

## Efficient Diagnostic

# HD60EXP

## Color Doppler Ultrasonic Diagnostic System



Efficient Diagnosis

Qingdao Hisense Medical Co.Ltd.

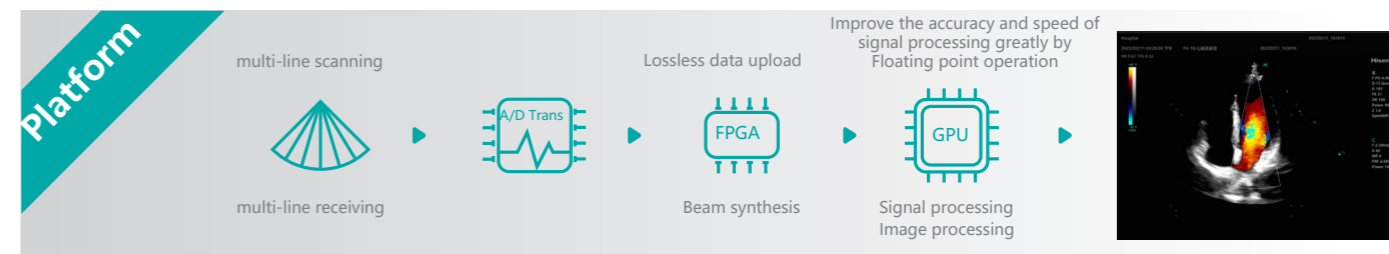
Address: 5th Floor, Building A6, No.399 Songling Road, Qingdao, China

URL: <https://medical.hisense.com/>

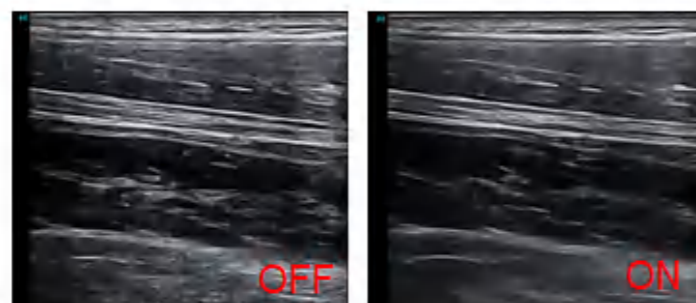
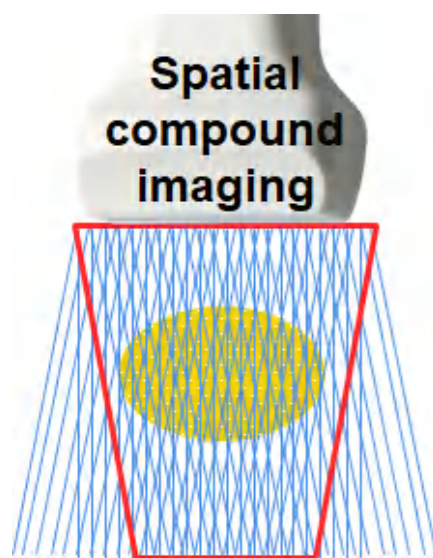
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# HD60EXP system platform

HD60EXP's platform is adopted GPU processing architecture, through multi-line scanning, multi-line receiving, lossless data uploading and floating point operation, the accuracy and speed of signal processing are greatly improved, the image has better whole field uniformity and spatial resolution.



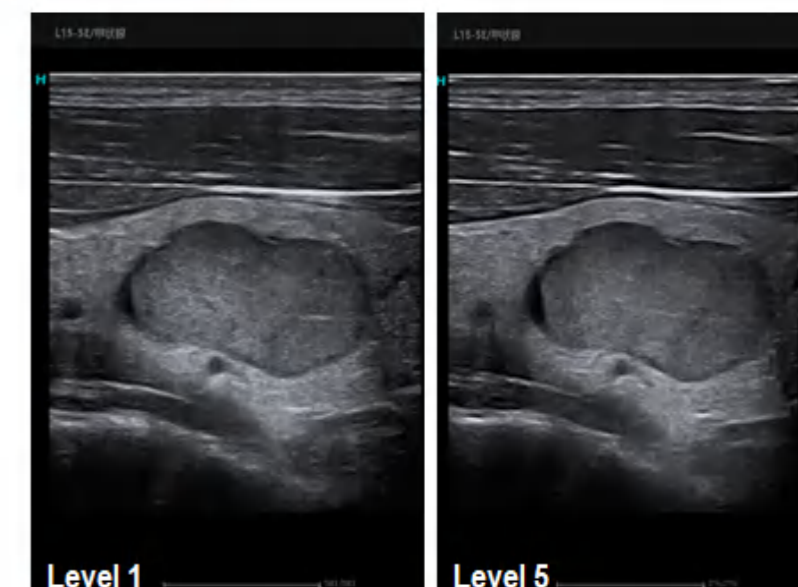
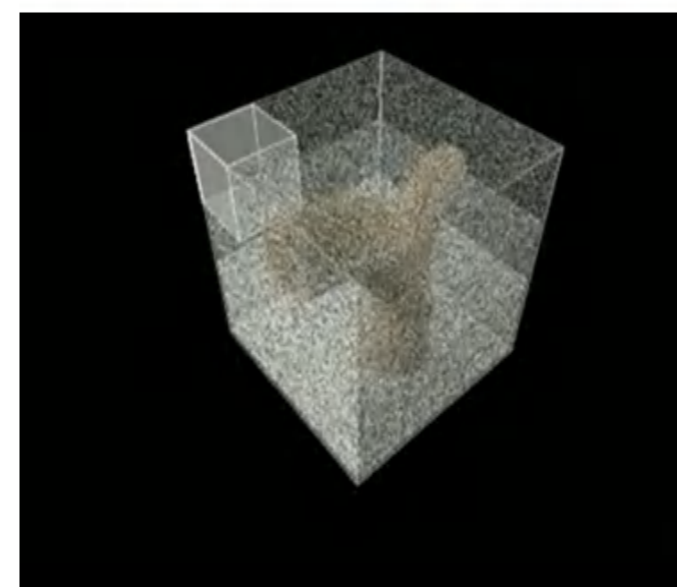
## HiScom Spatial Composite Imaging



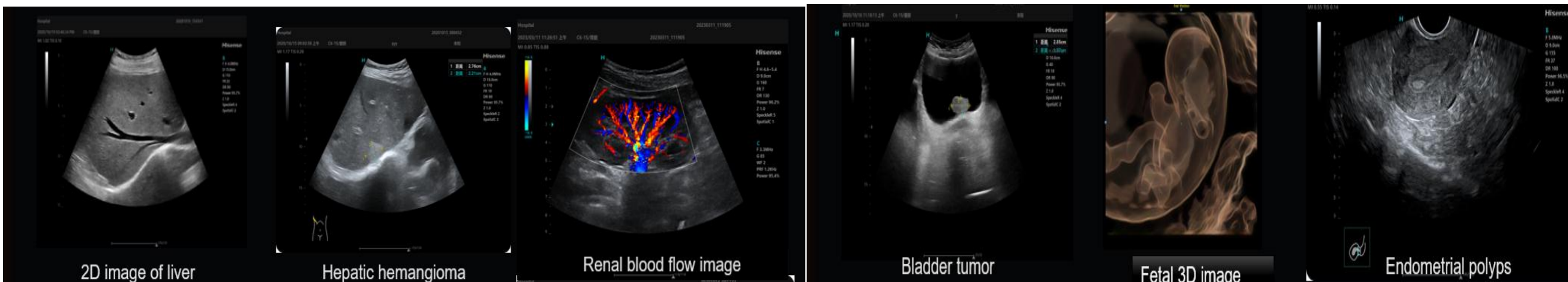
- Real-time image comparison on one screen
- Support for the color mode
- Support for convex and linear array probes
- Support for harmonic imaging

## HiPure Advanced Speckle Noise Suppression

Speckle noise reduction suppression technology suppresses speckles and improves contrast resolution without blurring structural details.



## Excellent Imaging in Abdominal, Obstetric, and Gynecological Examination



# Intelligent Health Examination Software Hi-Step

Helps physicians finish ultrasound examination more easily



Increasing patients  
**Faster ultrasound examination required**



Insufficient resources and high workload  
**Higher efficiency of clinical work required**

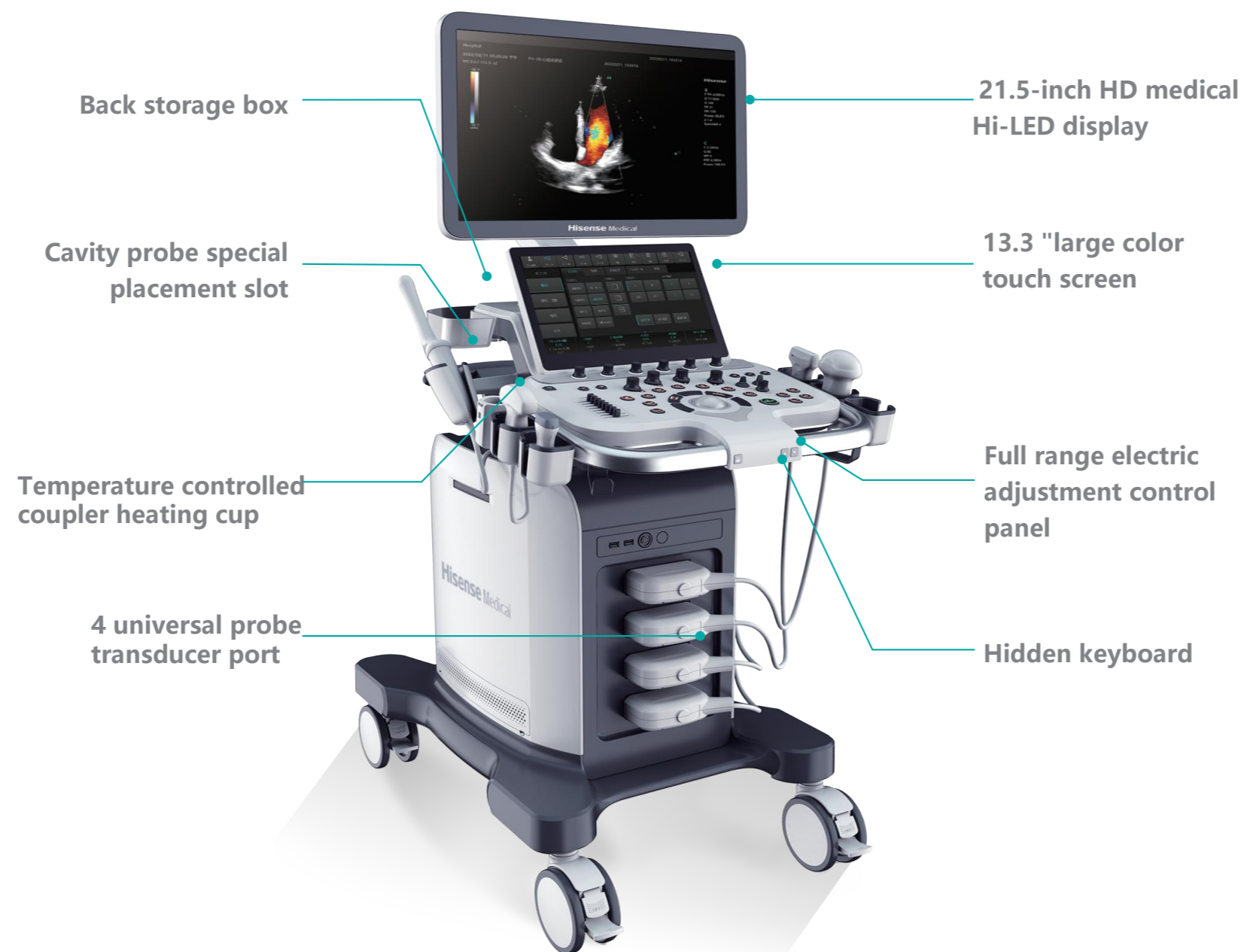


Need for a standard operation procedure  
**No ultrasound examination item missed**



# Simple User Operation

Solo ingenuity of ergonomic design, electric lifting, rotating adjustable control panel, omni-directional adjustable screen joint arm, give you a comfortable and intimate working environment.



# **Technical Specifications for HD60 Color Doppler**

## **Ultrasound**

Diagnostic System (V1.0)

## 1 Overview

### 1.1 Applications

- Abdomen
- Obstetrics
- Gynecology
- Cardiac
- Small Parts
- Urology
- Vascular
- Pediatric
- Emergency
- Anesthesia
- Transvaginal&Transrectal
- Others

### 1.2 Probe Types

- Convex Array Probe
- Line Array Probe
- Phased Array Probe
- Volume Probe
- Endo-cavity
- Micro-convex Probe

### 1.3 Imaging Modes

- B-mode
- Tissue Harmonic Imaging
- M-mode/Color M-mode
- Anatomical M-mode
- Curve Anatomical M-mode
- Color Doppler Imaging
- Power Doppler/Directional Power Doppler
- Pulsed Wave(PW) Doppler
- Continuous Wave(CW) Doppler
- Tissue Doppler Imaging(TDI)
- Freehand 3D Imaging
- 4D
- Multi-Slice
- Elasto
- Pano
- 3D Spectrum
- SCV Color Velocity Imaging
- Strain Rate Imaging

### 1.4 Configuration Features

- B-mode
- Tissue Harmonic Imaging
- M-mode/Color M-mode
- Color Doppler Imaging
- Power Doppler/Directional Power Doppler
- Pulsed Wave(PW) Doppler
- CW Doppler
- HPRF
- HD Color
- Speckle Suppression Imaging
- Auto
- Zoom (including full-screen Zoom)
- Spatial Composite Imaging
- Steer
- Raw Data Processing
- Anatomical M-mode
- Curve Anatomical M Mode
- Pano
- Dual-Mode
- Power Doppler/Directional Power Doppler
- Freehand 3D Imaging
- 4D
- 3D Spectrum
- SCV Color Velocity Imaging
- Niche Imaging
- OminiView
- Multi-slice
- Auto IMT
- Tissue Specific Imaging
- Auto EF
- Auto NT
- Elasto
- Biopsy Enhancement
- Biopsy Guidance
- TDI (including TVI, TVD, TVM and TEI)
- DICOM 3.0/ DICOM structure report
- Measurement Software Package
- Task Manager
- Teaching Software

- Digital processing channels 9000000

- 4 Activatable Probe Interfaces
- 1TB HDD (Data)
- DVD R/W Drive
- 6 USB Ports
- 256GB SSD (System)

### 1.5 Supported Languages

- Software: Chinese and English
- Keyboard Input: English and Chinese
- User Manual: English and Chinese

## 2 Physical Specifications

### 2.1 Dimensions and Weight

- Height(mm): 1,385-1,755
- Width(mm): 595
- Depth(mm): 890
- Weight: about 90kG

### 2.2 Monitor

- 21.5" High Resolution Color LCD Monitor
- Resolution: 1920×1080
- Angle of View: 178°
- Adjustable Screen Brightness and Contrast (Manual, Automatic)
- Tilt: 20 degrees(up) to 90 degrees(down)
- Rotation: - 90 degrees to +90 degrees

### 2.3 Speaker

- High Fidelity Stereo
- Power: 2×10w

### 2.4 Ergonomic Omnidirectional Rotatable Monitor Support Arm

- Rotation: ±90 degrees (from the center)
- Up and Down Movement: 280mm
- Front and Back Stretch: 550mm

### 2.5 Casters

- Diameter: 125mm
- Front and Rear Casters (4): Braking and Unlocking

### 2.6 Probe Connectors and Covers

- Connectors: 4 Activatable Probe Connectors

- Covers: 5 plus an Endo-probe Holder

### 2.7 Power Supply

- Voltage: 220V~
- Frequency: 50/60Hz
- Power: Max.700VA
- Fuse: 250V~, 5A

### 2.8 Operating Conditions

- Ambient Temperature: 5-40°C
- Relative Humidity: 30-80%(No Condensation)
- Atmospheric Pressure: 70kPa ~ 106kPa

### 2.9 Storage and Transportation Conditions

- Ambient Temperature: -20-55°C
- Relative Humidity: 30-93% (No Condensation)
- Atmospheric Pressure: 70kPa ~ 106kPa

## 3 Human-Machine Interaction

### 3.1 Control Panel

- The panel is designed to be user-centric and easy to operate.
- The panel features the backlighting of keys with adjustable backlight brightness
- user-defined keys.
- 8-segment TGC
- Standard Keyboard
- Adjustable key tone and trackball speed
- rotated and raised.
- Rotation: ±90 degrees (from the center)
- Up and Down Movement: 0mm to 200mm

### 3.2 Touch Screen

- 13.3" high sensitivity anti-glare, anti-fingerprint color and 10-point capacitive touch screen.
- Resolution: 1920x1080
- Adjustable brightness and contrast via presets.
- Viewing Angle: 170 degrees

### 3.3 Startup/Shutdown

- Boot-up from shut-down: Less than 52 sec
- Shut-down : Less than 33 sec

### 3.4 Annotate

- Support for text and arrow annotate.
- Adjustable arrow size
- Support for start point setting.
- Cover all Applications.
- User-definable.

### 3.5 Bodymark

- More than 132 individual Bodymark for various applications.

### 3.6 Screen Information\*

- Public Information:
  - Hisense Logo
  - Hospital Name
  - Exam Date
  - Exam Time
  - Output Power
  - Mechanical Index
  - Tissue Temperature Indication
  - Probe Name
  - ECG Logo (when the ECG is connected)
  - TGC Curve
  - Focus Position
  - Thumbnail

- Image Parameters
- Trackball Operation Help In tions

\*All items are not represented in this section, please refer to the User Manual for details.

## 4 Image Parameters

### 4.1 Overview

- Digital Beam Enhancer
- Multi Beams Synthesis 4.2 B-mode
- Display Formats: Single, Dual and Quad
- Persist: 0-5 level
- AUTO: Automated Optimization
- Frequency Composite Imaging
- B|SRI: Dual Real Time Comparison
- Steer: Line Array Probes Available,  $\pm 20^\circ$ ,  $5^\circ$  /step
- WFOV: Line Array Probes Available, 8,
- Depth: 2.0-40cm, 1cm/step (which varies with probes) (referenced parameters for the C5-2A convex array probe)
- FR (Max): 1000f/s (Convex Array Probes)
- Output Power: 1%-100%
- TGC: 8 -segment
- LGC: 8 -segment
- Dynamic Range: 30-320, 10/step
- Gain: 0-255, 5/step
- Focus Number: 1-16 (probe related)
- Focus Position: Dynamically Adjustable
- Density  $\geq 512$  ultrasonic lines per frame
- Persist: 5 steps
- L/R Flip and U/D Flip: on/off
- Rotate: 0, 90, 180 and 270
- Gray map: 20 types
- Tint map: 0-7, 8 types

#### 4.3 Harmonic Imaging

- Available for all probes.

#### 4.4 M-mode/Color M-mode

- Display Formats: V2:3, V3:2, V3:1 and H2:3, full screen (V: vertical, H: horizontal)
- Available for Color M-mode
- Output Power: 1%-100%
- Gain: 0-255, 5/step
- Scanning Speed: 6 steps (1-6)
- Tint map: 0-6,7 types
- Gray map: 14 types
- Edge Enhancement: 0-4 steps

#### 4.5 Anatomical M-mode Imaging

- Display Formats: V2:3, V3:2, V3:1 and H2:3 (V: vertical, H: horizontal)
- Available for Color Anatomical M-mode
- Up to three sampling lines.
- Simultaneous display of three M-sampling line graphs.
- Tint map: 8 types
- Gray map: 0-13 types

#### 4.6 Color Doppler Imaging

- Dual Real Time
- Max. Velocity: 37cm/s
  - Steer: Max. 20 degrees (line array probes)
- Max. Frame Rate: 400f/s
- Output Power: 1%-100%
- Gain: 0-255, 5/step
- Baseline: 21 steps (-10-10, 1/step)
- Wall Filter: 1-9 steps
- PRF: 0.5-16.8 kHz
- Sensitivity: 0-6, 7 types (non-uniform progression)
- Flow State: 0-8, 9 steps
  - Smooth: 5 steps

- Same Width for B/C-mode: on/off
- Color Priority: 0-7, 8 steps

#### ● Color Map: 0-7,8 types

- Flip: on/off
- Persist: 0-6, 6steps
- Line Density: Low/Medium/High

#### 4.7 Power Doppler

- Support for Directional Power Doppler
- Output Power: 1%-100%
- Gain: 0-255, 5/step
- Steer: Max. 20 degrees (line array probes)
- Wall Filter: 1-6, 6steps
- PRF: 0.5-14.5kHz
- Sensitivity: 7 steps
- Flow State: 9 types (0-8)
- Smooth: 5 steps
- Color Priority: 0-7, 8 steps
- Persist: 0-6,7 steps

#### 4.8 PW/CW-Mode

- Display Formats: V2:3, V3:2, V3:1 and H2:3, Full Screen, Duplex/Triplex (PW only) (V: vertical, H: horizontal)
- PW Speed: Max. 24.9m/s
- PW Speed: Min. 0.5m/s
- CW Speed: Max. 24.9m/s
- SV: 0.5-30 mm, 60 steps (Values may vary with probes, and this value is specific to P4-2B)
- SV Depth: Adjustable
- Speed Scale: Max. 25m/s
- Baseline: 21 steps
- PW Steer: Max. 20 degrees (line array probes)
- Volume: 0-100, 10 steps
- PW PRF: 0.5-20kHz

- CW PRF: 0.9-20kHz
- Gain: 0-255, 5/step
- Dynamic Range: 60-260, 10/step
- Scanning Speed: 6 steps (PW)
- Wall Filter: 9 steps
- Flip: on/off
- Angle Correction: -88 to +88 °, 2°/step
- Quick Angle Correction: -60°, 0°, 60°
- Gray map: 20 types
- Tint map: 8 types
- Time/Frequency Resolution: 4 steps
- Tracing Range: top, bottom and all
- Audio Noise Reduction: 0-4, 5 steps
- Tracing: on/off
- Smooth: 1-4, 4 steps

#### 4.9 TVI (Tissue Velocity Imaging)

- Available for phased array probes.
- Dual Real Time
- Same Width for B/C-mode: on/off
- Flip: on/off (TVI only)

#### 4.10 TVD (Tissue Velocity Doppler) (included in TDI)

- Available for phased array probes.
- Display Formats: V2:3, V3:2, V3:1 and H2:3, Full Screen, Duplex/Triplex (V: vertical, H: horizontal)
- SV: 0.5-30 mm, 60 steps
- Sampling Depth: Adjustable
- Speed Scale: Max. 3.69m/s
- Baseline: -1.0-+1.0, 0.1/step, total of 20 steps (P4-2B TVD mode baseline)
- Baseline: 0-255, 5/step, total of 51 steps (P4-2B TVI mode baseline)
- Volume: 0-100%, 10 steps
- PRF: 0.5-8.6kHz (P4-2B TVD mode)
- Gain: 0-255, 5/step
- Dynamic Range: 60-260,10 steps
- Scanning Speed: 6 steps

- Wall Filter: 1-9,1/step
- Flip: on/off
- Angle Correction: -88 to +88 °, 2/step
- Quick Angle Correction: -60°, 0°, 60°
- Gray map: 0-19, 1/step, 20 types
- Time/Frequency Resolution: 0-3,4 steps

#### 4.11 TVM (Tissue Velocity M-mode) (included in TDI)

- Display Formats: V2:3, V3:2, V3:1 and H2:3, full screen (V: vertical, H: horizontal)
- Output Power: 1.0%-100.0%
- Dynamic Range: 60-260, 10/step
- Gain: 0-255, 5/step
- Scanning Speed: 1-6,1 steps
- Gray map: 0-13, 1/step, 14 types
- Edge Enhancement 0-4,1/step

#### 4.12 Free hand 3D Imaging

- Free hand 3D Imaging
  - Probes: Line Array, Convex Array, Endo-probe and Micro-convex.

#### 4.13 4D Imaging

- Available for all 4D probes.
- Static 3D and 4D
  - Rotation: 0, 90, 180 and 270.
  - Edit VOI: on/off
  - Reset VOI: on/off
  - Full Reset: on/off
  - Split-screen Mode: 1, 2 and 4
  - Render Mode: Surface, Skeleton, Depth, Real Skin, Inverse, Max and Min.
  - Light Source Render Imaging
  - View Orientation: top/bottom, bottom/top, left/right, right/left, front/back and back/front.
  - Threshold: 1-255, 1/step
  - Brightness: 0%-100%, 2%/step
  - 2D ChromaMap: 9 types

- 3D ChromaMap: 9 types
- OmniView
- 3D Layout
  - ◆ 3 Slice (Stereo Triplanar Imaging)
  - ◆ Niche (Niche Imaging)
- Reset: All, Reset Curve, Reset Orientation
- Active Profiles: A, B, C, 3 Sections/Niche
- Niche View: internal and external
- MagiCut
  - CutMode: Eraser, Ellipse, Rectangle, Polygon
  - CutPos: Inside, Outside
  - Undo: undo, undo all
- MPR Measurement
  - Measurement Methods: distance, tracing, area, angle, volume, length ratio and area ratio.
  - Support for application measurement projects.
  - Available for all probes.
  - Acquisition Methods: B-mode, C-mode and Power-mode.

#### 4.14 Pano

- Available for all probes.
- Acquisition Methods: B-mode, C-mode and Power-mode.

#### 4.15 Elasto

- Support for multiple probes.
- Support for strain rate measurements.
- Pressure Indicator: support for frame-by-frame view of image pressure levels.
- Display Formats: Dual real-time
- Elasto map: 0-3, 4 types
- Flip: U/D, L/R
- Persist: 0-3
- Contrast: 0-13
- Remove: 0-2

#### 4.16 Zoom

- Zoom: up to 0.8x-10.0x for front-end, and 0.8x-10.0x for back-end.
- Full-screen Zoom: normal image, zoom in on standard image area to full screen, zoom in on image area to full screen only.

#### 4.17 QSave

- Intended for QSave of conditions after image parameter adjustment.
- Support for saving and exporting.

#### 4.18 Biopsy Enhancement

- Biopsy Needle Display Enhancement
- Available for line\Convex array probes.
- Steer: Adjustable at 30°, 45° and 60°

### 5 Cine Review and Raw Data Processing

#### 5.1 Cine Review

- Available for all modes.
- Support for manual Review frame by frame and automatic Review with adjustable speeds: 1/4, 1/2, 1, 1.5, 2 and 4.
- Maximum cine memory capacity of 6500 fps or 180s (mode-related).
- Maximum 4D cine memory capacity of 80 sec.
- Support for backward and forward storage and possible time length preset.
- Frame Contrast: Intended for comparing single frame images.
- Image Comparison: Support for comparing cine and single frames
- Skip to first and last frames: One-click for the skip to the initial frame and the last frame

## 5.2 Raw Data Processing

- B-mode Gain
  - Dynamic Range Gray map
  - Gray scale  $\geq 256$
  - Tint map
  - Flip
- M mode
  - Dynamic Range Gain
  - Gray map Tint map
- Color mode Gain
  - Flip
  - Color Map
- PW mode Flip
  - Dynamic Range Gray map
  - Tint map

## 6 Measurement/Analysis and Report

### 6.1 General Measurement

- Depth
- Angle
- Distance
- Area
- Perimeter
- Volume
- Dual Distance
- Parallel Lines
- Length of Curve
- Length Ratio
- Area Ratio
- IMT
- Histogram
- Cross Section
- Strain
- Strain Ratio
- Color Velocity
- Head Area
- Abdomen Area
- M mode
  - Distance

- Time
- Slope
- Heart Rate
- AC Velocity
- Velocity

- Doppler Mode
  - Velocity
  - Acceleration
  - Time
  - Heart Rate
  - Speed Ratio
  - VTI Ratio
  - D Tracing
  - PS/ED
  - Blood Flow

### 6.2 Clinical Measurement Package

- Abdomen
- B Mode
  - Liver
  - Common Hepatic Duct
  - Internal Diameter of Portal Vein
  - Gallbladder
  - Common Bile Duct
  - Pancreas
  - Spleen
  - Kidney: length, width, thickness and cortical thickness
  - Adrenal: length and width
  - Abdominal Aortic Diameter Stenosis Ratio
  - Abdominal Aortic Area Stenosis Ratio
  - Iliac Artery Diameter
  - Bladder
  - Prostate
  - Spermatophore
  - Internal Diameter of Splenic Vein
  - Abdominal Aortic Aneurysm

- Renal Cysts Doppler Mode
- Renal Vessels
- Abdominal Artery/Vein
- Renal Aorta
- Segmental Artery
- Interlobar Artery
- Arcuate Artery
- Renal Vein
- Gynecology
  - Uterine Body: length, width, thickness, endometrial thickness.
  - Cervix: length, width and thickness.
  - Ovary: length, width and thickness at the left/right side.
  - Follicles: 1-8
  - Uterine Fibroids: Distances 1, 2 and 3.
  - Ovarian Cysts: Distances 1, 2 and 3.
- Obstetrics
  - Early Pregnancy: gestational sac, yolk sac, cephalic and breech diameter, biparietal diameter, head circumference, abdominal circumference, humeral length, cervical hyaline layer, cranial hyaline layer, nasal length and amniotic fluid depth.
  - Early Pregnancy Heartbeats: Ao Diam, LVOT Diam, RVOT Diam, RVID Diam, RVIDd, IVSd, LVIDd, RVIDs, IVSs, LVIDs, LV Diam, LV Area, RV Area, LA Diam, LA Area, Cardiac Area, RV Diam, RA Diam and MPA Diam.
  - Medium Pregnancy
  - Fetal Biology: biparietal diameter, occipital diameter, head circumference, abdominal circumference, femoral length, humeral length, placental thickness, transverse abdominal diameter, posterior abdominal diameter and cervical fold.
  - Amniotic Fluid Indexes: AF1, AF2, AF3 and AF4
- Fetal Bone Length: femur length, clavicle length, humerus length, radius length, ulna length, tibia length and fibula length
- Advanced Measurements: thick trunk diameter, transverse trunk diameter, transverse trunk section, chest diameter, cardiac circumference, cardiac area, chest circumference, vertebral length, cerebellar diameter, posterior cranial fossa pool, lateral cerebral ventricle, cerebral hemisphere, external eye spacing, internal eye spacing, orbit, ear length, facial angle, clavicular length, ulnar length, radial length, tibial length, fibular length, mid-shaft phalanges, foot length, umbilical vein diameter, fetal kidney length and cervical length
- Fetal Heart: Ao Diam, LVOT Diam, RVOT Diam, RVID Diam, RVIDd, IVSd, RVIDs, LVIDd, RVIDs, IVSs, LVIDs, LV Diam, LV Area, RV Area, LA Diam, LA Area, Cardiac Area, RV Diam, RA Diam, MPA Diam and IVS.
- Late Pregnancy: Same with Medium Pregnancy
- Medium and Late Pregnancy Heartbeats: Same with Early Pregnancy
- Z Score:
  - Left ventricular long-axis (AV Diam, Ao Asc Diam), aortic arch (AV Diam, Ao Asc Diam, Ao Desc Diam, IVC Diam), aortic short axis (PV Diam, MPA Diam, RPA Diam, LPA Diam), oblique aortic short axis (Duct Art Diam) and four-chamber heart (TV Diam, RVIDd, RV Diam, RV

Area, MV Diam, LV Diam, LVIDd, LV Diam and LV Area)

- Cardiac:

-Distance:

LA/Ao, RVA Wd, RVDd, IVSd, LVIDd, LVPWd, IVSs, LVIDs, LVPWs, LV Major, LV Minor, LA Major, LA Minor, LA Diam, RA Major, RA Minor, RV Major, RV Minor

-Area:

LV Area(d), LV Area(s), RV Area(d), RV Area(s), LA Area, RA Area

-Volume & Myocardial Weight:

LA Vol(A-L): LA apical, LAA(A2C), LAA(A4C)

LA Vo (I Simpson): LAA(A2C), LAA(A4C)  
RA Vol(A4C)

LV Mass(Cube): IVSd, LVIDd, LVPWd

LV Mass(A-L): LVAd apical, LVAd sax Epi, LVAd sax Endo

LV Mass(T-E): LVAd sax Epi, LVAd sax Endo, a, d

LV Mass: LVAd sax MV, LVAs sax MV

- Vessels:

Ao Diam, Ao Arch Diam, Ao Asc Diam, Ao Desc Diam, LVOT Diam, MPA Diam, RVOT Diam, IVC Diam(Insp), IVC

Diam(Expis)

-Left Ventricular Function: Simpson:

A2Cd, A2Cs, A4Cd, A4Cs, HRLV(2D): LVIDd, LVIDs, HR

-AutoEF

-Aortic Valve:

AV Diam, ACS, AVA, AVA(VTI) [LVOT Diam, LVOT VTI, AV VTI], PISA AR [AR Rad, AR Als Vel, AR VTI], CO(LVOT) [LVOT Diam, LVOT VTI, AV HR]

-Mitral Valve:

MV Diam, MVA, MCS, MV EPSS, VA(VTI) [LVOT Diam, LVOT(VTI), MV VTI], PISA MR [MR Rad, MR Als Vel, MR VTI]

-Pulmonary Valve:

PV Diam, PISA PR [PR Rad, PR Als Vel, PR VTI], CO(RVOT) [RVOT Diam, RVOT VTI, PV HR]

-Tricuspid Valve:

TV Diam, TVA, PISA TR [TR Rad, TR Als Vel, TR VTI], RVSP [TR Vmax, RAP]

-PISA:

PISA MR [MR Rad, MR Als Vel, MR], PISA AR [AR Rad, AR Als Vel, AR VTI], PISA TR [TR Rad, TR Als Vel, TR VTI], PISA PR [PR Rad, PR Als Vel, PR VTI]

-Bypass:

VSD Diam, ASD Diam, PDA Diam, PFO Diam Urology

- Prostate: Length, Width and Thickness

-Pre/posterior bladder: Length Diameter, Width Diameter and Thickness Diameter

-Kidneys: length, width, thickness, renal cortical thickness and renal cysts.

-Adrenal: Length and Width.

-Testicles Length, Width and Thickness

-Spermatophore: Length, Width and Thickness Vessels

-Abdominal Vessels: portal vein, splenic vein, splenic artery, and aortailiac artery

-Carotid Artery

-Upper Extremity Artery

-Upper Extremity Vein

-Lower Extremity Artery

-Lower Extremity Vein

- Small Parts

-Thyroid: Length, Width, and Thickness.

-Isthmus Thick Diameter

-Masses

-Nodules

-Cysts

- Nerve

2D General Measurements

- Distance

- Angle

- Area
- Volume
- Length Ratio

- Area Ratio

#### M General Measurements

- Distance
- Time
- Slope
- HR

#### Doppler General Measurements

- Time
- HR
- Velocity
- Acceleration
- D Trace
- S/D

### 6.3 IMT

- Carotid Intima-Media Thickness Measurement
- Automatically calculates thickness after the sampling frame selection.
- Support of IMT in the carotid, internal carotid, external carotid and bifurcation arteries.

### 6.4 Automated Obstetric Measurements

- Intended for reducing the user's measurement time and increasing efficiency.

- Support for BPD (biparietal diameter), HC (head circumference), OFD (occipital frontal diameter), AC (abdominal circumference), HL (humerus length) and FL (femur length).
- Support for manual modification by the user.

### 6.5 Reports

- Specialized reports for each area of application.
- Editable measurements in the reports.
- Optional images.
- Presetable information including Hospital.
- Exportable reports in PDF/Word format.

\*All measurements are not listed in this section. For

more information on measurements, please refer to the User Manual.

## 7 Exam Storage and Management

### 7.1 Exam Storage

- 1TB mechanical hard drive + 256GB solid state drive, remaining space of 800GB intended for storing the patient information.
- Storage of up to 113,664 single-frame images.
- Direct storage of digital single frames and cine files in each mode.

### 7.2 Exam Management

- Patient Information Management System
- Patient Exam Inquiry/Access

- Support for viewing the current and historical exams.
- Support for creating new exams, activating exams, continuing exams, and ending exams.
- Support for measurements of stored images and cine.
- Export images in BMP/JPEG/AVI format.
- Support for backing up patient data to USB devices and DVD-ROMs.

## 8 Connectivity

### 8.1 Network Connection Support

### 8.2 DICOM 3.0 basic

### 8.3 DICOM Worklist

### 8.4 DICOM Structure Report

## 9 Probes

### 9.1 Convex Array Probe

- C5-2A
  - Application: Abdomen, gynecology, obstetrics, and pediatrics
  - Bandwidth: 2-5MHz
  - Elements: 128
  - (Max.) Scan Range: 74.16°
  - Radius: 49.27mm
  - Depth: 5.0-40.0cm
  - Dimensions: 72mm×27mm×135mm
  - B-mode Frequency Points: 1.8M, 2M, 2.5M, 3.3M, and 4M
  - Harmonic Frequency Points: 3.5M, 4M, and 5M
  - Doppler Frequency Points: 2.5M and 3.3M

- SC7-1E

-Application: Abdomen, gynecology, obstetrics, and pediatrics

-Bandwidth: 1.7-7.1MHz

-Elements: 160

-(Max.) Scan Range: 63.8°(with extension to 86°)

-Radius: 53mm

-Depth: 5.0-41.0cm

-Dimensions:

64.5mm×17mm×104.9mm

-B-mode Frequency Points: 1.7-2.8 MHz, 1.3-4.7 MHz, 1.5-5.5 MHz, 1.7-6.3 MHz, 3.3-5.8 MHz

-Harmonic Frequency Points: 2.0-5.0 MHz, 2.3-5.7MHz, 2.9-7.1MHz

-Doppler Frequency Points: 2.0 MHz, 2.5 MHz, 3.3 MHz, 4.0 MHz, 4.3 MHz

- C5-1E

-Application: Abdomen, gynecology, obstetrics, and pediatrics

-Bandwidth: 1-5MHz

-Elements: 192

-(Max.)Scan Range: 60°

-Radius: 59.5mm

-Depth: 5.0-40.0cm

-Physical Dimensions: 78mm×25.5mm×150mm

-B-mode Frequency Points: 1.8M, 2.5M, 3.3M, 4M and 5M

-Harmonic Frequency Points: 3.5M, 4M and 5M

-Doppler Frequency Points: 2.5M and 3.3M

### 9.2 Volume Probe

- DC6-2A

-Application: Abdomen, gynecology, obstetrics, and pediatrics

-Bandwidth: 2-6MHz

-Elements: 128

-(Max.)Scan Range: 68.1°

- Curvature Radius: 39.45mm
- Swing Radius: 19.8mm
- Depth: 5.0-40.0cm
- Dimensions: 75.4mm×52mm×161.7mm
- B-mode Frequency Points: 2M, 2.5M, 3.3M, and 4M
- Harmonic Frequency Points: 4M and 5M
- Doppler Frequency Points: 2.5M and 3.3M

- DC7-2A

- Application: Abdomen, gynecology, obstetrics, and pediatrics
- Bandwidth: 2-7MHz
- Elements: 128
- (Max.) Scan Range: 68.75.
- Curvature Radius: 40mm
- Swing Radius: 19.8mm
- Depth: 5.0-40.0cm
- Dimensions: 65.3mm×44.5mm×148mm
- B-mode Frequency Points: 2.5M, 3M, 4M, 5M, and 6M
- Harmonic Frequency Points: 5M and 6M
- Doppler Frequency Points: 3M and 3.3M

### 9.3 Line Array Probe

- L12-3E

- Application: Abdomen, superficial tissues, small parts (excluding eyes), peripheral vasculature, and nerves
- Bandwidth: 3-12MHz
- Elements: 192
- (Max.) Scan Range: 38.5mm
- Depth: 1.0-16.0cm
- Dimensions: 53.5mm×19mm×140mm
- B-mode Frequency Points: 4.3M, 6.5M, 8M, 10M, and 12M
- Harmonic Frequency Points: 8.6M, 10M, and 10.8M
- Doppler Frequency Points: 5M and 6M

- L12-3EB

- Application: Abdomen, superficial tissues, small parts (excluding eyes), peripheral vasculature, and nerves
- Bandwidth: 3.6-15.3MHz
- Elements: 192
- (Max.) Scan Range: 38.5mm
- Depth: 1.0-16.0cm
- Dimensions: 53.5mm×19mm×140mm
- B-mode Frequency Points: 3.6 to 5.0 M, 3.8-9.2 M, 4.6-11.4 M, 5.8-14.2 M, 10.0-13.9 M
- Harmonic Frequency Points: 5.0-12.2M, 5.8-14.2M,6.3-15.3M
- Doppler Frequency Points: 5.0M, 5.4M, 6.0M, 7.0M, 8.0M

- L15-5E

- Application: Abdomen, superficial tissues, small parts (excluding eyes), peripheral vasculature, and nerves
- Bandwidth: 5-15Hz

- Elements: 192
- (Max.) Scan Range: 38.4mm
- Depth: 1.0-16.0cm
- Dimensions: 53.5mm×19mm×140mm
- B-mode Frequency Points: 6M, 7.5M, 8.5M, 10M and 12M
- Harmonic Frequency Points: 10M and 12M
- Doppler Frequency Points: 6M and 7M
- Doppler Frequency Points: 5M and 6M

- L15-5EB

- Application: Abdomen, superficial tissues, small parts (excluding eyes), peripheral vasculature, and nerves

-Bandwidth: 4.5-19.3Hz

-Elements: 192

-(Max.) Scan Range: 38.4mm

- Depth: 1.0-16.0cm

-Dimensions: 53.59mm×18.6mm×100mm

-B-mode Frequency Points: 4.5-7.6 MHz, 4.7-10.3 MHz, 5.3-11.7 MHz, 6.3-13.8 MHz, 9.0-15.0 MHz

-Harmonic Frequency Points: 6.3-13.8 MHz, 6.8-14.9 MHz, 7.5-16.5 MHz, 8.1-17.9 MHz, 8.8-19.3 MHz

-Doppler Frequency Points: 5.2 MHz, 6.0 MHz, 7.0 MHz, 7.5 MHz, 8.0 MHz

- L9-3A

-Application: Abdomen, superficial tissues, small parts (excluding eyes), peripheral vasculature, and nerves

-Bandwidth: 3-9MHz

-Elements: 128

-(Max.) Scan Range: 38.4mm

- Depth: 1.0-16.0cm

-Dimensions: 60mm×26.6mm×130.1mm

-B-mode Frequency Points: 4.3M, 5M, 6.5M, 8M and 9.2M

-Harmonic Frequency Points: 8M and 8.6M

-Doppler Frequency Points: 4.3M and 5M

#### 9.4 Phased Array Probe

- P8-2E

-Application: Cardiac, ped cardiac, and brain

-Bandwidth: 2-8MHz

-Elements: 96

-(Max.)Scan Angle: 90°

- Depth: 5.0-40.0cm

-Dimensions: 31.13mm×27.6mm×90.74mm

-B-mode Frequency Points: 3.5M, 4M, 5M, 6M, and 7.5M

-Harmonic Frequency Points: 3M, 3.45M, and 4M.

-Doppler Frequency Points: 2.5M and 3M

-CW Frequency Points: 2.5M and 3M

- P4-1E

-Application: Cardiac, ped cardiac, and brain

-Bandwidth: 1-4MHz

-Elements: 96

-(Max.)Scan Angle: 90°

- Depth: 5.0-40.0cm

-Dimensions: 34.9mm×26.8mm×130mm

-B-mode Frequency Points: 1.8M, 2M, 2.5M, 3M, and 4M

-Harmonic Frequency Points: 3.5M, 4M, and 5M

-Doppler Frequency Points: 2M and 2.5M

-CW Frequency Points: 2M and 2.5M

- P5-1A

-Application: Cardiac, ped cardiac, and brain

- Bandwidth: 1-5MHz
- Elements: 80
- Scan Angle: 90°
- Depth: 5.0-40.0cm
- Dimensions: 36.01mm×28 mm×99 mm
- B-mode Frequency Points: 1.8M, 2M, 3M, 4M, 4.2M
- Harmonic Frequency Points: 1.5M, 1.75M, 2M
- Doppler Frequency Points: 1.9M, 2.5M
- CW Frequency Points: 1.9M, 2.5M

#### 9.5 Endo-cavity probe

- E9-3E
  - Application: GYN and URO, transvaginal, and transrectal
  - Bandwidth: 3-9MHz
  - Elements: 192
  - Scan Angle: 200°
  - Depth: 1.0-16.0cm
  - Dimensions: 22.80mm ×17.73mm ×334.96mm
  - Radius: 10.32mm
  - B-mode Frequency Points: 6M, 7M, and 8.5M
  - Harmonic Frequency Points:3.5M and 4M
  - Doppler Frequency Points: 4M and 5M
- E9-4B
  - Application: GYN and URO, transvaginal, and transrectal
  - Bandwidth: 4-9MHz
  - Elements: 128
  - Scan Angle: 149°
  - Depth: 1.0-16.0cm
  - Dimensions: 17.8mm×17.8mm×310mm
  - Radius: 10mm
  - B-mode Frequency Points: 4.3M, 5M, 6.5M, 8M, and 9.2M
  - Harmonic Frequency Points: 8.6M and 10M
  - Doppler Frequency Points: 4.3M and 5M

#### 9.6 Micro-convex Probe

- MC9-4A
  - Application: Abdomen, cardiac, and ped cardiac
  - Bandwidth: 4-9MHz
  - Elements: 128
  - Scan Angle: 103°
  - Depth: 1.0-16.0cm
  - Dimensions: 35mm×23.5mm×131.5mm
  - Radius: 14.2mm
  - B-mode Frequency Points: 4M, 5M, 6.5M, 7.5M, and 10M
  - Harmonic Frequency Points: 8M and 10M
  - Doppler Frequency Points:5M and 7.5 M
- MC11-3A
  - Application: Abdomen, cardiac, and ped cardiac
  - Bandwidth: 3-11MHz
  - Elements: 128
  - Scan Angle: 100°
  - Depth: 1.0-16.0cm
  - Dimensions: 34mm×24.40mm×96mm
  - Radius: 15.5mm
  - B-mode Frequency Points: 4M, 5M, 6.5M, 7.5M, and 9.5M
  - Harmonic Frequency Points: 4M and 5M
  - Doppler Frequency Points: 4M and 4.6M

## 10 Peripherals & Accessories

### 10.1 Printer

- B/W Heat Transfer Printer: UP-D897
- Color Heat Transfer Printer: UP\_D25MD

### 10.2 Built-in DVD

### 10.3 Gel Warmer

- Warm gel with 2 temperature options
- Easy to disassemble for cleaning
- Temperatures: 37°C and 40°C
- Temperature Control Accuracy:  $\pm 3^{\circ}\text{C}$
- Overvoltage and over-temperature protection indication
- Power switch: on/off
- Dimensions: 77.8mm (W) x 79mm (D) x 151.4mm (H)
- Weight: about 380g

### 10.4 Foot Switch

- Number of pedals: 1 pedal/3 pedals.
- Interface: PAG.M0.4GLAC39A3 Pedal
- Support for user-defined features
- Protection Level: IPX8 (1.2m)

### 10.5 ECG

- 6-pin, AHA/IEC and 3-lead
- ECG Waveform d=Display: on/off
- Gain: 0-3, 1/step
- Sweep Speed: 0-2,1/step

### 10.6 Barcode Scanner

- Laser Barcode Scanner
- Dimensions: 1D
- 1D Model: LS2208

## 11 System I/O

### 11.1 Video/Audio Input

- Built-in Microphone: 1
- External Microphone Interface (3.5mm): 1

### 11.2 Video/Audio Output

- Composite Video Output/RCA: 1

- S-terminal Output: 1
- HDMI Interface: 1
- VGA Output: 1
- DVI-D: 1
- Audio Output: 1(Stereo)

### 11.3 Physiological Signal Input

- Support for ECG signals
- ECG: 1(built-in)

### 11.4 Other I/Os

- USB: 6
- Network Port: 1
- Printer Control Port: 1
- Foot Switch Interface: 1

## 12 Security and Certification

### 12.1 Applicable Standards

- MDR 2017/745
- EN ISO 15223-1:2016
- EN 1041:2008+A1:2013
- EN ISO 13485:2016
- ISO 12052:2017
- EN ISO 14971:2019
- ISO 10993-1:2018
- ISO 10993-5:2009
- ISO 10993-10:2010
- EN 60601-1:2006/A1:2013
- EN 60601-1-2: 2015
- EN 60601-1-6:2010
- EN60601-2-37:2007+A1:2015
- RoHS
- WEEE
- Package and transport standard: ISTA 3B series