SonoBook 6

Color Doppler System

Datasheet

(V1.0)

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General information

Dimensions and Weight

- Dimensions of main unit (approx.): 366mm*355mm*72mm
- Net weight of main unit (approx.): 5.5kg (with battery, without transducer, AC cord, AC adapter.)

Electrical Power

- Adapter Power supply voltage: AC100-240V 50/60Hz
- Main system power input: 19V 7.8A
- Battery type: SonoBAT: 92.88Wh maximum working time is 2h (depend on condition)

User interface

Operation Panel

- Control panel
- Alphanumeric keyboard
- 8 STC Slides
- Interactive backlit keys
- High resolution color LED
  - Diagonal dimension: 15 inch
  - Resolution: 1024X768
  - Brightness adjustment
  - Angle adjustable: 0-120^{o}
- Integrated speaker
  - Volume adjustable

System overview

Applications

- Abdominal
- Cardiac
- Small organ
- Peripheral Vascular
- Transvaginal
- Transrectal
- Musculo-skeletal
- Pediatric
- Fetal
- OB
- GYN
- Urology

Scanning Method

- Electronic convex
- Electronic linear
- Electronic phased array

Transducer Types

- Convex transducer: C3-V,MC3-V
- Linear transducer: L7-V, L12-V, L8M5-V, R7-V
- Transvaginal transducer:E6-V, E7W-V
- Micro convex transducer: MC6-V
- Phased array transducer: P2-V

Image Modes

- B Mode
- B/M Mode
- M Mode
- Dual Mode
- Quad Mode
- 2D Steer
- CFM Mode (Color Doppler Image)
- CPA Mode (Power Doppler Image)
- DPD Mode (Directional Power Doppler)
- PW Mode (Pulse Wave Doppler)
- B/BC Mode
- Triplex Mode (only for linear transducer)
- CW Mode (option)
- TDI (option)
- Color M Mode (option)
- Trapezoidal Mode
- ECG (option)
- Super Needle (option)

Display Mode

- Quad/dual display (Only for B)
- Duplex mode: B+CFM, B+CPA, B+DPD, B/M
- Triplex mode: B+CFM+PW, B+CPA+PW, B+DPD+PW,

Display Annotation

- Logo
- Hospital name
- Exam Date/Time
- Mechanical index
- Tissue thermal index
- Patient Name and Patient ID
- System status (real-time or frozen)
- Gray/Color bar

- Cine guide
- Measurement summary window
- Measurement results window
- Probe type
- Frequency
- Menu indication
- Trackball functions indication
- Imaging parameters

Standard Configuration

- High resolution 15 Inch LCD display
- 1 active probe port
- ECG port
- USB port: 3
- Ethernet port
- Docking port
- B mode
- B/M mode
- M mode
- Dual mode
- Quad mode
- Pulse Wave Doppler
- Color Doppler Flow Imaging
- Power Doppler Flow Imaging
- Directional Power Doppler Flow Imaging
- B/BC mode
- Trapezoidal mode
- Compound
- SRA
- Chroma
- 2D Steer
- Triplex mode
- Biopsy
- General measurement package

- OB measurement package
- GYN measurement package
- URO measurement package
- Cardiac measurement package
- Vascular measurement package
- Small parts measurement package
- Pediatric measurement package
- TCD measurement package
- X-Contrast
- FHI
- Q-Image
- Q-flow
- Q-beam
- AIO (Automatic Image Optimization)
- Screen Saver
- One key for full screen view
- Integrated battery
- 32G integrated capacity
- Multi-language screen display
- Review: images review system
- Archive: patient information management system
- Reporting system

Software Options

- DICOM (storage, print, worklist)
- Super needle
- CW
- TDI
- Color M
- ECG

Hardware Option

- Convex transducer: C3-V,MC3-V
- Linear transducer: L7-V, L12-V, L8M5-V,R7-V

- Transvaginal transducer:E6-V, E7W-V
- Micro convex transducer: MC6-V
- Phased array transducer: P2-V
- Footswitch
- ECG Cable
- Docking: SonoDocking
- External Battery: SonoBAT
- Trolley: TR-20
- Triple transducer connectors: SonoTriple Connector
- Carry Bag: BG-20

Peripherals

- Video printer: SONY UP897MD, SONY UP-D711MD, SONY UP-X898MD
- PC printer :
  - HP Laser Jet 1020
  - HP Laser Jet 1102/1102W
  - HP Laser Jet P2055d
  - HP Laser Jet M251n/M252n/252dw
  - HP OfficeJet Pro 6230
  - EPSON L130

Imaging processing and presentation

B Mode

- Gain:0~255 ,52 levels
- Frame rate:
- STC:8 segments
- Depth:
- Freq. Min:1.5MHz, Max: 18MHz (depends on probes)
- FHI: On/Off
- X-CONTRAST:Normal/Enhance/Suppress
- U/D flip: On/Off
- Zoom:On/Off
- Full screen:Off/On
- Focus number:1~9 ,9 levels
- Compound: Off/On
- SRA: Off/On
- Density:Low/High
- Dynamic: 30~165, 16 levels
- Focus position: Min: 1cm (depends on probes).
  Max: 16cm (depends on probes),
  16 levels
- Q-Image:0/1/2/3/,4 levels
- Persistence: 0~7, 8 levels
- B Rejection:0~256
- Scan width: 14~100%
- Gamma: 0~8, 9 levels
- Smooth: 0~7,8 levels
- Edge enhance: 0~6, 7 levels
- Acoustic power: 0~100%
- L/R Flip
- Chroma: Type1~28, 29 levels
- 2D Map:Default/0~20, 21 levels
- Zoom coef:60~100%

- Trapezoidal imaging (only for linear transducer):Off/On
- 2D steer: -20~20, 41 levels
- ECG(only for phased array transducer): On/Off

M Mode

- Color Map: Type0~8, 9 levels
- Speed: 1~4, 4 levels
- Layout: UD/LR, 2 levels
- M 2D map: Default/ 1~20, 21 levels

Color Mode

- Gain:0~255, 52 levels
- Frame rate
- Freq: Min: 1.5MHz (depends on probes), Max: 15MHz (depends on probes)
- Wall filter: 0~3, 4 levels
- Q-flow: On/Off
- Color Invert: On/Off
- Q-beam: On/Off
- Steer (only for linear transducer): -20~20, 7 levels
- Color Map: Type1~8, 9 levels
- PRF: 500Hz (depends on probes), Max: 16KHz (depends on probes)
- Persistence: 0~7, 8 levels
- Baseline: -3~3, 7 levels
- Color mode: Velocity, Variance
- Wall Thre.: 0~14, 15 levels
- Blood Effection: Smooth, Resolution, Resolution 2, Resolution 3, 4 levels
- Density: High/ Low
- B/BC: On/Off
- ROI Size:

CPA/DPD Mode

- Gain: 0~255, 52 levels
- Frame rate
- Freq: 1.5MHz (depends on probes), Max: 15MHz (depends on probes)
- Wall filter: 0~3, 4 levels
- Q-flow: On/Off
- Q-beam: On/Off
- Steer (only for linear transducer): -20~20, 7 levels
- PRF
- Persistence: 0~7, 8 levels
- Wall Thre: 0~14, 15 levels
- Blood Effection: Smooth, Resolution, Resolution 2, Resolution 3, 4 levels
- Density: High/Low
- DPD: On/Off
- ROI Size

PW Mode

- Gain: 0~255, 52 levels
- Freq:1.5MHz (depends on probes), Max: 15MHz (depends on probes)
- Wall Filter: 0~3, 4 levels
- Triplex mode: On/Off
- Steer: -20~20, 7 levels
- Invert: On/Off
- PW chroma: Type1~28, 29 levels
- Audio: 0~100%, 101 levels
- PRF:
- Speed: 0~2, 3 levels
- Baseline: 0~6, 7 levels
- Angle:0~70, 8 levels
- SV: 1-8mm
- D 2D map: Default/0~20, 21 levels
- Spectrum Enhance: 0~3, 4 levels
- Dynamic Range: 46~67, 8 levels

TDI mode

- Gain: 0~255, 52 levels
- Frame rate
- Freq:Min: 1.5MHz (depends on probes), Max: 15MHz (depends on probes).
- Wall filter: 0~3, 4 levels
- Color Invert: On/Off
- Density: High/Low
- Color Map: Type0~10, 11 levels
- PRF
- Persistence: 0~7, 8 levels
- Baseline: -3~3, 7 levels
- Wall Thre: 0~14, 15 levels
- Blood Effection: Smooth, Resolution, Resolution 2, Resolution 3, 4 levels
- ROI Size

CW mode

- Gain: 0~255, 52 levels
- Wall Filter: 0~3, 4 levels
- CWD chroma: 0~8,9 levels
- Audio: 0~100%, 101 levels
- PRF
- Speed: 0~2, 3 levels
- Base line: 0~6, 7 levels
- CW 2D map: Default/0~20, 21 levels
- Spectrum enhance: 0~3,4 levels
- Dynamic: 46~67, 8 levels

Cineloop

- Support 2D, M, PW, CFM, CPA, DPD
- Simultaneous and independent review in Triplex mode
- Cineloop auto/manual
- Variable cine playback speed
- User-define start and end frame of cine storage
- User-define start and end frame of cine review
- storage in hard disk and display in real-time modes
- Slide show: slide show function

Storage

- 32G Capacity
- USB driver
- Still images storage format: BMP
- Still images export format: BMP, JPG
- Cine loops storage format: CINE
- Cine loops export format: AVI

Review

- Image review Layout：1×1,2×2, 4×4
- Image management

Archive

- Patient info
- Review report
- Backup exam
- Restore exam
- Send exam
- Delete exam
- Patient view
- Study view
- Expand all
- Collapse all
- Select all

Measurement & calculation

General Measurement Package

- Software packages for various specific clinical use
- Comprehensive analysis methods
- Clinical analysis reports

- **General measurement package**
- General B mode measurement

  -Distance

  -Perimeter/area

  -Volume(1Distance)

  -Volume(1Ellipse)

  -Volume（2Distance）

  -Volume（3Distance）

  -Volume(1Distance1Ellipse)

  -Ratio(distance/ area)

  -Angle

  -Histogram(rectangular/ellipse/trace)

  -profile
- General M mode measurement

  -M distance

  -M Time

  -Velocity

  -Heart__Rate
- PW mode measurement

  -Velocity

  -Distance

  -Peak

  -Trace

  -StD%

  -StA%

  -ICA/CCA

  Flow Volume

  HR

Clinical Analysis Packages

- Abdomen
- Obstetric
- Gynecology
- Cardiology
- Vascular
- Urology
- Small parts
- ORTH
- Pediatrics

System setup

By using system Setup, users could

- Customize hospital information
- Customize language
- Customize screen type
- Customize screen controller
- Customize measurement package
- Customize comment/bodymark
- Customize exam mode
- Customize hotkey functions
- DICOM setting
- Net setting
- System information

  -function setting

  -hardware function

User Define Functions

By user-define function, users could customize user-define preset, including

- Applications name, Presets name, User defined name
- Applications exam type
- Imaging parameters

Multi-language Display Interface

- English
- Chinese
- Other languages

Note: other languages for detailed, please contact CHISON.

Inputs & outputs

- USB port: 3
- Ethernet: 1
- Docking port: 1
- System power in: 1
- Probe connect port: 1
- ECG port 1

I/O Dock output:

- DVI-I: 1
- Foot switch port: 1
- Video out: 1
- Remote: 1
- S-video:1

Operating conditions

- Ambient temperature: 10°C to 40°C
- Relative humidity: 30% to 75%
- Atmospheric pressure: 700 hPa to 1060 hPa

Storage and transport conditions

- Ambient temperature: -10°C to 50°C
- Relative humidity: ≤95% (no condensation)
- Atmospheric pressure: 700 hPa to 1060 hPa

Standards

IEC60601-1:1988+A1:1991+A2:1995
UL60601-1:2003 R6.03
IEC60601-1-1:2000
IEC60601-1-4:1996+A1:1999
IEC60601-1-6:2004
IEC62366:2007
IEC60601-2-37:2001+A1:2004+A2:2005
IEC60601-1-2:2001+A1:2004
EN60601-1-2:2007
IEC60601-1:2005+CORR.1(2006)+CORR.2(2007)
EN 60601-1:2006
IEC60601-1-6:2010/EN60601-1-6:2010
IEC60601-2-37:2007/EN60601-2-37:2008
ANSI/AMI ES60601-1:2005/(R)2012,
CAN/CSA-C22.2 No.60601-1:2008(R2013)
CAN/CSA-C22.2 NO.60601-2-37-08(R2014)
IEC62366:2007/EN 62366:2008
ISO10993-1(2009)
ISO 10993-5(2009)
ISO 10993-10(2010)

*Note: for the battery Storage temperature: -20℃ to +60℃(less than 1 month); -20℃ to +30℃ (less than 6 months)

Not all features or specifications described in this document may be available in all probes and/or modes.

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