GE HealthCare

Versana Essential™

Ultrasound System

Specification sheet

Product description

Versana Essential ultrasound helps you provide world-class care with no compromise on quality. This practical, versatile system has broad applicability and is well-suited for clinicians of all experience levels who wish to upgrade their capabilities. Versana Essential is a good fit for private clinics, GP offices, OB/GYN offices and other primary care settings as it is affordable, enables comprehensive scanning capability with excellent image quality, and is built to perform reliably in busy care environments, day after day.

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1. General specifications

1.01 Dimensions and weight	
Height with monitor	• 1395 mm (54.9 in)
Width	• Keyboard: 560 mm (22.0 in) • Caster: 520 mm (20.5 in)
Depth	• Maximum: 620 mm (24.4 in) • Caster: 610 mm (24.0 in)
Weight (no Peripherals)	Less than 45 kg

1.02 Electrical power
Voltage 100 – 240 VAC
Frequency 50/60 Hz
Power consumption maximum of 350 VA with peripherals

1.03 Control Design
Max 3 active probe ports
Integrated SSD (256 GB)
Integrated speakers
Probe holders, removable for cleaning and washing
Gel holder, removable for cleaning and washing
Front and rear handles
Probe cable management slots
Easily removable air filters
Wheels: Locking mechanism that provides rolling lock and caster swivel lock
Low Noise Design: less than 28dB (measured at 50cm far from console, 25°C room temperature)

2. User interface

2.01 Operator keyboard
Full alphanumeric keypad covered with washable protection film
6 TGC pods
21.5'' (476.1 x 267.8 mm) 1920 x 1080 high-resolution LED backlit

2.02 Monitor
Fixed monitor arm
Tilt/Rotate/Pan
Tilt angle: +25˚/-90˚
Rotate angle: -90˚, +90˚ Brightness/contrast/
color temperature adjustment Fold-down
for transportation

3. System overview

3.01 System specifications	
Operating system	Windows® 10
Fast boot up time	<25 seconds
Cold boot up time	<100 seconds

3.02 Applications
Abdominal
Obstetrical
Gynecological
Small parts
Musculoskeletal
Vascular/peripheral vascular Urological
Pediatric
Cardiac
Thoracic
Transcranial
Transvaginal
Transrectal
Interventional Guidance

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

3. System overview *(cont.)*

3.04 Transducer Type
Convex array
Linear array
Microconvex array
Sector phased array

3.05 Operating modes
B-Mode
Coded Harmonic Imaging
M-Mode
Color M-Mode
Color Flow mode (CFM)
Power Doppler Imaging (PDI)
Directional PDI
PW Doppler with high PRF

4. System standard features

Installation wizard
Whizz
CrossXBeam™
SRI-HD (High Definition Speckle Reduction Imaging)
B-Steer
Coded Harmonic Imaging
Virtual Convex
Patient information database
Image Archive on integrated SSD
Raw Data Analysis
Real-time automatic Doppler calculations
OB Calculations
Fetal Trending
Multi-gestational calculations
Hip dysplasia calculations
Gynecological calculations
Vascular Calculations
Breast Productivity
Urological Calculations
Renal calculations
Cardiac calculations
On board reporting package
Network storage
Remote capability: RSVP
My Trainer
Scan Assistant
Standby
QAnalysis

5. System options

CW Doppler mode	
Anatomical and Curved M Mode (AMM and Curved AMM)	
LOGIQView	
Advanced 3D (Easy 3D)	
Tissue Velocity Imaging (TVI)	
TVM	
Auto Bladder (Dynamic image optimization, Auto measurement	
and Auto annotation)	
Scan Coach	
Sono Biometry (HC/ AC/ HL/ FL)	
Auto IMT	
TUI	
Thyroid productivity	A package in thyroid measurement including measurement and relevant description (Includes TI-RADS® ACR)
Needle recognition	
Follow up tool	
Elastography	
Breast Care	
Li Rads	
Tricefy™ Uplink	

6. Peripheral options

Sony UP-D898MD B/W thermal printer
Sony UP-D898DC B/W thermal Printer
Sony UP-D25MD Color thermal printer
1-Pedal and 3-Pedal type footswitch
USB Stick
External USB HDD
DVD RW kit
USB wireless adaptor: Sales availability varies in different countries
ECG Module
HP Office 200 Printer
Bluetooth adapter
Barcode Scanner

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 + PW/M • Real-time triplex mode (B + CFM/ PDI + PW)	• B + CFM/PDI • B + CFM + M • B + B-Flow/ B-Flow Color
Zoom	Write (HD)/readup to 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)	
LOGIQ View		
VirtualConvex		
TUI (Tomography Ultrasound Imaging)		

8. Selectable alternating modes

B/M/PW/CW/CF/PDI/TVI/TVD
B + B
B + M
B + PW/CW
B + CFM/PDI
B + CFM /PDI + PW /CW
B + TVI
B + TVI + TVD
Multi-image split screen (quad screen) Live/Frozen
Independent CINE playback
Bluetooth adapter
Barcode Scanner

9. Display annotation

9.01 General user interface		
Patient name: First, last (up to 64 total characters)		
Patient ID (Up to 64 characters)		
Other ID (Up to 64 characters)		
Age, gender and date of birth		
Hospital name		
Date format: 4 Types selectable	• MM/DD/YYYY • YYYY/MM/DD	• DD/MM/YYYY • YYYY-MM-DD
Time format: 2 types selectable	• 24 hours • 12 hours	
Gestational age from	• LMP • EDD	• GA • BBT
Displayed Acoustic	• TIs: Thermal Index Soft Tissue • TIc: Thermal Index Cranial (Bone) • TIb: Thermal Ind e x Bone • MI: Mechanical Index	
% of maximum power output		
Map name		
Probe orientation		
Depth scale marker		
Lateral scale marker		
Focal zone marker		
Image depth		
Zoom depth		

9. Display annotation *(cont.)*

9.02 B-Mode
Gain
Dynamic range
Imaging frequency
Edge enhance
Frame average
Frame rate
Gray map
SRI-HD
CrossXBeam

9.03 Color Flow Mode
Line density
Frame average
Packet size
Color velocity range and baseline
Color threshold marker
Color gain
Inversion
Frequency

9.04 PDI mode
Line Density
Frame Average
Packet Size
Directional PDI
Color Velocity Range and Baseline
Power Threshold Marker
PDI Gain
Inversion

9.05 M-Mode
Gain
Dynamic Range (Use the Dynamic Range of B-Mode)
Time Scale
AMM

9.06 Doppler Mode
Gain
Angle Correct
Sample Volume Depth and Sample Volume Length
Wall Filter
Baseline
Spectrum Inversion
Time Scale/Sweep Speed
Scale
Doppler Frequency

9.07 Easy 3D
Utilities
Texture
Gray Surface
Render
Threshold1
Threshold2
Scan Distance
Colorize

9.08 Advanced 3D
DefineAxis
Group Planes
Reslice
Tile

10. General system parameters

10.01 System Setup	
10 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
115,663 system processing channels
Max. Frame Rate: 1790 fps, probes and modes dependent
Displayed Imaging Depth: 1 –33 cm
Minimum Depth of Field: 0 – 1 cm, probe dependent
Maximum Depth of Field: 0 –33 cm, probe dependent
Transmission Focus: 1 – 8 Focal Points selectable, probe and application dependent
Quad Beamforming
Continuous Dynamic Receive Focus/Aperture
Multi-Frequency/Wideband Technology
Frequency Range: 1.7 to 13 MHz
256 Shades of Gray
266 dB systematic Dynamic Range
Adjustable Field of View (FOV):Up to 168 degree, probe dependent
Image Reverse: Right/Left
Image Rotation of 0˚ 90˚ 180˚ 270˚

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 or6 dB per step
Frame averaging	8 steps
Maximum frame rate	≥ 1449 fps
Grayscale map	6 or 8 types, probe and application dependent
B colorization	9 types
Frequency	Up to 4 selectable, probe dependent
Line density	992, 5–7 steps, probe dependent
Line density zoom	5–7 steps, probe dependent
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	Up to 9 steps, probe dependent
Steered linear	±12°, ±15°, probe dependent
Scanning size (FOV or angle, probe dependent)	
SRI-HD	Up to 8 levels selectable
CrossXBeam	Up to 9 angles selectable, probe dependent
Depth	1 – 33 cm, 0.5, 1 or 2 cm per step, probe dependent

10. General system parameters *(cont.)*

10.04 Coded Harmonic Imaging	
Available on all probes	
Line density	5 or 6 steps, probe dependent
Line density zoom	5 or 6 steps, probe dependent
Suppression	6 steps
Edge enhance	7 steps
Gray map	6 or 8 types, probe and application dependent
Tint map	9 types
Gain	0 – 90 dB, 1 dB per step
Dynamic range	51 –78 dB, 3 dB per step; 36 –48 dB/78 –96 dB, 6 dB per step;
Rejection	Up to 9 steps, probe dependent
Frequency	Up to 4 steps, probe dependent

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 • SRI-HD • Virtual Convex	• PW • Coded Harmonic Imaging
Available on 4C-RS, L6-12-RS, E8C-RS, E8Cs-RS, 8C-RS, RAB2-6-RS, LK760-RS		

10.07 Color Flow mode	
Baseline	0 –100%, 10% per step
Invert	Off/on
CF/PDI focus depth	Default pre-settable for 10 –100% of ROI in depth, 15% or20% per step
CF PDI flash suppression	5 steps
CF/PDI angle steer	0, ±10˚, ±15˚, ±20˚, probe dependent
Packet size	8 –24, probe and application dependent
Line density	5 steps
Line density zoom	5 steps
Frame average	7 steps
Maximum frame rate	≥1449 fps
PRF	0.1 –22.3 KHz
Spatial filter	6 steps
Gain	0 – 40 dB, 0.5 dB per step
Wall filter	4 steps, probe and application dependent
Scanning size (FOV or angle)	Probe dependent
CF/PDI vertical size (mm) of ROI	Default pre settable
CF/PDI vertical size (mm) of ROI	Default pre-settable
CF/PDI frequency	Up to 4 steps, probe dependent
Colormaps, including velocity-variance maps	19 types, probe and application dependent
Transparent map	5 steps
Colorthreshold	0 –100%, 10% per step
Accumulation	8 steps

10. General system parameters *(cont.)*

10.08 Power Doppler Imaging mode	
DI map	14 types
CF/PDI focus depth	Default pre-settable for 10 –100% of ROI in depth, 15% or 20% per step
PDI acoustic output	0 – 100%, 2%, 5% or 10% per step
CF/PDI angle steer	0, ±10˚, ±15˚, ±20˚, probe dependent
Packet size	8 –24, probe and application dependent
Spatial filter	6 steps
Frame average	7 steps
PRF	0.1–22.3 KHz
Power threshold	0 –100%, 10% per step
Gain	0 – 40 dB, 0.5 dB per step
Wall filter	4 steps, probe and application dependent
CF/PDI frequency	Up to 4 steps, probe dependent
Transparent map	5 steps
Invert	On/off
Accumulation	8 steps

10.09 M-Mode	
Gain	-20 – 20 dB, 1 dB per step
Grayscale map	6 or 8 types, probe dependent
Colorization	9 types
Scanning size (FOVor angle, probe dependent, see probe specifications)	
Rejection	6 steps
Compression	13 steps
Sweep Speed	8 steps
M/PW display format	Vert 1/3B, Vert 1/2B, Vert 2/3B, Horiz 1/2B, Horiz 1/4B, TL only

10.10 Anatomical M-Mode (option)
M-Mode cursor adjustable at any plane
Can be activated from a Cine loop from a live orstored image
Measure and analysis capability
Available with ColorFlow mode

10.11 Pulse Wave Doppler mode	
Acoustic power	0 – 100%, 2, 5 and 10 steps
Gain	0 – 85 dB, 1 dB per step
Grayscale map	Up to 8 types
PRF	0.6 –27.9 KHz
Transmit frequency	1.7 –6.3 MHz, probe dependent
Wall filter	5.5 –5000 Hz, 27 steps, probe dependent
PW colorization	Up to 6 types
Velocityscale range	0.1 –7011 cm/s
Sample volume depth	0.1 –33 cm, probe dependent
Sweep speed	0 –7, 8 steps
SV gate	1, 2, 3, 4, 5, 6, 7, 8, 10, 12, 14, 16 mm
Angle correction	-90˚ –90˚, 1˚ per step
M/PW display format	Vert 1/3B, Vert 1/2B, Vert 2/3B, Horiz 1/2B, Horiz 1/4B, TL only
Spectrum inversion	Off/on
Simultaneous	Off (PW only)/on
PW angle steer	0, ±10˚, ±15˚, ±20˚ (use angle steer of B Mode), probe dependent
Tracemethod	Off, Max, Mean
Baseline shift	11 steps
Auto Calcs/Doppler AutoTrace	Off, Frozen, Live
Compression	0.5 –2.4 (0.5, 0.7, 0.9, 1, 1.1, 1.4, 1.6, 2, 2.4)
Tracedirection	Above, Below, Both
Tracesensitivity	0 –40, 2 per step

10. General system parameters *(cont.)*

10.12 Continues Wave Doppler mode	
Grayscale map	8 types
Baseline	11 steps
Angle correct	-90˚ –90˚, 1˚ per step
Spectralcolor	6 types
Invert	Off/on
Cycles to average/ Spectral averaging	5 steps
Gain	0 – 85 dB, 1 dB per step
Wall filter	5.5 –5000 Hz, 27 steps, probe and application dependent
CW-Modeincludes	• Transmit frequency: 1.9, 4.2 MHz • CW colorization: Tint map A/B/C/D/ E/F • Velocityscale range: 0.2 – 6105 cm/s • Spectrum inversion • Trace method: Max, Mean, Off • Auto Calcs/Doppler Auto Trace: Frozen, Live, Off • Trace direction: Above, Below, Both
Trace sensitivity:	0 – 40, 2 per step

10.13 Cine memory/image memory	
384 MB of Cine memory	
Selectable Cine sequence for Cine review	
Maximum number of cine loops	410691 images
Cine loop capacity	• B-Mode: 919 seconds • M-Mode: 423 seconds • CFM Mode: 4978 seconds • PW Mode: 27983 seconds • CW Mode: 27962 seconds
Prospective Cine mark	
Measurements/calculations and annotations on Cine playback	
Scrolling timeline memory	
Dual image Cine display	
Quad image Cine display	
Cine gauge and Cine image number display	
Cine review loop	
Cine review speed	11 steps (11, 13, 14, 17, 22, 25, 31, 48, 100, 200, 400%)

10.14 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 archiveddata sets	
Network storage support for Import, Export, DICOM Read, SaveAs	
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: ~3.9 MB • Display format: Full size, 4 x 4 and thumbnails
Storage devices	• Internal Solid State drive partition of 100 GB for image storage • Optional internal SSD of 256GB for image storage • External USB HDD and USB memory stick support for Import, Export, DICOM Read, SaveAs • CD-RW storage:700 MB • DVD storage: -R (4.4 GB)

10.15 Connectivity and DICOM	
Ethernet network connection	• DICOM 3.0 • Verify • Print • Store • Modality worklist • Storagecommitment • Modality Performed Procedure Step (MPPS) • Query/retrieve • Structured reporting template (Can be comparedto vascular and OB standard) • RSVP Remote capability

10.16 Virtual Convex
Provides a convexfield of view
Compatible with CrossXBeam for linear transducers
Available on linear and sector transducers

10. General system parameters *(cont.)*

10.17 LOGIQView (Option)

Extended Field of View Imaging

Available on 4C-RS, L6-12-RS, 8C-RS, 3Sc-RS, E8C-RS, E8Cs-RS, 6S-RS, LK760-RS, RAB2-6-RS probes

Foruse in B-Mode

CrossXBeam is available on linear probes

Auto detection of scan direction

Post-processz oom Rotation

Auto fit on monitor

Measurements in B-Mode

Up to 60 cm scan length

10.18 Easy 3D (Option)

Allows unlimited rotation and planar translations

3D reconstruction from Cine sweep

Threshold1: 0 –255

Utilities: Average off/Average light/Average medium/ Average Strong

Grey surface: Off/On

Scan distance: 1.0 –15.0

Threshold2: 0 –255

Colorize: 0 –360

10.19 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

10.20 TVI (option)

Myocardial Doppler imaging with color overlay on tissue image

Available on the sector probes

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

QAnalysis: Multiple Time Motion trace display from selected points in the myocardium

10.21 TVM (option)

TVI with M-Mode active

Available on the sector probes

Provides both myocardium motion velocity and direction

10.22 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 with the current exam

10.23 Needle recognition (option)

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

10.24 Scan Coach (option)

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

10.25 My Trainer

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

10.26 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.

10.27 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. General system parameters *(cont.)*

10.28 RSVP

RSVP is a direct link with a GE Online Service Engineer or Applications Support Engineer or a Request for Service.

10.29 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.

10.30 Whizz CF mode

Whizz CF mode dynamically optimizes CFmode parameters in real time, enabling optimal, consistent image quality and measurements.

10.31 Lateral gain compensation (LGC)

To set Lateral Gain Compensation values based on LGC curves defined by a user; By laterally adjusting the received signal intensity, the uniformity of a B-Mode image intensity is optimized in lateral direction.

10.32 Elastography (option)

Available on L6 12 RS	• Frame reject: 0 – 8 • Axial smoothing: 0 – 4 • Noise reject: 0 – 8 • Sample Volume: 0 – 2 • 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

10.33 LI-RADS® ACR (Option)

The Ultrasound Liver Imaging Reporting And Data System (US LI-RADS) is a standardized system for imaging technique, interpretation, reporting, and data collection for screening or surveillance ultrasound exams in patients at risk for developing hepatocellular carcinoma(HCC).

10.34 e-Delivery

Electronic software delivery. As part of the product lifecycle management, GE regularly analyzes and integrates software updates into our products.

10.35 Probe Check

Probe assessment tool that evaluates probe elements to monitor potential probe deterioration over probe life cycle.

10.36 Controls available while “live”

Write Zoom

B/M-Mode	• Gain • Dynamic Range • Transmission Focus Position • Line Density Control • Sweep Speed for M-Mode	• TGC • Acoustic Output • Transmission Focus Number • Number of Angles for CrossXBeam
PW-Mode	• Gain • Acoustic Output • Transmission Frequency • Scale • Wall Filter	• Sample Volume Gate – Length – Depth • Volume
Color Flow Mode	• CFM Gain • Acoustic Output • Wall Filter • Line Density • CFM Frame Average	• CFM Velocity Range • Packet Size • CFM Spatial Filter • Frequency/Velocity Baseline Shift

10.37 Controls available on Freeze or Recall

SRI-HD

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

Easy 3D reconstructionfrom a stored Cine loop

CrossXBeam is disabled on Freeze or Recall TGC

Colorized B and M

Frame average (loops only)

Dynamic range

Anatomical M-Mode

Gray Map

Post gain

10. General system parameters *(cont.)*

10.37 Controls available on Freeze or Recall *(cont.)*
Baseline shift (PW, CW)
Sweep speed
Compression
Rejection
Colorized spectrum
Display format
Angle Correct
Quick Angle Correct
Overall gain (loops and stills)
Color map
Transparency map
CFM display threshold
Invert for Color/Doppler

11. Measurements/calculations

11.01 General B-Mode
Depth and distance
Circumference (ellipse/trace)
Area (ellipse/trace)
Volume
% Stenosis (areaor diameter)
Angle between 2 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)
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/PSRatio)
HR (Heart Rate)
TAMAX (Time Averaged Maximum Velocity)
PVAL (Peak Velocity Value)
Volume Flow (TAMEAN and Vessel Area)

11. Measurements/calculations

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 Abdomina l Diameter) • TCD (Transverse Cerebellum Diameter) • THD (Thorax Transverse Diameter) • TIB (Tibia Length) • ULNA (Ulna Length)	
Estimated Fetal Weight (EFW) by	• AC, BPD • AC, FL, HC	• AC, BPD, FL, HC
Calculations and ratios	• FL/BPD • FL/HC • CI (Cephalic Index)	• CTAR (Cardio Thoracic Area Ratio)
SonoBiometery	• BPD • AC • FL	• HC • HL
Measurements/calculationsby: ASUM, ASUM 01, Berkowitz, Bertagnoli, Brenner, Campbell, CFEF, Chitty, Eik-Nes, Eriksen, Goldstein, Hadlock, Hansmann, Hellman, Hill, Hohler, Jeanty, JSUM, Kurtz, Mayden, Mercer, Merz, Moore, Nelson, Osaka, Paris, Rempen, Robinson, Shepard, Shepard/Warsoff, Tokyo, 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
DCCA (Distal Common Carotid Artery)
MCCA (Mid Common Carotid Artery)
PCCA (Proximal Common Carotid Artery)
DICA (Distal Internal Carotid Artery)
MICA (Mid Internal Carotid Artery)
PICA (ProximalInternal Carotid Artery)
DECA (Distal External Carotid Artery)
PECA (Proximal External Carotid Artery)
VERT (Vertebral Velocity)
SUBCLAV (Systolic Subclavian Velocity)
Automatic IMT

11.08 Urological calculations
Volume (Auto Bladder volume) Prostate volume
Left/right renalvolume
Generic volume
Post-void bladder volume

12. Cardiac measurements/calculations

12.01 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 (Aost 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, LVIDs) • Left Ventricle Internal Diameter (LVIDd, LVIDs) • 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 • 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 (Sytemic Diam)

12.02 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 ventricle	• Left A trium 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 (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)

12.03 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

12. Cardiac measurements/calculations *(cont.)*

12.03 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)
Pulmonic valve	• Pulmonic Insufficiency Peak Pressure Gradient (PR Vmax) • Pulmonic Insufficiency End-Diastolic Pressure Gradient (PRTrace) • Pulmonic Valve Peak Pressure Gradient (PV Vmax) • Pulmonic Insufficiency Peak Velocity (PR Vmax) • Pulmonic Insufficiency End-Diastolic Velocity (Prend Vmax)

12.03 Doppler mode measurements *(cont.)*	
Pulmonic valve	• Pulmonic Valve Peak Velocity (PV Vmax) • Pulmonary Artery Diastolic Pressure (PV Trace) • Pulmonic Insufficiency Mean Pressure Gradient (PR Trace) • Pulmonic Valve Mean Pressure Gradient (PV Trace) • Pulmonic Insufficiency Mean Square Root Velocity (PR Trace) • Pulmonic Insufficiency Velocity Time Integral (PR Trace) • Pulmonic Valve Mean Velocity (PV Trace) • Pulmonic Valve Velocity Time Integral (PV Trace) • Pulmonic Insufficiency Pressure Half Time (PR PHT) • Pulmonic Valve Flow Acceleration (PV Acc Time) • Pulmonic Valve Acceleration Time (PV Acc Time) • Pulmonic Valve Ejection Time (PVET) • QRS complex to end of envelope (Q-to-PV close) •Pulmonic Valve Acceleration to Ejection TIme Ratio (PV Acc Time, PVET)
Right ventricle	• Right Ventricle Outflow Tract Peak Pressure Gradient (RVOT Vmax) • Right Ventricle Outflow Tract Peak Velocity (RVOT Vmax) • Right Ventricle Outflow Tract Velocity Time Integral (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)
System	• Pulmonary Artery Peak Velocity (PV Vmax) • PulmonaryVeinVelocityPeak 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)

12. Cardiac measurements/calculations *(cont.)*

12.03 Doppler mode measurements *(cont.)*	
Tricuspid valve	• Tricuspid Regurgitant Peak Pressure Gradient (TR Vmax) • Tricuspid Valve Peak Pressure Gradient (TVVmax) • Tricuspid Regurgitant Peak Velocity (TR Vmax) • Tricuspid Valve Peak Velocity(TVVmax) • Tricuspid Valve Velocity Peak A (TV A Velocity) • Tricuspid Valve Velocity Peak E (TV E Velocity) • Tricuspid Regurgitant Mean Pressure Gradient (TRTrace) • 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

12.04 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)

12.05 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)

12.06 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

13. Probes

13.01 4C-RS	
Convex probe	
Applications	Abdominal, OB, GYN, Vascular, Urology, Thoracic, Pediatric, MSK, Interventional Guidance
Number of elements	128
Convex radius	60 mm
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

13.02 L6-12-RS	
Linear probe	
Applications	Vascular, Pediatric, Small Parts, MSK, Thoracic, Interventional Guidance
Number of elements	128
Footprint	47 x 11.4 mm
Convex radius	60 mm
FOV	58°
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

13.03 LK760-RS	
Linear probe	
Applications	MSK, Interventional Guidance
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	±12°
Biopsy guide	Not available
PWD frequency	4.0, 4.5, 5.0 MHz
Steered angle	±20°
Biopsy guide	Multi-angle, reusable bracket

13.04 E8C-RS	
Endo micro convex probe	
Applications	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
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

13. Probes *(cont.)*

13.05 8C-RS	
Micro convex probe	
Applications	Pediatric, MSK, Cardiac Pediatric, Transcranial, Interventional Guidance
Number of elements	128
Convex radius	10.73 mm
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

13.06 3Sc-RS	
Phased array sector probe	
Applications	Cardiac, Abdominal, Vascular, Transcranial, Thoracic, Interventional Guidance
Number of elements	64
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
Biopsy guide	Not available

13.07 6S-RS	
Phased array sector probe	
Applications	Cardiac Pediatric, Vascular, Pediatric, Transcranial, Interventional Guidance
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	2.5 (CFM/PDI), 3.0, 4.0, 4.5 MHz
CWD frequency	4.2 MHz
Biopsy guide	Not available

13.09 E8Cs-RS	
Endo micro convex probe	
Applications	OB, GYN, Urology, Transvaginal, Transrectal, Interventional Guidance
Number of elements	128
Convex radius	8.73 mm
Footprint	18.6 x 13.9 mm
FOV	168°
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

14. Inputs and outputs

HDMI output (1920 x 1080 resolution)
S-Video output (via optional video adapter)
CVBS output (via optional video adapter) Ethernet (RJ45)
USB-A (2x in rear, 1 beside keyboard)
USB-C (1x in rear)

15. Safety conformance

The Versana Essential is CE marked to Council Directive 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 62366-1 Medical devices –Part 1: Application of usability engineering to medical devices

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Commercial availability of GE HealthCare medical systems is subject to meeting local requirements in a given country or region. Contact a GE HealthCare Representative for more information. Intended for healthcare professionals only.

GE HealthCare