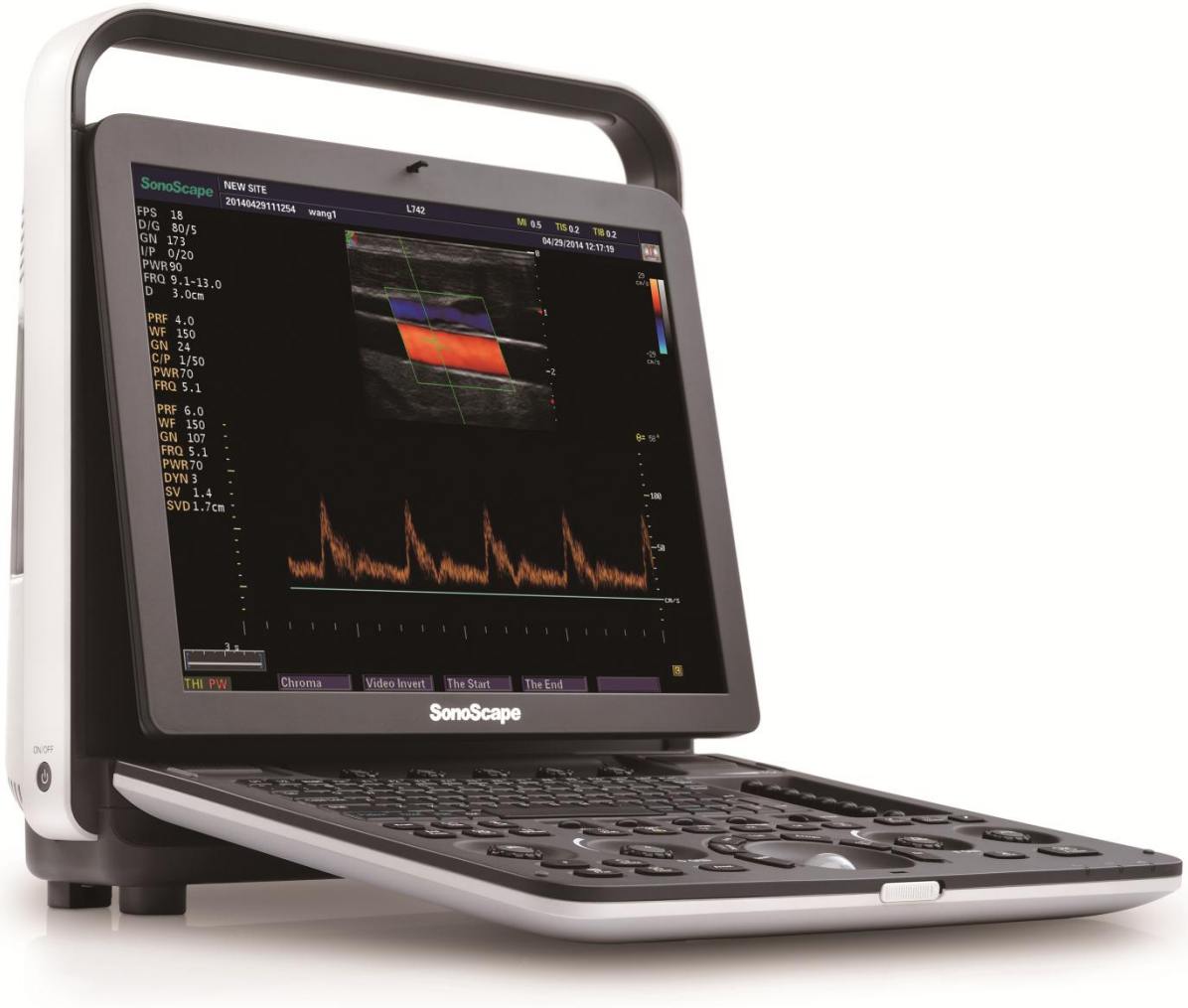
Specifications for S9 Pro Portable Digital Color Doppler Ultrasound System



SonoScape

THE PIONEER OF DOPPLER ULTRASOUND IN CHINA

Overview

S9 Pro Color Doppler Ultrasound System adopts the advanced ultrasonic Doppler technologies, including the Full Digital Super-wide Band Beam Former, Digital Dynamic Focusing, Variable Aperture and Dynamic Tracing, Wide Band Dynamic Range, Multi-Beam Parallel Processing, and etc. The ultrasound diagnostic software in ergonomic design can be customized and easily performed by users. The operation interface has multi-language settings and figure illustration. Complying with applicable international standards and regulations, the system is safe to use.

Based on the industry control computer technology and Linux operation system, the system is more flexible and stable. Moreover, the system supports maintenance and function upgrade through software upgrade, which raises product value and keeps the technological advancement.

Advanced Technologies

- New generation digital front-end technology
- Multi-beam processing technology
- Spatial compound imaging
- μScan image processing technology
- Tissue Harmonic Imaging
- Invert harmonic imaging
- High Pulse Repetition Frequency
- Panoramic imaging
- 4D imaging
- Graphic diagnosis icon
- Elastography imaging

Standard Configurations

- ECG function module
- μScan function
- B mode: Five variable frequencies
- LGC (two-band)
- Tissue acoustic characteristics index
- THI mode
- PIH mode
- Multi-beam
- Image rotation
- Compound imaging
- Trapezoidal imaging
- Color mode
- PDI mode
- DPDI mode
- PW mode
- HPRF support
- Simult mode
- Frozen 3D
- Steer M mode
- Color M mode
- TDI mode
- CW mode
- Stress Echo function
- 2D Panoramic imaging
- Color flow panoramic imaging
- Biopsy enhance
- Basic measurement package
- Obstetrics measurement package
- Gynecology measurement package
- Cardiology measurement package
- Abdomen measurement package
- Vascular measurement package
- Urology measurement package
- Small parts measurement package
- Pediatrics measurement package
- TEI index

- PW auto trace
- IMT measurement
- DICOM transmission
- DICOM Worklist
- DICOM MPPS
- DICOM C-store
- DICOM Q/R

Optional Functions

- 4D imaging
- Biplane dual live
- Elastography imaging
- DVD

Optional Accessories

- Biopsy bracket
- Color ink-jet printer
- B/W video printer
- Color video printer
- Probe cable hanger
- Foot switch
- External DVD burner
- Trolley
- Transducer extender

Scan Methods

- Electronic curved sector scan
- Electronic linear array scan
- Electronic phased array sector scan
- Mechanical sector scan (convex probe)

Applications

- Abdomen
- Vascular
- Cardiology
- Gynecological/Obstetrics
- Urology
- Musculoskeletal
- Interventional ultrasound
- Small parts
- Anesthesiology
- Pediatrics
- Orthopedic
- Cephalic

Imaging Modes

- B mode
- M mode
- THI mode
- CFM mode
- PDI mode
- TDI mode
- PW mode
- CW mode
- HPRF
- 3D/4D mode
- Color M mode
- Steer M mode
- Elastography imaging

Display Formats

- Dual B
- Quad B
- B + Color
- B + Color dual live
- B + PDI

- B + TDI
- B + M
- B + Color + M
- B + PDI + M
- B + TDI + M
- B + PW
- B + Color + PW
- B + PDI + PW
- B + TDI + PW
- B + CW
- B + Color + CW
- B + PDI + CW
- Panoramic imaging
- Trapezoidal imaging

System Settings Menu

- General
  - General
    - Hospital Name
    - Language
      - English
      - Simplified Chinese
      - Spanish
      - Russian
      - French
      - Italian
      - German
      - Norwegian
    - Freeze Response
      - Cine
      - Annotation
      - Calculation
      - Body Mark
      - Arrow
      - Distance
    - Trackball Sensitivity
      - 1, 2, 3, 4, 5 ,6
    - Date/Time Setting
    - Date Format
      - MM/DD/YYYY, DD/MM/YYYY, YYYY/MM/DD
    - Monitor Type
      - TV-NTSC, TV-PAL, VGA
    - Caps Lock
      - ON, OFF
    - Clear Annot On Unfreeze
      - ON, OFF
    - Guide Line Type
      - Gun, Needle
    - Focal Auto
      - On, Off
  - Display
    - Color of ROI
      - Green, Yellow, Orange, Cyan
    - Display Format
      - V1/2, V1/3, V2/3, H1/2, H1/4, O1/4
    - Screen Saver
      - ON, OFF
    - Screen Saver Delay (min)
      - 0-99 minutes
    - Annot Font Size
      - Large, Medium or Small
  - Storage
    - Clip Format
      - AVI, WMV
    - Still Format
      - BMP, JPG, TIF
    - One Key Store

- ON, OFF
- Store Frame Amount
  - 100-1000 frames
- Print & Store Region
  - Full Screen, Image Area, Image & Result Area
- Image Share Service
  - ON, OFF
- Store to UsbDisk

- Key Configuration
  - The saved image can be printed, saved to USB drive, DICOM storage server and DICOM printer server.
  - The saved cine can be saved to USB drive and DICOM storage server.
  - U1, U2 shortcut keys: can be set to save image, cine or volume data or set to print saved image, send saved image or data to USB drive, DICOM storage server or DICOM printer server.

- Peripheral
  - Local Network
    - DHCP or Static IP
    - Enable DHCP, DICOM AE title and Mac address should be provided.
    - Enable Static IP, IP address, netmask, default gateway, DICOM AE title and Mac address should be provided.
    - Advance
      - Speed (10M, 100M, 1000M UNKNOW!)
      - Duplex (Semi Duplex, Full Duplex, Unknow!)
    - Ping IP Address function
  - Printer
    - Printer Driver
    - Video Invert
    - Default Printer
    - Net Printer IP
- Measure
  - General
    - BSA
      - Eastern
      - Western
    - Cross Cursor Size
      - Small, Medium, Large
    - Measure Line Size
      - Small, Medium, Large
    - Dist Dash Line Disp.
      - On, Off
    - Vel. Cross Line Disp
      - On, Off
    - Ellip. Cross Line Disp
      - On, Off
    - Line ID Disp.
      - On, Off
    - Keep Result Window
      - On, Off
    - Freeze on Measures
      - Yes, No
    - Shortcut keys
      - Support performing obstetrics and gynecology measurements with shortcut keys. 10 shortcut keys can be set for each application.
  - Formula
    - Fetal weight estimation
    - Fetal growth curves
    - Age by EFW
    - CUA

- BPD
- HC
- FL
- Cereb
- GS
- RAD
- TIB
- BOD
- OFD
- AC
- HL
- CRL
- Clav.
- Ulna
- FIB

- Report
  - Logo
    - Operation Logo (connect the USB drive written with report logo (170*60 pixels, bmp format) to the ultrasound system and click the left or right arrow key to select the desired logo)
  - Title/Font
    - Title 1/2/3 (Font size can be set to 14, 16, 18, 20, 22, 24 or 26.)
    - Context (Font size can be set to 14, 16, 18, 20, 22, 24 or 26.)
    - Title (Font size can be set to 14, 16, 18, 20, 22, 24 and 26.)
    - Subtitle (Font size can be set to 14, 16, 18, 20, 22, 24 or 26.)
    - Background Color
    - Text Color
  - Display Items For Report
    - Patient Information
    - Exam Information
    - Measurements (optional)
    - Image (optional)
    - Graphs (optional)
    - Comments (optional)
    - Preview button
- DICOM
  - Image Storage
    - Add or delete server list
    - Remote Host Name, IP Address, DICOM AE Title, Port Number of DICOM storage server; Connect Timeout, Dimse Timeout, Repeat Count, Acse Timeout, Relate to CommitStore, Send After Every Image Stored and Send At End of Exam.
  - Commitment Storage
    - Add or delete server list
    - Remote Host Name, IP Address, DICOM AE Title, Port Number of DICOM Commitment storage; Connect Timeout, Dimse Timeout, Repeat Count, Acse Timeout, Synchronously Receive N-EVENT-REPORT Message
  - Worklist
    - Add or delete server list
    - Remote Host Name, IP Address, DICOM AE Title, Port Number of DICOM worklist server; Connect Timeout, Dimse Timeout, Repeat Count, Acse Timeout, Max. Result.
  - MPPS
    - Add or delete server list
    - Remote Host Name, IP Address, DICOM AE Title, Port Number of DICOM MPPS server; Connect Timeout, Dimse Timeout, Repeat Count, Acse Timeout

- Print
  - Add or delete server list
  - Remote Host Name, IP Address, DICOM AE Title, Port Number of DICOM print server; Connect Timeout, print parameter pre-settings
  - Format, Priority, Medium, Orientation, Film Size, Film Destination, Magnification, Copies, Smoothing Type, Trim, Border, Empty Image, Color, Min Density, Max Density, Configure Information, Film Session Label
- QR List
  - Add or delete server list
  - Remote Host Name, IP Address, DICOM AE Title, Port Number of DICOM QR List server; Connect Timeout, Dimse Timeout, Repeat Count, Acse Timeout, Max. Result.
- Load Default
  - Load
  - New
  - Export/Import
- System Information

System Parameters

- Frame rate: up to 943fps (Probe dependent)
- Grayscale Level: 256
- Transducer Elements: Max. 256

B Mode

- Gain: 1-255 adjustable
- Scan Depth: 32.9cm (Probe dependent)
- Image Zoom, Showing magnification (0.8-10 times)
- TGC: 8 levels slider controls
- Image Inversion: Left and Right, Up and Down
- Panoramic imaging: achievable
- Compound imaging: off, 1, 2
- Focus: Up to 12, Focus span adjustable (Probe dependent)
- Frequency: 5 bands adjustable
- Chroma: 13 types selectable
- Adaptive image fusion: 15 types selectable
- μScan: 0, 2, 3, 7, 11 adjustable
- Line Density: 3 levels adjustable (High/Medium/Low)
- Persistence: 0-95 selectable
- Biopsy Guide Function: On/Off
  - Biopsy lines angle adjustable
  - Biopsy lines offset adjustable
- Dynamic Range: 20-280 (Probe dependent)
- Grayscale Curve: 7 selectable
- Imaging width and position: adjustable
- Power: 1-100 adjustable, one step each
- Tissue acoustic characteristics:1400-1700
- LGC: gain compensation for left or right part of image
- Trapezoid Imaging: On/Off (Linear probe)
- B steer mode (linear probe)
- M-tuning function

Color Doppler/TDI Mode

- Gain: 0-255
- Frame Rate: up to 50 fps (Probe dependent)
- Size and position of color ROI: adjustable
- Auto Focus (focus number:1)
- Inversion: Up/Down, Left/Right
- Flow Invert: On/Off

- Frequency Range: 5 steps, adjustable
- Wall Filter: 25-750Hz, adjustable
- PRF: 0.5-12kHz (Probe dependent)
- Line Density: 4 levels (low/medium/high/highest)
- Color/Direction energy: 10 levels for color Doppler mode; 4 levels for TDI mode
- Color baseline adjustment: ±15 steps
- Persistence: 0-80 (Probe dependent)
- B Reject: 0-255
- Linear steer angle: 0, ±16, ±20 adjustable
- M-tuning function

M Mode

- Steer M mode: 3 sample lines, Display frame rate
- Video Inversion (On/Off)
- Chroma: 5 types
- Display Format: H1/2, H1/4, V1/3, V1/2, V2/3, O1/4
- Scan Speed: 6 levels adjustable
- M Process: Switch between average and peak values
- Power: 30-100 adjustable

Spectral Doppler Mode

- Doppler Methods
  - PW (pulsed wave) Doppler
  - CW (continuous wave) Doppler
- Triplex: On/Off
- Sample Volume and Position for PW Doppler: 0.7-21mm adjustable
- Video Inversion: On/Off
- Spectrum Inversion: Achievable
- Angle Correction: 0°, 60°, -60°
- θ Angle Correction: correction range: 0 -72°
- Spectral Real-time Trace: Achievable
- Baseline Shift:17 steps selectable
- Frequency Range: 5 steps
- Wall Filter: 25-750 adjustable
- PRF: 1-16kHz (PW) (Probe dependent)
- PRF: 1-48KHz (CW) (Probe dependent)
- Max Velocity Range
  - 0.0004-18 m/s (PW) (Probe dependent)
  - 0.0013-63 m/s (CW) (Probe dependent)
- Scan Speed: 4 levels adjustable
- Doppler Chroma: 5 kinds selectable
- One-key Auto Optimization
  - Auto Adjusting Baseline
  - Auto Adjusting PRF
  - Auto Correcting Angle
- Dynamic Range: 10 types selectable
- Display Format： H1/2, H1/4, V1/3, V1/2, V2/3, O1/4
- Steer Angle: 0, ±16, ±20， 5 levels adjustable

3D Mode

- Scan Mode: Lin and Sec, selectable
- Z Scale: 01.-2.0 adjustable (range reduced for few slices)
- Z Angle: 10°-170° adjustable
- Methods for cropping reviews

  By trace (crop inner or outer image)

  By box (crop inner or outer image)

  By eraser (big or small eraser)
- Undo cut: undo last cut
- Display Mode

- Dual-split display
- Quad-split display
- 3D Full Display

- Contrast: 0-100 adjustable
- Transparency: 0-100 adjustable
- Brightness: 0-100 adjustable
- Smoothness: 0-30 adjustable
- 3D Chroma: 0-12 adjustable
- B Chroma: 1-13 adjustable
- View angle: 0°, 90°, 180°, 270°
- Restore: Volume/All/Curve, selectable
- Render Mode: Vol, MaxIP, X ray
- Orientation: Top, Bottom, Left, Right, Front or Back, selectable
- Auto rotate: 45°, 90°, 180°, 270°, 360° selectable
- Crop plane: ON/OFF
- Multi-Slice: Ref A, Ref B, Ref C
- Slice Spacing: 0.5-2.0, adjustable
- Slice number: 9, 16 or 25
- Measurement: Distance, Area, Volume
- Slice position: adjustable
- ROI size adjustable
- ROI sample line curvature: adjustable
- X Rotation
- Y Rotation
- Z Rotation
- Zoom In/Out: adjustable
- Horizontal Movement: Left/Right
- Vertical Movement: Up/Down
- 3D Image/Volume Storage
- Print Function

4D Mode

- Customized preset
- Cine Playback: ON/OFF
- Methods for cropping reviews

  By trace (crop inner or outer image)

  By box (crop inner or outer image)

  By eraser (big or small eraser)
- Undo cut: undo last cut
- Display Mode
  - Dual-split display
  - Quad-split display
  - 3D Full Display
  - 4D Full Display
- Contrast: 0-100 adjustable
- Transparency: 0-100 adjustable
- Brightness: 0-100 adjustable
- Smoothness: 0-30 adjustable
- 3D Chroma: 0-12 adjustable
- B Chroma: 1-13 adjustable
- View angle: 0°, 90°, 180°, 270°
- Restore: Volume/All/Curve, selectable
- Render Mode: Vol, MaxIP, X ray
- Orientation: Top, Bottom, Left, Right, Front or Back selectable
- Auto Rotate: 45°, 90°, 180° , 270°and 360°, selectable
- Multi-Slice: Ref A, Ref B, Ref C
- Slice Spacing: 0.5-2.0, adjustable
- Slice number: 9, 16 or 25
- Measurement: Distance, Area, Volume
- Slice position: adjustable
- Sample Line Curvature: adjustable
- ROI Size and Position: adjustable
- Focus position: adjustable
- Image Quality: High, Medium, Low

- Scan angle : 5°-75°, adjustable
- Stability: On/Off
- X Rotation
- Y Rotation
- Z Rotation
- Zoom In/Out: adjustable
- Horizontal Movement: Left/Right
- Vertical Movement: Up/Down
- Free Rotation
- Cine Playback: The range depends on the volume data.)
- 3D Image/Cine/Volume Storage
- User-defined mode
- Print function

Physiological Signal Display

- ECG Pulse wave
- ECG Lead-three lead system
- ECG Gain: adjustable
- ECG Position: adjustable
- ECG Invert: On/Off
- R-Trigger: On/Off
  - Trigger Delay: adjustable
  - Frame Count: adjustable

Integrated Data Management System

- Hard Disk Memory Capacity: 500G
- USB ports: 3 (including 1 engineering port)

Image Storage and Playback

- Cine Loop: Up to 1000 frames in B mode
- Real time single or dual display, static or dynamic image storage
- The Stored Images can be viewed directly on PC.
- Clip Board Function (In frozen B mode)
- Doppler Cine Playback: Speed is adjustable; Sound can be played back.

DICOM Network Communication

- Storage: Directly transmits images with patient information to a DICOM file server
- Print: Images can be printed directly using a DICOM compatible printer
- DICOM Storage Commitment
- DICOM Worklist
- DICOM MPPS
- DICOM Q/R
- Medical digital images and communication DICOM 3.0 interface

Preset Function

- Users can customize the presets based on different probe and diagnostic part to optimize imaging parameters and adjustment combination.
- Preset sequence adjustable
- Import/export the preset

Patient Data Management

- Patient Registration: Name, ID, Gender, Date of Birth, Height, Weight, LMP, EDD and GA.
- Patient data and reports are archived by patient exams
- Reports and images can be previewed.
- Preview size can be set to 1*1, 2*2, 3*3 or 4*4.
- Previewed file can be deleted, previewed, DICOM send or DICOM print.

- Data can be exported to USB drive or DVD in BMP, JPG, TIF, AVI or WMV format.

Annotation and Body Mark Setting

- Body Mark Icon: Classified by department
- Annotation can be selected and input in the library.

Physical Specification

- Size: 413mm*357 mm*391mm (L*W*D)
- Weight: Approx. 7.9kg
- Monitor: 15" Widescreen and High-Resolution Color LCD screen, LED backlight, anti-flickering and vertically and horizontally rotatable
- Probe connector: 2, interchangeable

Safety Standard

Comply with IEC60601-1, Class I，BF type

Environmental Requirements

- Operation Environment
  - Temperature:+10℃ to +40℃
  - Relative Humidity: 30% to 85% (non condensing)
  - Atmospheric pressure: 700 to 1060hPa
- Transportation and Storage Environment
  - Temperature: -20℃ to +55℃
  - Relative humidity: 20%- 90% (non condensing)
  - Atmospheric Pressure: 700 to 1060hPa
- **Power Supply**
  - 110-240~, 2.7-1.2A
  - Frequency: 50/60Hz

Optional Probes

- Phased Array Probes
  - 3P1 (Frequency: 1.0-6.0MHz, sweep angle: 88°)
  - 5P2 (Frequency: 2.0-9.0MHz, sweep angle: 89°)
  - 8P1 (Frequency: 4.0-12.0MHz, sweep angle: 85°)
  - MPTEE (Frequency: 4.0-13.0MHz, sweep angle: 90°)
  - MPTEE mini (Frequency: 4.0-13.0MHz, sweep angle: 90°)
- Linear Probes
  - L742 (4.0-16.0 MHz)
  - L752 (4.0-16.0 MHz)
  - 10I2 (4.0-16.0 MHz)
  - L743 (4.0-16.0 MHz)
  - 10L1 (4.0-16.0 MHz)
  - LAP7 (3.0-15.0MHz)
- Convex Probes
  - C353 (2.0-6.8 MHz)
  - C322 (2.0-6.8 MHz)
  - C354 (2.0-6.8 MHz)
  - C362 (2.4-5.5MHz)
  - C542 (3.0-15.0MHz)
  - 6V3 (3.0-15.0 MHz)
  - EC9-5 (3.0-15.0 MHz)
  - C611 (4.0-13.0 MHz)
  - C613 (4.0-13.0 MHz)
  - 6V1 (3.0-15.0MHz)
- Volume Probes
  - VC6-2 (2.0-6.8MHz)
- Pencil Probes
  - PWD2.0

- CWD2.0
- CWD5.0

- Biplane Probes
  - BCC9-5
  - BCL10-5

Measurements and Calculations

- Basic Measurements and Calculations
  - B Mode

Measurement Collection	Measurement Item
Distance	Two-Point Measurement, Length Trace Measurement, Distance Ratio Measurement, %Stenosis Distance
Area	Trace Area Measurement, Ellipse Area Measurement, Area Ratio Measurement, %Stenosis Area
Volume	Three-distance Measurement, Distance + Ellipse Measurement
Angle	Three-Point Angle Measurement, Two-Line Angle Measurement

  - M Mode

Measurement Collection	Measurement Item
Basic Measurements	Distance Measurement, Slope Measurement, %Stenosis Distance Measurement, Distance Ratio Measurement, Time Measurement, Heart Rate Measurement

  - Color-Flow Mode

Measurement Collection	Measurement Item
Distance	Two-Point Measurement, Length Trace Measurement, Distance Ratio Measurement, %Stenosis Distance
Area	Trace Area Measurement, Ellipse Area Measurement, Area Ratio Measurement, %Stenosis Area
Volume	Three-distance Measurement, Distance + Ellipse Measurement
Angle	Three-Point Angle Measurement, Two-Line Angle Measurement
Color Flow	Doppler Area Measurement, Color Flow Measurement, Flow Velocity Measurement

  - Spectral Doppler-Mode

Measurement Collection	Measurement Item
Basic Measurements	Velocity Measurement, Acceleration Measurement, Resistivity Index Measurement, Pulsatility Index Measurement, S/D Ratio Measurement, Auto Trace Measurement, Manual Trace Measurement, Time Measurement, Heart Rate Measurement

- Obstetrics Measurements and Calculations
  - B Mode
    - Measurements

Measurement Collection	Measurement Item
Fetal Biometry	BPD, OFD, HC, AC, FL, HL, Vp, CM, Cereb, NF
Early Gest	CRL, GS, YS, BPD, FL, NT
Long Bones	HL, Clav., RAD, Ulna, TIB, FIB
Fetal Cranium	Cereb., CM, Va, Vp, BOD, IOD, HEM, c.s.p, NT, NF
AFI	Q1, Q2, Q3, Q4
Uterus	Length, Height, Width, Endo.Thickn., Cervix Length
Lt(Rt) Ovary	Length, Height, Width
Umbilical Vein	Diameter
Lt（Rt） Uterine A	Diameter

    - Calculations

GA
EDD
EFW
AUA
CUA

  - M Mode

Measurement Collection	Measurement Item
Generic	Distance, Slope, Time, HR, Stenosis % Distance
FHR	FHR, AtrialFHR

  - Spectral Doppler Mode

Measurement Collection	Measurement Item
Ductus Art	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR
Ao	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD,HR
Lt(Rt) Carotid	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR
Lt(Rt) MCA	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR

Measurement Collection	Measurement Item
Umbilical Art.	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR
Umbilical Vein	TAmax
Ductus Ven	S, D, a, PVIV, HR
Lt(Rt) Uterine Art.	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR
FHR	FHR
SMA	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR
Celiac.A.	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR
IVC	S, D, S,a, PLI, PVIV
Lt（Rt）UmA	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, HR

- Gynecology Measurements and Calculations
  - B Mode

Measurement Collection	Measurement Item
Uterus	Length, Height, Width, Endo.Thickn., Cervix Length
Lt(Rt) Uterine A	Diameter
Lt(Rt）Ovary	Length, Height, Width
Lt(Rt) Follicle	Follicle
Fibroid	Fibroid

  - M Mode

Measurement Collection	Measurement Item
Lt(Rt) Ovarian Art.	Vessel Diameter, Stenosis Diameter, Time, HR
Lt(Rt) Uterine Art.	Vessel Diameter, Stenosis Diameter, Time, HR
FHR	FHR, Atrial FHR

  - Spectral Doppler Mode

Measurement Collection	Measurement Item
Lt(Rt) Ovarian Art.	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, Time, HR
Lt(Rt) Uterine Art.	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED,

Measurement Collection	Measurement Item
Lt(Rt) Uterine Art.	RI, SD, Time, HR
Vessel	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, Time, HR
FHR	FHR

- Cardiology Measurements and Calculations
  - B Mode

Measurement Category	Measurement Collection	Measurement Item
Dimensions	None	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs, RVOT, AO, LA, ACS, LVOT, RVAWd, RVIDd, EPSS, MCS, MV Diam, AVA, MVA, MPA, PV Diam, TV Diam
Volume	Simp(LV)	A4Cd, A4Cs, A2Cd, A2Cs
	A-L(LV)	LVd, LVs
	Simp(LA)	A4Cs, A2Cs
	Simp(RA)	A4Cs
	Teichlozs(LV)	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs
LV Mass	LV Mass (Cube)	IVSd, LVIDd, LVPWd
	LV Mass (A-L)	LVAd Sax Epi, LVAd Sax Endo, LVLd Apical
	LV Mass (T-E)	LVAd Sax Epi, LVAd Sax Endo, a, d

  - Color-Flow Mode

Measurement Category	Measurement Collection	Measurement Item
Dimensions	None	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs, RVOT, AO, LA, ACS, LVOT, RVAWd, RVIDd, EPSS, MCS, MV Diam, AVA, MVA, MPA, PV Diam, TV Diam
Volume	Simp(LV)	A4Cd, A4Cs, A2Cd, A2Cs
	A-L(LV)	LVd, LVs
	Simp(LA)	A4Cs, A2Cs
	Simp(RA)	A4Cs
	Teichlozs(LV)	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs
LV Mass	LV Mass (Cube)	IVSd, LVIDd, LVPWd

Measurement Category	Measurement Collection	Measurement Item
LV Mass	LV Mass (A-L)	LVAd Sax Epi, LVAd Sax Endo, LVLd Apical
	LV Mass (T-E)	LVAd Sax Epi, LVAd Sax Endo, a, d
PISA	PISA-MR	MR Rad, MR VTI (gray in the Doppler mode)
	PISA-AR	AR Rad, AR VTI (gray in the Doppler mode)
	PISA-TR	TR Rad, TR VTI (gray in the Doppler mode)
	PISA-MS	MS Rad, MS VTI (gray in the Doppler mode)

■ M Mode

Measurement Category	Measurement Collection	Measurement Item
Dimensions	None	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs, RVOT, AO, LA, ACS, LVOT, RVAMd, RVIDd, EPSS, MCS
Time/Slope	/	LVPEP, LVET, RVPEP, RVET, MV DE, MV E-F Slope, MV E Amp, MV A Amp
	LV TEI	MV C-O Dur, LVET
	RV TEI	TV C-O Dur, RVET
Volume	Teichlozs(LV)	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs
	Cube(LV)	IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs
LV Mass	LV Mass	IVSd, LVIDd, LVPWd

■ Spectral Doppler Mode

Measurement Category	Measurement Collection	Measurement Item
MV	None	MV E Vel, MV A Vel, MV E Dur, MV A Dur, MVA(PHT), MV DecT, MR Vmax, MR VTI
	MVA(VTI)	LVOT, LVOT VTI, MV VTI

MV	LV TEI	MV C-O Dur, LVET
	PISA-MR	MR Rad, MR VTI
	PISA-MS	MS Rad, MS VTI
AV	None	AV Vmax, AV VTI, AR Vmax, AR VTI, LVET, LVPEP, IVCT, IVRT, AR DecT, AR PHT, HR-AV
	AVA(VTI)	LVOT, LVOT VTI, AV VTI
	AVA(Vmax)	LVOT, LVOT Vmax, AV Vmax
	PISA-AR	AR Radius, AR VTI
TV	None	TV Vmax, TV VTI
	E/A	TV E Vel, TV A Vel
	RV TEI	TV C-O Dur , RVET
	RVSP	TR Vmax, RAP
	PISA-TR	TR Rad, TR VTI
PV	None	PR Vmax, PR VTI, PV AccT, MPA Vmax, RPA Vmax, LPA Vmax, RVET, RVPEP, HR-PV
	PAEDP	PR Ved, RAP
	PVA(Vmax)	RVOT, RVOT Vmax, PV Vmax
	PVA(VTI)	RVOT, RVOT VTI, PV VTI
Pulm&Hep Vein	None	Pulm S Vel, Pulm S VTI, Pulm A Vel, Pulm D Vel, Pulm D VTI, Pulm A Dur, Pulm DecT, Hep S Vel, Hep D Vel, Hep A Ve, Hep A Dur
TDI	/	Sa Medial, Ea Medial, Aa Medial, Sa lateral, Ea lateral, Aa lateral

- Abdomen Measurements and Calculations
  - B Mode

Measurement Collection	**Measurement Item**
Liver	Length, Height, Width
Port Vein	Portal Vein Diameter, Flow Diameter
Gallbladder	Length, Height, Width, Wall, CBD
Pancreas	Duct., Head, Body, Tail
Spleen	Length, Height, Width

Measurement Collection	Measurement Item
Kidney	Length, Height, Width
Renal Aorta	Vessel Area, Stenosis Area, Vessel Diameter, Stenosis Diameter, Flow Diameter
Aorta	Vessel Area, Stenosis Area, Vessel Diameter, Stenosis Diameter, Flow Diameter
Bladder	Length, Height, Width

- M Mode

Measurement Collection	Measurement Item
Renal Aorta	Vessel Diameter, Stenosis Diameter, Time, HR
Aorta	Vessel Diameter, Stenosis Diameter, Time, HR

- Spectral Doppler Mode

Measurement Collection	Measurement Item
Renal Aorta	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, Time, HR
Aorta	Auto Trace, Manual Trace, PS, ED, RI, PI, PS, ED, RI, SD, Time, HR
Port Vein	Velocity, Time

- **Vascular Measurement**
  - B Mode

Measurement Category	Measurement Collection	Measurement Item
Carotid	Lt(Rt) Subclav A	Vessel Diam Vessel Area %Stenosis Diam %Stenosis Area IMT
	Lt(Rt) CCA	
	Lt(Rt) Bulb	
	Lt(Rt) ICA	
	Lt(Rt) ECA	
	Lt(Rt) Vertebral A	

Measurement Category	Measurement Collection	Measurement Item
UE Art	Lt(Rt) Innom A	Vessel Diam Vessel Area %Stenosis Diam %Stenosis Area IMT
	Lt(Rt) Subclav A	
	Lt(Rt) Axill A	
	Lt(Rt) Brach A	
	Lt(Rt) Rad A	
	Lt(Rt) Ulnar A	
	Lt(Rt) Sup Palm A	
	Lt(Rt) Deep Palm A	
UE Vein	Lt(Rt) Innom V	Vessel Diam Vessel Area %Stenosis Diam %Stenosis Area IMT
	Lt(Rt) Subclav V	
	Lt(Rt) Int Jugular V	
	Lt(Rt) Axill V	
	Lt(Rt) Ceph V	
	Lt(Rt) Basilic V	
	Lt(Rt) Brach V	
	Lt(Rt) Med Cub V	
	Lt(Rt) Rad V	
	Lt(Rt) Ulnar V	
LE Art	Lt(Rt) Com Iliac A	Vessel Diam Vessel Area %Stenosis Diam %Stenosis Area IMT
	Lt(Rt) Ext Iliac A	
	Lt(Rt) Int Iliac A	
	Lt(Rt) Com Fem A	
	Lt(Rt) SFA	

Measurement Category	Measurement Collection	Measurement Item
LE Art	Lt(Rt) PFA	Vessel Diam Vessel Area %Stenosis Diam %Stenosis Area IMT
	Lt(Rt) Popl A	
	Lt(Rt) Ant Tib A	
	Lt(Rt) Post Tib A	
	Lt(Rt) Peron A	
	Lt(Rt) Dors Ped A	
LE Vein	Lt(Rt) IVC	Vessel Diam Vessel Area %Stenosis Diam %Stenosis Area IMT
	Lt(Rt) Com Iliac V	
	Lt(Rt) Ext Iliac V	
	Lt(Rt) Int Iliac V	
	Lt(Rt) Com Fem V	
	Lt(Rt) SFV	
	Lt(Rt) PFV	
	Lt(Rt) Popl V	
	Lt(Rt) Ant Tib V	
	Lt(Rt) Post Tib V	
	Lt(Rt) Peron V	
	Lt(Rt) GSV Thigh	
	Lt(Rt) GSV Calf	
	Lt(Rt) LSV	

■ M Mode

Measurement Category	Measurement Collection	Measurement Item
Carotid	Lt(Rt) Subclav A	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) CCA	
	Lt(Rt) Bulb	
	Lt(Rt) ICA	
	Lt(Rt) ECA	
	Lt(Rt) Vertebral A	
UE Art	Lt(Rt) Innom A	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) Subclav A	
	Lt(Rt) Axill A	
	Lt(Rt) Brach A	
	Lt(Rt) Rad A	
	Lt(Rt) Ulnar A	
	Lt(Rt) Sup Palm A	
	Lt(Rt) Deep Palm A	
UE Vein	Lt(Rt) Innom V	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) Subclav V	
	Lt(Rt) Int Jugular V	
	Lt(Rt) Axill V	
	Lt(Rt) Ceph V	
	Lt(Rt) Basilic V	
	Lt(Rt) Brach V	
	Lt(Rt) Med Cub V	

Measurement Category	Measurement Collection	Measurement Item
UE Vein	Lt(Rt) Rad V	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) Ulnar V	
LE Art	Lt(Rt) Com Iliac A	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) Ext Iliac A	
	Lt(Rt) Int Iliac A	
	Lt(Rt) Com Fem A	
	Lt(Rt) SFA	
	Lt(Rt) PFA	
	Lt(Rt) Popl A	
	Lt(Rt) Ant Tib A	
	Lt(Rt) Post Tib A	
	Lt(Rt) Peron A	
	Lt(Rt) Dors Ped A	
LE Vein	Lt(Rt) IVC	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) Com Iliac V	
	Lt(Rt) Ext Iliac V	
	Lt(Rt) Int Iliac V	
	Lt(Rt) Com Fem V	
	Lt(Rt) SFV	
	Lt(Rt) PFV	
	Lt(Rt) Popl V	
	Lt(Rt) Ant Tib V	

Measurement Category	Measurement Collection	Measurement Item
LE Vein	Lt(Rt) Post Tib V	Vessel Diam %Stenosis Diam Time HR
	Lt(Rt) Peron V	
	Lt(Rt) GSV Thigh	
	Lt(Rt) GSV Calf	
	Lt(Rt) LSV	

- Spectral Doppler Mode

Measurement Category	Measurement Collection	Measurement Item
Carotid	Lt(Rt) Subclav A	Auto Trace Manual Trace PS ED RI PI PS, ED, RI, SD HR
	Lt(Rt) CCA	
	Lt(Rt) Bulb	
	Lt(Rt) ICA	
	Lt(Rt) ECA	
	Lt(Rt) Vertebral A	
UE Art	Lt(Rt) Innom A	Auto Trace Manual Trace PS ED RI PI PS, ED, RI, SD HR
	Lt(Rt) Subclav A	
	Lt(Rt) Axill A	
	Lt(Rt) Brach A	
	Lt(Rt) Rad A	
	Lt(Rt) Ulnar A	
	Lt(Rt) Sup Palm A	
	Lt(Rt) Deep Palm A	

Measurement Category	Measurement Collection	Measurement Item
UE Vein	Lt(Rt) Innom V	Auto Trace Manual Trace PS ED RI PI PS, ED, RI, SD HR
	Lt(Rt) Subclav V	
	Lt(Rt) Int Jugular V	
	Lt(Rt) Axill V	
	Lt(Rt) Ceph V	
	Lt(Rt) Basilic V	
	Lt(Rt) Brach V	
	Lt(Rt) Med Cub V	
	Lt(Rt) Rad V	
	Lt(Rt) Ulnar V	
LE Art	Lt(Rt) Com Iliac A	Auto Trace Manual Trace PS ED RI PI PS, ED, RI, SD HR
	Lt(Rt) Ext Iliac A	
	Lt(Rt) Int Iliac A	
	Lt(Rt) Com Fem A	
	Lt(Rt) SFA	
	Lt(Rt) PFA	
	Lt(Rt) Popl A	
	Lt(Rt) Ant Tib A	
	Lt(Rt) Post Tib A	
	Lt(Rt) Peron A	
	Lt(Rt) Dors Ped A	

Measurement Category	Measurement Collection	Measurement Item
LE Vein	Lt(Rt) IVC	Auto Trace Manual Trace PS ED RI PI PS, ED, RI, SD HR
	Lt(Rt) Com Iliac V	
	Lt(Rt) Ext Iliac V	
	Lt(Rt) Int Iliac V	
	Lt(Rt) Com Fem V	
	Lt(Rt) SFV	
	Lt(Rt) PFV	
	Lt(Rt) Popl V	
	Lt(Rt) Ant Tib V	
	Lt(Rt) Post Tib V	
	Lt(Rt) Peron V	
	Lt(Rt) GSV Thigh	
	Lt(Rt) GSV Calf	
	Lt(Rt) LSV	

- **Urology Measurement**
  - B Mode

Measurement Collection	Measurement Item
Lt(Rt) Kidney	Length, Height, Width, Renal Cortex
Lt(Rt) Renal A	Vessel Diam, Vessel Area, %Stenosis Diam, %Stenosis Area
Lt(Rt) Vessel	Vessel Diam, Vessel Area, %Stenosis Diam, %Stenosis Area
Lt(Rt) Suprarenal	Length, Height, Width
Bladder	Length, Height, Width

Measurement Collection	Measurement Item
Prostate	Length, Height, Width
Lt(Rt) Testicle	Length, Height, Width

- M Mode

Measurement Collection	Measurement Item
Lt(Rt) Renal A	Vessel Diam, %Stenosis Diam, Time, HR
Lt(Rt) Vessel	Vessel Diam, %Stenosis Diam, Time, HR

- Spectral Doppler Mode

Measurement Collection	Measurement Item
Lt(Rt) Renal A	Auto Trace; Manual Trace; PS; ED; RI; PI; PS, ED, RI, SD; HR
Lt(Rt) Vessel	Auto Trace; Manual Trace; PS; ED; RI; PI; PS, ED, RI, SD; HR

- **Small Part Measurement**
  - Thyroid
    - B Mode

Measurement Collection	Measurement Item
Lt(Rt) Thyroid	Length, Height, Width
Lt(Rt) Sup. ParThyroid	Length, Height, Width
Lt(Rt) Inf. ParThyroid	Length, Height, Width
Thyroid Ist.	Length, Height, Width
Lt(Rt) STA	Vessel Diam
Lt(Rt) ITA	

- M Mode

Measurement Collection	Measurement Item
Lt(Rt) STA	Vessel Diam, Time, HR
Lt(Rt) ITA	Vessel Diam, Time, HR

- Spectral Doppler Mode

Measurement Collection	Measurement Item
Lt(Rt) STA	Auto Trace; Manual Trace; PS; ED; RI; PI; PS, ED, RI, SD; Time; HR
Lt(Rt) ITA	Auto Trace; Manual Trace; PS; ED; RI; PI; PS, ED, RI, SD; Time; HR

■ Testicle

- B Mode

Measurement Collection	Measurement Item
Lt(Rt) Testicle	Length, Height, Width

- M Mode

Measurement Collection	Measurement Item
Lt(Rt) Vessel	Vessel Diam, Time, HR

- Spectral Doppler Mode

Measurement Collection	Measurement Item
Lt(Rt) Vessel	Auto Trace; Manual Trace; PS; ED; RI; PI; PS, ED, RI, SD; Time; HR

- Breast
  - B Mode

Measurement Collection	Measurement Item
Lt(Rt) Lesion1-5	Nipple-Les. Dist, Skin-Les. Dist, Length, Width, Height

  - M Mode

Measurement Collection	Measurement Item
Vessel	Vessel Diam, Stenosis Diam, Time, HR

  - Spectral Doppler Mode

Measurement Collection	Measurement Item
Vessel	Auto Trace; Manual Trace; PS; ED; RI; PI; PS, ED, RI, SD; Time; HR

- **Pediatrics Measurement**
  - B Mode

Measurement Collection	Measurement Item
Hip	Hip Angle, Hip d-D Ratio

- **Calculation Reports**
  - Reports for each departments

Classification	Descriptions
Vascular report	/
Obstetrics report	Measurement report Fetal growth curve report Fetal anatomical survey report Fetus compare (quadruplet) Comments

Classification	Descriptions
Gynecology report	/
Small part report	/
Cardiac report	/
Urology report	/
Abdomen report	/
Pediatrics report	/

- Measurement values in the report are editable.
- Image: selectable
- Information such as hospital name can be preset.
- Report can be output as HTML format.