

## Portable Color Doppler System

# ECO 6

## Datasheet

### V1.1

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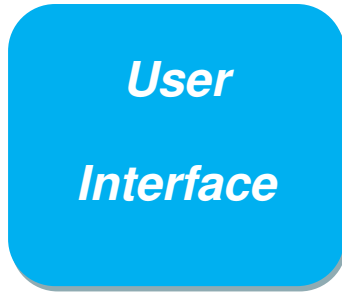
## **General Information**

### Dimensions and Weight

- Dimensions of main unit (approx.):  
335 mm (Length) \* 155 mm (Width) \* 350 mm (Height)
- Net weight of main unit (approx): 6.5 kg (no probe included)

### Electrical Power

- Adapter Power supply voltage: AC100-240V 50/60Hz
- Main system power input: 19V 3.15A
- Battery type:BT-2500 Li-ion 14.4V 4400mAh



### Operation Keyboard

- Fold-up Control Panel and Alphanumeric Keyboard
- Back-lit Keyboard for Good Visibility in Dark Room
- Interactive Back-Lighting
- Indicator Lights Identify Activated Keys
- 8 TGC Slides for Easy Adjustment
- Short Cut knob for Quick Adjustment
- Neat & Clear Keyboard Layout, Doctor Can Remember Easily
- Print Directly from the Keyboard

### Display Screen

- High resolution color LED
  - Diagonal dimension: 12 inch
  - Resolution: 1024 x 768
  - Angle adjustable: 0-30°

# System Overview

## Applications

- Abdomen
- Cardiology
- Obstetrics
- Gynecology
- Urology
- Vascular
- Small Parts
- Pediatrics
- MSK
- Nerve

## Scanning Method

- Electronic convex
- Electronic linear
- Electronic micro-convex
- Electronic phased array

## Transducer Types

- C3-A convex probe, center frequency 3.5MHz
- V6 -A micro-convex probe, center frequency 6.0MHz
- L7M -A linear probe, center frequency 7.5MHz
- MC3-A micro-convex probe, center frequency 3.0MHz
- L7S-A linear probe, center frequency 7.5MHz
- R7-A rectal probe, center frequency 7.5MHz
- MC6-A micro-convex probe, center frequency 6.0MHz
- P3-A Phased array transducer 3.0MHz

### Image Modes

- B Mode
- B/M Mode
- M Mode
- 2B Mode
- 4B Mode
- B steer
- CFM Mode
- CPA Mode
- DPD Mode
- D(PW) Mode
- B/BC Mode
- Triplex Mode
- CW Mode (option)
- TDI (option)
- Trapezoidal Mode
- 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

- Institution/Hospital name
- Date/Time
- Patient Name and Patient ID
- System status (real-time or frozen)
- Gray bar
- Cine guide
- Scanning direction
- Measurement summary window
- Measurement results window
- Probe type

- Application name
- Menu indication
- Imaging parameters displayed on the screen

### Standard Configuration

- High resolution 12 Inch LED display
- 2 active probe ports
- 16G high speed memory (500G hard disk optional)
- USB ports : left side 2, back 1
- Ethernet port
- video out port
- remote port
- VGA port
- Foot switch port
- General measurement package
- Clinical measurement package
- Multi-language screen display
- EASYVIEW™: image archive system
- Patient information management system
- Built-in reporting system
- Intelligent Zoom
- Multiple Compound Imaging (MCI)
- Speckle Reduction Imaging(SRA)
- i-Image
- Full screen show
- BT-2500 li-ion battery

### Software Options

- DICOM 3.0

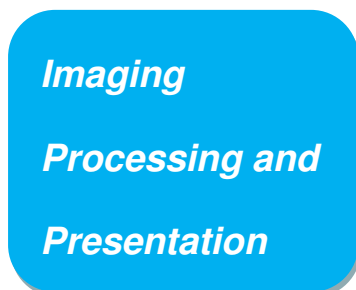
### Hardware Options

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- R7-A rectal probe, center frequency 7.5MHz
- MC6-A micro-convex probe, center frequency 6.0MHz
- P3-A Phased array transducer 3.0MHz
- Biopsy guide for C3-A, L7M-A, V6-A
- Carry bag BG-100
- Trolley TR-9000

### Peripherals

- Video printer :  
Mitsubishi P93W  
Sony UP-897MD  
Sony UP-D711MD  
Sony UP-X898MD
- PC printer :  
HP LaserJet P2055  
HP LaserJet Pro 200 Color M251n  
HP LaserJet Pro P1102  
HP LaserJet 1020  
HP LaserJet Pro P1102w  
HP Deskjet 1010 series  
HP Color LaserJet Pro M252dw  
HP Color LaserJet Pro M252n  
HP Officejet Pro 6230  
OKI C331  
OKI C711  
EPSON L130



### B Mode

- Scan width (14%~100%) )
- Focus number (1~4, depend on the probe types)
- Persistence(0~7)
- Dynamic (30~90)
- Density (Low ,High)
- Smooth (0~7)
- Edge enhancement (0~6)
- A power (0-100%)
- 4B
- Frequency(depend on the probe types)
- i-Image(0~3)
- Compound (On, Off)
- SRA (On, Off)
- 2B
- CPA
- CW(Only for Phased array transducer) (Option)
- TDI(Only for Phased array transducer) (Option)
- GAIN (0~255)
- STC (8 segments)
- Depth (2.5~24.6cm, depend on the probe types)
- Focus position (depend on the probe types)
- Invert (left/right, up/down)
- Zoom(Max16 steps, depend on the probe types and Depth)
- Zoom coef(60%~100%)
- Trapezoidal Mode(On,Off , only for linear transducer)
- B steer(-20°~+20°, only for linear transducer)
- Biopsy(On,Off)
- Super Needle(On,Off, only for L7M-A and L7S-A transducer)(Option)
- Needle Angle(-30°~+30°, only for L7M-A and L7S-A transducer) (Option)
- Center Line(On,Off)
- FPS(Frame Rate)

### Utility Menu

- Chroma(0~28)



- 2D Map(Default,1~20)
- Gamma(0~8)
- B rejection(0-256)
- Slide Show

### M Mode

- Speed (1~4)
- M Chroma(0~8)
- M 2D Map(Default,1~20)
- M Gamma(0~8)
- Layout(LR,UD)

### C Mode

- CPA
- CF Mode(Velocity,Variance)
- Color Invert(On,Off)
- Steering Angle(-20°~+20°,only for linear transducer)
- Color Map(0~8)
- Wall Filter(0~3)
- Wall Thre.(0~14)
- Blood Effecton(Smooth,Resolution,Resolution2,Resolution3)
- Density(Low,High)
- B/BC(On,Off)
- Freq(depend on the probe types)
- Base Line(-3~3)
- PRF(depend on the probe types and ROI position)
- Persistence(0~7)
- CW(Only for Phased array transducer) (Option)
- TDI(Only for Phased array transducer) (Option)
- CF GAIN(0~255)
- ROI Size
- FPS(Frame Rate)

### CPA Mode

- DPD
- Steering Angle(-20°~+20°,only for linear transducer)
- Wall Filter(0~3)
- Wall Thre.(0~14)
- Blood Efection(Smooth,Resolution,Resolution2,Resolution3)
- Density(Low,High)
- Freq(depend on the probe types)
- PRF(depend on the probe types and ROI position)
- Persistence(0~7)
- TDI(Only for Phased array transducer) (Option)
- CPA GAIN(0~255)
- ROI Size

### DPD Mode

- CPA
- Steering Angle(-20°~+20°,only for linear transducer)
- Wall Filter(0~3)
- Color Invert(On,Off)
- Wall Thre.(0~14)
- Blood Efection(Smooth,Resolution,Resolution2,Resolution3)
- Density(Low,High)
- Freq(depend on the probe types)
- Base Line(-3~3)
- PRF(depend on the probe types and ROI position)
- Persistence(0~7)
- CW(Only for Phased array transducer) (Option)
- TDI(Only for Phased array transducer) (Option)
- CPA GAIN(0~255)
- ROI Size

### D(PW) Mode

- D 2D Map(Default,1~20)

- Spectrum Enhance(0~3)
- Dynamic Range(46~67)
- Chroma(0~28)
- Wall Filter(0~3)
- Audio(0~100%)
- Steering Angle(-20°~+20°,only for linear transducer)
- Angle(0°~70°)
- Invert(On,Off)
- Freq(depend on the probe types)
- Base Line(-3~3)
- PRF(depend on the probe types and Gate position)
- Triplex Mode(Off,On)
- Speed(0~2)
- CW(Only for Phased array transducer) (Option)
- TDI(Only for Phased array transducer) (Option)
- D GAIN(0~255)
- SV (0.5-20mm)

**TDI mode(Option)**

- Wall Thre.(0~14)
- Blood Efection(Smooth,Resolution,Resolution2,Resolution3)
- Wall Filter(0~3)
- Color Map(0~10)
- Color Invert(On,Off)
- Density(Low,High)
- Freq(depend on the probe types)
- Base Line(-3~3)
- PRF(depend on the probe types and ROI position)
- Persistence(0~7)
- CW(Only for Phased array transducer) (Option)
- TDI(Only for Phased array transducer) (Option)
- TDI Gain
- ROI Size

**CW mode(Option)**

- CW 2D Map(Default,1~20)
- Spectrum Enhance(0~3)
- Dynamic Range(46~67)
- CWD Chroma(0~8)
- Wall Filter(0~3)
- Audio(0~100%)
- Invert(On,Off)
- Freq(depend on the probe types)
- Base Line(-3~3)
- PRF(depend on the probe types )
- Speed(0~2)
- CW(Only for Phased array transducer) (Option)
- TDI(Only for Phased array transducer) (Option)
- CWD GAIN

### Cineloop

- Support 2D, M, PW, CFM, CPA, DPD, TDI, CW
- 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

- 16G high speed memory(500G hard disk optional)
- USB driver
- Still images storage format: BMP
- Still images export format: BMP, JPG
- Cine loops storage format: CINE
- Cine loops export format: AVI

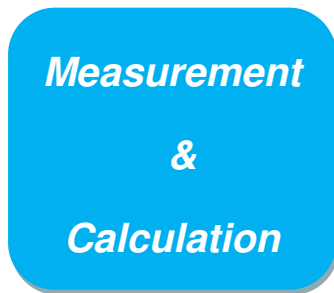
### Review

- 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



General Measurement Package

- Software packages for various specific clinical use
- Comprehensive analysis methods
- Clinical analysis reports
- **General measurement package**
- General B mode measurement
  - Distance
  - CIR/Area (Ellipse)
  - Volume(1Distance)
  - Volume(1Ellipse)
  - Volume (2Distance)
  - Volume (3Distance)
  - Volume(1Distance1Ellipse)
  - Ratio(distance/ellipse area/trace area)
  - Angle
  - Histogram(rectangular/ellipse/trace)
  - profile
- General M mode measurement
  - M distance
  - M Time
  - Velocity
  - Heart Rate
- General D mode measurement
  - Velocity
  - Distance
  - Peak

- Trace
- StD%
- StA%
- ICA/CCA
- Flow Volume
- Heart Rate

**Clinical Analysis Packages**

- Abdomen
- Obstetric
- Gynecology
- Cardiology
- Vascular
- LE Vein
- LE Artery
- Urology
- Small parts
- ORTH
- Pediatrics
- Quick

# System Setup

By using system Setup, users could

- Customize hospital information
- Customize date-time and regional
- Customize language
- Customize screen saving type
- Customize comment library
- Customize measurement formula
- Customize exam mode configuration
- Customize output types

## Multi-language

- English
- Chinese
- Czech
- Italian
- Russian
- Turkish
- French
- German
- Spanish
- Portuguese
- Polish

## Operation System

Linux Embedded







**Transducers**

**Transducer Selection**

- Two transducer ports

Probe Name	Outlook	Probe Type	Main Frequency	Frequency Range(MHz)	Application
C3-A		Convex R=60mm	3.5MHz	2.5 3.5 4.5 5.0	ABD Kidney EarlyPregnancy MidlatePregnancy UT&Ovary FetalHeart
V6-A		Micro convex R=12mm	6.0MHz	4.5 5.0 6.0 8.0	UT&Ovary EarlyPregnancy Prostate
L7M-A		Linear L=40mm	7.5MHz	5.3 6.5 7.5 10.0	Carotid Small Parts Musuloskeletal UpperExtVessel LowerExtVessel Nerve PEDABD PEDHIP
L7S-A		Linear L=30mm	9.0MHz	5.3 7.5 9.0 11.0	Carotid Small Parts Musuloskeletal Superficial Vertebral Vessel UpperExtArtery UpperExtVein LowerExtArtery LowerExtVein

					Nerve Breast Scrotum NeonatalABD PEDABD PEDHIP
MC3-A		Micro-Convex R=20	3.0MHz	2.5 3.0 4.5 5.0	ABD Cardiac FAST
MC6-A		Micro Convex R=15	6.0MHz	4.5 5.0 6.0 8.0	PEDABD Chest
R7-A		linear L=40mm	7.5MHz	5.0 6.5 7.5 10.0	Prostate Bladder
P3-A		Phased array	3.0MHz	2.5 3.0 3.5 4.5	Cardiac CardiacDifficult FAST

*Inputs  
&  
Outputs*

- Video: 1
- VGA: 1
- USB port: 3
- Ethernet port : 1
- Remote port: 1
- Foot switch port: 1
- System power in: 1
- Power button: 1

## *Operating Conditions*

- Temperature:10° C ~ 40° C
- Relative Humidity:30%~75%, non-condensing
- Atmosphere Pressure:700hPa ~ 1060hPa

## *Storage Conditions*

- Temperature:-25° C ~ 55° C
- Relative Humidity:≤ 95% non-condensing
- Atmosphere Pressure:700hPa ~ 1060hPa



- ISO 10993 Biological evaluation of medical devices

*Design  
Standards*

- IEC 60601-1 Electrical medical equipment
- IEC 60601-1-1 Electrical medical equipment
- IEC 60601-1-2 Electromagnetic compatibility
- IEC 60601-1-4 Programmable medical systems
- IEC 60601-2-37 Comply with the IEC60601-2-37

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

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