

Versana Premier™ Lotus

Ultrasound System

Specification sheet

Rev. 3

Versana Premier Lotus ultrasound is designed to help you apply your clinical and imaging skills to deliver high-quality care to the wide range of patients you see daily. This high-quality system is well suited for general practice clinics, physical check-up centers, community healthcare centers, scanning center, and other facilities worldwide that offer basic medical care. Its versatility covers a broad range of examinations: abdominal, OB/GYN, cardiac, small parts, urology, vascular, pediatrics, MSK, thoracic, etc.



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General specifications

Dimensions and weight

Height	Less than 1840 mm
Width	Less than 600 mm
Depth	Less than 970 mm
Weight	Less than 73 kg without any probes or peripherals

Electrical power

Voltage 100 – 240 VAC
Frequency 50/60 Hz
Power consumption maximum of 500 VA with peripherals
Boot up time <25 sec

Control design

4 active probe ports
Integrated SSD (512 GB)
Integrated speakers
Probe holders, removable for cleaning and washing
Gel holder, removable for cleaning and washing
Gel warmer, switchable left/right
Front and rear handles
Probe cable management slots and hooks
Easily removable air filters
Wheels: Locking mechanism that provides rolling lock and caster swivel lock
Paper tray (optional)
Accessory box (optional)
Flexible Cable hook (optional)
Drawer (optional)
Endo probe holder (optional)
Foot Rest Accessory Tray (optional)

User interface

Operator keyboard

Height adjustable
Push-Push A/N keyboard (optional)
15.6" touch panel support multiple gesture recognition and user configured layout

Monitor

21.5" high-resolution: 1920 x 1080 LED backlit
23.8" (604.5 mm) high-resolution: 1920 x 1080 LED backlit
Flexible monitor arm
Tilt/Rotate <ul style="list-style-type: none">• Tilt angle: +45°/-90°• Rotate angle: -90°/+90°
Fold-down and lock mechanism for transportation
Brightness and contrast adjustment

System overview

Applications

Abdominal
Obstetrical
Gynecological
Small parts (includes breast, testicles, thyroid)
Urology
Pediatric
Cardiac adult
Cardiac pediatric
Vascular/peripheral vascular
Musculoskeletal conventional
Musculoskeletal superficial
Thoracic/pleural
Transcranial
Transesophageal
Transrectal
Transvaginal
Interventional guidance (includes tissue biopsy, fluid drainage, vascular and non-vascular access)

System overview *(cont.)*

Scanning methods

Electronic convex

Electronic linear

Electronic micro convex

Electronic sector

Mechanical volume sweep

Transducer types

Convex array

Linear array

Microconvex array

Sector phased array

Volume probes (4D)

Bi-plane array, two convex transducers

Bi-plane array, one linear and one convex transducers

Operating modes

B-Mode

Coded Phase Inversion Harmonic Imaging

M-Mode

Anatomical M-Mode (option)

Color M-Mode

Color Flow Mode (CFM)

Power Doppler Imaging (PDI)

Directional PDI

B-Flow (option)

B-Flow Color (option)

PW Doppler with high PRF

CW Doppler mode (option)

TVI mode (option)

3D/4D volume modes (option)

Curve AMM (option)

Contrast imaging (option)

Elastography Strain (option)

System standard features

Installation wizard

Whizz B-Mode

Whizz CF Mode

Auto Bladder

CrossXBeam™

SRI-HD (High Definition Speckle Reduction Imaging)

B-Steer

Hip dysplasia calculations

Virtual Convex

Patient information database

Image Archive on integrated SSD

Raw data analysis

Voice comments

Real-time automatic Doppler calculations

OB calculations

Fetal Growth Chart

SonoBiometry (BPD/HC/AC/HL/FL)

Digital lateral gain compensation

Multi-gestational calculations

Gynecological calculations

Vascular calculations

Breast Productivity

Urological calculations (stepper volume calculation (prostate), joint use with stepper-grid system)

Renal calculations

Cardiac calculations

On-board reporting package

Network storage

eDelivery

Remote capability: CSD

My Trainer

Scan Coach with Whizz Label function

Scan Assistant

Standby mode

System standard features *(cont.)*

Whizz Note

V-zoom

Whizz Report

Digital Keyboard

Digital time gain compensation

e-Delivery

System options

CW Doppler

Anatomical M-Mode

Curve AMM

LOGIQ View

Strain

Strain Rate

Digital Expert

Intensity Ratio

Breast Productivity-AI*

Whizz Follicle

Image Insights

Thyroid Productivity-AI*

Whizz RenderLive

LI-RADS®

Breast productivity with BI-RADS® and auto contour breast

Thyroid productivity with TI-RADS® and auto contour

Barcode reader

Probe Check

Elastography Strain

Advanced 3D (Easy 3D)

B-Flow (B-Flow Color)

Contrast agency detection

Tissue Velocity Imaging (TVI) with Q-Analysis

Time Velocity M-Mode Imaging

Stress Echo

Auto EF

Static 3D/Real-time 4D

- TUI
- VOCAL

Auto intima-media thickness

Needle Recognition

Follow-up tool

DICOM® 3.0 connectivity

Whizz Label**

Whizz Easy Style

V-live 2.0

Peripheral options

Sony UP-D898MD B/W thermal printer

Sony UP-D898MD B/W thermal printer with fixture kit

Sony UP-898DC Printer

Sony UP-D25MD color thermal printer

1-pedal type footswitch 'Whanam FSU-1000'

3-pedal type footswitch 'MKF 2-MED USB GP26'

32 GB USB Stick

1 TB external USB HDD

1TB Second SSD

DVD RW kit

USB ECG kits (AHA/IEC)

USB wireless adaptor (sales availability varies in different countries)

HP Office 200 printer

Bluetooth adapter

Video Output Adapter

*Only for China

**Not available for China

Display modes

Live and stored display format

- Widescreen
- Full size and split screen
 - Both with thumbnails for still and Cine

Review image format: 4x4 and thumbnails for still and Cine

- Simultaneous capability
- Dual B (B/B)
 - B/CFM or PDI
 - B/PW or B/M
 - B + CFM/M
 - Real-time triplex mode (B + CFM or PDI or B-Flow color+ PW)

Zoom Write (HD)/read 67X

- Colorized Image
- Colorized B
 - Colorized M
 - Colorized CW
 - Colorized 4D
 - Colorized B-Flow
 - Colorized PW
 - Colorized 3D

- Timeline display
- Independent dual B/PW or CW display
 - Display Format
 - Top/bottom selectable format (Size: 1/2:1/2; 1/3:2/3; 2/3:1/3)
 - Side/side selectable format (Size: 1/2:1/2; 1/4:3/4; TL only)

Virtual convex

LOGIQ View

TUI (Tomography Ultrasound Imaging)

Selectable alternating modes

B/M

B/PW

B + CFM/M

B + CFM (PDI)/PW (CW)

Freehand 3D-Mode

Freehand 3D-Mode Color

B/CW

B + CFM (PDI)/CW

Multi-image split screen (quad screen)

Live and/or frozen

B + B/CFM or PDI

PW/M

Independent CINE playback

Display annotation

General user interface

Patient name: First, Last (Max. 28 characters displayed per each; up to 64 total characters per each)

Patient ID (Max. 64 characters)

Other ID (Max. 64 characters)

Age, sex and date of birth

Hospital name (Max. 23 characters displayed)

Date format:
4 types selectable

- MM/DD/YYYY
- DD/MM/YYYY
- YYYY/MM/DD
- YYYY-MM-DD

Time format:
2 types selectable

- 24 hours
- 12 hours

Gestational age from

- LMP
- EDD
- GA
- BBT

Displayed acoustic output

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

% of maximum power output

Probe name

Map names

Probe orientation

Depth scale marker

Lateral scale marker

Focal zone marker

Image depth

Zoom depth

B-Mode

Gain

Dynamic range

Imaging frequency

Edge enhance

Frame average

Frame rate

Gray map

SRI-HD

CrossXBeam

Whizz

Display annotation *(cont.)*

Color Flow Mode

Line density

Frame average

Packet size

Color velocity range and baseline

Color threshold marker

Color gain

Invert

Doppler frequency

PDI Mode

Line density

Frame averaging

Packet size

Directional PDI

Color threshold marker

PDI gain

Invert

Color scale: 2 types

- Power
- Directional PDI

B-Flow/B-Flow Color Mode

Gain

Background

SRI-HD

Accumulation

Flow Type

Rejection

Colorize

Edge enhance

Gray map

Frame average

Power output

Sensitivity/PRI

Dynamic range

B-Flow/B-Flow Color Mode *(cont.)*

Frequency

Suppression

Flash suppression

Enhance

Threshold

Map compress

Map

Wall filter

Transparency Map

M-Mode

Gain

Compression

Sweep Speed

AMM

Curved AMM

Doppler Mode

Gain

Angle

Sample Volume depth and SV Length

Wall filter

Velocity and/or frequency scale

Spectrum invert

Sweep speed

Scale

Doppler frequency

Elastography Strain

Frame reject

Axial smoothing

Noise reject

Sample volume

Lateral smoothing

Window

Map

Frame average

Display annotation *(cont.)*

Elastography Strain *(cont.)*

Line density

Frequency

Soft compress

Hard Compress

Scale

3D/4D

Tile

Mix

Active curve

Reset curve

Lower Thresh.

Volume angle

B quality

3D orient

Render mode

Colorize

Direction

Render 1 gray

Render 2 gray

Transparency

Reference image

Cut mode

Cut depth

Depth

Rotational angle

Step angle

Rotation axis

Start angle

End angle

Loop speed

V-live 2.0

Easy 3D

Utilities

Texture

Gray surface

Render

Threshold 1

Threshold 2

Scan distance

Colorize

Advanced 3D

Define axis

Group planes

Reslice

Tile

Contrast

Visualization (Hybrid Contrast, Contrast, Tissue)

Contrast Clock 1

Contrast Clock 2

Contrast only

Single View

DualView

Trigger off

Time delay

Dynamic range

SRI HD

Colorize

Gray map

Frame average

Frequency

Line density

Accumulation

Flash

Contrast tech

Max enhance

Target MI

General system parameters

System Setup

9 pre-programmable categories

User programmable preset capability

Factory default preset data

Languages English, Latin American Spanish, French, German, Italian, Brazilian Portuguese, Chinese (simplified), Swedish, Russian, Norwegian, Danish, Dutch, Finnish

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

User defined annotations

Body patterns

Customized comment home position

Patient workflow: Traditional/simplified

System scanning parameters

VisionBoost architecture

128 physical channels

400,000 system processing channels

Max. frame rate: 1789 fps, depending on probe and mode (Convex probe under whole view angle and 18 cm scanning depth, up to 46 fps; Sector probe under with view angle of 90° and 18 cm scanning depth, up to 81 fps)

Displayed imaging depth: 1 – 50 cm

Minimum depth of field: 0 – 1 cm (zoom), depending on probe

Maximum depth of field: 0 – 50 cm, depending on probe

Transmission focus: 1 – 8 focal points selectable, depending on probe and application

Continuous dynamic receive focus/aperture

Multi-frequency/wideband technology

Frequency range: 1.7 to 20 MHz

Shades of gray: 256

Systematic dynamic range: 275 dB

Adjustable Field of View (FOV): up to 179°, depending on probe

Image reverse: right/left

Image rotation of 0°, 90°, 180°, 270°

B-Mode

Acoustic power output 0 – 100%, 2, 5 and 10 steps

Gain From 0 – 90 dB, 1 dB per step

B-Mode (cont.)

Adjustable dynamic range 36 – 96 dB, 3 or 6 dB per step

Frame averaging 8 steps

Gray scale map 8 types, depending on probe

Colorize 10 types

Frequency Up to 4 selectable, depending on probe

Line density Max. 852, 5/6 steps, depending on probe

Line density zoom 5 steps

Thermal index T1c, T1s, T1b

Image reverse On/off

Focus number 8 steps

Focus width 3 types

Suppression 6 steps

Edge enhance 7 steps

Rejection 6 steps

Steered linear ± 12°, ± 15°, depending on probe

FOV or angle, depending on probe

SRI-HD Up to 7 levels selectable

CrossXBeam Up to 9 angles selectable, depending on probe

Depth 1 – 50 cm, 0.5 cm or 1 or 2 per step, depending on probe

Coded Harmonic Imaging

Coded Phase Inversion Harmonic Imaging

Available on all probes except cardiac probes

Line density 5/6/7 steps, depending on probe

Line density zoom 5 steps

Suppression 6 steps

Edge enhance 7 steps

Gray scale map 8 types

Colorize 10 types

Gain 0 – 90 dB, 1 dB per step

Dynamic range 51 – 78 dB, 3 dB per step; 36 – 48/78 – 96 dB, 6 dB per step

Rejection 6 steps

Frequency Up to 5 steps, depends on probes

General system parameters *(cont.)*

SRI-HD

High Definition Speckle Reduction Imaging provides multiple levels of speckle reduction

Compatible with side-by-side DualView display

Compatible with all linear, convex and sector transducers

Compatible with B-Mode, 3D/4D imaging

CrossXBeam

12 pre-programmable categories

User programmable preset capability

Compatible with

- Color Mode
- SRI-HD
- Virtual Convex
- PW
- Coded Harmonic Imaging

Available on 4C-RS, L6-12-RS, E8C-RS, 8C-RS, RAB2-6-RS, L8-18i-RS, BE9CS-RS, E8Cs-RS, 12L-RS, LK760-RS, RIC5-9A-RS, C1-5-RS, 9L-RS, L3-12-RS, L4-20t-RS, IC9-RS, E7C8L-RS

Color Flow mode

Baseline	0 – 100%, 10% per step
Invert	On/off
CF/PDI focus depth	Default pre-settable for 10 – 100% of ROI in depth, 15% or 20% per step
CF/PDI flash suppression	5 steps
CF/PDI angle steer	0, ± 10°, ± 15°, ± 20°
Packet size	8 – 24, depending on probe and application
Line density	5 steps
Line density zoom	5 steps
Frame average	7 steps
PRF	0.1 – 25 KHz, 19 steps
Spatial filter	6 steps
Gain	0 – 40 dB, 0.5 dB per step
Wall filter	4 steps, depending on probe and application
Scanning size (FOV or angle)	Depending on probe
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 6 steps, depending on probe

Color Flow mode *(cont.)*

Color maps, including velocity variance maps	20 types, depending on probe and application
Transparent map	5 steps
Color threshold	0 – 100%, 10% per step
Accumulation	5 steps
Flash suppression	

Power Doppler Imaging mode

PDI map	14 types
CF/PDI focus depth	Default pre-settable for 10 – 100% of ROI in depth, 15% or 20% per step
CF/PDI acoustic output	0 – 100%, 2%, 5% or 10% per step
CF/PDI angle steer	0, ± 10°, ± 15°, ± 20°
Packet size	8 – 24, depending on probe and application
Spatial filter	6 steps
Frame average	7 steps
PRF	0.1 – 25 KHz
Power threshold	0 – 100%, 10% per step
Gain	0 – 40 dB, 0.5 dB per step
Wall filter	4 steps, depending on probe and application
CF/PDI frequency	Up to 6 steps, depending on probe
Transparent map	5 steps
Invert	On/Off
Accumulation	8 steps

Auto Optimization

Optimize B-Mode image to improve contrast resolution

Selectable amount of contrast resolution improvement

Auto-Spectral Optimize adjusts

- Baseline
- Invert
- PRF (on live image)

General system parameters *(cont.)*

M-Mode

Gain	-20 – 20 dB, 1 dB per step
Gray scale map	8 types, depending on probe
Colorize	10 types
Rejection	6 steps
M/PW display format	V-1/3B, V-1/2B, V-2/3B, H-1/2B, H-1/4B, timeline only (Vert 1/3B, Vert 1/2B, Vert 2/3B, Horiz 1/2B, Horiz 1/4B, TL only)
Dynamic range	36 – 96 dB/36 – 48 dB/78 – 96 dB, 6 dB per step; 48 – 78 dB, 3 dB per step

Anatomical M-Mode (option)

M-Mode cursor adjustable at any place
Can be activated from live scan, cine loop (frozen, or stored loop)
Measure and analysis capability
Available with Color Flow mode
Curved AMM

Pulse Wave Doppler mode

Acoustic power	0 – 100%, 2, 5 and 10 steps
Gain	0 – 85 dB, 1 dB per step
Gray scale map	Up to 8 types
PRF	0.3 – 27.9 KHz
Transmit frequency	1.7 – 10 MHz, depending on probe
Wall filter	5.5 – 5000 Hz, 27 steps, depending on probe
PW colorization	Up to 6 types
Velocity scale range	<ul style="list-style-type: none"> 0.1 – 6670 cm/s Sweep speed: 0 – 7, 8 steps
Sample volume depth	0.1 – 50 cm, 0.1 cm per step, depending on probe
SV gate	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16 mm
Angle correction	-90° – 90°, 1° per step
Spectrum inversion	On/off
Duplex	Simultaneous: On/off (PW only)
PW angle steer	0°, ± 10°, ± 15°, ± 20° (use angle steer of B-Mode)

Pulse Wave Doppler mode *(cont.)*

Trace method	Off, Max, Mean
Baseline shift	11 steps
Doppler Auto Trace	
Compression	0.5 – 2.4 (0.5, 0.7, 0.9, 1, 1.1, 1.4, 1.6, 2, 2.4)
Trace direction	Above, below, both
Trace sensitivity	0 – 40, 2 per step

Continuous Wave Doppler mode (option)

Gray scale map	8 types
Baseline	11 steps
Angle correct	-90° – 90°, 1° per step
Colorize	6 types
Invert	On/off
Gain	0 – 85 dB, 1 dB per step
Wall filter	5.5 – 5000 Hz, 27 steps, depending on probe and application
CW-Mode includes	<ul style="list-style-type: none"> Transmit frequency: 1.9, 4.2, 5, 6.2 MHz CW colorization: tint map A/B/C/D/E/F Velocity scale range: 0.2 – 6105 cm/s Spectrum inversion: On/off Trace method: Max, Mean, Off Doppler Auto Trace: Frozen, Live, Off Trace direction: Above, below, both
Trace sensitivity	0 – 40, 2 per step

Cine memory/image memory

Cine memory: 384 MB
Selectable Cine sequence for Cine review
Prospective Cine mark
Measurements/calculations and annotations on Cine playback
Scrolling timeline memory
Dual image Cine display
Quad image Cine display

General system parameters *(cont.)*

Cine memory/image memory *(cont.)*

Cine gauge and Cine image number display

Cine review loop

Cine review speed: 11 steps (11, 13, 14, 17, 22, 25, 31, 48, 100, 200, 400%)

Image storage

On-board database of patient information

Conversion to formats: JPEG, AVI, WMV

Live image and stored image side-by-side display

Reload of archived data sets

Network storage support for Import, Export, DICOM Read, SaveAs, MPEGVue

Storage formats

- DICOM – compressed/uncompressed, single/multi-frame, with/without Raw Data
- Export JPEG, WMV (MPEG 4) and AVI formats
- DICOM still image storage size: ~2.1 MB
- Display format: full size, 4x4 and thumbnails

Storage devices

- Internal hard drive partition of 356 GB for image storage
- External USB HDD and USB memory stick support for Import, Export, DICOM Read, SaveAs, and MPEGVue
- CD-RW storage: 700 MB
- DVD storage: -R (4.7 GB)

Connectivity and DICOM

Ethernet network connection

- DICOM 3.0 (option)
- Verify
- Print
- Store
- Modality worklist
- Storage commitment
- Modality Performed Procedure Step (MPPS)
- Query/retrieve
- Structured reporting template (Can be compared to vascular and OB standard)
- Remote capability InSite™ ExC
- eDelivery

Virtual Convex

Provides a convex field of view

Compatible with CrossXBeam

Available on linear and sector transducers

LOGIQ View (option)

Extended field of view imaging

Available on 4C-RS, L6-12-RS, 8C-RS, 3Sc-RS, E8C-RS, E8Cs-RS, RAB2-6-RS, L8-18i-RS, 6S-RS, BE9CS-RS, LK760-RS, 12L-RS, 12S-RS, C1-5-RS, RIC5-9A-RS, E7C8L-RS, L3-12-RS, 9L-RS, L4-20t-RS, IC9-RS, 6Tc-RS probes

For use in B-Mode

CrossXBeam is available on linear probes

Auto detection of scan direction

Post-process zoom

Rotation

Auto fit on monitor

Measurements in B-Mode

Up to 160 cm scan length

Easy 3D (option)

Allows unlimited rotation and planar translations

3D reconstruction from Cine sweep

Utilities: Off/Average Light/Average Medium/Average Strong

Gray surface: 0 – 100%

Threshold1: 0 – 255

Threshold2: 0 – 255

Scan distance: 1.0 – 15.0

Colorize: 0 – 360

Advanced 3D (option)

Define axis: Select 2 points as start and end point of long axis

Group planes: Off/Main/Parallel/Angular

Reslice: Cube/Virtual Rescan/Cubic Plane

Tile: 1/2/4/6

General system parameters *(cont.)*

Static 3D/Real-time 4D (option)

Available on RAB2-6-RS

Acquisition modes	<ul style="list-style-type: none"> • Static 3D • Real-time 4D
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Visualization modes	<ul style="list-style-type: none"> • 3D rendering (diverse surface and intensity projection modes) • Sectional planes (3 section planes perpendicular to each other)
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Render Mode	Surface Texture, Surface Smooth, Max-, Min-, X-ray, Mix Mode of two render modes
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Display format	<ul style="list-style-type: none"> • Quad: A-/B-/C-Plane/3D • Dual: A-Plane/3D • Single: 3D
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Curved 3-point render start

3D Movie	<ul style="list-style-type: none"> • Loop Speed: 6 – 400 • Scalpel: 3D cut tool • Cut mode: Inside Contour/ Outside • Contour/Inside Box/Outside Box/Small Eraser/Big Eraser • Cut depth: Full/UserDefine • Depth: 0 – 1000 • 3D rotation Cine • Rotational angle: 30 – 360° • Step angle: 1 – 15° • Rotation axis: X/Y • 3D volume review • Start frame: Define start frame • End frame: Define end frame • Run/Stop
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TUI: Tomographic Ultrasound Imaging	<ul style="list-style-type: none"> • Display format: 1x1/1x2/2x2/3x3 • Slices: 3 – 19 • Slices distance: 0.5 – 40 mm
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Real-time 4D	<ul style="list-style-type: none"> • 4D Volume Cine • LoopSpeed: 6 – 400 • Run/Stop
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Niche

VOCAL (option)	Virtual Organ Computer-aided Analysis
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B-Flow/B-Flow Color (option)

Available on 4C-RS, L6-12-RS, 12L-RS, C1-5-RS, 9L-RS, L3-12-RS, L4-20t-RS

Background	On/off
Sensitivity/PRI	1 – 50, 17 steps
Line density	5 steps
Edge enhance	7 steps
Frame average	0 – 7, 8 steps
Gray scale map	8 maps
Tint map	5 maps
Dynamic range	36~48; 6 dB per step; 48~78: 3dB per step; 78~96: 6dB per step
Rejection	6 steps
Gain	0 – 90 dB range, 1 dB per step
Accumulation	8 levels

Elastography Strain (option)

Available on L6-12-RS, E8Cs-RS, 4C-RS, 12L-RS, C1-5-RS, 9L-RS, L3-12-RS, IC9-RS

Semi-quantification	<ul style="list-style-type: none"> • Frame reject: 0 – 8 • Axial smoothing: 0 – 4 • Noise reject: 0 – 8 • Sample Volume: 0 – 4 • Lateral smoothing: 0 – 4 • Window: 0 – 8 • Map: 8 • Frame average: 0 – 10 • Line Density: 0 – 4 • Soft compress: 0 – 10 • Hard compress: 0 – 10
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TVI (option)

Myocardial Doppler imaging with color overlay on tissue image

Available on the sector probes

Tissue color overlay can be removed to show just the 2D image, still retaining the tissue velocity information

Q-Analysis: Multiple Time Motion trace display from selected points in the myocardium

General system parameters *(cont.)*

TVM (option)

TVI with M-Mode active

Available on the sector probes

Provides both myocardium motion velocity and direction

Contrast imaging (option)

Available on 4C-RS, C1-5-RS, L3-12-RS and IC9-RS probes

- Line density: 0, 1, 2, 3, 4
- SRI HD: 0, 1, 2
- Suppression: 0, 1, 2, 3, 4, 5
- Frame average: 0, 1, 2, 3, 4, 5, 6, 7
- Dynamic range: 36 – 96 dB
- Rotation: Up/down
- Modes: General, Resolution and Penetration; Frequency: Res, Gen, Pen
- Display tissue image and contrast-enhanced image simultaneously in split screen
- 2 contrast timers
- Time delay: 0.3 – 10 seconds
- Accumulation mode: 8 steps
- Maximum Enhance Mode: On/off
- Gray scale map: 10 types
- Colorize: On/off, 6 steps
- Flash
- Time Intensity Curve (TIC) Analysis
- Auto MI control
- Time trigger scan: 0.3 – 10 seconds; from 0.5 seconds to 10 seconds, 0.5 seconds per step
- Flash/burst mode
- Contrast tech: AM Single
- view/DualView Visualization:
- Contrast, Tissue, Hybrid Contrast
- Hybrid map: 6 types

Biopsy Guideline (Interactive Needle Line)

Biopsy Guideline Type Preset Selection is a preset, provided in Biopsy Kit on touch panel, is available for choosing the Biopsy Guideline type. Changing the needle guide type may be duplicated by programming a User Define key. When the User Define key is pressed, the programmed needle guide type will be changed with single key operation.

Stress echo (option)

Advanced and flexible stress echo examination capabilities

- Provides exercise and pharmacological protocol templates
- 8 default templates
- Template editor for user configuration of existing templates or creation of new templates
- Reference scan display during acquisition for stress level

Comparison (dual screen)

- Baseline level/Previous level selectable
- Raw data continuous capture
- Over 87.5 seconds available
- Wall motion scoring (bullseye and segmental)
- Smart stress: Automatically set up various scanning parameters (geometry, frequency, gain, etc. according to same projection on previous level)

Follow-up tool (option)

The Follow-up tool is intended to more accurately perform serial scans on a patient, and compare the images of a previous ultrasound exam to the current exam.

Breast productivity (option)

Breast Productivity includes auto contour feature and measurements related to breast (distance to nipple, ratio). BI-RADS® (Breast Imaging-Reporting and Data System) is also available to provide risk assessment and quality assurance.

Thyroid productivity (option)

Thyroid productivity is a customizable workflow designed for thyroid scanning. With its guiding, user can complete various modes of imaging, measurement, TI-RADS nodule classification, and find positive area efficiently.

Needle recognition (option)

Needle recognition functionality can enhance in-plane needles. It is available on L-6-12-RS, 9L-RS, 12L-RS, L3-12-RS, L4-20t-RS, 4C-RS, C1-5-RS and E7C8L-RS.

General system parameters *(cont.)*

Scan Coach

Scan Coach is an on-demand tool available to help users acquire the right scan plane. The reference image indicates how the scan plane image for a given step should look, and the probe/beam anime image shows the corresponding probe placement to get the correct scan plane. The schema anime shows the key anatomical structures visualized in two dimensional mode.

- Abdomen
- Obstetrics
- Gynecology
- Cardiology
- Vascular
- MSK

My Trainer

Provides a quick guide to operate the system offering five sections: Getting Started, System Settings, Peripheral Connections, Maintenance and New Features.

Battery (option)

The lithium ion battery provides power when an AC power source is not available. Lithium ion batteries last a minimum 20 minutes of battery life with a full charged battery in use to supply power to the system.

Scan Assistant

Scan Assistant provides an automated exam script that moves you through an exam step-by-step. This allows you to focus on performing the exam rather than on controlling the system and can help you to increase consistency while reducing keystrokes.

CSD

CSD is a direct link with a GE HealthCare online service engineer or [applications support engineer or a request for service](#).

Whizz

Whizz will continuously optimize the brightness, contrast and uniformity of B mode images when scanning different tissues. Whizz in PW/CW Doppler Mode optimizes the spectral data. Auto adjusts the Velocity Scale/PRF (live imaging only), baseline shift, and invert (if preset). Upon deactivation, the spectrum is still optimized.

Whizz Easy Style

Whizz Easy Style provides two presentation for appearance on tissue smoothness, contrast, border delineation and tissue differentiation. Whizz Easy Style is available now on 4C-RS, C1-5-RS, RAB2-6-RS and L3-12-RS probes with specific presets.

Whizz CF mode

Whizz CF optimizes images automatically by adjusting color flow gain according to noise of color image and depth of color ROI. Auto frequency adjusts the frequency with the depth changes.

Whizz Label

Whizz Label is a software technology utilizing Artificial Intelligence (AI) during ultrasound acquisition to automatically detect the liver, gallbladder, and/or right kidney during an ultrasound exam for documentation.

V-Live 2.0

Provides anatomical realism and increased depth perception with a moveable light source to highlight details within an area of interest in 3D and 4D scanning.

Digital Lateral Gain Compensation (LGC)

Digital Lateral Gain Compensation (Digital LGC) balances the image so that the density of echoes is evenly distributed across the image. It enables the user to adjust B-mode gain compensation in the longitudinal direction. 8 sections, 1 default setup, 3 customizable setup.

Strain

Strain calculates and color-codes the extent of tissue deformation (lengthening or shortening) relative to the original size over a given time interval, typically during systole.

Strain Rate

Strain rate calculates and color-codes the deformation per system time i.e. the speed at which the tissue deformation occurs. Strain rate is calculated as the spatial gradient of velocity data.

Intensity Ratio

Intensity Ratio(IR) is a generic measurement to calculate the ratio of two intensity (Echo Level, displays EL_dB) measurements. The formula is, Intensity Ratio = Intensity A/ Intensity B.

Breast Productivity-AI*

Breast Productivity-AI allows the system to enter H&L measurement and BI-RADS after finishing Auto Contour measurement.

General system parameters *(cont.)*

Thyroid Productivity-AI*

Thyroid Productivity-AI allows the system to enter nodule measurement and TI-RADS after finishing Auto Contour measurement.

Digital Time Gain Compensation (Digital TGC)

Digital Time Gain Compensation (Digital TGC) amplifies returning signals to correct for the attenuation caused by tissues at increasing depths. Digital TGC slide pods are spaced proportionately to the depth. 10 sections, 9 default setup, 6 customizable setup.

Whizz Follicle

Whizz Follicle helps detect low echogenic objects (e.g. follicles) in an organ (e.g. ovary) and analyzes their shape and volume. From the calculated volume of the object, an average diameter is calculated and listed according to size and color-coded on the image.

Whizz Note

Whizz Note allows the system to display folders and files from removable media. The user can import and display useful clinical datasheet for reference during scanning.

Whizz Report

The ultrasound system enables the generation of patient reports based on the examination performed and the analyses that were made during the exam. Reports are generated using the data stored in the system with pre-selected template and may be edited, customized, deleted or added to while performing the exam. This ultrasound system allows users to create their own report template by a separate tool called Whizz Report Editor on users' personal computer. The template can be saved into an USB and imported to the ultrasound system.

Whizz RenderLive

Whizz RenderLive helps to find the render start position to easily separate solid tissue in front of the rendered object. The Whizz RenderLive algorithm “looks” for the transition from solid tissue to liquids and positions the “Render Start” into the liquid area for optimal adaptation to the rendered object.

V-Zoom

V-zoom is intended to zoom the full screen for selected ROI. It works for both Read Zoom and Write Zoom.

Digital Expert Connect**

Digital Expert Connect is a virtual collaboration tool that easily extends your team’s expertise with real-time connections throughout your network – anytime, anywhere. Digital Expert Connect is a self-contained, app-based companion solution, designed to pair with GE HealthCare and other ultrasound devices. With Digital Expert Connect, every clinician in your department can confidently and efficiently deliver care. It’s remote telementored ultrasound for a new telehealth world.

Imaging Insights

Imaging Insights automatically collects DICOM data from GE HealthCare and other vendors' ultrasound equipment or equipment fleet and displays system utilization and operator usage insights in a plotted dashboard. Operational insights include exam volumes, first and last exam time, probes utilization, exam type; operator usage data includes length of exam, scan mode, probes, and exam type. It helps optimize system and probe fleet investment plans, identify staff assignment and training needs, and monitor variability of staff usage patterns.

eDelivery

As part of the product lifecycle management, GE HealthCare regularly analyzes and integrates software updates from our third party vendors into our products. These are typically released as part of regular updates or software releases. The two available downloading options for eDelivery are:

- Through the GE HealthCare service platform on the ultrasound system. This requires Insite RSvP connectivity.
- Through an end-user portal to a local storage location (i.e. a readable/writeable flash drive with enough storage space) and install it on the ultrasound system.

Probe Check

Probe Check is a probe assessment tool that evaluates each probe element. Probes have to be clean, any gel residue will provide incorrect data. This test is an assessment that is intended to be used comparatively during the life of the probe to evaluate possible probe deterioration over time.

*Only for China

**Only for United States

General system parameters *(cont.)*

Controls available during scanning

Write Zoom

- B/M/CrossXBeam-Mode
 - Gain
 - TGC
 - Dynamic range
 - Acoustic output
 - Transmission focus position
 - Transmission focus number
 - Line density control
 - Sweep speed for M-Mode
 - CrossXBeam Levels

PW-Mode

- Gain
- Doppler Audio Acoustic
- Output Transmission
- Frequency Scale
- Wall Filter
- Sample Volume Gate
 - Length
 - Depth
- Volume
-

Color Flow mode

- CFM Gain
- CFM Velocity Range
- Acoustic Output
- Wall Filter
- Packet Size
- Line Density
- CFM Spatial Filter
- CFM Frame Averaging
- Frequency/Velocity Base Line Shift

Controls available on Freeze or Recall

Automatic Optimization

SRI-HD

CrossXBeam

3D reconstruction from a stored Cine loop

TGC

Colorized B and M

Dynamic range

AT (Acceleration Time)

ACC (Acceleration)

Controls available on Freeze or Recall *(cont.)*

Anatomical M-Mode

Gray map

Post gain

Baseline shift (PW, CW)

Sweep speed

Compression

Rejection

Colorized spectrum

Display format

Angle Correct

Auto Angle Correct

Overall gain (loops and stills)

Color map

Transparency map

Frame averaging (loops only)

Flash suppression (disable in Freeze)

CFM display threshold

Spectral invert for Color/Doppler

Measurements/calculations

B-Mode

Depth and distance

Circumference (ellipse/trace)

Area (ellipse/trace)

Volume (ellipsoid)

% Stenosis (area or diameter)

Angle between two lines

M-Mode

M-Depth

Distance

Time

Slope

Heart rate

Measurements/calculations *(cont.)*

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)

OB measurements/calculations *(cont.)*

Trunk diameter

- FTA (Fetal Trunk Cross-sectional Area)
- HL (Humerus Length)
- BD (Binocular Distance)
- FT (Foot Length)
- OFD (Occipital Frontal Diameter)
- TAD (Transverse Abdominal Diameter)
- TCD (Transverse Cerebellum Diameter)
- THD (Thorax Transverse Diameter)
- TIB (Tibia Length)
- ULNA (Ulna Length)

Estimated Fetal Weight (EFW) by

- AC, BPD
- AC, BPD, FL, HC
- AC, FL, HC
- BPD, APTD, TTD, FL

Calculations and ratios

- FL/BPD
- FL/HC
- CI (Cephalic Index)
- CTAR (Cardio-Thoracic Area Ratio)

SonoBiometry

- BPD
- HL
- HC
- FL
- AC

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

Fetal graphical trending

Fetal Growth Charts

Multigestational calculations

Anatomical survey

Biophysical profile

Programmable OB tables

Over 20 selectable OB calculations

Expanded worksheets

Auto Bladder Volume

Auto Bladder Volume automatically measures the Bladder Volume. It's main application is to measure three longest orthogonal lines (L, H and W) from two bladder slices.

Measurements/calculations *(cont.)*

Auto Intima Media Thickness (IMT)

Auto IMT automatically measures the thickness of the Intima Media on the far and near vessel walls.

GYN measurements/calculations

Right ovary length, width, height

Left ovary length, width, height

Uterus length, width, height

Cervix length, trace

Ovarian volume

ENDO (Endometrial thickness)

Ovarian Resistive Index

Uterine Resistive Index

Follicular measurements

Vascular measurements/calculations

SYS DCCA (Systolic Distal Common Carotid Artery)

DIAS DCCA (Diastolic Distal Common Carotid Artery)

SYS MCCA (Systolic Mid Common Carotid Artery)

DIAS MCCA (Diastolic Mid Common Carotid Artery)

SYS PCCA (Systolic Proximal Common Carotid Artery)

DIAS PCCA (Diastolic Proximal Common Carotid Artery)

SYS DICA (Systolic Distal Internal Carotid Artery)

DIAS DICA (Diastolic Distal Internal Carotid Artery)

SYS MICA (Systolic Mid Internal Carotid Artery)

DIAS MICA (Diastolic Mid Internal Carotid Artery)

SYS PICA (Systolic Proximal Internal Carotid Artery)

DIAS PICA (Diastolic Proximal Internal Carotid Artery)

SYS DECA (Systolic Distal External Carotid Artery)

DIAS DECA (Diastolic Distal External Carotid Artery)

SYS PECA (Systolic Proximal External Carotid Artery)

DIAS PECA (Diastolic Proximal External Carotid Artery)

VERT (Systolic Vertebral Velocity)

SUBCLAV (Systolic Subclavian Velocity)

Automatic IMT

Urological calculations

Volume (Auto Bladder volume)

Prostate volume

Left/right renal volume

Generic volume

Post-void bladder volume

Cardiac – B-Mode measurements

Aorta

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

Aortic valve

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

Left atrium

- Left Atrium Diameter (LA Diam)
- LA Length (LA Major)
- LA Width (LA Minor)
- Left Atrium 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 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 Mass Index (LVPWd, LVPWs)
- Ejection Fraction, Teichholz/Cube (LVIDd, LVIDs)
- Left Ventricle Posterior Wall Fractional Shortening (LVPWd, LVPWs)
- Mitral Valve
- Mitral Valve Annulus Diameter (MV Ann Diam)
- E-Point-to-Septum Separation (EPSS)
- Mitral Valve Area Planimetry (MVA Planimetry)

Measurements/calculations *(cont.)*

Cardiac – B-Mode measurements *(cont.)*

Pulmonic valve	Pulmonic Diameter (Pulmonic Diam)
Right ventricle	<ul style="list-style-type: none"> Right Ventricle Internal Diameter (RVIDd, RVIDs) Right Ventricle Outflow Tract Diameter (RVOT Diam)
System inferior vena cava	Systemic Vein Diameter (Systemic Diam)

Cardiac – M-Mode measurements

Aorta	<ul style="list-style-type: none"> Aortic Root Diameter (Ao Root Diam) Aortic Valve Diameter (AV Diam) Aortic Valve Cusp Separation (AV Cusp) Aortic Valve Ejection Time (LVET)
Left atrium	<ul style="list-style-type: none"> Left Atrium Diameter to AoRoot Diameter Ratio (LA/Ao Ratio) Left Atrium Diameter (LA Diam) Left Ventricle Volume, Teichholz/Cubic (LVIDd, LVI Ds) Left Ventricle Posterior Wall Thickness (LVPWd, LVPWs) Left Ventricle Ejection Time (LVET) Left Ventricle Pre-Ejection Period (LVPEP) Interventricular Septum (IVS)
Mitral valve	<ul style="list-style-type: none"> E-Point-to-Septum Separation (EPSS) Mitral Valve Anterior Leaflet Excursion (D-E Excursion) Mitral Valve D-E Slope (D-E Slope) Mitral Valve E-F Slope (E-F Slope)
Pulmonic valve	<ul style="list-style-type: none"> QRS complex to end of envelope (Q-to-PV close) Right Ventricle Internal Diameter (RVIDd, RVIDs) Right Ventricle Outflow Tract Diameter (RVOT Diam) Right Ventricle Ejection Time (RVET) Right Ventricle Pre-Ejection Period (RVPEP)
Tricuspid valve	QRS complex to end of envelope (Q-to-TV close)

Cardiac – Doppler mode measurements

Aortic valve	<ul style="list-style-type: none"> Aortic Valve Mean Velocity (AV Trace) Aortic Valve Velocity Time Integral (AV Trace) Aortic Valve Mean Pressure Gradient (AV Trace) Aortic Valve Peak Pressure Gradient (AR Vmax)
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Cardiac – Doppler mode measurements *(cont.)*

Aortic valve <i>(cont.)</i>	<ul style="list-style-type: none"> Aortic Insufficiency Peak Velocity (AR Vmax) Aortic Insufficiency End-Diastolic Velocity (AR Trace) Aortic Valve Peak Velocity (AV Vmax) Aortic Valve Deceleration Time (AV Trace) Aortic Valve Ejection Time (AVET) Aortic Valve Area according to PHT
Left ventricle	<ul style="list-style-type: none"> 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 Velocity Time Integral (LVOT Trace) Left Ventricle Ejection Time (LVET)
Mitral valve	<ul style="list-style-type: none"> Mitral Valve Regurgitant Mean Velocity (MR Trace) Mitral Regurgitant Mean Pressure Gradient (MR Trace) Mitral Regurgitant Velocity Time Integral (MR Trace) Mitral Valve Mean Velocity (MR Trace) Mitral Valve Velocity Time Integral (MR Trace) Mitral Valve Mean Pressure Gradient (MR Trace) Mitral Regurgitant Peak Pressure Gradient (MR Vmax) Mitral Valve Peak Pressure Gradient (MR Vmax) Mitral Regurgitant Peak Velocity (MR Vmax) Mitral Valve Peak Velocity (MR Vmax) Mitral Valve Velocity Peak A (MV A Velocity) Mitral Valve Velocity Peak E (MV E Velocity) Mitral Valve Area according to PHT (MV PHT) Mitral Valve 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 Acceleration Time/Deceleration Time Ratio (MVAcc/Dec. Time)

Measurements/calculations *(cont.)*

Cardiac – Doppler mode measurements *(cont.)*

- | | |
|-----------------|---|
| Pulmonic valve | <ul style="list-style-type: none"> • Pulmonic Insufficiency Peak Pressure Gradient (PR Vmax) • Pulmonic Insufficiency End-Diastolic Pressure Gradient (PRTrace) • Pulmonic Valve Peak Pressure Gradient (PV Vmax) • Pulmonic Insufficiency Peak Velocity (PR Vmax) • Pulmonic Insufficiency End-Diastolic Velocity (Prend Vmax) • Pulmonic Valve Peak Velocity (PV Vmax) • Pulmonary Artery Diastolic Pressure (PV Trace) • Pulmonic Insufficiency Mean Pressure Gradient (PR Trace) • Pulmonic Valve Mean Pressure Gradient (PV Trace) • Pulmonic Insufficiency Mean Square Root Velocity (PR Trace) • Pulmonic Insufficiency Peak Pressure • Pulmonic Insufficiency Velocity Time Integral (PR Trace) • Pulmonic Valve Mean Velocity (PV Trace) • Pulmonic Valve Velocity Time Integral (PV Trace) • Pulmonic Insufficiency Pressure Half Time (PR PHT) • Pulmonic Valve Flow Acceleration (PV Acc Time) • Pulmonic Valve Acceleration Time (PV Acc Time) • Pulmonic Valve Ejection Time (PVET) • QRS complex to end of envelope (Q-to-PV close) • Pulmonic Valve Acceleration to Ejection Time Ratio (PV Acc Time, PVET) |
| Right ventricle | <ul style="list-style-type: none"> • Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax) • Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax) • Right Ventricle Outflow Tract Velocity Time Integral (RVOT Trace) • Right Ventricle Ejection Time (RV Trace) • Stroke Volume by Pulmonic Flow (RVOT Planimetry, RVOT Trace) • Right Ventricle Stroke Volume Index by Pulmonic Flow (RVOT Planimetry, RVOT Trace) |

Cardiac – Doppler mode measurements *(cont.)*

- | | |
|-----------------|---|
| System | <ul style="list-style-type: none"> • Pulmonary Artery Peak Velocity (PV Vmax) • Pulmonary Vein Velocity Peak A (reverse) (P Vein A) • Pulmonary Vein Peak Velocity (P Vein D, P Vein S) • Systemic Vein Peak Velocity (PDA Diastolic, PDA Systolic) • Ventricular Septal Defect Peak Velocity (VSD Vmax) • Atrial Septal Defect (ASD Diastolic, ASD Systolic) • Pulmonary Vein A-Wave Duration (P Vein A Dur) • IsoVolumetric Relaxation Time (IVRT) • IsoVolumetric Contraction Time (IVCT) • Pulmonary Vein S/D Ratio (P Vein D, P Vein S) • Ventricular Septal Defect Peak Pressure Gradient (VSD Vmax) • Pulmonic-to-Systemic Flow Ratio (Qp/Qs) |
| Tricuspid valve | <ul style="list-style-type: none"> • Tricuspid Regurgitant Peak Pressure Gradient (TR Vmax) • Tricuspid Valve Peak Pressure Gradient (TV Vmax) • Tricuspid Regurgitant Peak Velocity (TR Vmax) • Tricuspid Valve Peak Velocity (TV Vmax) • Tricuspid Valve Velocity Peak A (TV A Velocity) • Tricuspid Valve Velocity Peak E (TV E Velocity) • Tricuspid Regurgitant Mean Pressure Gradient (TR Trace) • Tricuspid Valve Mean Pressure Gradient (TVTrace) • Tricuspid Regurgitant Velocity Time Integral (TR Trace) • Tricuspid Valve Mean Velocity (TV Trace) • Tricuspid Valve Velocity Time Integral (TV Trace) • Tricuspid Valve Time to Peak (TV Acc/Dec Time) • Tricuspid Valve Ejection Time (TV Acc/Dec Time) • Tricuspid Valve A-Wave Duration (TV A Dur) • QRS complex to end of envelope (Q-to-TV close) • Tricuspid Valve Pressure Half Time (TV PHT) • Tricuspid Valve E-Peak to A-Peak Ratio (TV E/A Velocity) |

Measurements/calculations *(cont.)*

Cardiac – Color Flow mode measurements

Aortic valve	<ul style="list-style-type: none"> 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)
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Mitral valve	<ul style="list-style-type: none"> 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)
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Cardiac – Combination mode measurements

Aortic valve	<ul style="list-style-type: none"> Aortic Valve Area (Ao Diam., LVOT Vmax, AV Vmax) Aortic Valve Area by Continuity Equation by Peak Velocity (Ao 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 Diam, LVOT Vmax, AV Trace)
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Left ventricle	Cardiac Output, Teichholz/Cubic (LVIDD, LVI Ds, HR)
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Mitral valve	<ul style="list-style-type: none"> Stroke Volume by Mitral Flow (MVA Planimetry, MV Trace) Cardiac Output by Mitral Flow (MVA Planimetry, MV Trace, HR)
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Cardiac worksheet

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

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

Generic study in cardiology

Probes

C1-5-RS

Convex probe

Applications	Abdomen, Fetal/OB, GYN, Vascular/Peripheral Vascular, Urology, Pediatric, MSK Conventional, Thoracic/Pleural, Interventional Guidance
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Number of elements	192
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Convex radius	55 mm
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FOV	70°
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Footprint	69.3 x 17.2 mm
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Frequency range	2.0 – 5.0 MHz
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B-Mode imaging frequency	2.0, 3.0, 4.0, 5.0 MHz
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Harmonic imaging frequency	3.0, 4.0, 5.0 MHz
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CFM/PDI/PWD frequency	2.0, 2.5, 2.8, 3.1, 3.6 MHz
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PWD frequency	2.0, 2.8, 3.6 MHz
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Biopsy guide	Multi-angle, reusable bracket
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4C-RS

Convex probe

Applications	Abdominal, Fetal/OB, GYN, Vascular/Peripheral Vascular, Urology, Pediatric, MSK Conventional, Thoracic/Pleural, Interventional Guidance
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Number of elements	128
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Convex radius	60 mmR
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FOV	58°
-----	-----

Footprint	66.2 x 18.3 mm
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Frequency range	2.0 – 5.0 MHz
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B-Mode imaging frequency	2.0, 3.0, 4.0, 5.0 MHz
--------------------------	------------------------

Harmonic imaging frequency	3.0, 4.0, 5.0 MHz
----------------------------	-------------------

CFM/PDI/PWD frequency	2.0 MHz (CFM/PDI), 2.5, 2.8, 3.3 MHz
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Biopsy guide	Multi-angle
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Probes *(cont.)*

RAB2-6-RS

Convex volume probe

Applications Abdomen, Fetal/OB, GYN, Urology, Interventional Guidance

Number of elements 128

Convex radius 47.1 mmR

FOV 70° (B), 84° x 70° (volume scan)

Footprint 62.2 x 34.0 mm

Frequency range 2.0 – 6.0 MHz

Volume sweep radius 24.11 mm

B-Mode imaging frequency 3.0, 4.0, 5.0 MHz

Harmonic imaging frequency 4.0, 5.0, 6.0 MHz

CFM/PDI/PWD frequency 2.0, 3.0, 4.0 MHz

Biopsy guide Multi-angle, reusable bracket

8C-RS

Micro convex probe

Applications Pediatric, MSK Conventional, Cardiac Pediatric, Transcranial, Interventional Guidance

Number of elements 128

Convex radius 10.73 mm

FOV 131°

Footprint 22.0 x 12.0 mm

Frequency range 4.2 – 10.0 MHz

B-Mode imaging frequency 6.0, 8.0, 10.0 MHz

Harmonic imaging frequency 6.0, 7.0, 8.0, 10.0 MHz

CFM/PDI/PWD frequency 4.2, 5.0, 6.3 MHz

Biopsy guide Not available

L4-20t-RS

Linear probe – single crystal

Applications Vascular/ Peripheral Vascular, Pediatric, Small parts, MSK Conventional, MSK Superficial, Thoracic/Pleural, Interventional Guidance

Number of elements 256

Footprint 48.43 x 11.56 mm

L4-20t-RS *(cont.)*

B-Mode imaging frequency 6.0/10.0/12.0/16.0 MHz

Frequency range 5.0 – 20.0 MHz

Harmonic imaging frequency 8.0/12.0/16.0/20.0 MHz

CFM/PDI/PWD frequency 5.0/6.3/7.1/8.3/10.0 MHz

Steered angle ± 20°

Biopsy guide Multi-angle, reusable bracket

L8-18i-RS

Linear probe

Applications Vascular/Peripheral Vascular, Small parts, MSK superficial, Interventional Guidance

Number of elements 168

Footprint 34.8 X 11.1 mm

Frequency range 6.7 – 18 MHz

B-Mode imaging frequency 8.0, 12.0, 14.0, 16.0 MHz

Harmonic imaging frequency 9.0, 15, 18.0 MHz

CFM/PDI/PWD frequency 6.7, 8.3, 10 MHz

Steered angle ± 20°

Biopsy guide Not available

L3-12-RS

Linear probe

Applications Vascular/Peripheral Vascular, Pediatric, Small parts, MSK Conventional, MSK Superficial, Thoracic/Pleural, Interventional Guidance

Number of elements 256

Footprint 60.9 x 12.9 mm

Frequency range 3.6 – 12 MHz

B-Mode imaging frequency 5.0, 7.0, 9.0, 11 MHz

Harmonic imaging frequency 8, 10, 12 MHz

CFM/PDI frequency 3.6, 4.2, 5.0, 6.3, 7.7, 9.1 MHz

PWD frequency 3.6, 4.2, 5.0, 6.3, 8.8 MHz

Steered angle ± 20°

Biopsy guide Multi-angle, reusable bracket

Probes *(cont.)*

12L-RS

Linear probe

Applications	Vascular/Peripheral Vascular, Small parts, Pediatrics, MSK Conventional, MSK Superficial, Thoracic/Pleural, Interventional Guidance
Number of elements	192
Footprint	47.1 x 12.7 mm
Frequency range	4.2 – 13.0 MHz
B-Mode imaging frequency	6.0, 8.0, 10.0, 12.0 MHz
Harmonic imaging frequency	8.0, 10.0, 12.0, 13.0 MHz
CFM/PDI/PWD frequency	4.2, 6.3, 7.7 MHz
Steered angle	± 20°
Biopsy guide	Multi-angle, reusable bracket

9L-RS

Linear probe

Applications	Abdomen, Vascular/Peripheral Vascular, Small parts, Pediatrics, MSK Conventional, MSK Superficial, Thoracic/Pleural, Interventional Guidance
Number of elements	192
Footprint	53 x 14.1 mm
Frequency range	4.0 – 10.0 MHz
B-Mode imaging frequency	5.0, 7.0, 9.0 MHz
Harmonic imaging frequency	6.0, 8.0, 10.0 MHz
CFM/PDI/PWD frequency	4.0, 5.0 MHz
Steered angle	± 30°
Biopsy guide	Multi-angle, reusable bracket

L6-12-RS

Linear probe

Applications	Vascular/Peripheral Vascular, Small parts, Pediatrics, MSK Conventional, MSK Superficial, Thoracic/Pleural, Interventional Guidance
Number of elements	128
Footprint	47 x 11.4 mm
Frequency range	4.0 – 13.0 MHz
B-Mode imaging frequency	6.0, 8.0, 10.0, 11.0 MHz
Harmonic imaging frequency	8.0, 10.0, 12.0, 13.0 MHz
CFM/PDI frequency	4.0, 5.0, 6.0 MHz
PWD frequency	4.0, 4.5, 5.0 MHz
Steered angle	± 20°
Biopsy guide	Multi-angle, reusable bracket

LK760-RS

Linear probe

Applications	MSK Conventional
Number of elements	128
Footprint	67.0 x 13.0 mm
Frequency range	3.5 – 10.0 MHz
B-Mode imaging frequency	5.0, 7.0, 9.0 MHz
Harmonic imaging frequency	6.0, 8.0, 10.0 MHz
CFM/PDI/PWD frequency	3.5, 4.2, 5.0 MHz
Steered angle	± 10°
Biopsy guide	Not available

Probes *(cont.)*

12S-RS

Phased array sector probe

Applications	Vascular/Peripheral Vascular, Pediatric, Cardiac Pediatric, Transcranial, Interventional Guidance
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Number of elements	96
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FOV	120°
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Footprint	17.6 x 13.2 mm
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Frequency range	4.5 – 12 MHz
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B-Mode imaging frequency	6.0, 8.0, 10.0, 11.0 MHz
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Harmonic imaging frequency	9.0, 10.0, 12.0 MHz
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CFM/PDI/PWD frequency	4.5, 5.0, 5.6, 6.7 MHz
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CW frequency	4.2, 5.0, 6.2 MHz
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Biopsy guide	Not available
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6S-RS

Phased array sector probe

Applications	Vascular/Peripheral Vascular, Pediatric, Cardiac Pediatric, Transcranial, Interventional Guidance
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Number of elements	64
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FOV	120°
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Footprint	23.5 x 16.8 mm
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Frequency range	3.0 – 7.0 MHz
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B-Mode imaging frequency	4.0, 5.0, 6.0 MHz
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Harmonic imaging frequency	4.0, 5.0, 6.0, 7.0 MHz
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CFM/PDI/PWD frequency	3.0, 4.0, 4.5 MHz
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CW frequency	4.2 MHz
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Biopsy guide	Not available
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3Sc-RS

Phased array sector probe

Applications	Abdomen, Vascular/Peripheral Vascular, Cardiac Adult, Cardiac Pediatric, Thoracic/Pleural, Transcranial, Interventional Guidance
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Number of elements	64
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FOV	120°
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Footprint	23.7 x 18.4 mm
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Frequency range	1.7 – 4.0 MHz
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B-Mode imaging frequency	2.0, 3.0, 4.0 MHz
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Harmonic imaging frequency	3.0, 3.2, 3.5, 4.0 MHz
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CFM/PDI/PWD frequency	1.7, 2.0, 2.5, 3.3 MHz
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CWD frequency	1.9 MHz
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Biopsy guide	Multi-angle, reusable bracket
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6Tc-RS

Transesophageal

Applications	Cardiac Adult, Interventional Guidance, Transesophageal
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Number of elements	64
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FOV	90°
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Footprint	Tip (L x W x H): 45 x 14 x 12 mm
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Frequency range	3.0 – 8.0 MHz
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B-Mode imaging frequency	5.0/6.0/7.0/8.0 MHz
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Harmonic imaging frequency	6.0/7.0/8.0 MHz
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CFM/PDI/PWD frequency	3.0/4.0/4.5 MHz
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CWD frequency	4.2 MHz
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Probes *(cont.)*

RIC5-9A-RS

Convex volume probe

Applications Fetal/OB, GYN, Urology, Transvaginal, Transrectal, Interventional Guidance

Number of elements 192

Convex radius 10.1 mmR

FOV 179°

Footprint 20.96 x 23.35 mm

Frequency range 4.2 – 10.0 MHz

B-Mode imaging frequency 5.0, 7.0, 9.0 MHz

Harmonic imaging frequency 7.0, 8.0, 10.0 MHz

CFM/PDI/PWD frequency 4.2, 5.0, 6.3 MHz

Biopsy guide Fixed angle, disposable, or reusable bracket

IC9-RS

Endo micro convex probe

Applications Fetal/OB, GYN, Urology, Transvaginal, Transrectal, Interventional Guidance

Number of elements 192

Convex radius 9.24 mm

FOV 179°

Footprint 19.6 x 13.6 mm

Frequency range 3.6 – 9.0 MHz

B-Mode imaging frequency 6.0/7.0/8.0 MHz

Harmonic imaging frequency 7.0/7.5/8.0/8.5/9.0 MHz

CFM/PDI/PWD frequency CFM/PDI: 4.2/5.0/5.9/6.7 MHz
PW: 3.6/4.2/5.0/6.3 MHz

Biopsy guide Fixed angle, disposable or reusable bracket

E8Cs-RS

Endo micro convex probe

Applications Fetal/OB, GYN, Urology, Transvaginal, Transrectal, Interventional Guidance

Number of elements 128

Convex radius 8.73 mmR

FOV 168°

Footprint 18.6 x 13.9 mm

Frequency range 4.0 – 10.0 MHz

B-Mode imaging frequency 6.0, 8.0, 10.0 MHz

Harmonic imaging frequency 7.0, 8.0, 10.0 MHz

CFM/PDI/PWD frequency 4.0, 5.0, 6.0 MHz

Biopsy guide Fixed angle, disposable or reusable bracket

E8C-RS

Endo micro convex probe

Applications Fetal/OB, GYN, Urology, Transvaginal, Transrectal, Interventional Guidance

Number of elements 128

Convex radius 10.73 mm

FOV 128°

Footprint 16.9 x 21.2 mm

Frequency range 4.2 – 10.0 MHz

B-Mode imaging frequency 6.0, 8.0, 10.0 MHz

Harmonic imaging frequency 7.0, 8.0, 10.0 MHz

CFM/PDI/PWD frequency 4.2, 5.0, 6.3 MHz

Biopsy guide Fixed angle, disposable or reusable bracket

Probes *(cont.)*

E7C8L-RS	
Micro curve part	
Applications	Urology, Transrectal, Interventional Guidance
Number of elements	128
Convex radius	8 mm
FOV	136°
Footprint	17.2 x 10.3 mm
Frequency range	5.0 – 10.0 MHz
B-Mode imaging frequency	6.0, 8.0, 10.0 MHz
Harmonic imaging frequency	8.0, 10.0 MHz
CFM/PDI/PWD frequency	5.0, 6.7 MHz
Biopsy guide	Multi-angle, reusable bracket
Linear part	
Applications	Urology, Transrectal, Interventional Guidance
Number of elements	128
Footprint	57.6 x 9.1 mm
Frequency range	5.0 – 10.0 MHz
B-Mode imaging frequency	6.0, 8.0, 10.0 MHz
Harmonic imaging frequency	8.0, 10.0 MHz
CFM/PDI/PWD frequency	5.0, 6.7 MHz
Steered angle	± 20°
Biopsy guide	Multi-angle, reusable bracket
BE9CS-RS	
Simultaneous bi-plane, micro convex probe	
Applications	Urology, Transrectal, Interventional Guidance
Number of elements	96
Convex radius	9 mm
FOV	133°
Footprint	19 x 18.7 mm
Frequency range	4.0 – 10.0 MHz
B-Mode imaging frequency	6.0, 8.0, 10.0 MHz
Harmonic imaging frequency	8.0, 9.0, 10.0 MHz
CFM/PDI/PWD frequency	4.0, 5.0, 6.3 MHz
PW frequency	4.2, 5.0, 6.3 MHz
Biopsy guide	Fixed angle, disposable or reusable bracket

Inputs and outputs

S-Video output (option)

HDMI output (1920 x 1080 resolution)

Ethernet (RJ45)

USB (3x in rear, 2 beside touch panel)

Safety conformance

The Versana Premier Lotus is CE marked to the MDR – REGULATION (EU) 2017/745 on medical devices

- Conforms to the following standards for safety
- IEC 60601-1 Medical electrical equipment – Part 1: General requirements for basic safety and essential performance
 - IEC 60601-1-2 Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance – Collateral Standard: Electromagnetic disturbances – requirements and tests EMC Emissions Group 1 Class A device requirements as per CISPR 11
 - IEC 60601-2-37 Medical electrical equipment – Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment
 - ISO 10993-1 Biological evaluation of medical devices – Part 1 Evaluation and testing within a risk management process
 - EN 62366 Medical devices – Application of usability engineering to medical devices

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GE HealthCare is a leading global medical technology, pharmaceutical diagnostics, and digital solutions innovator, dedicated to providing integrated solutions, services, and data analytics to make hospitals more efficient, clinicians more effective, therapies more precise, and patients healthier and happier. Serving patients and providers for more than 100 years, GE HealthCare is advancing personalized, connected, and compassionate care, while simplifying the patient's journey across the care pathway. Together our Imaging, Ultrasound, Patient Care Solutions, and Pharmaceutical Diagnostics businesses help improve patient care from diagnosis, to therapy, to monitoring. We are a \$19.6 billion business with 51,000 colleagues working to create a world where healthcare has no limits.

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