



MediSono

HIGH QUALITY **ULTRASOUND**
AND **DIAGNOSTIC SOLUTIONS**



IBS

GROUPE

Turnkey Supplier



P9 Plus

Digital Color Doppler Ultrasound System

TECHNICAL SPECIFICATIONS



Portable Color Doppler System

P9 PLUS

Technical Specifications

V2.0 Rev. A



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

User Interface

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 with full screen display
 - 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
- TDI Mode (PA only)
- D(PW) Mode
- Triplex Mode
- Trapezoidal Mode
- Needle Enhancement (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
- 16GB SSD Memory card (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
- Image archive system
- Patient information management system
- Built-in reporting system
- Intelligent Zoom
- Multiple Compound Imaging (MCI)
- Speckle Reduction Imaging(SRA)
- Full screen show
- BT-2500 li-ion battery
- DICOM 3.0

Hardware Options

- Biopsy guide for C3-A, L7M-A, V6-A
 - Carry bag BG-100
 - Trolley MultiX
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Peripherals

- Video printer :
 - Mitsubishi P93W
 - Sony UP-897MD
 - Sony UP-D711MD
 - Sony UP-X898MD
- PC printer :
 - EPSON L120 Series
 - EPSON L130 Series
 - EPSON L310 Series
 - EPSON L380 Series
 - EPSON L805 Series
 - EPSON L1110 Series
 - EPSON L1118 Series
 - HP DeskJet 1010 series
 - HP OfficeJet Pro 6230
 - HP LaserJet 1020 Plus
 - HP LaserJet P2055d
 - HP LaserJet Pro M12a
 - HP LaserJet Pro P1102
 - HP LaserJet Pro P1102w
 - HP LaserJet Pro P1108
 - HP LaserJet Pro 200 color M251n
 - HP Color LaserJet Pro M252n
 - HP Color LaserJet Pro M252dw
 - HP Color LaserJet Pro M254nw
 - Canon SELPHY CP1200
 - Canon SELPHY CP1300

Imaging Processing and Presentation

B Mode

- Scan width (14%~100%)
- Focus number (1~4, depend on the probe types)
- Persistence(0~7)

- Dynamic (30~120)
- Density (Low ,High)
- Smooth (0~7)
- Edge enhancement (0~6)
- A power (0-100%)
- Quick Angle
- 4B
- Frequency(Min:2.5M, Max:11.0M, depend on the probe types)
- Compound (On, Off)
- SRA (On, Off)
- 2B
- CPA
- GAIN (0~255)
- STC (8 segments)
- Depth(Min:2.0cm, Max:30.6cm, depend on the probe types)
- Focus position (Min:0.5cm, Max:17cm, depend on the probe types)
- Invert (left/right, up/down)
- Zoom(Max18 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)
- Frame Rate Max 1632 FPS

Utility Menu

- Chroma(0~28)
- 2D Map(Default,1~20)
- Gamma(0~8)
- B rejection(0-256)
- Brightness(0-100)
- 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(-10°~+10°,only for linear transducer)
- Color Map(0~8)
- Wall Filter(0~3)
- Wall Thre.(0~14)
- Quick Angle
- Blood Effecton(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)
- CF GAIN(0~255)
- ROI Size
- Frame Rate Max 229 FPS

CPA Mode

- DPD
- Steering Angle(-10°~+10°,only for linear transducer)
- Wall Filter(0~3)
- Wall set up.(0~14)
- Blood adjustment (Smooth,Resolution,Resolution2,Resolution3)
- Density(Low, High)
- Quick Angle

- Freq(depend on the probe types)
- PRF(depend on the probe types and ROI position)
- Persistence(0~7)
- CPA GAIN(0~255)
- ROI Size

DPD Mode

- CPA
- Steering Angle(-10°~+10°,only for linear transducer)
- Wall Filter(0~3)
- Color Invert(On,Off)
- Wall Thre.(0~14)
- Blood Effecton(Smooth,Resolution,Resolution2,Resolution3)
- Density(Low,High)
- Quick Angle
- Freq(depend on the probe types)
- Base Line(-3~3)
- PRF(depend on the probe types and ROI position)
- Persistence(0~7)
- DPD 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(-10°~+10°,only for linear transducer)
- Invert(On,Off)
- Threshold(1~25)
- DTrace Smooth(0~3)
- Quick Angle

- Freq(depend on the probe types)
- Base Line(0~6)
- PRF(depend on the probe types and Gate position)
- Triplex Mode(Off,On)
- Speed(0~2)
- D GAIN(0~255)
- Angle(0°~70°)
- SV(0.5-20mm)

CW Mode

- D 2D Map
- Spectrum Enhance
- Dynamic Range
- Chroma
- Wall Filter
- Audio
- Invert
- D Trace Smooth
- Quick Angle
- Freq(depend on the probe types)
- Base Line
- PRF(depend on the probe types and Gate position)
- Speed
- D GAIN
- Angle

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

- 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

- Information
- Report
- Send images
- Delete images
- Row*Column: 4*4, 2*2, 1*1
- Pre Page
- Next Page
- Select All
- Deselect All
- New Exam
- Edit Exam
- Archive
- Exit

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
- Circumference/area
- Volume(3Distances)
- Volume(2Distances)
- Volume(1Distance)
- Volume(1Ellipse)
- Volume(1Ellip1Dis)

- Ratio
- Angle
- Histogram
- Profile

● General M mode measurement

- Distance
- 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
- TCD
- Fast

Measurement & Calculation

By using system Setup, users could

- Customize hospital information
- Customize date-time and regional
- Customize language
- Customize screen saving type
- Customize screen controller
- Customize measurement formula
- Customize comment library
- Customize body mark library
- Customize exam mode configuration
- Customize report layout
- Customize output types
- DICOM setting
- Net setting
- System information
 - function setting
 - hardware function
 - Video&VGA setting

Multi-language

- English
- Czech
- Italian

- Russian
- Turkish
- French
- German
- Spanish
- Portuguese
- Polish




Operation System





Linux Embedded


Transducers

Transducer Selection

- Two transducer ports

Probe Name I	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 Early Pregnancy Mid late Pregnancy UT & Ovary Foetal Heart
V6-A		Micro convex R=12mm	6.0MHz	4.5 5.0 6.0 8.0	UT & Ovary Early Pregnancy Prostate
L7M-A		Linear L=40mm	7.5MHz	5.3 6.5 7.5 10.0	Carotid Small Parts Musculoskeletal Upper Ext Vessel Lower Ext Vessel Nerve PEDABD PEDHIP

L7S-A		Linear L=30m m	9.0MHz	5.3 7.5 9.0 11.0	Carotid Small Parts Musculoskeletal Superficial Vertebral Vessel Upper Ext Artery Upper Ext Vein Lower Ext Artery Lower Ext Vein Nerve Breast Scrotum Neonatal ABD 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=40m m	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 Cardiac Difficult FAST
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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

Inputs & Outputs

- 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

Quality Standards

- 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

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