Versana Active

Ultrasound System

Specification sheet - USA

October 2019
Rev 2.1

Product description

Versana Active™ ultrasound system delivers the imaging capability of a console in a hand-carried, lightweight package that enables you to actively take your system to your patients, on premises or remote facilities. This reliable system brings the agility of a laptop unit with capability for attaching it to a cart. Adaptable to cover a broad range of everyday exams, it is easy to carry to clinics and physician offices.

Contents

1. General specifications

1.01 Dimensions and weight	
Height	58 mm
Width	390 mm
Length	362 mm
Weight (no Peripherals)	5.0 kg with battery

1.02 Electrical power
Voltage: 100 – 240 VAC
Frequency: 50/60 Hz
Power consumption: No more than 200 VA with peripherals

1.03 Console design
1 in built active probe ports
Integrated SSD (256 GB standard)/(1TB option)
Integrated speakers

2. User interface

2.01 Operator keyboard
Full alphanumeric keypad covered with washable protection film
8 TGC pods

2.02 Monitor
15.6" (344.16 x 193.59 mm) high-resolution LCD (1920 x 1080 pixels)
Brightness/contrast/color temperature adjustment

3. System overview

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

Applications *(cont.)*
Pediatric
Cardiac
Thoracic
Transcranial
Transvaginal
Transrectal

3.02 Scanning methods
Electronic convex
Electronic linear
Electronic micro convex
Electronic sector

3.03 Transducer type
Convex array
Linear array
Microconvex array
Sector phased array

3.04 Operating modes
B-Mode
Coded Harmonic Imaging
M-Mode
Anatomical M-Mode (option)
Curved 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)
TVI mode (option)

4. System standard features

Installation wizard
Whizz
CrossXBeam™
SRI-HD (High Definition Speckle Reduction Imaging)
B-Steer
Coded Phase Inversion Harmonic Imaging
Virtual Convex
Patient information database
Image Archive on integrated SSD
Raw Data Analysis
Voice comments
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
MPEGvue
Network storage
Remote capability: InSite™ Exc
My Trainer
Scan Assistant
Standby
QAnalysis
Auto Bladder (Dynamic image optimization, Auto measurement and Auto annotation)
Sono Biometry (BPD/HC/AC/HL/FL)
DICOM® 3.0 Connectivity
Tricefy™ Uplink

5. System options

CW Doppler	
Anatomical M-Mode	
Curved AMM	
LOGIQ View	
B-Flow (B-Flow color)	
Tissue Velocity Imaging (TVI)	
TVM	
Scan Coach	
Auto EF	
Auto IMT	
Breast Care	
Thyroid productivity	A package in thyroid measurement with including measurement and relevant description (Includes TI-RADS ACR)
Needle recognition	
Follow-up tool	

6. Peripheral Options

Sony UP-D898MD 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
ECG Module

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/PDI • B + PW/M • B + CFM + M • Real-time triplex mode (B + CFM/PDI+PW) • B + B-Flow/B-Flow Color
Zoom	Write (HD)/read 67X
Colorized Image	• Colorized B • Colorized B-Flow • Colorized M • Colorized PW • Colorized CW • Colorized 3D
Timeline display Virtual Convex	• 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	

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

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: 3 types selectable	• MM/DD/YYYY • YYYY/MM/DD	• DD/MM/YYYY
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 name		
Probe orientation		
Depth scale marker		
Lateral scale marker		
Focal zone marker		
Image depth		
Zoom depth		

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

9. Display annotation *(cont.)*

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 B-Flow/B-Flow Color Mode
Gain
Background
SRI HD
Accumulation
Flow Type/Model
Rejection
Colorize
Edge Enhance
Gray Map
Frame Average
Power Output
Sensitivity/PRI
Dynamic Range
Frequency
Suppression
Flash Suppression

9.05 B-Flow/B-Flow Color Mode *(cont.)*
Enhance
Threshold
Map Compress
Map
Wall Filter
Transparency

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

9.07 Doppler Mode
Gain
Angle Correct
Sample Volume Depth and Sample Volume Length
Wall Filter
Velocity and/or Frequency Scale
Spectrum Inversion
Time Scale
Scale
Doppler Frequency

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. General system parameters
(cont.)

10.02 System scanning parameters
Digital Agile Beamformer Architecture
223907 system processing channels
Max. Frame Rate: 1790 fps, probe dependents and modes
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 dependent and application
Quad Beamforming
Continuous Dynamic Receive Focus/Aperture
Multi-Frequency/Wideband Technology
Frequency Range: 1.7 to 18 MHz
256 Shades of Gray
269 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 or 6 dB per step
Frame averaging	8 steps
Gray scale map	6 or 8 types, probe and application dependent
B colorization	9 types
Frequency	Up to 4 selectable, probe dependent
Line density	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

10.03 B-Mode *(cont)*	
Edge enhance	7 steps
Rejection	6 steps
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

10.04 Coded Harmonic Imaging	
Coded Phase Inversion 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 scale 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	6 steps
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. General system parameters
(cont.)

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, L8-18i-RS, 9L-RS, 12L-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% or 20% 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
PRF	0.1 – 27.2 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 center depth (mm) of ROI	Default pre-settable
CF/PDI frequency	Up to 5 steps, probe dependent
Color maps, including velocity-variance maps	20 types, probe and application dependent
Transparent map	5 steps
Color threshold	0 – 100%, 10% per step
Accumulation	8 steps

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˚, probe dependent
Packet size	8 – 24, probe and application dependent
Spatial filter	6 steps
Frame average	7 steps
PRF	0.1 – 26 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 5 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
Gray scale map	6 or 8 types, probe dependent
Colorization	9 types
Scanning size (FOV or 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. General system parameters
(cont.)

10.10 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

10.11 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, probe dependent
Wall filter	5.5 – 5000 Hz, 27 steps, probe dependent
PW colorization	Up to 6 types
Velocity scale 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
Trace method	Off, Max, Mean
Baseline shift	11 steps
Auto Calcs/Doppler Auto Trace	Off, Frozen, Live
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

10.12 Continues Wave Doppler Mode	
Gray scale map	8 types
Baseline	11 steps
Angle correct	-90˚ – 90˚, 1˚ per step
Spectral color	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, dependent on probe and application
CW-Mode includes	• Transmit frequency: 1.9, 4.2, 5.0, 6.2 MHz • CW colorization: tint map A/B/C/D/E/F • Velocity scale 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	
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. General system parameters
(cont.)

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 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: ~4.1 MB • Display format: full size, 4x4 and thumbnails
Storage devices	• Internal hard drive partition of 100 GB (256 GB console), and 814 GB (1TB console option) 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)

10.15 Connectivity and DICOM

Ethernet network connection	• DICOM 3.0 • 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

10.16 Virtual convex

Provides a convex field of view
Compatible with CrossXBeam for linear transducers
Available on linear and sector transducers

10.17 LOGIQView (option)

Extended Field of View Imaging
Available on 4C-RS, L6-12-RS, 8C-RS, 3Sc-RS, E8C-RS, E8Cs-RS, L8-18i-RS, 6S-RS, LK760-RS, 12L-RS, 9L-RS,12S-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 60 cm scan length

10.18 B-Flow (option)

Available on 4C-RS, L6-12-RS, 12L-RS, 9L-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 – 96 dB, 16 steps
Rejection	6 steps
Gain	0 – 90 dB range, 1 dB per step
B-Flow Color	
Accumulation	8 levels

10.19 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
QAnalysis: Multiple Time Motion trace display from selected points in the myocardium

10. General system parameters
(cont.)

10.20 TVM (option)

TVI with M-Mode active

Available on the sector probes

Provides both myocardium motion velocity and direction

10.21 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.

10.22 Breast care (option)

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

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,12L-RS, 4C-RS, 9L-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 & animations to depict information related to each step. It covers five applications.

- Abdomen
- Obstetrics
- Gynecology
- Cardiology
- Vascular

10.25 MyTrainer

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

10.26 Spare Battery (option)

The lithium ion battery provides power when an AC power source is not available.

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.

10.28 InSite™ Exc

InSite™ Exc is a direct link with a GE Online Service Engineer, 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 Controls available while "live"

Write Zoom

B/M-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 • 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 Average • Frequency/Velocity Baseline Shift

10. General system parameters *(cont.)*

10.31 Controls available on Freeze or Recall
SRI-HD
CrossXBeam – Display non-compounded and compounded image simultaneously in split screen
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
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 (ellipsoid)
% Stenosis (area or diameter)
Angle between 2 lines

11. Measurements/calculations *(cont.)*

11.02 General M-Mode
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/PS Ratio)
HR (Heart Rate)
TAMAX (Time Averaged Maximum Velocity)
PVAL (Peak Velocity Value)
Volume Flow (TAMEAN and Vessel Area)

11. Measurements/calculations
(cont.)

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, FL, HC	• AC, BPD, FL, HC
Calculations and ratios	• FL/BPD • CI (Cephalic Index) • FL/HC	• CTAR (Cardio-Thoracic Area Ratio)
SonoBiometery	• BPD • AC • FL	• HC • HL
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
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 (Proximal Internal 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 renal volume
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 (Ao st junct)
Aortic valve	• Aortic Valve Cusp Separation (AVCusp) • 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 • 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)

12.02 M-Mode measurements	
Aorta	• Aortic Root Diameter (Ao Root Diam) • Aortic Valve Diameter (AV Diam) • Aortic Valve Cusp Separation (AVCusp) • Aortic Valve Ejection Time (LVET)
Left atrium & Left ventricle	• 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)

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
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)

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

12.03 Doppler mode measurements *(cont.)*	
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) • 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)

12.03 Doppler mode measurements *(cont.)*	
Pulmonic valve *(cont.)*	• 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) • 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)

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 (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

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, Urological, Thoracic, Pediatric, MSK
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

13. Probes *(cont.)*

13.02 L6-12-RS	
Linear probe	
Applications	Vascular, Small parts, Pediatrics, MSK, Thoracic
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°

13.03 12L-RS	
Linear probe	
Applications	Vascular, Small parts, Pediatrics, MSK, Thoracic
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°

13.04 E8Cs-RS	
Endo micro convex probe	
Applications	OB/GYN, Urological, 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	Reusable bracket

13.05 LK760-RS	
Linear probe	
Applications	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°

13.06 E8C-RS	
Endo micro convex probe	
Applications	OB/GYN, Urological, Transvaginal, Transrectal
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	Reusable bracket

13.07 8C-RS	
Micro convex probe	
Applications	Pediatrics, Pediatric Cardiac, MSK
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

13. Probes *(cont.)*

13.08 3Sc-RS	
Phased array sector probe	
Applications	Cardiac, Vascular, Transcranial, Thoracic, Abdominal
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

13.09 6S-RS	
Phased array sector probe	
Applications	Cardiac, Vascular, Transcranial, Pediatrics
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

13.10 12S-RS	
Phased array sector probe	
Applications	Pediatrics, Pediatric Cardiac, Vascular, 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	4.1 (CFM/PDI), 4.5, 5.0, 5.6, 6.7 MHz
CWD frequency	4.2, 5.0, 6.2 MHz

13.11 9L-RS	
Linear probe	
Applications	Vascular, Small parts, Pediatrics, MSK, Abdominal, Thoracic
Number of elements	192
Footprint	53 x 14.1 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	4.0, 5.0 MHz
Steered angle	±20°

13.12 L8-18i-RS	
Linear probe	
Applications	MSK, Small parts, Vascular
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, 15.0, 18.0 MHz
CFM/PDI/PWD frequency	6.7, 8.3, 10.0 MHz
Steered angle	±20°

13.13 Inputs and outputs
HDMI output
S-video and composite output with optional adapter
1000 BASE-TX Ethernet (RJ45)
4 USB ports

14. Cart (optional)

The ergonomic trolley cart, features 4 easy on – off lockable 120 mm diameter wheels, system mounting, power cord hooks and clips for neat arrangement of power cords, probe holders with cord management holder, and gel holder.

14.01 Cart dimension
Dimensions: L 555 x D 515 x H 890 mm
Weight: 21 Kg

14.02 Printer shelf (optional)
Dimensions: L 293 x D 217 x H 122 mm

14.03 Cart tray (optional)
The cart tray offers easy storage up to 1 kg load
Dimensions: L 305 mm X D 222 mm X H 77 mm

14.04 Endocavitary probe holder (optional)
Horizontal positioning of endocavitary probe
Dimensions: L 217 mm X D 52 mm X H 126 mm

14.05 Dimension with additional options
Dimensions: L 555 x D 590 x H 890 mm
Weight: 23 Kg

15. Trolley case

The case features 3 protective compartments for the probes, and 3 additional compartments for power adapters, cord, and manuals.

15.01 Dimension
L 495 x D 275 x H 460 mm
Weight: 4 kg

16. Inputs and outputs

16.01 HDMI output (1920 x 1080 resolution)
Ethernet (RJ45)
USB (4x)

17. Safety conformance

The Versana Active is CE marked to Council Directive 93/42/EEC 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

Imagination at work

July 2019 Oct 2019
DOC2258619 JB71412US