Specifications for S40 Color Doppler Ultrasound System

THE PIONEER OF DOPPLER ULTRASOUND IN CHINA

Product Overview
1. General Specification

The S40 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, etc. The ultrasound diagnostic software system, ultrasound system imaging, multi-languages operation interfaces and touch screen with human-computer interaction technology can be customized easily in accordance with the design of human engineering. Users can perform the system with the minimum requirement of training or guidance. This system has been designed to comply with applicable international standards and regulations, ensuring the safety and availability of this product.

This system is based on the computer technology and Linux operation system, which make the system more flexible and stable. System maintenance and function update can be completed by software updating, through which would promote product value and keep the technological advancement.

2. Advanced Technologies

- New generation digital front-end technology
- Multi-beam processing technology
- Spatial compound imaging
- Post-processing technology
- Tissue harmonic imaging
- High pulse repetition frequency
- Panoramic imaging
- 4D imaging
- Graphic diagnosis icon
- Touch screen with human-computer interaction technology
- Keyboard lifting system

3. Standard Configurations

- B mode
- Color mode
- PW mode
- CW mode
- THI mode
- TDI mode
- DPI mode
- DDPI mode
- 3D imaging
- Cardiology measurement package
- Gynecology measurement package
- Urology measurement package
- Vascular measurement package
- Small parts measurement package
- Orthopedic measurement package
- IMT measurement
- TEI index
- Spectral Doppler auto trace
- Color flow volume measurement
- MLA probe
- Phased array probe
Specifications for S40 Color Doppler Ultrasound System

- Multi-beam processing technology
- μ-scan function
- TDI function
- B mode: Five variable frequencies
- High pulse repetition frequency
- Triplex mode
- Panoramic imaging
- Compound imaging
- Trapezoid imaging
- DVD RW burner
- ECG function module

4. **Optional Functions**
- Steer M mode
- Color M mode
- 4D imaging
- TEE probe
- Image rotation function
- IMT measurement
- B Flow function
- DICOM transmission
- DICOM storage commitment
- DICOM worklist function
- MPPS
- Stress echo

5. **Optional Accessories**
- Biopsy bracket
- Color ink-jet printer
- B/W video printer
- Color video printer
- Probe cable hanger

6. **Probe Scan Ranges**
- Curved transducer: ≥70°
- Phased array transducer: ≥90°
- Micro-curved transducer: ≥193°

7. **Scan Methods**
- Electronic curved sector scan
- Electronic linear array scan
- Electronic phased array sector scan

8. **Applications**
- Abdomen
- Vascular
- Cardiology
- Gynecological/Obstetrical
- Urology
- Musculoskeletal
- Interventional ultrasound
- Small parts
- Anesthesiology

9. **Imaging Modes**
- B mode
- M mode
- THI mode
- CDI mode
- DPI mode
- TDI mode
- PW mode
Specifications for S40 Color Doppler Ultrasound System

- CW mode
- 3D/4D mode
- Color M mode
- Steer M mode

10. Display Formats
- Dual B
- Quad B
- B + PW
- B + CW
- B + M
- B + Color
- Dual B (Flow)
- B + Color + PW
- B + Color + CW
- B + Color M
- Panoramic imaging
- Trapezoidal imaging

11. System Configuration

Menu
- Exam History
  - New Exam
  - Continue
  - Review
    - Select All
    - Store to DICOM
    - Store to USB
    - Delete
    - Print
    - Report
- Exit
  - Delete
  - Store
  - Print
  - Commit
  - Exit

- System Settings
  - General Settings
    - Facility Name
    - Language
      - English
      - Simplified Chinese
      - Spanish
      - Russian
      - French
      - Italian
      - German
      - Turkish
    - Screen Saver
    - Trackball Sensitive
    - Clip Format
      - MP4, AVI
    - Still Format
      - JPG, BMP, TIF
    - Screen Save: Adjustable
    - Color of ROI
      - Green, Yellow
      - Orange, Blue
    - Display Format: H1/2, H1/4, V1/3, V1/2, V2/3, O1/4
    - One Key Save: On/Off
Specifications for S40 Color Doppler Ultrasound System

- EFW Unit: Selectable
- Date Format
  - mm/dd/yyyy
  - yyyy/mm/dd
  - dd/mm/yyyy
- Report Format
  - PDF, TXT
- Save Frame Number: Adjustable

■ Set Printer
- Printer Driver
- Video Invert
- Insert Driver

■ Set Calculation Menu
- 2D Mode
  - Angle
  - Volume
  - Volume L×W×H
  - Doppler Area
  - Color Flow
  - IMT
  - Vascular
  - Small Part
  - Orthopedic
  - Obstetrical/Gynecological
  - Left Ventricle
  - Urologic
  - Carotid artery health evaluation
  - Carotid artery health evaluation (CF)
  - Mitral Valve Diameter
  - Lv Outflow Diameter
  - Pul.Valve Diameter
- PW Mode
  - Flow Velocity
  - Acceleration
  - Time
  - Heart Rate
  - Cardiac
  - Obstetrical/Gynecological
  - Vascular
  - Carotid artery health evaluation (PW)
- M Mode
  - Distance
  - Time
  - Slope
  - Heart Rate
  - Left Ventricle
  - Mitral Valve
  - Aortic Valve

■ Set Measurement Method
- BSA setting
  - Eastern
  - Western
- Measure Method
  - Ellipse
  - Trace
- Package
  - All Packages
- Continue Dist: On/Off
- Dop Auto
  - AUTO
  - SEMI-AUTO
Specifications for S40 Color Doppler Ultrasound System

- Focal Auto: On/Off
- EFW Method
  - WEI/SAB  HC, AC, FL
  - Shepard  AC, BPD
  - Hadlock1 AC, FL
  - Hansman  AC, FL, HC
  - Tokyo   BPD, APTD, TTD, FL
- Hadlock2  HC, AC, FL
- Hadlock3  BPD, AC, FL
- Hadlock4  HC, AC
- Hadlock5  BPD, HC, AC, FL
- Shinozuka BPD, AC, FL
- Warsof   FL, AC
- Campbell AC
- Mediscan FL, AC
- Mediscan BPD, AC
- BPD Method
  - Hadlock
  - Jeanty
  - Crespigeny
  - Kurtz
  - Hansmann
  - Sabbagha
  - Campbell
  - Tokyo
  - Merz
  - Osaka
- CRL Method
  - Robinson
  - Hadlock
- AC Method
  - Hansmann
  - Tokyo
  - Merz
- TAD Method
  - Hansmann
- OFD Method
  - Hansmann
- HC Method
  - Hadlock
- GS Method
  - Chitty (M)
  - Chitty (D)
  - Merz
  - Campbell
  - Hansmann
Specifications for S40 Color Doppler Ultrasound System

- Nyberg
- Hansmann
- Hellman
- Tokyo
- China
- Fibula Method
- Merz
- Radius Method
- Merz
- Mediscan
- Humerus Method
- Jeanty
- Merz
- Osaka
- Ulna Method
- Jeanty
- Merz
- Mediscan
- Tibia Method
- Jeanty
- Merz
- AUA Result by
  - Average
  - Last
- User define OB Method
- Replace
- Save
- Cancel
- Annotation Edit
  - Insert
  - Delete
  - Edit

- Save
- Define Quick Key (0-9)
- OB measurement
- Cardiac measurement
- Load Default
  - Load
  - Create
  - Retrieve
  - Copy user setting to USB
  - Copy user preset to USB
  - Load USB user setting to system
  - Load USB user preset to system
- DICOM Settings
  - Local
  - Store
  - Worklist
  - Print
  - MPPS
  - Commit

- System Info
  - Control Number
  - Software Version

12. System Parameters
- Frame rate: max. 750fps
- Grayscale Level: 256
- Transducer Elements: Max. 256

13. B Mode
- Gain: 1-255 Adjustable
Specifications for S40 Color Doppler Ultrasound System

- Scan Depth: 32.9cm
- Image Zoom, Showing zoom ratio
- TGC: 8 levels slider controls
- Image Inversion: Left and Right, Up and Down
- Panoramic imaging: Achievable
- Compound imaging: Adjustable
- Focus: Up to 12, Focus span adjustable
- Frequency: 5 bands adjustable
- Chroma: 13 types selectable
- Adaptive image fusion: 15 types selectable
- μ-Scan: adjustable
- Line Density: 3 levels adjustable (High/Medium/Low)
- Fame Relativity: 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
- TDI Type: 1400-1700
- Trapezoid Imaging: On/Off (Linear array probe)
- B steer Mode (Linear array probe)

14. Color/TDI Doppler
- Gain: 0-255
- Frame Rate: ≥50 frames/sec

15. M Mode
- Steer M: 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 Processing: Switch between average and peak values
- Power: 30-100 adjustable

16. Spectral Doppler
- Doppler Methods
Specifications for S40 Color Doppler Ultrasound System

- PW (pulsed wave) Doppler
- CW (continuous wave) Doppler
- 2D Refresh: On/Off
- Sample volume and position for PW Doppler: 1-20mm adjustable
- Video Inversion: On/Off
- Spectrum Inversion: Achievable
- θ Angle Correction: On/Off (correction range: 0-80°)
- Spectral Real-time Trace: Achievable
- Baseline Shift: 17 steps selectable
- Frequency Range: 5 steps
- Wall Filter: 25-750 Adjustable
- PRF: 1-20kHz (PW)
- PRF: 1-48kHz (CW)
- Max Velocity Range:
  - 0.0004-40.9 m/s (PW)
  - 0.0013-49.1 m/s (CW)
- Scan Speed: 2, 4, 6, 8 sec/plane
- 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
- Deflection Angle: 0, ±16, ±20, 5 levels adjustable

17. 3D/4D Mode
- Display Mode:
  - Double Planes
  - Quad Planes
  - 3D Full Display
  - 4D Full Display
  - Crop Plane: On/Off
  - Undo Cut
  - X Rotation
  - Y Rotation
  - Z Rotation
  - Horizontal Movement: Left/Right
  - Vertical Movement: Up/Down
  - Zoom Function
  - Trace Cut: On/Off
  - Render Mode: Vol, MaxIP, X-ray
  - Auto Rotate: 45°, 90°, 180° and 360°, selectable
  - Opacity Offset: 0-255 adjustable
  - Opacity Slope: 0-255 adjustable
  - Scan Mode: Lin and Sec, selectable
  - Zoom In/Out: Adjustable
  - Z Axis Angle: 10°-170° adjustable
  - Color Map: 4 types
  - Slice: A, B and C planes
  - Slice Spacing: 0.5-2.0, adjustable
  - Rescan: On/Off
  - Stability: Adjustable
  - Scan Angle: 20°-75° adjustable
  - Image Quality: High, Medium and Low, adjustable
  - 4D Image Gain: Adjustable
  - Frame Rate: 5f/s
  - Cutting line curvature and position:
Adjustable

- Copy frame size and position: Adjustable
- Volume Playback: 0-9 adjustable
- 3D Image Storage
- 4D Image Storage and playback
- Print Function

18. 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

19. Integrated Data Management System

- Digital Channel: 1024
- Hard Disk Memory Capacity: More than 320G
- USB Interface: 4

20. Image Storage and Playback

- Cine loop: Up to 500 frames in B mode
- Cine loop time: 50 seconds or more
- Real time single/dual static and dynamic image storage

21. 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
- Medical digital images and communication DICOM 3.0 interface

22. Preset Function

Users can customize the presets based on different probe and diagnostic part to optimize imaging parameters and adjustment combination.

23. Patient Data Management

- Patient Registration: Name, ID, Gender, Date of Birth, Height, Weight, LMP, EDD and GA.
- Patient Data, Report, Images can be searched, played back and printed

24. Annotation and Body Mark Setting

- Body Mark Icon: More than 52 kinds
25. Size
- Annotation can be selected in the library.
- Annotation Number: Up to 20
- \( L \times W \times H (\text{mm}): 997 \times 684 \times 1517 \)

26. Weight
- Weight: Approx. 150Kg

27. Probe Connectors
- Common Probe Connectors: Total 5 connectors
- Pencil probe connector: 1

28. Monitor
- 19" Widescreen and High-Resolution Color LCD monitor, anti-flickering and vertically and horizontally rotatable
- Contrast and brightness: 0-100, adjustable

29. Safety Standard
Comply with IEC60601-1, Class I, BF international standard

30. Environmental Requirements
- Operation Environment
  - Temperature: +10°C to +40°C (Except VC6-2)
- Relative Humidity: 30% to 85% (Non condensing)
- Atmospheric pressure: 700 to 1060 hPa

31. Optional Probe
- Phased Array Probe (Cardiology)
  - 2P2 (1.0-5.0MHz)
  - 3P1 (1.0-5.0MHz)
  - 5P2 (3.0-8.0MHz)
  - 8P1 (4.0-12.0MHz)
- Linear Probe (Vascular, Small Parts)
  - L741 (5.0-10.0MHz)
  - L742 (5.0-12.0MHz)
  - L752 (5.0-12.0MHz)
- Curved Probe (Abdomen, OB/GYN)
  - C344 (2.0-5.0MHz)
  - C353 (2.0-6.0MHz)
  - C322 (2.0-6.0MHz)
- Micro-curved Probe (Trans-vaginal)
  - 6V1 (4.0-8.0MHz)
Specifications for S40 Color Doppler Ultrasound System

- 6V3 (5.0-9.0MHz)
- Volume Probe (Fetus)
- VC6-2 (2.0-6.0MHz)

32. Measurement and Calculations

- General measurements
  - B Mode
    - Distance (Real time/Freeze)
    - Angle
    - Volume (L×W×H, Ellipse Area × L)
    - Area and circumference (Trace, Ellipse methods) (real time/freeze)
  - M Mode
    - Distance
    - Speed
    - Time
    - Heart rate
    - Slop
  - Spectral Doppler
    - Time
    - Heart rate
    - Speed
    - Speed ratio
    - Acceleration
    - Resistivity index
    - Pulsatility index
    - Peak velocity
    - Pressure gradient
    - Manual trace
    - Auto-trace

- Color Doppler
  - Color Flow Velocity
  - Doppler Area
  - Proximal Isovelocity surface area

- 4D Mode
  - Distance
  - Area and circumference
  - Volume

- Ob/Gyn Measurements
  - B Mode
    - GS
    - CRL
    - BPD
    - HC
    - AC
    - FL
    - CER
    - OFD
    - Fibula
    - Foot
    - AA
    - APAD
    - HA
    - Humerus
    - Kidney
    - APTD

- Velocity-time integration
- Average pressure
- End diastole velocity
- Pressure half-time
- Average flow velocity
- OOD
- Radius
- TAD
- TC
- THD
- Tibia
- TTD
- Ulna
- Umb VD
- NT
- LV
- UT L
- UT H
- UT W
- Cx
- En-T
- Rt OV L
- Rt OV H
- Rt OV W
- Lt OV L
- Lt OV H
- Lt OV W
- AFI
- Follicle
- EFA
- EDD
- EFW
- AUA
- GA

- PW Mode
  - Umb A
  - MCA

- Rt Uterine A
- Lt Uterine A
- Fetal AO

- **Cardiology Measurement and Calculation**
  - **B Mode**
    - Left ventricle measurement
      - Single ellipse method
        - End diastole left ventricle long-axis area
        - End diastole left ventricle long-axis length
        - End systole left ventricle long-axis area
        - End systole left ventricle long-axis length
      - Biplane ellipse method
        - End diastole left ventricle long-axis area
        - End systole left ventricle long-axis area
        - End diastole left ventricle short-axis area at the level of mitral valve
        - End systole left ventricle short-axis area at the level of mitral valve
        - End diastole left ventricle short-axis length
        - End systole left ventricle short-axis length
      - Bullet method
        - End diastole left ventricle
short-axis area at the level of mitral valve
✓ End systole left ventricle short-axis area at the level of mitral valve
✓ End diastole left ventricle long-axis length
✓ End systole left ventricle long-axis length

Simpson
✓ End diastole left ventricle short-axis area at the level of mitral valve
✓ End systole left ventricle short-axis area at the level of mitral valve
✓ End diastole left ventricle short-axis area at the level of papillary muscles
✓ End systole left ventricle short-axis area at the level of papillary muscles
✓ End diastole left ventricle long-axis length
✓ End systole left ventricle long-axis length

Cube
✓ End diastole interventricular septum dimension
✓ End diastole left ventricle short-axis length
✓ End diastole left ventricular posterior wall dimension
✓ End systole interventricular septum dimension
✓ End systole left ventricle short-axis length
✓ End systole left ventricle posterior wall dimension

Teichholz
✓ End diastole left ventricle short-axis length
✓ End systole left ventricle short-axis length

Gibson
✓ End diastole left ventricle short-axis length
✓ End systole left ventricle short-axis length

Biplane Disk
✓ Diastole 2CH
✓ Diastole 4CH
✓ Systole 2CH
✓ Systole 4CH

M Mode
✓ Left ventricle

Cube
✓ End diastole left ventricle short-axis length
✓ End systole left ventricle short-axis length
✓ End diastole left ventricular posterior wall dimension
✓ End systole left ventricular posterior wall dimension
Specifications for S40 Color Doppler Ultrasound System

- End systole left ventricle posterior wall dimension
  - Gibson
- End diastole left ventricle short-axis length
- End systole left ventricle short-axis length
  - Teichholz
- End diastole left ventricle short-axis length
- End systole left ventricle short-axis length

- Mitral valve measurement
- Aortic valve measurement

- PW Mode
  - Mitral valve measurement
  - Aortic valve measurement
  - Tricuspid valve measurement
  - Pulmonary valve measurement
  - TEI Index Measurement

- Vascular measurements
  - ICA
  - ECA
  - CCA
  - INT IL
  - EXT IL
  - ILIAC
  - CFA
  - PROFUN
  - LT CIR
  - SFA
  - POP
  - PTA
  - PERON
  - ATA
  - DR PED
  - %A REDUC
  - %D REDUC
  - PI
  - RI
  - VTI
  - S/D
  - Pg
  - PV
  - IMT

- Urology measurements
  - Left kidney measurement
  - Right kidney measurement
  - Left renal cortex
  - Right renal cortex
  - Left adrenal gland measurement
  - Right adrenal gland measurement
  - Bladder volume
  - Residue urine measurement
    - Bladder area
    - Bladder height
  - Prostate whole volume
  - Left seminal vesicle measurement
  - Right seminal vesicle measurement
  - Left testicle measurement
  - Right testicle measurement
  - Prostate transition zone volume
- **Small parts measurements**
  - Left thyroid
  - Right thyroid
  - Thyroid isthmus
  - Left upper parathyroid glands
  - Left lower parathyroid glands
  - Right upper parathyroid glands
  - Right lower parathyroid glands

- **Orthopedic measurements**
  - HIP

- **Measurement and calculation report**
  - Obstetrical /Gynecological report (Editable)
    - Obstetrical Curve: 4 planes
    - Fetal Anatomy
    - Fetal Biophysical Evaluation
    - Fetal Compare (Quadruplets)
    - Image Insertion: 6 planes
    - Annotation

- Cardiac function report (Editable)
- Vascular report
- Urological report
- Small Part report
- IMT report
NOTE:

- The specifications of this system may change without any prior notification.
- Some products or features may not be available in some countries.
- Please contact your local SonoScape sales representative for more information.

Service Information:

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