Versana Premier™

Ultrasound System

Specification sheet

May 16, 2019
Rev. 6

Product description

Versana Premier 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 and MSK.

CONTENTS

1. General specifications

1.01 Dimensions and weight	
Height with monitor	• Max. 1780 mm (70.1 in) • Min. 1405 mm (55.3 in)
Width	• Keyboard: 593 mm (23.3 in) • Caster: 717 mm (28.2 in)
Depth	• Maximum: 839 mm (33.0 in) • Caster: 803 mm (31.6 in)
Weight (no peripherals): less than 70 kg	

1.02 Electrical power
Voltage 100 – 240 VAC
Frequency 50/60 Hz
Power consumption maximum of 450 VA with peripherals

1.03 Console design
Max 4 active probe ports
Integrated HDD: 500 GB
Integrated speakers
Probe holders, removable for cleaning and washing
Gel holder, removable for cleaning and washing
Gel warmer
Front and rear handles
Probe cable management slots
Easily removable air filters
Wheels: Locking mechanism that provides rolling lock and caster swivel lock

2. User interface

2.01 Operator keyboard
Height adjustable
Full alphanumeric keypad covered with washable protection film
10 TGC pods
9.9" (213.4 mm) touch screen with 1024 x 600 resolution

2.02 LED Monitor
21.5" (482.6 mm) high-resolution: 1920 x 1080
Articulating monitor arm

2.02 Monitor (cont.)	
Tilt/Rotate/Pan	• Tilt angle: +25°/-90° • Rotate angle: -130°, +50 ° • Horizontal Pan: 650 mm • Vertical Pan: 150 mm
Fold-down and lock mechanism for transportation	
Brightness and contrast adjustment	

3. System overview

3.01 Applications
Abdominal
Obstetrical
Gynecological
Small parts
Musculoskeletal
Vascular/peripheral vascular
Urological
Pediatric
Transcranial
Cardiac

3.02 Scanning methods
Electronic convex
Electronic linear
Electronic micro convex
Electronic sector
Mechanical volume sweep

3.03 Transducer types
Convex array
Linear array
Microconvex array
Sector phased array
Volume probes (4D)
Bi-plane convex array

3. System overview *(cont.)*

3.04 Operating modes
B-Mode
Coded Phase Inversion Harmonic Imaging
M-Mode
Anatomical M-Mode (option)
Curve AMM (option)
Color M-Mode
Color Flow mode (CFM)
Power Doppler Imaging (PDI)
Directional PDI
B-Flow™ (B-Flow Color) (option)
PW Doppler with high PRF
CW Doppler mode (option)
Contrast agency detection (option)
TVI mode (option)
3D/4D volume modes (option)
Elastography (option)

Multi-gestational calculations	
Hip dysplasia calculations	
Gynecological calculations	
Vascular calculations	
Breast Productivity	
Urological calculations	
Auto bladder	Auto detect bladder contour in 2 orthogonal planes and calculate bladder volume
Renal calculations	
Cardiac calculations	
On-board reporting package	
MPEGVue	
Network storage	
Remote capability: InSite™ ExC	
My Trainer	
Scan Coach	
Scan Assistant	

4. System standard features

Installation wizard
Whizz
Auto Bladder (Dynamic image optimization, Auto detection, Auto measurement and Auto annotation)
CrossXBeam™
SRI-HD (High Definition Speckle Reduction Imaging)
B-Steer
Coded Phase Inversion Harmonic Imaging
Virtual Convex
Patient information database
Image Archive on integrated HDD
Raw data analysis
Voice comments
Real-time automatic Doppler calculations
OB calculations
SonoBiometry (BPD/HC/AC/HL/FL)
Fetal trending

5. System options

CW Doppler		
Anatomical M-Mode		
Curve AMM		
LOGIQ View		
Elastography		
Advanced 3D (Easy 3D)		
B-Flow (B-Flow Color)		
Contrast agency detection		
Tissue Velocity Imaging (TVI) with Q-Analysis		
TVM		
Stress Echo		
Auto EF		
Static 3D/ Real-time 4D	• TUI • VOCAL	
Auto IMT		
Breast Care (available on Software R1.0.5 or later)		

5. System options *(cont.)*

Thyroid Productivity	A package in thyroid measurement including measurement and relevant descriptions
Needle Recognition	
Follow-up tool	
DICOM® 3.0 connectivity	
Tricefy™ Uplink	

6. 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'

8GB USB Stick

1TB external USB HDD

DVD RW kit

USB ECG kits (AHA/IEC)

ECG Module (option)

USB Wireless adaptor
(sales availability varies in different countries)

HP Office 200 printer

Bluetooth adapter

7. Display modes

7.01 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/CWB/M • B + CFM/M • Real-time triplex mode (B + CFM or PDI+PW or CW) • B-Flow or B-Flow Color
Zoom	Write (HD)/read 64X

7.01 Live and stored display format *(cont.)*	
Colorized Image	• Colorized B • Colorized B-Flow • Colorized M • Colorized PW • Colorized CW • Colorized 3D • Colorized 4D
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)	

8. 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

9. Display annotation

9.01 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: 3 types selectable	• MM/DD/YYYY • DD/MM/YYYY • YYYY/MM/DD
Time format: 2 types selectable	• 24 hours • 12 hours
Gestational age from	• LMP • GA • EDD • 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 markers

Image depth

Zoom depth

9.02 B-Mode

Gain

Dynamic range

Imaging frequency

Edge enhance

Frame average

Frame rate

Gray map

ATO (Auto Tissue Optimization)

SRI-HD

CrossXBeam

9.03 Color Flow mode

Line density

Frame average

Packet size

Color scale: 2 types	• Power • Directional PDI

Color velocity range and baseline

Color threshold marker

Color gain

PDI

Inversion

Doppler frequency

9.04 PDI mode

Line density

Frame averaging

Packet size

Directional PDI

Color velocity range and baseline

Color threshold marker

PDI gain

Inversion

9.05 B-Flow/B-Flow Color mode

Gain

Background

SRI-HD

Accumulation

Flow module

Rejection

Colorize

Edge enhance

Gray map

Frame average

Power output

Sensitivity/PRI

Dynamic range

Frequency

9.05 B-Flow/B-Flow Color mode *(cont.)*

Suppression

Flash suppression

Enhance

Threshold

Map compress

Default map

Wall filter

Transparency

9.06 M-Mode

Gain

Dynamic range (use the dynamic range of B-Mode)

Time scale

AMM

Curve AMM

9.07 Doppler Mode

Gain

Angle

Sample volume depth and width length

Wall filter

Velocity and/or frequency scale

Spectrum inversion

Time scale

Scale

Doppler frequency

9.08 Elastography

Frame reject

Axial smoothing

Noise reject

Sample volume

Lateral smoothing

Window

Map

Frame average

9.08 Elastography *(cont.)*

Line density

Frequency

Soft compress

Hard compress

Scale

9.09 3D/4D

Tile/mix

Active curve

Reset curve

Lower threshold

Volume angle

B quality

3D orient

Render mode

Colorize

Direction

Render 1 gray

Render 2 gray

Adv. Render

Transparency

Reference image

Cut mode

Cut depth

Depth

Rotational angle

Step angle

Rotation axis

Start angle

End angle

Loop speed

9.10 Easy 3D

Utilities

Texture

Gray surface

9. Display annotation *(cont.)*

9.10 Easy 3D *(cont.)*

Render

Threshold 1

Threshold 2

Scan distance

Colorize

9.11 Advance 3D

Define axis

Group planes

Reslice

Tile

9.12 Contrast

Visualization

Contrast Clock 1

Contrast Clock 2

Contrast only

Dual view

Trigger off

Time delay

Dynamic range

Frequency

SRI HD

Colorize

Gray map

Frame average

Line density

Accumulation

Hybrid map

Visualization

Flash

Contrast tech

Max enhance

Contrast only

Target MI

10. General system parameters

10.01 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

10.02 System scanning parameters

Digital agile beamformer architecture

301,056 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 – 33 cm

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

Maximum depth of field: 0 – 33 cm, depending on probe

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

Quad beamforming

Continuous dynamic receive focus/aperture

Multi-frequency/wideband technology

Frequency range: 1.7 to 18 MHz

Shades of gray: 256

Systematic dynamic range: 275 dB

Adjustable Field of View (FOV): up to 168°, depending on probe

Image reverse: right/left

Image rotation of 0°, 90°, 180°, 270°

10. General system parameters *(cont.)*

10.03 B-Mode

Acoustic power output	0 – 100%, 2, 5 and 10 steps
Gain	From 0 – 90 dB, 1 dB per step
Adjustable dynamic range	36 – 96 dB, 3 or 6 dB per step
Frame averaging	8 steps
Gray scale map	6 or 8 types, depending on probe
B colorization	9 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	TIc, TIs, TIb
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 6 levels selectable
CrossXBeam	Up to 9 angles selectable
Depth	1 – 33 cm, 0.5 or 1 cm per step, depending on probe

10.04 Coded Harmonic Imaging

Coded Phase Inversion Harmonic Imaging	
Available on all probes	
Line density	5/6 steps, depending on probe
Line density zoom	5 steps
Suppression	6 steps
Edge enhance	7 steps
Gray scale map	7 types
Tint map	9 types
Gain	0 – 90 dB, 1 dB per step

10.04 Coded Harmonic Imaging *(cont.)*

Dynamic range	51 to 78 dB, 3 dB per step; 36 – 48/78 – 96 dB, 6 dB per step
Rejection	6 steps
Frequency	Up to 4 steps, depending on probe

10.05 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

10.06 CrossXBeam

Provides 3, 5, 7, 9 of spatial compounding	
Live side-by-side DualView display	
Compatible with	• Color Mode • PW • SRI-HD • Coded Harmonic Imaging • Virtual Convex
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	

10.07 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

10. General system parameters *(cont.)*

10.07 Color Flow mode *(cont.)*

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 4 steps, depending on probe
Color maps, including velocity-variance maps	20 types, depending on application
Transparent map	5 steps
Color threshold	0 – 100%, 10% per step
Accumulation	8 steps
Flash suppression	

10.08 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, 19 steps
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 4 steps, depending on probe
Transparent map	5 steps
Invert	On/off
Accumulation	8 steps

10.09 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)

10.10 M-Mode

Gain	-20 – 20 dB, 1 dB per step
Dynamic range	36 – 96 dB/36 – 48 dB/78 – 96 dB, 6 dB per step; 48 – 78 dB, 3 dB per step;
Gray scale map	6 or 8 types, depending on probe
Colorization	9 types
Scanning size	FOV or angle, depending on probe
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)

10.11 Anatomical M-Mode (option)

M-Mode cursor adjustable at any plane

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

Measure and analysis capability

Available with Color Flow mode

Curved AMM

10.12 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	• 0.1 – 6670 cm/s • Sweep speed: 0 – 7, 8 steps
Sample volume depth	0.1 – 33 cm, 0.1 cm per step, depending on probe

10.12 Pulse Wave Doppler mode *(cont.)*

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)
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

10.13 Continuous Wave Doppler mode (option)

Gray scale map	8 types
Baseline	11 steps
Angle correct	-90˚ – 90˚, 1˚ per step
Spectral color	6 types
Invert	On/Off
Spectral averaging	5 steps
Gain	0 – 85 dB, 1 dB per step
Wall filter	5.5 – 5000 Hz, 27 steps, depending on probe and application
CW-Mode includes	• 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

10.14 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

10.14 Cine memory/image memory *(cont.)*

Quad image Cine display

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%)

10.15 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)

10.16 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

10. General system parameters *(cont.)*

10.17 Virtual Convex

Provides a convex field of view

Compatible with CrossXBeam

Available on linear and sector transducers

10.18 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, RIC5-9A-RS

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 60 cm scan length

10.19 Easy 3D (option)

Allows unlimited rotation and planar translations

3D reconstruction from Cine sweep

Utilities: Average 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

10.20 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

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

Available on RAB2-6-RS, RIC5-9A-RS

Acquisition modes	• Static 3D • Real-time 4D
Visualization modes	• 3D rendering (diverse surface and intensity projection modes) • Sectional planes (3 section planes perpendicular to each other)
Render Mode	Surface Texture, Surface Smooth, Max-, Min-, X-ray, Mix Mode of two render modes
Display format	• Quad: A-/B-/C-Plane/3D • Dual: A-Plane/3D • Single: 3D
Curved 3-point render start	
3D Movie	• 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
Niche	
TUI: Tomographic Ultrasound Imaging	• Display format: 1x1/1x2/2x2/3x3 • Slices: 3 – 19 • Slices distance: 0.5 – 40 mm
VOCAL (option)	Virtual Organ Computer-aided Analysis
Real-time 4D	4D Volume Cine • LoopSpeed: 6 – 400 • Run/Stop

10.22 B-Flow (option)

Available on 4C-RS, L6-12-RS, 12L-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

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10. General system parameters *(cont.)*

10.22 B-Flow (option) *(cont.)*

Tint map	5 maps
Dynamic range	36 – 96 dB, 16 dB per step
Rejection	6 steps
Gain	0 – 90 dB range, 1 dB per step
B-Flow Color	
Accumulation	8 levels

10.23 Elastography (option)

Available on L6-12-RS/E8Cs-RS/4C-RS/12L-RS

Semi-quantification	• 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

10.24 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

10.25 TVM (option)

TVI with M-mode active

Available on the sector probes

Provides both myocardium motion velocity and direction

10.26 Contrast agency detection (option)

Available on 4C-RS	• 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; Frequencies • 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 • Colorization: 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/dual view • Visualization: Contrast, Tissue, Hybrid Contrast • Hybrid map: 6 types

10.27 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

10. General system parameters *(cont.)*

10.28 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.

10.29 Breast Care (option) *(available on Software R1.0.5 or later)*

Breast Care is a customizable workflow designed for breast Scanning. With its guiding, user can complete various modes of imaging, measurement, BI-RADS® lesion classification, and find positive area efficiently. That's an easy reference in the device when patient is in subsequent visit.

10.30 Needle recognition (option)

Needle recognition allows you to obtain precise needle imaging in the dashed box. It is available with linear probes on L6-12L-RS, 4C-RS, 12L-RS.

10.31 Scan Coach

Scan Coach is a contextual reference tool. It is with clinical guidance for scan plane acquisition and references for anatomical structures. It can be displayed on-demand by the user. Clinical reference images and animations to depict information related to each step. It covers five applications.	• Abdomen • Obstetrics • Gynecology • Cardiology • Vascular

10.32 My Trainer

Abstracted from basic user manual, it lists out FAQs from customers and instructs customer how to solve problems by themselves timely.

10.33 Battery (option)

The lithium ion battery provides power when an AC power source is not available. About 15 minutes of battery life can be expected with fully charged battery in use to supply power to the system.

10.34 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.

10.35 InSite™ ExC

InSite™ ExC is a direct link with a GE Online Service Engineer or Applications Support Engineer or a Request for Service.

10.36 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.

10.37 Controls available while "live"

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 • Number of angles for CrossXBeam

PW-Mode	• Gain
	• Doppler Audio
	• Acoustic Output
	• Transmission Frequency
	• Scale
	• Wall Filter
	• Sample Volume Gate
	
	  – Length
	  – Depth
	• Velocity Scale

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

10.38 Controls available on Freeze or Recall

SRI-HD

CrossXBeam – Display non-compounded and compounded image simultaneously in split screen

3D reconstruction from a stored Cine loop

B/M/CrossXBeam Mode (CrossXBeam is disabled on Freeze or Recall)

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

TGC

Colorized B and M

Dynamic range

Anatomical M-Mode

Gray map

Post gain

Baseline shift (PW, CW)

Sweep speed

Compression

Rejection

Colorized spectrum

Display format

Angle Correct

Quick Angle Correct

Auto Angle Correct (can't adjust in Freeze)

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

11. Measurements/calculations

11.01 General B-Mode

Depth and distance

Circumference (ellipse/trace)

Area (ellipse/trace)

Volume (ellipsoid)

% Stenosis (area or diameter)

Angle between two lines

11.02 General M-Mode

M-Depth

Distance

Time

Slope

Heart rate

11.03 General Doppler measurements/calculations

Velocity

Time

A/B ratio (velocities/frequency ratio)

PS (Peak Systole)

ED (End Diastole)

PS/ED (PS/ED ratio)

ED/PS (ED/PS ratio)

AT (Acceleration Time)

ACCEL (Acceleration)

TAMAX (Time Averaged Maximum Velocity)

Volume Flow (TAMEAN and vessel area)

Heart rate

PI (Pulsatility Index)

RI (Resistivity Index)

11.04 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)

11.05 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)
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)
SonoBiometery	• BPD • HC • AC • HL • FL

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

Fetal graphical trending

Growth percentiles

Multi-gestational calculations

Fetal qualitative description (anatomical survey)

Fetal environmental description (biophysical profile)

Programmable OB tables

Over 20 selectable OB calculations

Expanded worksheets

11.06 GYN measurements/calculations

Right ovary length, width, height

Left ovary length, width, height

Uterus length, width, height

Cervix length, trace

Ovarian volume

ENDO (Endometrial thickness)

Ovarian RI

Uterine RI

Follicular measurements

11.07 Vascular measurements/calculations

SYS DCCA (Systolic Distal Common Carotid Artery)

DIAS DCCA (Diastolic Distal Common Carotid Artery)

SYS MCCA (Systolic Mid Common Carotid Artery)

DIAS MCCA (Diastolic Mid Common Carotid Artery)

SYS PCCA (Systolic Proximal Common Carotid Artery)

DIAS PCCA (Diastolic Proximal Common Carotid Artery)

SYS DICA (Systolic Distal Internal Carotid Artery)

DIAS DICA (Systolic Distal Internal Carotid Artery)

SYS MICA (Systolic Mid Internal Carotid Artery)

DIAS MICA (Diastolic Mid Internal Carotid Artery)

SYS PICA (Systolic Proximal Internal Carotid Artery)

DIAS PICA (Diastolic Proximal Internal Carotid Artery)

SYS DECA (Systolic Distal External Carotid Artery)

DIAS DECA (Diastolic Distal External Carotid Artery)

SYS PECA (Systolic Proximal External Carotid Artery)

DIAS PECA (Diastolic Proximal External Carotid Artery)

VERT (Systolic Vertebral Velocity)

SUBCLAV (Systolic Subclavian Velocity)

Automatic IMT

11.08 Urological calculations

Volume (Auto Bladder volume)

Prostate volume

Left/right renal volume

Generic volume

Post-void bladder volume

11.09 Cardiac measurements/calculations	
11.09.01 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)
Pulmonic valve	• Pulmonic Diameter (Pulmonic Diam)
Right ventricle	• Right Ventricle Internal Diameter (RVIDd, RVIDs) • Right Ventricle Outflow Tract Diameter (RVOT Diam)
System inferior vena cava	Systemic Vein Diameter (Systemic Diam)

11.09.02 M-Mode measurements	
Aorta	• Aortic Root Diameter (Ao Root Diam) • 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 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	• 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	• 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)

11.09.03 Doppler mode measurements	
Aortic valve	• Aortic Valve Mean Velocity (AV Trace) • Aortic Valve Velocity Time Integral (AV Trace) • Aortic Valve Mean Pressure Gradient (AV Trace) • Aortic Valve Peak Pressure Gradient (AR Vmax) • Aortic Insufficiency Peak Velocity (AR Vmax) • Aortic Insufficiency End-Diastolic Velocity (AR Trace) • Aortic Valve Peak Velocity (AV Vmax) • Aortic Valve Deceleration Time (AV Trace) • Aortic Valve Ejection Time (AVET) • Aortic Valve Area according to PHT

11. Measurements/calculations *(cont.)*

11.09.03 Doppler mode measurements *(cont.)*	
Left ventricle	• Left Ventricle Outflow Tract Peak Pressure Gradient (VLOT Vmax) • Left Ventricle Outflow Tract Peak Velocity (LVOT Vmax) • Left Ventricle Outflow Tract Mean Pressure Gradient (LVOT Trace) • Left Ventricle Outflow Tract Velocity Time Integral (LVOT Trace) • Left Ventricle Ejection Time (LVET)
Mitral valve	• 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)

11.09.03 Doppler mode measurements *(cont.)*	
Pulmonic valve	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 Insufficiency Peak Pressure • Pulmonic Valve Mean Pressure Gradient (PV Trace) • Pulmonic Insufficiency Mean Square Root Velocity (PR Trace) • Pulmonic Insufficiency Velocity Time Integral (PR Trace) • Pulmonic Valve Mean Velocity (PV Trace) • Pulmonic Valve Velocity Time Integral (PV Trace) • 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 AccTime, PVET)
Right ventricle	• Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax) • Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax) • Right Ventricle Outflow Tract Velocity Time Integral (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)

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11.09.03 Doppler mode measurements *(cont.)*

System	• Pulmonary Artery Peak Velocity (PV Vmax) • Pulmonary Vein Velocity Peak A (reverse) (P Vein A) • Pulmonary Vein Peak Velocity (P Vein D, P Vein S) • Systemic Vein Peak Velocity (PDA Diastolic, PDA Systolic) • Ventricular Septal Defect Peak Velocity (VSD Vmax) • Atrial Septal Defect (ASD Diastolic, ASD Systolic) • Pulmonary Vein A-Wave Duration (P Vein A Dur) • IsoVolumetric Relaxation Time (IVRT) • IsoVolumetric Contraction Time (IVCT) • Pulmonary Vein S/D Ratio (P Vein D, P Vein S) • Ventricular Septal Defect Peak Pressure Gradient (VSD Vmax) • Pulmonic-to-Systemic Flow Ratio (Qp/Qs)
Tricuspid valve	• Tricuspid Regurgitant Peak Pressure Gradient (TR Vmax) • Tricuspid Valve Peak Pressure Gradient (TV Vmax) • Tricuspid Regurgitant Peak Velocity (TR Vmax) • Tricuspid Valve Peak Velocity (TV Vmax) • Tricuspid Valve Velocity Peak A (TV A Velocity) • Tricuspid Valve Velocity Peak E (TV E Velocity) • Tricuspid Regurgitant Mean Pressure Gradient (TR Trace) • Tricuspid Valve Mean Pressure Gradient (TV Trace) • Tricuspid Regurgitant Velocity Time Integral (TR Trace) • Tricuspid Valve Mean Velocity (TV Trace) • Tricuspid Valve Velocity Time Integral (TV Trace) • Tricuspid Valve Time to Peak (TV Acc/Dec Time) • Tricuspid Valve Ejection Time (TV Acc/Dec Time) • Tricuspid Valve A-Wave Duration (TV A Dur) • QRS complex to end of envelope (Q-to-TV close) • Tricuspid Valve Pressure Half Time (TV PHT) • Tricuspid Valve E-Peak to A-Peak Ratio (TV E/A Velocity

11.09.04 Color Flow mode measurements

Aortic valve	• 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 Flow (MR Trace) • Proximal Isovelocity Surface Area: Regurgitant Volume Flow (MR Trace) • Proximal Isovelocity Surface Area: Aliased Velocity (MR Vmax)

11.09.05 Combination mode measurements

Aortic valve	• 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)
Left ventricle	Cardiac Output, Teichholz/Cubic (LVIDd, LVI Ds, HR)
Mitral valve	• Stroke Volume by Mitral Flow (MVA Planimetry, MV Trace) • Cardiac Output by Mitral Flow (MVA Planimetry, MV Trace, HR)

11.09.06 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

12. Probes

12.01 4C-RS

Convex probe

Applications	Abdomen, OB/GYN, vascular, urology
Number of elements	128
Convex radius	60 mmR
FOV	58°
Footprint	66.2 x 18.3 mm
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
Biopsy guide	Multi-angle, reusable bracket

12.02 L6-12-RS

Linear probe

Applications	Vascular, small parts, pediatrics
Number of elements	128
Footprint	47 x 11.4 mm
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

12.03 L8-18i-RS

Linear probe

Application	MSK superficial
Number of elements	168
Footprint	34.8 X 11.1 mm
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

12.04 12L-RS

Linear probe

Applications	Vascular, small parts, pediatrics, MSK
Number of elements	192
Footprint	47.1 x 12.7 mm
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

12.05 LK760-RS

Linear probe

Application	MSK
Number of elements	128
Footprint	67.0 x 13.0 mm
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

12.06 E8C-RS

Endo micro convex probe

Applications	OB/GYN, urology, transvaginal, transrectal
Number of elements	128
Convex radius	10.73 mmR
FOV	128°
Footprint	16.9 x 21.2 mm
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

12. Probes *(cont.)*

12.07 E8Cs-RS

Endo micro convex probe

Applications	OB/GYN, urology, transvaginal, transrectal
Number of elements	128
Convex radius	8.73 mm
FOV	168°
Footprint	18.6 x 13.9 mm
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

12.08 BE9CS-RS

Simultaneous bi-plane, micro convex probe

Applications	Urology, transrectal
Number of elements	96
Convex radius	9 mm
FOV	133°
Footprint	19 x 18.7 mm
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

12.09 8C-RS

Micro convex probe

Application	Pediatrics
Number of elements	128
Convex radius	10.73 mmR
FOV	131°
Footprint	22.0 x 12.0 mm
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

12.10 3Sc-RS

Phased array sector probe

Applications	Cardiac, transcranial
Number of elements	64
FOV	120°
Footprint	23.7 x 18.4 mm
B-Mode imaging frequency	2.0, 3.0, 4.0 MHz
Harmonic imaging frequency	3.0, 3.2, 3.5, 4.0 MHz
CFM/PDI/PWD frequency	1.7, 2.0, 2.5, 3.3 MHz
CWD frequency	1.9 MHz
Biopsy guide	Multi-angle, reusable bracket

12.11 6S-RS

Phased array sector probe

Applications	Cardiac, transcranial
Number of elements	64
FOV	120°
Footprint	23.5 x 16.8 mm
B-Mode imaging frequency	4.0, 5.0, 6.0 MHz
Harmonic imaging frequency	4.0, 5.0, 6.0, 7.0 MHz
CFM/PDI/PWD frequency	3.0, 4.0, 4.5 MHz
CWD frequency	4.2 MHz
Biopsy guide	Not available

12.12 12S-RS

Phased array sector probe

Applications	Neonatal, transcranial
Number of elements	96
FOV	120°
Footprint	17.6 x 13.2 mm
B-Mode imaging frequency	6.0, 8.0, 10.0, 11.0 MHz
Harmonic imaging frequency	9.0, 10.0, 12.0 MHz
CFM/PDI/PWD frequency	4.5, 5.0, 5.6, 6.7 MHz
CWD frequency	4.2, 5.0, 6.2 MHz
Biopsy guide	Not available

12. Probes *(cont.)*

12.13 RAB2-6-RS

Convex Volume Probe

Applications	Abdomen, OB/GYN, urology
Number of Elements	128
Convex radius	47.1 mmR
Footprint	62.2 x 34.0 mm
Volume sweep radius	24.11 mm
FOV	70 (B), 84° x 70° (volume scan)
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

12.14 RIC5-9A-RS

Convex Volume Probe

Applications	OB/GYN, urology, transvaginal, transrectal
Number of elements	192
Convex radius	10.1 mmR
Footprint	20.96 x 23.39 mm
FOV	146° (B), 84° x 146° (volume scan)
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

13. Inputs and outputs

CVBS output (RCA)

S-Video output

VGA output (1920 x 1080 resolution)

HDMI output (1920 x 1080 resolution)

Audio line-out (RCA)

Ethernet (RJ45)

USB (3x in rear, 1 beside touch panel)

14. Safety conformance

The Versana Premier is CE marked to Council Directive 93/42/EEC on medical devices	
Conforms to the standards for safety	• IEC 60601-1 Medical electrical equipment – Part 1: General requirements for safety (basic safety and essential performance) • IEC 60601-1-2 Medical electrical equipment – Part 1-2: General requirements for safety (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 safety (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 • EN 62366 Medical devices – Application of usability engineering to medical devices

Imagination at work

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February 2019
DOC2129260