pre-settable
- CF/PDI Focus Depth: 21 steps default pre-settable
- CF/PDI ACE: On/Off
- CF/PDI Acoustic Output: 0 – 100%, 10% step
- Packet Size: 6, 8, 10, 12, 14 (Convex) 8,10,12,14, 16 (Linear)
- Line Density: 7 steps (probe dependent)
- Frame Average: 7 steps
- Probe and application dependent PRF
- Spatial Filter: 6 steps
- Wall Filter: 7 steps
- Angle/Width (deg, mm): probe dependent
- CF/PDI Vertical Size (mm): default pre-settable
- CF/PDI Center Depth (mm): default pre-settable
- CF/PDI Frequency: 2 steps (Convex) 3 steps (Linear)
- CF/PDI Focal Number: 1
- Color Map: 13 types
- Color Threshold: 10 – 100 %, 5 % step

PDI-Mode

- PDI Map: 11 types
- CF/PDI ACE: On/Off
- CF/PDI Focus Depth: 21 steps default pre-settable
- CF/PDI Acoustic Output: 0 – 100%, 10% step
- Packet Size: 6, 8, 10, 12, 14(Convex) 8, 10, 12,14, 16(Linear)
- Spatial Filter: 6 steps
- Frame Average: 8 steps
- Depth and probe dependent PRF
- Power Threshold: 10 – 100 %, 5 % step
- CF/PDI Vertical Size: default pre-settable
- CF/PDI Center Depth: default pre-settable
- CF/PDI Focal Number: 1
- Wall Filter: 7 steps
- CF/PDI Frequency: 2 steps (Convex) 3 steps (Linear)

M-Mode

- Sweep Speed: 8 steps
- M Color: 4 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
- Edge Enhance: 6 steps
- Gray Scale Map: 40 types

PW/CW-Mode

- Maximum and Minimum Velocity Scales
- Gray Scale Map: 7 types
- Base Line: 0 - 100 %, 10 % step
- 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
- 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
- PW Acoustic Output: 0 - 100 %, 10 % step
- Spectral Averaging: 3 steps pre-settable
- Time Resolution: 4 steps
- PW/CF Ratio: 1, 2, 4
- Rejection: 15 steps
- Wall Filter: depends on probe/application
- PW Angle Steer: 0, +/- 10, 15, 20°
- Sample Volume Depth: 28 steps default pre-settable
- Audio Volume
- PW Frequency: 3 steps (Convex) 3 steps (Linear) 3 steps (Sector)

LOGIQ view

- Available on the following probes
 - 12L
 - 8L

Virtual Convex

- Available on the following probes
 - 12L
 - 8L

Measurements / Calculations

General Measurements/Calculations Mode Measurement

- B-Mode
 - Distance
 - Circumference/Area (Ellipse/Trace)
- M-Mode
 - Tissue Depth (Distance)
 - Time Interval
 - Depth Difference with Time Interval and Slope
- Doppler Mode
 - Velocity

- TAMAX, TAMIN, and TAMEAN (Manual/Auto Trace)
- Two Velocities with Slope and Time Interval
- Time Interval

Generic Measurement

- B-Mode
 - % Stenosis
 - Volume
 - Angle
 - A/B Ratio
- M-Mode
 - % Stenosis
 - A/B Ratio
 - Heart Rate
- Doppler Mode
 - PI (Pulsatility Index)
 - RI (Resistive Index)
 - S/D Ratio
 - D/S Ratio
 - A/B Ratio
 - Max PG (Pressure Gradient)
 - Mean PG (Pressure Gradient)
 - SV (Stroke Volume)
 - FV (Flow Volume)
 - CO(cardiac output)
 - Heart Rate

Abdomen and Small Parts Measurements/Calculations

- Splenic Length, Width, and Height
- Aorta Diameter
- Renal Length
- Doppler Abdomen and Renal Artery Exam Calcs
 - Acceleration
 - Acceleration Time (AT)
 - Peak Systole (PS), End Diastole (ED), or Mid Diastole (MD)
 - Pulsatility Index (PI)
 - S/D or D/S Ratio
 - Resistive Index (RI)
 - TAMAX
- Thyroid Length, Width, and Height

Obstetrics Measurements/Calculations

- Abdominal Circumference (AC)
- Amniotic Fluid Index (AFI) [Moore]
- Antero-PosteroTrunk Diameter and Transverse Trunk Diameter (APTD-TTD)
- Antero-PosteroTrunk Diameter by Transverse Trunk Diameter (AxT)
- Biparietal Diameter (BPD)
- Crown Rump Length (CRL)
- Cardio-Thoracic Area Ratio (CTAR)

- Estimated Fetal Weight (EFW)
- Femur Length (FL)
- Foot Length (Ft)
- Gestational Sac (GS)
- Head Circumference (HC)
- Humerus Length (HL)
- Length of Vertebra (LV)
- Occipitofrontal Diameter (OFD)
- Transverse Abdominal Diameter (TAD)
- Transverse Cerebellar Diameter (TCD)
- Thorax Transverse Diameter (ThD)
- Tibia Length (Tibia)
- Ulna Length (Ulna)
- Multi-Gestational Calculations
 - Up to 4 fetuses
 - Comparison of multiple fetus data on a graph and a worksheet

OB Worksheet

- Patient Information
 - Fetus Number
 - CUA/AUA Selection
 - Fetus Position
 - Placenta
- Measurement Information
 - AFI
 - AC
 - HC
 - BPD
 - FL
- Calculation Information
 - EFW
 - EFW GP (growth percentile)
 - FL/BPD
 - FL/AC
 - HC/AC
 - FL/HC
 - CI (Cephalic Index)

OB Graphs

- Fetal Growth Curve Graphs
 - Normal growth curve, positive and negative standard deviations or applicable percentiles, and ultrasound age of the fetus
 - One measurement per graph
 - Single or Quad views
- Fetal Growth Bar Graph
 - Ultrasound age and gestational age
 - Plots all measurements on one graph

Gynecology

- Measurements/Calculations
- Ovary Length, Width, and Height
 - Uterus Length, Width, and Height
 - Ovarian Follicle Measurements

- 1 distance
- 2 distances
- 3 distances
- Endometrium thickness (Endo)

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 Arteriosus Diameter (PDA Diam)
 - Pericard Effusion (PEs)
 - Patent Foramen Ovale Diameter (PFO Diam)
 - Ventricular Septal Defect Diameter (VSD Diam)
 - Interventricular Septum (IVS) Fractional Shortening (IVSd, IVSs)
- Tricuspid Valve
 - Tricuspid Valve Area (TV Planimetry)
 - 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 (LVID)
- Left Ventricle Posterior Wall Thickness (LVPW)
- Mitral Valve
 - E-Point-to-Septum Separation (EPSS)
 - Mitral Valve Leaflet Separation (D-E Excursion)
 - Mitral Valve Anterior Leaflet Excursion (D-E Excursion)
 - Mitral Valve D-E Slope (D-E Slope)
 - Mitral Valve E-F Slope (E-F Slope)
- Pulmonic Valve
 - QRS complex to end of envelope (Q-to-PV close)
- Right Ventricle
 - Right Ventricle Internal Diameter (RVIDd, RVIDs)
 - Right Ventricle Wall Thickness (RVAWd, RVAWs)
 - Right Ventricle Outflow Tract Diameter (RVOT Diam)
 - Right Ventricle Ejection Time (RVET)
 - Right Ventricle Pre-Ejection Period (RVPEP)
 - 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 (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 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)
- Mitral Valve Flow Deceleration (MV Trace)
- Mitral Valve Pressure Half Time (PV PHT)
- Mitral Valve Flow Acceleration (MV Trace)
- Mitral Valve E-Peak to A-Peak Ratio (A-C and D-E) (MV E/ARatio)
- Mitral Valve Acceleration Time (MV Acc Time)
- Mitral Valve Deceleration Time (MV Dec Time)
- Mitral Valve Ejection Time ((MV Trace)
- Mitral Valve A-Wave Duration (MV A Dur)
- Mitral Valve Time to Peak (MV Trace)
- Mitral Valve Acceleration Time/Deceleration Time Ratio (MVAcc/Dec Time)
- Stroke Volume Index by Mitral Flow (MVA Planimetry, MVTrace)
- 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 (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 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)

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, 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)
 - 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)

Cardiac Worksheet

Vascular

Measurements/Calculations Exam Categories

- Generic
- Carotid Artery
- Lower Extremity Artery
- Lower Extremity Vein
- Abdomen
- Renal Artery
- Upper Extremity Artery
- Upper Extremity Vein

B-Mode Measurements

- % Stenosis
 - Diameter
 - Area
- Volume
 - One distance
 - Two distances
 - Three distances
 - One ellipse
 - One distance and one ellipse
- A/B Ratio
 - Diameter
 - Area

M-Mode Measurements

- % Stenosis
 - Diameter
- A/B Ratio
 - Diameter
 - Time
 - Velocity

Doppler Mode Measurements

Auto Vascular Calculation

- Acceleration
- Acceleration Time (AT)
- End Diastole (ED), Mid Diastole (MD) or Peak Systole (PS)
- ED/PS or PS/ED Ratio
- Heart Rate
- Pulsatility Index (PI)
- Resistive Index (RI)
- TAMAX
- Edit Trace

Vascular Worksheet

- Vessel Worksheet
- Vessel Summary
- Examiner's Comments

- Generic Worksheet
- Intravessel Ratio

Pediatrics

Measurements/Calculations

- Hip Dysplasia
- Alpha HIP
- d: D Ratio

Probes

- 4C-RS Wide Band Multi Frequency
Convex Probe
 - Applications: Abdomen, OB Gyn, Urology
 - Harmonic Imaging
 - Reusable Bracket, Disposable Sleeve
- 3S-RS Wide Band Multi Frequency
Phase Probe
 - Applications: Cardiac, Abdomen, OB Gyn
 - Harmonic Imaging
 - Biopsy Guide Available : Multi Angle
- 8L-RS Wide Band Multi Frequency
Linear Probe
 - Applications: Vascular, Small Parts, Neonatal, Pediatrics
 - Harmonic Imaging
 - Biopsy Guide Available : Multi Angle
- 12L-RS Wide Band Multi Frequency
Linear Probe
 - Applications: Vascular, Small Parts, Neonatal, Pediatrics
 - Harmonic Imaging
 - Biopsy Guide : Not Available
- E8C-RS Wide Band Multi Frequency
Microconvex Probe
 - Applications: OB, Gyn, Urology, Endocavity
 - Harmonic Imaging
 - Biopsy Guide Available : Fixed Angle, Disposable
- 8C-RS Wide Band Multi Frequency
Microconvex Probe
 - Applications: Pediatrics
 - Harmonic Imaging
 - Biopsy Guide Available : Biopsy not support

- i12L-RS Wide Band Multi Frequency
Linear Probe
 - Applications: Vascular, Small Parts, Intra-operative
 - Harmonic Imaging
 - Biopsy Guide Not Available

Inputs and Outputs

- Outputs
 - SVGA
 - Earphone Port
- Connectors
 - USB (Footswitch, DVD-RW, video printer)
 - DC Power input
 - Ethernet port
 - Docking Connector

Safety Conformance

LOGIQ *e* is:

- 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
 - IEC 601157 Declaration of acoustic output
 - ISO 10993 Biological evaluation of medical devices
 - NEMA UD3 Acoustic output display (MI, TIS, TIB, TIC)

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

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